



Part 21

Design Organization Approval for Products or Changes to Products

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SUBPART A

Design Organization Approval for Products or Changes to Products

21.1 Applicability

This subpart prescribes procedural requirements for the approval of design organizations designing products or changes to products and rules governing the holders of such approvals.

21.2 Definitions

Anticipated Operating Conditions.

Those conditions which are known from experience or which can be reasonably envisaged to occur during the operational life of the aircraft taking into account the operations for which the aircraft is made eligible, the conditions so considered being relative to the meteorological state of the atmosphere, to the configuration of terrain, to the functioning of the aircraft, to the efficiency of personnel and to all the factors affecting safety in flight. Anticipated operating conditions do not include:

- (a) Those extremes which can be effectively avoided by means of operating procedures; and
- (b) Those extremes which occur so infrequently that to require the Standards to be met in such extremes would give a higher level of airworthiness than experience has shown to be necessary and practical.

Appropriate airworthiness requirements.

The comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration (see 3.2.2 of Part II of this Annex).

Approved.

Accepted by a Contracting State as suitable for a particular purpose.

Configuration

(as applied to the aero plane). A particular combination of the positions of the moveable elements, such as wing flaps and landing gear, etc., that affect the aerodynamic characteristics of the aero plane.

Design landing mass.

The maximum mass of the aircraft at which, for structural design purposes, it is assumed that it will be planned to land.

Design take-off mass.

The maximum mass at which the aircraft, for structural design purposes, is assumed to be planned to be at the start of the take-off run.

Design taxiing mass.

The maximum mass of the aircraft at which structural provision is made for load liable to occur during use of the aircraft on the ground prior to the start of take-off.

Factor of safety.

A design factor used to provide for the possibility of loads greater than those assumed, and for uncertainties in design and fabrication.

Landing surface.

That part of the surface of an aerodrome which the aerodrome authority has declared available for the normal ground or water run of aircraft landing in a particular direction.

Limit loads.

The maximum loads assumed to occur in the anticipated operating conditions.

Load factor.

The ratio of a specified load to the weight of the aircraft, the former being expressed in terms of aerodynamic forces, inertia forces, or ground reactions.

Major Changes.

Major repairs or alteration

Power plant.

The system consisting of all the engines, drive system components (if applicable), and propellers (if installed), their accessories, ancillary parts, and fuel and oil systems installed on an aircraft but excluding the rotors for a helicopter.

Rendering (a Certificate of Airworthiness) valid. The action taken by a Contracting State, as an alternative to issuing its own Certificate of Airworthiness, in accepting a

Certificate of Airworthiness issued by any other Contracting State as the equivalent of its own Certificate of Airworthiness.

Standard airworthiness certificate categories

- (a) The normal category is limited to small airplanes intended for non aerobatics operation. Aerobatics operation includes:
 - (1) Any maneuver incident to normal flying;
 - (2) Stalls (except whip stalls); and
 - (3) Lazy eights, chandelles, and steep turns, in which the angle of bank is not more than 60 degrees.
- (b) The utility category is limited to small airplanes intended for limited acrobatic operation. Airplanes certificated in the utility category may be used in any of the operations covered under paragraph (a) of this section and in limited acrobatic operations. Limited aerobatics operation includes:
 - (1) Lazy eights, chandelles, and steep turns, in which the angle of bank is more than 60 degrees; and
 - (2) Spins (if approved for the particular type of airplane).
- (c) The acrobatic category is limited to small airplanes intended for use without restrictions other than those shown to be necessary as a result of required flight tests.
- (d) The commuter category is limited to multiengine airplanes that have a seating configuration, excluding pilot seats, of 19 or less, and a maximum certificated takeoff weight of 19,000 pounds or less. The commuter category operation is limited to any maneuver incident to normal flying, stalls (except whip stalls), and steep turns, in which the angle of bank is not more than 60 degrees.
- (e) Except the commuter category, Small airplanes may be certificated in more than one category if the requirements of each requested category are met.
- (f) The transport category is limited to those airplanes in which the State of manufacture has granted design approval as an airplane suitable for use in commercial air transportation.

Standard atmosphere.

An atmosphere defined as follows:

- (a) The air is a perfect dry gas;
- (b) The physical constants are:
 - Sea level means molar mass:
 $M_0 = 28.964420 \times 10^{-3} \text{ kg mol}^{-1}$
 - Sea level atmospheric pressure:
 $P_0 = 1013.250 \text{ hPa}$
 - Sea level temperature $T_0 = 15^\circ\text{C}$
 $T_0 = 288.15 \text{ K}$
 - Sea level atmospheric density: $P_0 = 1.2250 \text{ kg m}^{-3}$
 - Temperature of the ice point:
 $T_i = 273.15 \text{ K}$ -Universal gas constant: $R^* = 8.31432 \text{ JK}^{-1}\text{mol}^{-1}$
- (c) The temperature gradients are:

Geopotential altitude (km) Temperature gradient

From	To	(Kelvin per standard geopotential kilometre)-
5.0	11.0	
6.5	11.0	
20.0	0.0	
20.0	32.0	1.0+
32.0	47.0	2.8+
47.0	51.0	0.0
51.0	71.0	2.8-
71.0	80.0	2.0-

Take-off surface.

That part of the surface of an aerodrome which the aerodrome authority has declared available for the normal ground or water run of aircraft taking off in a particular direction.

Ultimate load.

The limit load multiplied by the appropriate factor of safety.

21.3 Eligibility

The ECAA will only accept an application for a design organization approval under this subpart in association with an application for a type certificate, a supplemental type certificate or for a technical standard order authorization.

21.5 Application

Each application for a design organization approval must be made in a form and manner acceptable to the ECAA and must include an outline of the information required by paragraph 21.11 of this subpart, and the terms of approval requested to be issued under paragraph 21.19 of this subpart.

21.7 Requirements for issue

- (a) The ECAA issues a design organization approval when it is satisfied that compliance has been shown with the applicable requirements of this subpart.
- (b) From January 2020, ECAA will issues a design organization approval under Part 21 Appendix (A) when it is satisfied that compliance has been shown with the applicable requirements of Appendix (A)

21.9 Design assurance system

- (a) The applicant must show that the organization has established and can maintain a design assurance system for the control and supervision of the design, and of design changes, of products covered by the application. The design assurance system must be such as to enable the organization:
 - (1) To ensure that the design of the products, or the design change thereof, comply with the application requirements;
 - (2) To ensure that its responsibilities are properly discharged in accordance with:
 - (i) The appropriate ECAA regulations relating to type certification and production certification; and
 - (ii) The terms of approval issued under paragraph 21.19 of this subpart.
 - (3) To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring must include a feedback system to a person or a group of persons having the responsibility to ensure corrective actions.
- (b) The design assurance system must include an independent checking function of the showings of compliance on the basis of which the organization submits compliance statements and associated documentation to the ECAA.
- (c) The applicant must specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractors according to methods which are the subject of written procedures.

21.11 Data requirements

- (a) The applicant must furnish a handbook to the ECAA which must describe, (either directly or by cross-reference), the organization, and the products or changes to products to be designed and the relevant procedures.
- (b) Where any parts or appliances or any changes to the products are designed by partner organizations or subcontractors of the applicant, the handbook must include a statement of how the applicant will be able to give, for all parts and appliances, the assurance required in paragraph 21.9(b), and must contain, directly or by cross-reference, description and information on the design activities and organization of those partners or subcontractors, as necessary to establish this statement.
- (c) The handbook shall be amended as necessary to remain an up-to-date description of the organization, and copies of amendments shall be supplied to the ECAA.
- (d) The applicant must furnish a statement of the qualifications and experience of the management staff and other persons in the organization responsible for making decisions affecting airworthiness.

21.13 Requirements of approval

The information submitted in accordance with paragraph 21.11 must show that, in addition to complying with paragraph 21.9:

- (a) The staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation facilities and equipment are adequate to enable the staff to achieve the airworthiness objectives for the product; and
- (b) There is full and efficient coordination between departments and within departments in respect to airworthiness matters.
- (c) System software for airplanes over 5700 kg for which application for certification was submitted on or after 2 March 2004, shall be designed and validated such as to ensure that the systems in which they are used perform their intended functions with a level of safety that complies with the requirements of EAC 21-33.

21.14 Safety Management System

Design Organization Approval holder under this part shall show a complete compliance with ECAR Part 19, by establishing a safety management system that is acceptable to the ECAA, maintaining it, and completing its implementation as per the chronology mentioned in this regulation.

21.15 Changes in design assurance system

After the grant of a design organization approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness of the product must be approved by the ECAA. An application for approval shall be submitted in writing to the ECAA and the design organization shall show, to the satisfaction of the ECAA, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with the requirements of approval after implementation.

21.17 Transferability

Except for a change in ownership of the organization, which must be regarded as a major change, and must therefore comply with 21.21, a design organization approval is not transferable.

21.19 Terms of approval

Terms of approval are issued as part of a design organization approval. This lists the types of design work, the categories of products and the specific products or changes thereof for which the design organization approval, and the functions and duties that the organization is approved to perform in regard to the airworthiness of products.

21.21 Change of the terms of approval

Each change to the approval must be approved by the ECAA. Application for a change to the terms of approval must be made in writing to the ECAA. The applicant must comply with the applicable requirements of this subpart.

21.23 Investigations

- (a) Each holder of a design organization approval shall make arrangements that allow the ECAA to make any investigations, including investigations of partners and/or subcontractors, necessary to determine compliance with the applicable regulations of this subpart.
- (b) The applicant must allow the ECAA inspector(s) to make any inspections and any flight and ground tests necessary to check the validity of the compliance statements submitted by the applicant.

21.25 Duration

- (a) A design organization approval remains valid until:
 - (1) Surrendered by the holder of the design organization approval;
 - (2) Suspended or revoked by the ECAA; or
 - (3) A termination date established by the ECAA.
- (b) The ECAA may restrict, suspend or revoke a design organization approval if it:
 - (1) Finds that the organization does not comply with the applicable requirements of this subpart;

- (2) Is prevented by the holder or any of its partners and/or subcontractors to perform the investigations in accordance with this Part; or
- (3) Finds evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval.

21.27 Privileges

- (a) The following compliance documents must be submitted by the organization for the purpose of:
 - (1) Obtaining a type certificate or approval of a major change to a type design;
 - (2) Obtaining a supplemental type certificate; or
 - (3) Obtaining a technical standard order authorization may be accepted by the ECAA without further verification.
- (b) The holder of a design organization approval may, within the terms of approval:
 - (1) Classify design changes as “major” or “minor” under a procedure agreed with the ECAA;
 - (2) Obtain approval of minor design changes under modification procedures agreed with the ECAA and issue corresponding information or instructions containing a statement that the technical content is approved;
 - (3) When a major change to a type design has been approved by the ECAA, issue corresponding information or instructions containing a statement that the technical content is approved;
 - (4) Obtain approval of documentary changes to the MMEL and to the aircraft flight manual under a procedure agreed with the ECAA, and issue such changes containing a statement that the change is approved; and
 - (5) Issue information or instructions not associated with changes except for required actions when the ECAA considers that issuance of an airworthiness directive is necessary to correct the unsafe condition, or to require the performance of an inspection, and so that the holder of approval shall:
 - (i) Propose the appropriate design changes and/ or required inspections and submit details of these proposals to the ECAA for approval; and
 - (ii) Following the ECAA's approval of the proposed design changes or inspections, make available to all known operators appropriate descriptive data and accomplishment instructions.

21.29 Responsibility of holder of design organization approval

The holder of a design organization approval shall:

- (a) Maintain the handbook in conformity with the design assurance system;
- (b) Ensure that this handbook is used as a basic working document within the organization;
- (c) Determine that the design of products, or changes thereof, as applicable, comply with applicable requirements and have no unsafe feature; and
- (d) Submit to the ECAA statements and associated documentation.

21.31 Failure malfunctions and defects, and continuing airworthiness information

- (a) System for collection, investigation and analysis of data:

The holder of a type certificate or supplemental type certificate, shall have a system for collecting, investigating and analyzing information related to occurrences that may involve failures, malfunctions or defects in any product, part or appliance covered by the type certificate or supplemental type certificate. The holder of a type certificate or supplemental type certificate for a product shall provide information about the system developed in accordance with this sub-paragraph to each known operator of each product.
- (b) Reporting to the ECAA:
 - (1) The holder of a type certificate, supplemental type certificate, shall report to ECAA any failure malfunction or defect in a product, part, or appliances covered by the type certificate, supplemental type certificate or airworthiness of which he is aware and which has resulted or may result in an unsafe condition; and
 - (2) Reports must be made in accordance with Part 39 subpart (B)

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- (c) Investigation of reportable occurrences: Whenever the analysis made under subparagraph (a) of this paragraph shows that the reported occurrence involves a failure, malfunction defect arising from a deficiency in the type design, or a manufacturing deficiency, the type certificate holder or the supplemental type certificate holder, authorization, as appropriate, shall investigate the reason for the deficiency and report to the ECAA the result of this investigation and any action he is taking or proposes to take to correct this deficiency. If the ECAA finds action is required to correct the deficiency in existing product, parts or appliances, the type certificate holder or the supplemental type certificate holder as appropriate, shall submit to the ECAA the necessary data related to the corrective action.
- (d) Required action, design change or inspection: When the authority considers that issuance of an airworthiness directive is necessary to correct the unsafe condition or to require the performance of an inspection, the holder of the certificate, approval or authorization shall:
- (1) Propose the appropriate design changes and/or required inspections and submit details of these proposal for ECAA approval; and
 - (2) Following the ECAA approval of the proposed design changes or inspection, make available to all known Operators appropriate descriptive data and accomplishment instructions.

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.
- (c) The ECAA will apply appropriate requirements that will give at least an equivalent level of safety to ensure that the design approval is withheld if the aircraft is known or suspected to have unsafe features.
- (d) The ECAA will take whatever other steps necessary to ensure that the design approval is withheld if the aircraft is known or suspected to have dangerous features not specifically guarded against by those requirements.

21.49 Designation of applicable airworthiness requirements

- (a) The applicable requirements for the issue of a type certificate for an aircraft, aircraft engine, or propeller are:
 - (1) The applicable airworthiness requirements that is 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 approved 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, noise characteristics, fuel venting, and exhaust emissions (where applicable) 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 inspector(s) 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, noise characteristics, fuel venting, and exhaust emissions 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, and 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) The holder of type certificate for a product shall furnish a continuing structure integrity program to ensure the airworthiness of aircraft. The program shall include specific information concerning corrosion prevention and control.
- (c) In addition, changes to the instruction for continued airworthiness shall be furnished to ECAA, and all known operators of the product.

SUBPART C Changes to the Type Certificate

21.91 Applicability

This subpart prescribes procedural requirements for the approval of changes to type design and type certificates. “ See also subpart B ”.

21.93 Classification of changes in type design

Changes in type design are classified as minor and major. A “minor change” is one that has no applicable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are “major changes”. All changes “major and minor” must be approved in accordance with items 21.99 or 21.101 as appropriate.

21.95 Eligibility

- (a) The ECAA will only accept an application for approval of a major change to a type design under subpart B from the type certificate holder; all other applicants for a major change to a type design must apply under subpart C.
- (b) Any person may apply for approval of a minor change to a type design.

21.97 Application

An application for approval of change to a type design must be made in a form and manner acceptable to the ECAA and must include:

- (a) A description of the change identifying:
 - (1) All parts of the type design including all approved manuals that are affected by the change; and
 - (2) The requirements with which the change has been designed to comply in accordance with item 21.103.
- (b) Identification of any re-investigation necessary to show compliance of the changed product with the applicable requirements.

21.99 Minor changes

Minor changes in a type design may be classified and approved either:

- (a) Directly by the ECAA; or
- (b) Indirectly, by an appropriately approved design organization, through the use of modification procedures that have been agreed upon by the ECAA.

21.101 Major changes

- (a) An applicant for approval of a major change must:
 - (1) Submit to the ECAA substantiating data together with any necessary descriptive data for inclusion in the type design;
 - (2) Show that the changed product complies with applicable requirements, as specified in item 21.103;
 - (3) Declare that he has demonstrated compliance with applicable requirements and must provide to the ECAA the basis on which such a declaration is made; and
 - (4) Comply with item 21.59 and where applicable, item 21.61.
 - (5) Have sound knowledge of the design principles embodied in the A/C type being changed
 - (6) Submit approved design data
- (b) Approval of a major change in a type design is limited to the specific variant(s) of the type design upon which the change is made.

21.103 Designation of applicable requirements

- (a) An applicant for a change to a type certificate must comply with either:
 - (1) The requirements incorporated by reference in the type certificate; or
 - (2) The applicant requirements in effect on the date of the application, plus any other amendments the authority finds to be directly related.
- (b) If the ECAA finds that proposed change consists of a new design or a substantially complete redesign of a part of the product, and that the requirements incorporated by reference in the type certificate for the product do not provide adequate standards with respect to the proposed change, the applicant must comply with the applicable

provisions of the requirement in effect on the date of the application for the change that the ECAA finds necessary to provide a level of safety equal to that intended by the requirements incorporated by reference in the type certificate for the product; and any special conditions, and amendments to those special conditions prescribed by the ECAA to provide a level of safety equal to that intended by the requirements incorporated by reference in the type certificate for the product.

21.105 Issue of approval

- (a) The ECAA approves a major change to a type design if:
 - (1) The applicant has submitted the declaration referred to in item 21.101; and
 - (2) The applicant must demonstrate in a manner acceptable to the ECAA that:
 - (i) The changed product meets the applicable requirements as specified in item 21.103;
 - (ii) Any airworthiness provisions not complied with are compensated for by factors that provide an equivalent level of safety; and
 - (iii) No feature or characteristic makes the product unsafe for the uses for which certification is requested.
- (b) The ECAA approves a minor change to a type design if it is shown either, directly or under the agreed procedures of item 21.99 that the changed product meets the applicable requirements, as specified in item 21.101.

21.107 Recordkeeping

For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the ECAA and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the changed product.

21.109 Instruction for continued airworthiness

Where the ECAA as a State of Design of a modification/change is different from the State of Design of the product being modified/changed, ECAA shall transmit the mandatory continuing airworthiness information concerning the modification/ change to all States that have the modified/changed aircraft on their registries.

SUBPART D

Supplemental Type Certificates

21.121 Applicability

This subpart prescribes:

- (a) Procedural requirements for the approval of major changes to the type design under supplemental type certificate procedures; and
- (b) Rules governing the holders of those certificates.

21.123 Eligibility

- (a) The ECAA will only accept an application for a supplemental type certificate submitted by a person holding or having applied for an appropriate design organization approval except that, in the case of a change which is of simple design, the ECAA may agree to accept an application from a person who does not hold and has not applied for an appropriate design organization approval, in the latter case, the ECAA will apply such alternative procedures as are necessary to provide equivalent confidence in the findings of compliance with requirements, taking account of the size of the design organization.
- (b) 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, regularity authority, the foreign country's airworthiness laws and regulations and the foreign industry's overall state-of-the-art in design and manufacturing capability.

21.125 Application for a supplemental type certificate

- (a) An applicant for a supplemental type certificate [STC] must be made in a form and manner acceptable to the ECAA.
- (b) An application for an STC must include the descriptions and identifications required by item 21.97 together with a justification that the information on which the identifications are based is adequate either from the applicant's resources, or through an arrangement with the type certificate holder.

21.127 Showing of compliance

Each applicant for a supplemental type certificate must comply with item 21.101, and in case of environmental or noise level change comply with ECAR parts 34 and 36 respectively.

21.129 Issue of a supplemental type certificate

The ECAA issues a supplemental type certificate if, in addition to complying with item 21.105, the applicant has satisfied the ECAA that:

- (a) The applicant has obtained an appropriate design organization approval, or the ECAA agreement to alternative procedures;
- (b) The type certificate holder has been informed about the STC application, and;
- (c) Where, under item 21.125 the applicant has entered into an arrangement with the type certificate holder:
 - (1) The type certificate holder has advised he has no technical objection to the information submitted under item 21.97; and
 - (2) The type certificate holder has agreed to collaborate with the supplemental type certification holder to ensure discharge of all responsibilities for continued airworthiness of the changed product compliance with item 21.25 and 21.137.

21.131 Transferability

Transfer of a supplemental type certificate may only be made with an organization which is able to undertake the responsibilities of item 21.137 and for this purpose has demonstrated its ability to qualify under item 21.129.

21.135 Change to that part of a product covered by a supplemental type certificate

- (a) Minor changes to that part of a product covered by an STC must be classified and approved in accordance with subpart B.

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- (b) Major change. Except for major changes submitted by an STC holder who is also the type certificate holder, each major change to that part of a product covered by an STC must be approved as a separate STC in accordance with subpart C.

21.137 Responsibilities

Each holder of a supplemental type certificate shall make the certificate available, on request, to the ECAA and undertake the responsibilities:

- (a) Specified in subpart A;
- (b) Specified in item 21.129, 141,143; and
- (c) Implicit in the collaboration with the type certificate holder under item 21.123,129.

21.139 Duration

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

21.141 Manuals

The holder of a supplemental type certification shall produce, maintain, and update master copies of variations in the manuals required by the applicable requirement for the product, necessary to cover the changes introduced under the supplemental type certificate, and furnish copies of those manuals to the ECAA and type certificate holder on request.

21.143 Instruction for continued airworthiness

- (a) The holder of the supplemental type certificate for an aircraft, aircraft engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continued airworthiness, prepared in accordance with the applicable requirements to each known owner of one or more aircraft, aircraft engine, or propeller incorporating the feature of the supplemental type certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later.
- (b) In addition, change to those variations of the instruction for continued airworthiness shall be furnished to all known operators of a product incorporating the supplemental type certificate and shall be made available, on request, to the ECAA.

SUBPART E
Production without Production Organization Approvals

21.151 Applicability

- (a) This subpart prescribes rules for showing airworthiness of an individual product, part or appliance in the absence of an approved production organization.
- (b) The rules of this Part are only applicable for:
 - (1) The issue of a production approval; or
 - (2) Effectuation or approval of products, parts or appliances when needed before issuing a production organization approval.

21.153 Eligibility

Any person may apply to show airworthiness/ conformity of individual products, parts or appliances under this Part, if he holds or has applied for an approval covering the type design of that product, part or appliance, or has suitable agreement with the applicant for or holder of an approval of such a design, which ensure satisfactory coordination between production and design.

21.155 Application

Each application for ECAA approval of demonstrating airworthiness of individual products, parts and applicant under this Part must be made in writing to the ECAA and must include:

- (a) Evidence supporting the request for ECAA approval under 21.41, or 43; and
- (b) An outline of the information required by item 21.45.

21.157 Issue of ECAA approval

The ECAA issues a letter of approval to the showing of airworthiness/conformity of individual products, parts and appliances under this Part when the applicant has:

- (a) Satisfied the ECAA that he has established a production inspection system that ensures that each product, part or appliance is airworthy and is in condition for safe operation;
- (b) Provide to the ECAA a manual that describes the production inspection system and the means for making the determinations of the production inspection system and the tests of items 21.161,163 and the names of persons authorized; and
- (c) Satisfied the ECAA that he is able to provide assistance in accordance with item 21.155,165(d).

21.159 Production inspection system

The production inspection system required must provide a means for determining that incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the type design data.

21.161 Tests: Aircraft

- (a) Each manufacturer of an aircraft manufactured under this Part must establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with item 21.57.
- (b) Each production test procedure must include at least the following:
 - (1) A check on handling qualities;
 - (2) A check on flight performance using normal aircraft instrumentation;
 - (3) A check on the proper functioning of all aircraft equipment and systems;
 - (4) A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;
 - (5) A check of the operational characteristics of the aircraft on the ground; and
 - (6) A check on any other items peculiar to the aircraft being tested.

21.163 Tests: Aircraft engines and propellers

Each manufacturer of engines, or propellers manufactured under this Part must subject each engine, or variable pitch, propeller, to an acceptable functional test to determine if it operates properly throughout the range of operation for which it is type certificated, as a means of establishing relevant aspects of compliance with item 21.57

That test for engines should subject each engine to an acceptable test run that includes at least the following:

- (a) Break-in runs that include a determination of fuel and oil consumption and a determination of power characteristics at rated maximum continuous power or thrust and, if applicable, at rated take-off power or thrust; and
- (b) Five hours of operation at rated maximum continuous power or thrust. For engines having a rated take-off power or thrust higher than rated maximum continuous power or thrust, the five-hour run should include 30 minutes at rated take-off power or thrust.

21.165 Responsibilities of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Part shall:

- (a) Make each product, part or appliance for inspection by the ECAA inspector(s);
- (b) Maintain at the place of manufacture the technical data and drawings necessary for the ECAA to determine whether the product is airworthy;
- (c) Maintain the production inspection system that ensures that each product is airworthy and is in condition for safe operation;
- (d) Issue of an aircraft airworthiness certificate or an aircraft engine or propeller airworthiness approval tag, give the CAA a statement of conformity. This statement should be signed by an authorized person who holds a responsible position in the manufacturing organization, and should include:
 - (1) For each product, a statement that the product conforms to its Type Certificate/Approval and is in condition for safe operation;
 - (2) For each aircraft, a statement that the aircraft has been flight checked; and
 - (3) For each aircraft engine or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final operational check.
- (e) Provide assistance to the holder of the type certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced:
 - (1) Report to the holder of the type certificate or design approval all cases where products, parts or appliances have been released by the production organization and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type certificate or design approval to identify those deviations which could lead to an unsafe condition;
 - (2) Report to the ECAA the deviations identified according to subparagraph (d)(1) of this paragraph. Such report must be made in a form and manner acceptable to the ECAA according to paragraph 21.165(e); and
 - (3) Where he acts as supplier to another production organization, report also to that other organization.
- (f) The holder of a type certificate supplemental type certificate shall report to ECAA any failure malfunction or defect in a product, part, or appliance covered by the type certificate, supplemental type certificate or authorization of which he is aware and which has resulted in or may result in an unsafe.

SUBPART F

Production Organization Approval for Aircraft products and Parts

21.181 Applicability

This subpart prescribes:

- (a) Rules for the approval of production organization and rules governing the holders of such approval; and
- (b) Rules for showing airworthiness of the product (aircraft, engine or propeller, and associated parts) through the use of an approved production organization.

21.183 Eligibility

The ECAA will only accept an application for a production organization approval if:

- (a) The ECAA agrees that, for a definite scope of work, such an approval is appropriate for the purpose of showing Airworthiness of the products ; and
- (b) The applicant holds or has applied for an approval of such a design for each aircraft, engine or propeller, and associated parts or, the applicant has the right of access under an agreement or arrangement to the approved design data relevant for production purposes .
- (c) Where the State of Design is a foreign state, there shall be an agreement or arrangement acceptable to ECAA and this State to:
 - (1) Ensure that the manufacturing organization has the right of access to the approved design data relevant for production purposes; and
 - (2) Address the responsibilities of each State with regard to design, manufacture and continued airworthiness of the aircraft.

21.185 Application

Each application for a production organization approval must be made in a form and manner acceptable to the ECAA, and must include an outline of the information required by item 21.191 and the terms of approval requested to be issued under item 21.201.

21.187 Issue of production organization approval

- (a) The ECAA issues a production organization approval when it is satisfied that compliance has been shown with the applicable requirements of this subpart.
- (b) From January 2020, ECAA will issues a production organization approval under Part 21 Appendix (B) when it is satisfied that compliance has been shown with the applicable requirements of App. (B)

21.189 Quality system

- (a) The production organization must show that it has established and can maintain a quality system. The quality system must be documented. This quality system shall be such as to enable the organization to ensure that its product, part or appliance produced by the organization or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in paragraph 21.209.
- (b) The quality system must include:
 - (1) As applicable within the scope of the approval, control procedures for the following elements:
 - (i) Document issue, approval, or change;
 - (ii) Vendor or subcontractor assessment, audit and control;
 - (iii) Verification that incoming products, parts, materials, and equipment, including items supplied new or used buyers of products, are as specified in the applicable design data;
 - (iv) Identification and tractability: Records shall be maintained such that the origin of the aircraft and of the aircraft parts and their identification with the approved design and productions can be established.

Note.— The origin of aircraft and of the aircraft parts refers to the manufacturer, the date of manufacture, the serial number or other information that can be tracked to its production record.

- (v) Manufacturing process;
- (vi) Inspection and testing, including production flight tests;
- (vii) Calibration of tools, jigs and test equipment;

- (viii) Non-conforming item control;
 - (ix) Airworthiness coordination with the applicant/ holder of a design approval;
 - (x) Records completion and retention;
 - (xi) Personnel competence and qualification;
 - (xii) Issue of airworthiness certifications;
 - (xiii) Handling, storage and packing;
 - (xiv) Internal quality audits and resulting corrective actions;
 - (xv) Work within the items of approval performed at any location other than the approved facilities; and
 - (xvi) Work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation. The control procedures need to include specific provision for any critical parts.
- (2) An independent quality assurance function to monitor compliance with, and adequacy of the documented procedures of the quality system. This monitoring must include a feedback system to the person or group of persons specified in item 21.193(c)(1) to ensure, as necessary, corrective action.

21.190 Safety Management System

Production Organization Approval holder under this part, shall show a complete compliance with ECAR Part 19, by establishing a safety management system that is acceptable to the ECAA, maintaining it, and completing its implementation as per the chronology mentioned in this regulation.

21.191 Exposition

- (a) The organization must furnish to the ECAA a production organization exposition providing the following information:
- (1) A statement signed by the accountable manager confirming that the production organization exposition and any associated manuals, which define the approved organization's compliance with all items of this Part;
 - (2) The title(s) and names of managers accepted by the ECAA in accordance with item 21.193(c)(2);
 - (3) The duties and responsibilities of the manager(s) as required by item 21.193(c)(3) including matters on which they may deal directly with the ECAA on behalf of the organization;
 - (4) An organization chart showing associated chains responsibilities of the managers as required by item 21.193(c)(1) and (c)(2);
 - (5) A list of certifying staff;
 - (6) A general description on manpower resources;
 - (7) A general description of the facilities located at each address specified in the production organization certificate of approval;
 - (8) A general description of the production organization's scope of work relevant to the terms of approval;
 - (9) The procedure for the notification of organizational changes to the ECAA; and
 - (10) The amendment procedure for the production organization.
- (b) The production organization exposition must be amended as necessary to remain an up-to-date description of the organization and copies of amendments must be supplied to the ECAA.

21.193 Approval requirements

The production organization must show, on the basis of the information submitted in accordance with item 21.191 that:

- (a) General:
- The facilities, working conditions, equipment and tools, processes and associated materials, personnel numbers and competence, and general organization are adequate to discharge responsibilities under item 21.209.
- (b) Data:
- (1) The production organization is in receipt of all necessary airworthiness data from ECAA, and from the holder of or applicant for the approval of the type design, as appropriate to determine Airworthiness of the product;
 - (2) The production organization has a procedure to ensure that airworthiness data are correctly incorporated in its production data; and

- (3) The above data is kept up to date and made available to all personnel who need access to such data to perform their duties.
- (c) Organization:
- (1) A manager acceptable to the ECAA, has been nominated with responsibility within the organization to ensure that all production is performed to the required standards and that the production organization is continuously in compliance with the data and procedures identified in the exposition;
 - (2) A manager or group of managers has been nominated to ensure that the organization is in compliance with the requirements of this subpart, and are identified, together with the extent of their authority. In this report such person(s) must ultimately be directly responsible to the manager identified in sub-paragraph (c)(1) of this paragraph. The knowledge, background and experience of the managers nominated must be appropriate to discharge their responsibilities; and
 - (3) Staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective co-ordination within the production organization with respect to airworthiness.
- (d) Certifying staff:
- (1) Certifying staff has been defined as those personnel who are authorized by the production organization to sign the documents issued under item 21.209, under the scope and terms of the approval. The knowledge, background (including other functions in the organization), and experience of the certifying staff must be appropriate to discharge their allocated responsibilities;
 - (2) The production organization maintains a record of all certifying staff which must include details of the scope of their authorization; and
 - (3) Certifying staff are provided with evidence of the scope of their authorization.

21.195 Changes to the approved production organization

- (a) After the issue of a production organization approval, each change to the approved production organization that is significant to the showing of conformity or to the airworthiness of the products, part or appliance, particularly changes to the quality system, must be approved by the ECAA. A proposal for such a change must be notified as soon as possible, and the production organization must show, before the implementation of the change, to the satisfaction of the ECAA, that it will continue to comply with requirements of this Part.
- (b) The ECAA may prescribe the condition under which an approved production organization may operate during such changes unless the ECAA determines that the approval should be suspended.

21.197 Changes in location

A change in the location of the manufacturing facilities of the approved production organization must be regarded as a change of significance to the organization that must therefore comply with item 21.195.

21.199 Transferability

Except for the change in ownership, which must be regarded as a change of significance, and must therefore comply with item 21.195, a production organization approval is not transferable.

21.201 Terms of approval

Terms of approval are issued as part of a production organization approval. The terms of approval identify the scope of work, the products and/ or the categories of parts and appliances for which the holder is entitled to exercise the privileges defined in item 21.209.

21.203 Change to the terms of approval

Application for a change to the terms of approval must be made in a form and manner acceptable to the ECAA. The applicant must comply with the applicable requirements of this Part

21.205 Investigations

- (a) Each applicant for or holder of a production organization approval shall make arrangements that allow ECAA to make any investigations, necessary to determine compliance with the applicable requirements of this Part and to.
 - (1) Examine the supporting data and inspect the production facilities and processes so as to determine that the manufacturing organization is in compliance with the appropriate production requirements; and
 - (2) Ensure that the manufacturing organization has established and can maintain a quality system or a production inspection system such as to guarantee that each aircraft or aircraft part produced by the organization or by subcontractors and/or suppliers is airworthy.
- (b) Where the Egyptian Manufacturer is contracting with a foreign manufacturer to produce aircraft parts, there may be an agreement or arrangement acceptable to ECAA & the foreign Manufacturer State to support the oversight responsibilities of ECAA over the organizations manufacturing the aircraft parts.

21.207 Duration

- (a) A production organization approval is valid until surrendered suspended, revoked or termination date is otherwise established by the ECAA.
- (b) The ECAA may restrict, suspend or revoke a production organization approval if:
 - (1) The production organization fails to show compliance with the applicable requirements of this Part;
 - (2) It is prevented by the holder or any of his partners or subcontractor to perform the investigation in accordance with item 21.205;
 - (3) It finds evidence that the production organization cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or
 - (4) The production organization no longer meets the requirements of item 21.183.

21.209 Privileges

The holder of a production organization approval may, within his terms of approval issued under item 21.187:

- (a) In the case of a complete aircraft and upon presentation of a statement of conformity / Airworthiness, obtain an aircraft certificate of airworthiness, standard or export;
- (b) In the case of other products, parts or appliances issue authorized release certificates; and
- (c) Maintain a new aircraft that he has produced and issue a certificate of release to service in respect of that maintenance.

21.211 Responsibilities of holder

The holder of a production organization approval shall:

- (a) Ensure that the production organization exposition furnished in accordance with 21.191, and the documents to which it refers, are used as basic working documents within the organization;
- (b) Maintain the production organization in conformity with the data and procedures approved for the production organization approval;
- (c) Determine that each completed aircraft including aircraft parts manufactured by sub-contractors and/or supplier is airworthy and is in condition for safe operation prior to submitting statements of conformity to the ECAA;
- (d) Record all details of work carried out in a form acceptable to the ECAA;
- (e) Report to the holder of the type certificate or design approval, all cases where products, parts or appliances have been released by the production organization and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type certificate or design approval to identify those deviations which could lead to an unsafe condition.
- (f) Report to the ECAA, the deviations identified according to sub-paragraph (e)(1) of this paragraph. Such reports must be made in a form and manner acceptable to the ECAA.
- (g) When the production organization approval holder is acting as a supplier to another production organization, report also to that other organization

- (h) Provide assistance to the holder of the type certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced.
- (i) Institute an archiving system incorporating the requirements of its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity/Airworthiness of the products, parts or appliances, to be held at the disposal of the ECAA, and to be retained in order to provide the information necessary to ensure the continuing airworthiness of the products, parts or appliances.
- (j) Where under these terms of approval, he issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate
- (k) Where, for a given aircraft, engine or propeller, the State of Manufacture is other than the State of Design, then the State of Design shall ensure that there is an agreement acceptable to both States to ensure that the manufacturing organization cooperates with the organization responsible for the type design in assessing information on the design, manufacture and operation of the aircraft, engine or propeller

SUBPART G

Identification of aircraft and related products

21.221 General

- (a) Aircraft and aircraft engines: Each person who manufactures an aircraft or aircraft engine under a type certificate or production organization approval shall identify that aircraft or engine by means of a fire proof plate that has the information specified in paragraph 21.223 of this subpart, marked on it by etching, stamping, engraving or other approved method of fire proof marking. The identification plate must be secured in such a manner that it will not, most likely, be defaced or removed during normal service, or lost or destroyed in an accident. An aircraft shall carry an identification plate inscribed with at least its nationality or common mark and registration mark. The plate shall be secured to the aircraft in a prominent position near the main entrance or, in the case of an unmanned free balloon, affixed conspicuously to the exterior of the payload.
- (b) Propellers and propeller blades and hubs: Each person who manufactures a propeller, propeller blade, or propeller hub under the terms of a type certificate or production organization approval shall identify his product by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph 3 of this subpart, and will not be likely to be defaced or removed during normal service or lost or destroyed in an accident.
- (c) Manned free balloons: For manned free balloons, the identification plate prescribed in paragraph (a) must be secured to the balloon envelope and must be located, if practicable, where it is legible to the operator when the balloon is inflated. In addition, the basket and any heater assembly must be permanently and legibly marked with the manufacturer's name, part number (or equivalent) and serial number (or equivalent).

21.223 Identification data

- (a) The identification required in paragraph 21.221 (a) and (b) shall include the following information:
 - (1) Manufacturer's name;
 - (2) Model designation;
 - (3) Manufacturer's serial number; and
 - (4) Any other information the ECAA finds appropriate.
- (b) Except as provided in (d) (1) of this paragraph, no person may remove, change or place identification information required by subparagraph (a) of this paragraph on any aircraft, aircraft engine, propeller, propeller blade, or propeller hub, without the approval of the ECAA.
- (c) Except as provided in (d) (2) of this paragraph no person may remove or install any identification plate without the approval of the ECAA.
- (d) Persons performing maintenance work under the provisions of applicable regulations may, in accordance with methods, techniques and practices acceptable to the ECAA:
 - (1) Remove, change, or place the identification information required by (a) of this paragraph on any aircraft, aircraft engine, propeller, propeller blade or propeller hub; or
 - (2) Remove an identification plate required by this subpart when necessary during maintenance operations.
- (e) No person may install an identification plate removed in accordance with (d)(2) of this paragraph on any aircraft, aircraft engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.225 Identification of critical parts

Each person who produces a part to be fitted on a type certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number (or equivalent) and a serial number (or equivalent).

21.227 Replacement and modification parts

- (a) Except as provided in (b) and (c) of this paragraph, each person who produces a replacement or modification part shall, in addition to any marking in accordance with paragraph (4) permanently and legibly mark the part with:
 - (1) A name, trademark or symbol prescribed by the type certificate or supplemental type certificate holder; and
 - (2) The part number.
- (b) Each holder of a production approval authorization shall, permanently and legibly, mark the part with:
 - (1) The letters of production approval;
 - (2) His name, trademark or symbol; and
 - (3) The part number.
- (c) If the ECAA agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by (a) or (b) of this paragraph, the authorized release document accompanying the part or its container must include the information that could not be marked on the part.

SUBPART H
Airworthiness Certificates**21.241 Applicability**

This Part prescribes eligibility and procedural requirements for the issuance of airworthiness certificates for all aircraft.

21.243 Eligibility of persons

Any registered owner of an Egyptian registered civil aircraft (or the agent of the owner) may apply for an airworthiness certificate for that aircraft. An application for an airworthiness certificate must be made and submitted to the ECAA in a manner acceptable to the ECAA

21.245 Eligibility of aircraft

Each aircraft must have been built to Egyptian standards established by the ECAA and in conformity with ICAO Annex 8 requirements and the type certificate for its type design shall be issued or validated by ECAA. Each aircraft must be certified, by the regulatory agency of the country of manufacture, as meeting established airworthiness requirements and approved type design.

21.247 Airworthiness certificates: Classification

- (a) Standard airworthiness certificates are airworthiness certificates issued for aircraft type certificated in the normal, utility, acrobatic, commuter, or transport category, and for manned free balloons, and for aircraft designated by the Administrator as special classes of aircraft.
- (b) Special airworthiness certificates are, restricted airworthiness certificates, special flight permits, and experimental certificates.

21.249 Amendment or modification

The registered owner (or agent) may apply in a form and manner acceptable to the ECAA for an amendment or modification to the airworthiness certificate issued to that aircraft.

21.251 Transferability

- (a) An airworthiness certificate is not transferable from one aircraft to another.
- (b) An airworthiness certificate shall remain with the aircraft to which it was issued regardless of any change of ownership of that aircraft while under Egyptian registry.
- (c) An airworthiness certificate shall not be transferred with an aircraft, that is going to be foreign registered. The Egyptian aircraft owner/operator or his agent shall be responsible for returning the airworthiness certificate to the ECAA along with a written statement of reason for surrender.

21.253 Duration

- (a) Unless sooner surrendered, suspended, revoked, or the termination date is passed or as otherwise established by the ECAA, airworthiness certificates are effective as follows:
 - (1) Standard airworthiness certificates and restricted certificates are effective for 1 year after the date of issue or renewal unless a shorter period is prescribed by the ECAA on condition that the maintenance, preventive maintenance, and alterations are performed in accordance with the applicable sections of the ECAR.
 - (2) A special flight permit is effective for the period of time specified in the permit; and
 - (3) An experimental certificate for research and development, showing compliance with regulations, crew training, or market surveys is effective for one year after the date of issue or renewal unless a shorter period is prescribed by the Administrator. The duration of amateur built, exhibition, and air racing experimental certificates will be unlimited unless the Administrator finds for good cause that a specific period should be established.

- (b) The registered owner (or his agent) or the operator of any aircraft shall upon request make it and its records available for inspection by the ECAA inspector(s).
- (c) Upon suspension, revocation or termination by order of the ECAA of an airworthiness certificate, the registered owner (or his agent) or the operator of that aircraft shall upon request surrender that certificate to the ECAA.

21.255 Identification of aircraft and related products

Except as provided in paragraph (b) of this section, each applicant for an airworthiness certificate under this subpart must show that his aircraft is identified as prescribed in part 21 subpart G

- (a) Paragraph (a) of this section does not apply to applicants for the following:
 - (1) A special flight permit; and
 - (2) An experimental certificate for an aircraft that is not amateur built; and
 - (3) A change from one airworthiness classification to another, for an aircraft already identified as prescribed in part 21 subpart G

21.256 Application for renewal of airworthiness certificates

- (a) An applicant for renewal of an airworthiness certificate under this Part must submit an application to the ECAA at least 30 days before the expiration date of this certificate.
- (b) The aircraft and its documents (manuals, Log books, maintenance record, maintenance certificates... etc) must be available for inspection.
- (c) The applicant must provide evidence acceptable to ECAA showing that :
 - (1) The aircraft remains in conformity with an approved type design and to all applicable mandatory modifications/repairs; and
 - (2) The aircraft has been maintained in accordance with approved maintenance program including
 - (i) Compliance with Certification Maintenance Requirements (CMR)
 - (ii) Compliance with Airworthiness Directives.
 - (iii) Compliance with Life limits
 - (iv) Compliance with MEL/ CDL
 - (v) Compliance with Structural Repair Manual
 - (vi) Compliance with Mass and Balance Limitations
 - (vii) Marking and placards still in place
 - (viii) Operational equipment installed as required by ECARs
 - (ix) Aircraft flight manual up to date
 - (x) Flight test have been carried out (if required)
- (d) Upon finding that the aircraft conforms to the approved design, that applicable airworthiness directives have been complied with, and that the aircraft is in a condition for safe operation, the ECAA will renew this airworthiness certificate for that aircraft.

21.257 Application requirements for standard airworthiness certificates

- (a) New aircraft manufactured under a production certificate.
An applicant for a standard airworthiness certificate for a new aircraft manufactured under a production certificate is entitled to a standard airworthiness certificate without further showing ,except that the ECAA may inspect the aircraft to determine conformity to the type design and condition for safe operation
- (b) Import aircraft.
An applicant for a standard airworthiness certificate for an import aircraft type validated in accordance with EAC21-1 is entitled to an airworthiness certificate if the country in which the aircraft was manufactured certifies, and the ECAA finds, that the aircraft conforms to the type design and is in condition for safe operation. The ECAA finds after inspection, that the aircraft conforms to the type design, and is in condition for safe operation.
- (c) Noise requirements.
Notwithstanding all other provisions of this section
No standard airworthiness certificate is originally issued under this section (except for balloons ,those airplanes that are designed for "agricultural aircraft operations" or for dispensing firefighting materials) unless the applicant shows that the type

design complies with the applicable noise requirements of Part 36 of in addition to the applicable airworthiness requirements in this section.

For import airplanes, compliance with this paragraph is shown if the country in which the airplane was manufactured certifies, and the Administrator finds, that the applicable requirements of Part 36 of this chapter (or the applicable airplane noise requirements of the country in which the airplane was manufactured and any other requirements the ECAA may prescribe to provide noise levels no greater than those provided by compliance with the applicable requirements of Part 36 of this chapter)

- (d) Fuel venting and exhaust emission requirements.
- (e) Notwithstanding all other provisions of this section, and irrespective of the date of application, no airworthiness certificate is issued, on and after the dates specified in part 34 for the airplanes specified therein, unless the airplane complies with the applicable requirements of that part.

21.259 Reserved

21.261 Special airworthiness certificate:

Restricted Issue of airworthiness certificate for restricted category aircraft

- (a) Aircraft manufactured under a production certificate or type certificate only.

An applicant for the original issue of a restricted category airworthiness certificate for an aircraft type certificated in the restricted category, that was not previously type certificated in any other category, must comply with the appropriate provisions of ECAR21.257.

- (b) Import aircraft.

An applicant for the original issue of a restricted category airworthiness certificate for an import aircraft type validated in accordance with EAC21.1 is entitled to an airworthiness certificate if the country in which the aircraft was manufactured certifies, and the ECAA finds, that the aircraft conforms to the type design and is in a condition for safe operation.

- (c) Noise requirements.

For propeller driven small airplane (except for, those airplanes that are designed for "agricultural aircraft operations" or for dispensing firefighting materials)

No original restricted category airworthiness certificate is issued unless the applicant shows that the type design complies with the applicable noise requirements of Part 36 of in addition to the applicable airworthiness requirements in this section.

For import airplanes, compliance with this paragraph is shown if the country in which the airplane was manufactured certifies, and the Administrator finds, that the applicable requirements of Part 36 of this chapter (or the applicable airplane noise requirements of the country in which the airplane was manufactured and any other requirements the ECAA may prescribe to provide noise levels no greater than those provided by compliance with the applicable requirements of Part 36 of this chapter)

21.263 Issue of multiple airworthiness certification

- (a) An applicant for an airworthiness certificate in the restricted category, and in one or more other categories, is entitled to the certificate, if:

- (1) He shows compliance with the requirements for each category, when the aircraft is in the configuration for that category; and

- (2) He shows that the aircraft can be converted from one category to another by removing or adding equipment by simple mechanical means.

- (b) The operator of an aircraft certificated under this section shall have the aircraft inspected by the ECAA, or by a certificated mechanic with an appropriate airframe rating, to determine airworthiness each time the aircraft is converted from the restricted category to another category for the carriage of passengers for compensation or hire, unless the ECAA finds this unnecessary for safety in a particular case.

21.265 Special flight permit

- (a) A special flight permit may be issued for an aircraft that may not currently meet applicable airworthiness requirements but is capable of safe flight, for the following purposes:

- (1) Flying the aircraft to a base where repairs, alterations, or maintenance are to be performed, or to a point of storage.
 - (2) Delivering or exporting the aircraft.
 - (3) Production flight testing new production aircraft.
 - (4) Evacuating aircraft from areas of impending danger.
 - (5) Conducting customer demonstration flights in new production aircraft that have satisfactorily completed production flight tests.
- (b) A special flight permit may also be issued to authorize the operation of an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available. The excess weight that may be authorized under this paragraph is limited to the additional fuel, fuel carrying facilities, and navigation equipment necessary for the flight.
- (c) Application requirements for a special flight permit:
- (1) An applicant for a special flight permit must submit an application in a form and manner acceptable to the including:
 - (i) The purpose of the flight.
 - (ii) The proposed itinerary.
 - (iii) The crew required to operate the aircraft and its equipment, e.g., pilot, copilot, navigator, etc.
 - (iv) The ways, if any, in which the aircraft does not comply with the applicable airworthiness requirements.
 - (v) Any restriction the applicant considers necessary for safe operation of the aircraft.
 - (vi) Any other information considered necessary by the Administrator for the purpose of prescribing operating limitations.
 - (2) The ECAA may make or require the applicant to make such tests and inspections of the aircraft as the ECAA finds necessary for safety.
- (d) Upon application, as prescribed in the appropriate ECAR Part, a special flight permit with a continuing authority may be issued at the discretion of the ECAA for aircraft that may not meet applicable airworthiness requirements but are capable of safe flight, for the purpose of flight of an aircraft to a base where maintenance or alterations are to be performed. The permit issued under this paragraph is an authorization, including conditions and limitations for flight, which must be set forth in the certificate holder's operations specifications. The permit issued under this paragraph may be issued to:
- (1) Certificate holders authorized to conduct operations under special approvals; and
 - (2) Certificate holders authorized to conduct operations under the applicable ECAR Part for those aircraft they operate and maintain under a continuous airworthiness maintenance and inspection program.

21.267 Special airworthiness certificate: Experimental

- (a) Purpose of experimental certificate.
- (1) Research and development: Testing aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft;
 - (2) Showing compliance with regulations: Conducting flight tests and other operations to show compliance with the airworthiness regulations including flight to show compliance for issuance of airworthiness certificates, flight to substantiate major design changes, and flights to show compliance with the function and reliability requirements of the regulations;
 - (3) Flight training: Training of the applicant's cockpit crews when the aircraft is not eligible for the issuance of a standard airworthiness certificate;
 - (4) Exhibition: Exhibiting the aircraft's flight capabilities, performance, or unusual characteristics at air shows, motion picture, television, and similar productions, and the maintenance of exhibition flight proficiency, including (for flight exhibition aircraft) flying to and from such air shows and productions;
 - (5) Air racing: Participating in air races, including (for such participants) practicing for such air races and flight to and from racing events.

- (6) Operating amateur built aircraft: Operating an aircraft the major portion of which has been fabricated and assembled by persons who undertook the construction project for their own education or recreation.
- (b) Application requirements for experimental certificates:
- (1) An applicant for an experimental certificate must submit an application in a form and manner acceptable to the ECAA and provide the following information to the ECAA:
- (i) A statement, in a form and manner prescribed by the ECAA setting forth the purpose for which the aircraft is to be used;
 - (ii) Enough data including photographs to identify the aircraft;
 - (iii) Upon inspection of the aircraft, any pertinent information found necessary by the ECAA to safeguard the general public; and
 - (iv) In the case of an aircraft to be used for experimental purpose under paragraph (7) (b) (1) of this Part:
 - (A) The purpose of experiment;
 - (B) The estimated time or number of flights required for the experiment;
 - (C) The areas over which the experiment will be conducted; and
 - (D) Except for aircraft converted from a previously certificated category, without appreciable change in the external configuration, three- view drawings or three- view dimensional photographs of the aircraft.
- (2) ECAA may require the applicant to make such tests and inspections of the aircraft, as the ECAA deems necessary for determining appropriate operating limitations. Upon finding that the aircraft is acceptable for the purpose stated in the application, the ECAA may issue an experimental certificate prescribing operating limitations and conditions as deemed appropriate in consideration of the aircraft design, operating capability, and the purpose of flying.

21.269 Surrender of certificate following discovery of improper issuance

Any airworthiness certificate issued by the ECAA and subsequently determined to have been issued without the applicant having fully established that the aircraft qualified for the issuance of that certificate, or if the certificate was issued in error, shall be declared invalid by the ECAA. Upon written notice of the invalidation the certificate will be surrendered to the ECAA.

21.271 Approval of aircraft, aircraft engines and propellers

Each holder or licensee of a type certificate for an aircraft, aircraft engine or propeller manufactured in a foreign country with which the ECAA accepts those products for export and imports, shall furnish with each such aircraft, aircraft engine or propeller imported into the Arab Republic of Egypt, a certificate of airworthiness for export issued by the state of manufacture certifying that the individual aircraft, aircraft engine or propeller:

- (a) Conforms to its type certificate and is in a condition for safe operation; and
- (b) Has been subjected by the manufacturer to a final operational check (flight test for a complete aircraft).

21.273 Approval of materials, parts, and appliances

- (a) A material, part, or appliance, manufactured in a foreign country with which the ECAA accepts the materials, parts, or appliances for export and import, is considered to meet the requirements for approval of the Egyptian Civil Aviation Regulation, when the country of manufacture issues a certificate of airworthiness for export certifying that the individual material, part, or appliance meets those requirements. Unless the ECAA finds, based on the technical data submitted under paragraph (b) of this section, that the material, part or appliance is otherwise not consistent with the intent of the Egyptian Civil Aviation Regulations.
- (b) An applicant for approval of a material, part, or appliance must, upon request, submit to the ECAA any technical data respecting the material, part, or appliances.

Subpart (I)
Export Airworthiness Approvals

21.321 Applicability.

- (a) This subpart prescribes:
- (1) Procedural requirements for the issue of export airworthiness Certificates; and
 - (2) Rules governing the holders of those Certificates

21.323 Eligibility.

Any exporter or his authorized representative may obtain an export certificate of airworthiness for a complete aircraft, aircraft engine, or propeller,

21.325 Export airworthiness approvals.

- (a) Export Certificates of airworthiness are issued for:
- (1) New aircraft, that are assembled and that has been flight-tested, and certificate located in Egypt, except that export airworthiness approval may be issued for any of the following without assembly or flight-test:
 - (i) A small airplane type certificated under Part 3 or 4a of the Civil Air Regulations, or Part 23 of the Federal Aviation Regulations, and manufactured under a production certificate;
 - (ii) A glider type certificated under ECAR part 21 and manufactured under a production certificate; or
 - (iii) A normal category rotorcraft type certificated under ECAR part 27 and manufactured under a production certificate.
 - (2) Used aircraft possessing a valid Egyptian airworthiness certificate, or other used engines or propellers that have been maintained in accordance with the applicable ECAR's.
 - (3) If the export airworthiness approval is issued on the basis of a written statement by the importing state as provided for in 21.327(c)(4), the requirements that are not met and the differences in configuration, if any, between the product to be exported and the related type certificated product, are listed on the export airworthiness approval as exceptions.

21.327 Application.

- (a) Except as provided in paragraph (b) of this section, an application for export airworthiness approval for a complete aircraft, aircraft engine or propeller is made on a form and in a manner prescribed by the ECAA and is submitted to the appropriate Department.
- (b) A separate application must be made for:
- (1) Each aircraft;
 - (2) Each engine and propeller, except that one application may be made for more than one engine or propeller, if all are of the same type and model and are exported to the same purchaser and country; and
- (c) Each application must be accompanied by a written statement from the importing country that will validate the export airworthiness approval if the product being exported is:
- (1) An aircraft manufactured outside Egypt and being exported to a country with which Egypt has a reciprocal agreement concerning the validation of export certificates;
 - (2) An unassembled aircraft which has not been flight-tested;
 - (3) A product that does not meet the special requirement of the importing country; or
 - (4) A product that does not meet a requirement specified in 21.329, 21.331, or 21.333, as applicable, for the issuance of an export airworthiness approval. The written statement must list the requirements not met.
- (d) Each application for export airworthiness approval of a complete aircraft, aircraft engine, or propeller, must include, as applicable:
- (1) A Statement of Conformity, for each new product that has not been manufactured under a production certificate.
 - (2) A weight and balance report, with a loading schedule when applicable, for each aircraft. For transport aircraft and commuter category airplanes this report must

be based on an actual weighing of the aircraft within the preceding twelve months, but after any major repairs or alterations to the aircraft. Changes in equipment not classed as major changes that are made after the actual weighing may be accounted for on a “computed” basis and the report revised accordingly. Manufacturers of new non transport category airplanes, normal category rotorcraft, and gliders may submit reports having computed weight and balance data, in place of an actual weighing of the aircraft, if fleet weight control procedures approved by ECAA have been established for such aircraft. In such a case, the following statement must be entered in each report: “The weight and balance data shown in this report are computed on the basis of ECAA approved procedures for establishing fleet weight averages.” The weight and balance report must include an equipment list showing weights and moment arms of all required and optional items of equipment that are included in the certificated empty weight.

- (3) A maintenance manual for each new product when such a manual is required by the applicable airworthiness rules.
- (4) Evidence of compliance with the applicable airworthiness directives. A suitable notation must be made when such directives are not complied with.
- (5) When temporary installations are incorporated in an aircraft for the purpose of export delivery, the application form must include a general description of the installations together with a statement that the installation will be removed and the aircraft restored to the approved configuration upon completion of the delivery flight.
- (6) Historical records such as aircraft and engine log books, repair and alteration forms, etc., for used aircraft and newly overhauled products.
- (7) For products intended for overseas shipment, the application form must describe the methods used, if any, for the preservation and packaging of such products to protect them against corrosion and damage while in transit or storage. The description must also indicate the duration of the effectiveness of such methods.
- (8) The Airplane or Rotorcraft Flight Manual when such material is required by the applicable airworthiness regulations for the particular aircraft.
- (9) A statement as to the date when title passed or is expected to pass to a foreign purchaser.
- (10) The data required by the special requirements of the importing country.

21.329 Issue of export certificates of airworthiness for aircraft, aircraft engines or propellers.

An applicant is entitled to an export certificate of airworthiness for aircraft, aircraft engine, or propeller, if that applicant shows at the time the product is submitted to ECAA for export airworthiness approval that it meets the requirements of paragraphs (a) through (f) of this section, as applicable, except as provided in paragraph (g) of this section:

- (a) New or used aircraft manufactured in Egypt must meet the airworthiness requirement for an Egyptian standard airworthiness certificate, or meet the airworthiness certification requirements for a “restricted” airworthiness certificate.
- (b) New or used aircraft manufactured outside Egypt must have a valid Egyptian standard airworthiness certificate.
- (c) Used aircraft must have undergone an annual type inspection and be approved for return to service in accordance with ECAR Part 43. The inspection must have been performed and properly documented within 30 days before the date the application is made for an export certificate of airworthiness. In complying with this paragraph, consideration may be given to the inspections performed on an aircraft maintained in accordance with a continuous airworthiness maintenance program under ECAR Part 121 or a progressive inspection program under ECAR Part 91, within the 30 days prior to the date the application is made for an export certificate of airworthiness.
- (d) New engines and propellers must conform to the type design and must be in a condition for safe operation.
- (e) Used engines and propellers which are not being exported as part of a certificated aircraft must have been newly overhauled.
- (f) The special requirements of the importing country must have been met.

- (g) A product need not meet a requirement specified in paragraphs (a) through (f) of this section, as applicable, if acceptable to the importing country and the importing country indicates that acceptability in accordance with 21.327(e)(4) of this part.

21.331 - 21.333 Reserved

21.335 Responsibilities of exporters.

- (a) Each exporter receiving an export airworthiness approval for a product shall:
- (b) Forward to the air authority of the importing country all documents and information necessary for the proper operation of the products being exported, e.g., Flight Manuals, Maintenance Manuals, Service Bulletins, and assembly instructions, and such other material as is stipulated in the special requirements of the importing country. The documents, information, and material may be forwarded by any means consistent with the special requirements of the importing country;
- (c) Forward the manufacturer's assembly instructions and an approved flight test check off form to the air authority of the importing country when unassembled aircraft are being exported. These instructions must be in sufficient detail to permit whatever rigging, alignment, and ground testing is necessary to ensure that the aircraft will conform to the approved configuration when assembled;
- (d) Remove or cause to be removed any temporary installation incorporated on an aircraft for the purpose of export delivery and restore the aircraft to the approved configuration upon completion of the delivery flight;
- (e) Secure all proper foreign entry clearances from all the countries involved when conducting sales demonstrations or delivery flights; and
- (f) When title to an aircraft passes or has passed to a foreign purchaser:
 - (1) Request cancellation of the Egyptian registration and airworthiness certificates, giving the date of transfer of title, and the name and address of the foreign owner;
 - (2) Return the Registration and Airworthiness Certificates, to the ECAA; and
 - (3) Submit a statement certifying that the Egyptian identification and registration numbers have been removed from the aircraft in compliance with ECAR 45.13

Subpart K

Approval of Materials, Parts, Processes, and Appliances

21.401 Applicability.

This subpart prescribes procedural requirements for the approval of certain materials, parts, processes, and appliances.

21.403 Replacement and modification parts.

- (a) Except as provided in paragraph (b) of this section, no person may produce a modification or replacement part for sale for installation on a type certificated product unless it is produced pursuant to a Parts Manufacturer Approval issued under this subpart.
- (b) This section does not apply to the following:
 - (1) Parts produced under a type or production certificate.
 - (2) Parts produced by an owner or operator for maintaining or altering his own product.
 - (3) Parts produced under Technical Standard Order.
 - (4) Standard parts (such as bolts and nuts).
- (c) An application for a Parts Manufacturer Approval is made to ECAA and must include the following:
 - (1) The identity of the product on which the part is to be installed.
 - (2) The name and address of the manufacturing facilities at which these parts are to be manufactured.
 - (3) The design of the part, which consists of -
 - (i) Drawings and specifications necessary to show the configuration of the part; and
 - (ii) Information on dimensions, materials, and processes necessary to define the structural strength of the part.
 - (4) Test reports and computations necessary to show that the design of the part meets the airworthiness requirements of the Egyptian Civil Aviation Regulations applicable to the product on which the part is to be installed, unless the applicant shows that the design of the part is identical to the design of a part that is covered under a type certificate. If the design of the part was obtained by a licensing agreement, evidence of that agreement must be furnished.
- (d) An applicant is entitled to a Parts Manufacturer Approval for a replacement or modification part if :
 - (1) ECAA find, upon examination of the design and after completing all tests and inspections, that the design meets the airworthiness requirements of the Egyptian Civil Aviation Regulations applicable to the product on which the part is to be installed; and
 - (2) He submits a statement certifying that he has established the fabrication inspection system required by paragraph (h) of this section.
- (e) Each applicant for a Parts Manufacturer Approval must allow ECAA inspector(s) to make any inspection or test necessary to determine compliance with the applicable Egyptian Civil Aviation Regulations. However, unless otherwise authorized by the ECAA:
 - (1) No part may be presented to the ECAA for an inspection or test unless compliance with paragraphs (f) (2) through (4) of this section has been shown for that part; and
 - (2) No change may be made to a part between the time that compliance with paragraphs (f) (2) through (4) of this section is shown for that part and the time that the part is presented to the ECAA for the inspection or test.
- (f) Each applicant for a Parts Manufacturer Approval must make all inspections and tests necessary to determine:
 - (1) Compliance with the applicable airworthiness requirements;
 - (2) That materials conform to the specifications in the design;
 - (3) That the part is airworthy; and
 - (4) That the fabrication processes, and construction conform to those specified in the design, and assembly is Airworthy.
- (g) Reserved

- (h) Each holder of a Parts Manufacturer Approval shall establish and maintain a fabrication inspection system that ensures that each completed part is airworthy and is safe for installation on applicable type certificated products. The system shall include the following:
- (1) Incoming materials used in the finished part must be as specified in the design data.
 - (2) Incoming materials must be properly identified if their physical and chemical properties cannot otherwise be readily and accurately determined.
 - (3) Materials subject to damage and deterioration must be suitably stored and adequately protected.
 - (4) Processes affecting the quality and safety of the finished product must be accomplished in accordance with acceptable specifications.
 - (5) Parts in process must be inspected for conformity with the design data at points in production where accurate determination can be made. Statistical quality control procedures may be employed where it is shown that a satisfactory level of quality will be maintained for the particular part involved.
 - (6) Current design drawings must be readily available to manufacturing and inspection personnel, and used when necessary.
 - (7) Major changes to the basic design must be adequately controlled and approved before being incorporated in the finished part.
 - (8) Rejected materials and components must be segregated and identified in such a manner as to preclude their use in the finished part.
 - (9) Inspection records must be maintained, identified with the completed part, where practicable, and retained in the manufacturer's file for a period of at least 2 years after the part has been completed.
- (i) A Parts Manufacturer Approval issued under this section is not transferable and is effective until surrendered or withdrawn or otherwise terminated by the ECAA.
- (j) The holder of a Parts Manufacturer Approval shall notify the ECAA in writing within 10 days from the date the manufacturing facility at which the parts are manufactured is relocated or expanded to include additional facilities at other locations.
- (k) Each holder of a Parts Manufacturer Approval shall determine that each completed part is airworthy and is safe for installation on type certificated products.

21.405 Approval of materials, parts, processes, and appliances.

Whenever a material, part, process, or appliance is required to be approved under this chapter, it may be approved:

- (a) Under a Parts Manufacturer Approval issued under ECAR 21.303;
- (b) Under a Technical Standard Order
- (c) In conjunction with type certification procedures for a product; or
- (d) In any other manner approved by the ECAA.

Appendix A: Design Organization Approval under adopted regulations from EU**21. Aa.1 Effectively**

This appendix will be effective from January 1, 2020

21. Aa.3 Applicability

- (a) This Appendix prescribes requirements for issuing approvals to Design Organization
- (b) Each person who applies for such approval or change must show compliance with the applicable requirements of Annex I (Part 21) to (EU) no. 748/2012 subparts A&J as amended, and their guidance material except the items referred to in 21.aa5, applicant has to Comply with them rather than compliance with EU regulations

21. Aa.5 Expected differences from EU regulations

The following is a list of expected differences from Annex I (Part 21) to (EU) no. 748/2012

- (a) 21.A.5 Application: Agency shall be ECAA
- (b) 21.A.14 Safety Management System is required as ECAR 21.14
- (c) 21.A. 25 Duration is required as ECAR 21.25

**Appendix B: Production Organization Approval under adopted regulations
from EU**

21. Ba.1 Effectively

This appendix will be effective from January 1, 2020

21. Ba.3 Applicability

- (a) This Appendix prescribes requirements for issuing approvals to Production Organization
- (b) Each person who applies for such approval or change must show compliance with the applicable requirements of Annex I (Part 21) to (EU) no. 748/2012 subparts A&G as amended, and their guidance material except the items referred to in 21.ba5,applicant has to Comply with them rather than compliance with EU Regulations

21. Ba.5 Expected differences from EU regulations

The following is a list of expected differences from Annex I (Part 21) to (EU) no. 748/2012

- (a) 21.B.5 Application: Competent authority shall be ECAA
- (b) 21.B.190 Safety Management System required as ECAR 21.190
- (c) 21.B. 25 Duration is required as ECAR 21.207