

Hong Kong Aviation Requirements

HKAR-21

**Certification of Aircraft and Related
Products, Parts and Appliances, and of
Design and Production Organisations**

**Issue 3 Revision 5
31 October 2018**

CAD 21

**Civil Aviation Department
Hong Kong, CHINA**

HKAR-21

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Please note that HKAR-21 is available at CAD website: <http://www.cad.gov.hk/>
Hardcopies will not be published.

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FOREWORD

- 1 Part 21 of the European Aviation Safety Agency (EASA) has been selected to provide where appropriate the content of the HKAR-21.
- 2 Amendments are incorporated into the text by means of a 'Revision' or a complete 'Re-issue'.
- 3 New, amended and corrected text is indicated by a marginal line.

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HONG KONG AVIATION REQUIREMENTS

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 ISSUE 1 REVISION 2, DATED 31 January 2009
 ISSUE 1 REVISION 3, DATED 30 November 2009

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THIRD ISSUE, DATED 1 May 2012
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PREAMBLES**HKAR-21**

This HKAR-21 was issued on 1 February 2007 and became effective on the same date. The preambles are intended to be a summarised record of the main changes introduced by each amendment of HKAR-21.

Issue 1***1 February 2007***

- New requirements for certification of aircraft and related products, parts and appliances, and of design and production organisations.

Issue 1 Revision 1***15 April 2007***

- Introduced the Hong Kong Parts Manufacturer Approval (HPMA) in Subpart K.

Issue 1 Revision 2***31 January 2009***

- Amended HKAR 21.92(b) to specify the applicant should have sound knowledge of the design principles embodied in the aircraft type being modified.
- Amended HKAR 21.139(b) to include 'software quality assurance' as an element of a quality system.
- Amended HKAR 21.432(b) to specify the applicant should have sound knowledge of the design principles embodied in the aircraft type being repaired.
- Amended Section 2 AMC page 2-0-1 to indicate 'HKAR-21' explicitly.
- Deleted AMC 21.91 and added AMC 21.92(a).
Introduced new Section 3 (Guidance Material).

Issue 1 Revision 3***30 November 2009***

- Added AMC No. 2 to HKAR 21.163(c) to refer HKAR-2 Chapter 31 for use and instructions for the completion of the Authorised Release Certificate (CAD Form One).
- Added AMC 21.307(a) to refer HKAR-2 Chapter 31 for use and instructions for the completion of the Authorised Release Certificate (CAD Form One)

Issue 2***15 August 2011***

- Added Subpart I Noise Certificate in Section 1.
- Added AMC 21.112 and 21.113(a) for Supplemental Type Certificate (STC) in Section 2

Issue 3 Revision 5**P-1****31 October 2018**

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- Amended GM 21.90 for Changes to Type Certificates in Section 3.
- Added GM 21.91 & GM 2 to HKAR 21.435(a) in Section 3.
- Added GM 21.111 for Supplemental Type Certificate (STC) in Section 3.
- Added GM 21.431 for Subpart M Repair in Section 3.
- Added Appendix 1 to provide sample Project Specific Certification Plan (PSCP).
- Added Appendix 2 to provide sample Compliance Checklist for STC project.

Issue 2 Revision 1

15 November 2011

- Deleted AMC 21.92(a).
- Added AMC 21.113(a)(6) for payment of deposit for application of STC and VSTC.
- Added AMC 21.113(a)(7) for variation against HKAR 21.111.
- Amended GM 21.90 for acceptance of non-CAD approved design changes.
- Amended Appendix B to GM 21.91(2)(2.5) to include rotating parts under major design change.
- Editorial changes in GM 21.111.

Issue 2 Revision 2

21 March 2012

- Amended HKAR 21.606(c).
- Amended HKAR 21.609(f).
- Amended AMC 21.608 for revised DDP format.

Issue 3

1 May 2012

- Added Subpart H Certificates of Airworthiness in Section 1.
- Amended HKAR 21.801(b) for nationality and registration marks of aircraft.
- Added Subpart H Certificates of Airworthiness in Section 3.

Issue 3 Revision 1

10 December 2012

- Amended address and telephone number of CAD in Page ii.

Issue 3 Revision 2***5 December 2014***

- Amended HKAR 21.18 for noise certification requirements for adoption of Amendment 11 to ICAO Annex 16 Volume I.
- Added HKAR 21.204(d) to include verification of application for noise certificate by HKAR-183 ODA.
- Added GM 21.204(a) guidance materials for application for noise certificates.

Issue 3 Revision 3***31 August 2015***

- Editorial changes in HKAR 21.11.

Issue 3 Revision 4***29 September 2017***

- Amended GM 21.90 to clarify which design changes require Hong Kong approvals and to provide details of Arrangements with other civil aviation authorities.
- Editorial changes in Appendix B to GM 21.91 paragraph 2.6(e), GM 21.111 and GM 21.174(a)3.
- Added GM 21.204(a)1.i to require deposit payment for application for noise certificates.
- Added GM 21.204(a)4 for introduction of Appendix 3.
- Amended GM 21.431 to clarify which repair designs require Hong Kong approvals and to provide details of Arrangements with other civil aviation authorities.
- Added Appendix 3 to provide summary of noise requirements.

Issue 3 Revision 5***31 October 2018***

- Added a new item (c) to HKAR 21.18 to address carbon dioxide (CO₂) emission requirements.
- Renumbered the original item (c) of HKAR 21.18 to item (d) and amended the referenced paragraphs.
- Changed 'AMC 21.16(a)' to 'AMC 21.16A'.
- Added AMC 21.18(c) to address the designation of applicable environmental protection requirements and certification specifications for carbon dioxide (CO₂) emissions.

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SECTION 1 – REQUIREMENTS**1** *GENERAL*

This Section 1 contains the Requirements for Certification of Aircraft and Related Products, Parts and Appliances, and of Design and Production Organisations.

2 *PRESENTATION*

- 2.1 The requirements of HKAR-21 are presented on loose pages, each page being identified by the date of issue and Issue/Revision number under which it is amended or reissued.
- 2.2 Explanatory Notes not forming part of the requirements appear in smaller typeface.
- 2.3 New, amended and corrected text is indicated by a marginal line.

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SUBPART A GENERAL PROVISIONS

HKAR 21.1 Scope

This Subpart establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section.

HKAR 21.2 Undertaking by another person than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other natural or legal person, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person such as to ensure that the holder's obligations are and will be properly discharged.

HKAR 21.3 Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data

The holder of a type certificate, supplemental type certificate, Hong Kong Technical Standard Order (HTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under HKAR-21 shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the continuing airworthiness of the product, part or appliance covered by the type certificate, supplemental type certificate, HTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under HKAR-21. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated implementing requirements.

(b) Reporting to the Director-General

- 1 The holder of a type certificate, supplemental type certificate, HTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under HKAR-21 shall report to the Director-General any failure, malfunction, defect or other occurrence of which it is aware related to a product, part, or appliance covered by the type certificate, supplemental type certificate, HTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under HKAR-21, and which has resulted in or may result in an unsafe condition.

- 2 These reports shall be made in a form and manner established by the Director-General, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this.

(c) Investigation of Reported Occurrences

- 1 When an occurrence reported under paragraph (b), or under HKAR 21.165(f)2 results from a deficiency in the design, or a manufacturing deficiency, the holder of the type certificate, supplemental type certificate, major repair design approval, HTSO authorisation, or any other relevant approval deemed to have been issued under HKAR-21, or the manufacturer as appropriate, shall investigate the reason for the deficiency and report to the Director-General the results of its investigation and any action it is taking or proposes to take to correct that deficiency.
- 2 If the Director-General finds that an action is required to correct the deficiency, the holder of the type certificate, supplemental type certificate, major repair design approval, HTSO authorisation, or any other relevant approval deemed to have been issued under HKAR-21, or the manufacturer as appropriate, shall submit the relevant data to the Director-General.

HKAR 21.3B Airworthiness directives

- (a) An airworthiness directive means a document issued or adopted by the Director-General which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.
- (b) The Director-General will issue an airworthiness directive when:
 - 1 an unsafe condition has been determined by the Director-General to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and
 - 2 that condition is likely to exist or develop in other aircraft.
- (c) When an airworthiness directive has to be issued by the Director-General to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type certificate, supplemental type certificate, major repair design approval, HTSO authorisation or any other relevant approval deemed to have been issued under HKAR-21, shall:
 - 1 propose the appropriate corrective action or required inspections, or both, and submit details of these proposals to the Director-General for approval.

- 2 Following the approval by the Director-General of the proposals referred to under subparagraph 1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.
- (d) An airworthiness directive contains at least the following information:
- 1 An identification of the unsafe condition;
 - 2 An identification of the affected aircraft;
 - 3 The action(s) required;
 - 4 The compliance time for the required action(s);
 - 5 The date of entry into force.

HKAR 21.4 Coordination between design and production

Each holder of a type certificate, supplemental type certificate, HTSO authorisation, approval of a change to type design or approval of a repair design, shall collaborate with the production organisation as necessary to ensure:

- (a) The satisfactory coordination of design and production required by HKAR 21.133 or HKAR 21.165(c)2 as appropriate, and
- (b) The proper support of the continued airworthiness of the product, part or appliance.

HKAR 21.8 Charges

Each holder of a type certificate, supplemental type certificate, production organisation approval, design organisation approval, Hong Kong Parts Manufacturer Approval (HPMA), HTSO authorisation, approval of a change to type design or approval of a repair design, shall pay the charges prescribed by the Director-General. Failure to pay entitles the Director-General to suspend, but does not automatically render the certificate/approval invalid.

SUBPART B TYPE CERTIFICATES

Note: The "type certificate" referred in HKAR-21 means the type certificate issued by the State of Design.

HKAR 21.11 Scope

This Subpart establishes the procedure for issuing type certificates for products and establishes the rights and obligations of the applicants for, and holders of, those certificates.

Type certificates are however granted by accepting (or validating) the certification approval granted by the Authority of the State of Design as far as possible. For those aircraft types certificated by the European Joint Aviation Authorities, European Aviation Safety Agency or USA Federal Aviation Administration, the Director-General accepts that they are in compliance with the basic requirements of the Hong Kong airworthiness standards. No Additional Requirements or Special Conditions will be imposed.

HKAR 21.13 Eligibility

Any natural or legal person that has demonstrated, or is in the process of demonstrating, its capability in accordance with HKAR 21.14 shall be eligible as an applicant for a type certificate under the conditions laid down in this Subpart.

HKAR 21.14 Demonstration of capability

- (a) Any organisation applying for a type certificate shall demonstrate its capability by holding a design organisation approval, issued by the Director-General in accordance with Subpart J.
- (b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek the agreement of Director-General for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with HKAR-21, when the product is one of the following:
 - 1 a very light aeroplane or rotorcraft, a sailplane or a powered sailplane, a balloon, a hot air airship; or
 - 2 a small aeroplane meeting all of the following elements:
 - (i) single piston engine, naturally aspirated, of not more than 250 hp maximum take-off power (MTO);
 - (ii) conventional configuration;

- (iii) conventional material and structure;
 - (iv) flights under visual flight rules, outside icing conditions;
 - (v) maximum 4 seats including the pilot and maximum take off mass limited to 3000 lb (1361 kg);
 - (vi) unpressurised cabin;
 - (vii) non-power assisted controls;
 - (viii) basic aerobatic flights limited to +6/-3g; or
- 3 a piston engine; or
 - 4 an engine or a propeller type-certificated under the applicable airworthiness code for powered sailplanes; or
 - 5 a fixed or variable pitch propeller.

HKAR 21.15 Application

- (a) An application for a type certificate shall be made in a form and manner established by the Director-General.
- (b) An application for an aircraft type certificate shall 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 engine or propeller type certificate shall 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.

HKAR 21.16A Airworthiness codes

The Director-General issues or adopts airworthiness codes as standard means to show compliance of products, parts and appliances. Such codes will be sufficiently detailed and specific to indicate to applicants the conditions under which certificates will be issued.

HKAR 21.16B Special conditions

- (a) The Director-General will prescribe special detailed technical specifications, named special conditions, for a product, if the related airworthiness code does not contain adequate or appropriate safety standards for the product, because:

- 1 The product has novel or unusual design features relative to the design practices on which the applicable airworthiness code is based; or
 - 2 The intended use of the product is unconventional; or
 - 3 Experience from other similar products in service or products having similar design features, has shown that unsafe conditions may develop.
- (b) The special conditions contain such safety standards as the Director-General finds necessary to establish a level of safety equivalent to that established in the applicable airworthiness code.

HKAR 21.17 Type certification basis

- (a) The type certification basis to be notified for the issuance of a type certificate shall consist of:
- 1 The applicable airworthiness code established by the Director-General that is effective on the date of application for that certificate unless:
 - (i) otherwise specified by the Director-General; or
 - (ii) compliance with later effective amendments is elected by the applicant or required under paragraphs (c) and (d).
 - 2 Any special condition prescribed in accordance with HKAR 21.16B(a).
- (b) An application for type certification of large aeroplanes and large rotorcraft shall be effective for five years and an application for any other type certificate shall be effective for three years, unless an applicant shows at the time of application that its product requires a longer period of time for design, development, and testing, and the Director-General approves a longer period.
- (c) In the 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 paragraph (b); the applicant may:
- 1 file a new application for a type certificate and comply with all the provisions of paragraph (a) applicable to an original application; or
 - 2 file for an extension of the original application and comply with the applicable airworthiness codes 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 paragraph (b) for the original application.

- (d) If an applicant elects to comply with an amendment to the airworthiness codes that is effective after the filing of the application for a type certificate, the applicant shall also comply with any other amendment that the Director-General finds is directly related.

HKAR 21.18 Designation of applicable environmental protection requirements and certification specifications

- (a) The applicable noise requirements for the issue of a type certificate for an aircraft are prescribed according to Chapter 312 of the Laws of Hong Kong and the provisions of Chapter 1 of Annex 16, Volume I, Part II to the Convention on International Civil Aviation and:
- 1 for subsonic jet aeroplanes, in Volume I, Part II, Chapters 2, 3, 4 and 14, as applicable;
 - 2 for propeller-driven aeroplanes, in Volume I, Part II, Chapters 3, 4, 5, 6, 10 and 14, as applicable;
 - 3 for helicopters, in Volume I, Part II, Chapters 8 and 11, as applicable;
 - 4 for supersonic aeroplanes, in Volume I, Part II, Chapter 12, as applicable; and
 - 5 for tilt-rotors, in Volume I, Part II, Chapter 13, as applicable.
- (b) The applicable emission requirements for the issue of a type certificate for an aircraft and engine are prescribed in Annex 16 to the Convention on International Civil Aviation:
- 1 for prevention of intentional fuel venting, in Volume II, Part II, Chapter 2;
 - 2 for emissions of turbo-jet and turbofan engines intended for propulsion only at subsonic speeds, in Volume II, Part III, Chapter 2; and
 - 3 for emissions of turbo-jet and turbofan engines intended for propulsion only at supersonic speeds, in Volume II, Part III, Chapter 3.
- (c) The applicable carbon dioxide (CO₂) emission requirements for the issue of a type certificate for an aircraft are prescribed in Annex 16 to the Convention on International Civil Aviation:
- 1 for emissions of subsonic jet aeroplanes over 5700 kg and propeller-driven aeroplanes over 8618 kg, in Volume III, Part II, Chapter 2; as applicable.
- (d) The Director-General issues or adopts certification specifications providing for

acceptable means to demonstrate compliance with the noise and the emission requirements laid down in paragraphs (a) to (c) respectively.

HKAR 21.19 Changes requiring a new type certificate

Any natural or legal person proposing to change a product shall apply for a new type certificate if the Director-General finds that the change in design, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type certification basis is required.

HKAR 21.20 Compliance with the type certification basis and environmental protection requirements

- (a) The applicant for a type certificate shall show compliance with the applicable type certification basis and environmental protection requirements and shall provide to the Director-General the means by which such compliance has been shown.
- (b) The applicant shall declare that it has shown compliance with all applicable type certification basis and environmental protection requirements.
- (c) Where the applicant holds an appropriate design organisation approval, the declaration of paragraph (b) shall be made according to the provisions of Subpart J.

HKAR 21.21 Issue of a type certificate

The applicant shall be entitled to have a product type certificate issued by the Director-General after:

- (a) demonstrating its capability in accordance with HKAR 21.14;
- (b) submitting the declaration referred to in HKAR 21.20(b); and
- (c) it is shown that:
 - 1 the product to be certificated meets the applicable type certification basis and environmental protection requirements designated in accordance with HKAR 21.17 and HKAR 21.18;
 - 2 any airworthiness provisions not complied with are compensated for by factors that provide an equivalent level of safety;
 - 3 no feature or characteristic makes it unsafe for the uses for which certification is requested; and

- 4 the type certificate applicant has expressly stated that it is prepared to comply with HKAR 21.44.
- (d) in the case of an aircraft type certificate, the engine or propeller, or both, if installed in the aircraft, have a type certificate issued or determined in accordance with HKAR-21.

HKAR 21.31 Type design

- (a) The type design shall consist of:
- 1 the drawings and 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 type certification basis and environmental protection requirements;
 - 2 information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;
 - 3 an approved airworthiness limitations section of the instructions for continued airworthiness as defined by the applicable airworthiness code; and
 - 4 any other data necessary to allow by comparison, the determination of the airworthiness, the characteristics of noise, fuel venting, and exhaust emissions (where applicable) of later products of the same type.
- (b) Each type design shall be adequately identified.

HKAR 21.33 Investigation and tests

- (a) The applicant shall perform all inspections and tests necessary to show compliance with the applicable type certification basis and environmental protection requirements.
- (b) Before each test required by paragraph (a) is undertaken, the applicant shall have determined:
- 1 for the test specimen:
 - (i) that materials and processes adequately conform to the specifications for the proposed type design;
 - (ii) that parts of the products adequately conform to the drawings in the proposed type design;

- (iii) that the manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and
- 2 that the test equipment and all measuring equipment used for tests are adequate for the test and are appropriately calibrated.
- (c) The applicant shall allow the Director-General to make any inspection necessary to check compliance with paragraph (b).
- (d) The applicant shall allow the Director-General to review any report and make any inspection and to perform or witness any flight and ground test necessary to check the validity of the declaration of compliance submitted by the applicant under HKAR 21.20(b) and to determine that no feature or characteristic makes the product unsafe for the uses for which certification is requested.
- (e) For tests performed or witnessed by the Director-General under paragraph (d):
 - 1 the applicant shall submit to the Director-General a statement of compliance with paragraph (b); and
 - 2 no change relating to the test that would affect the statement of compliance may be made to a product, part or appliance between the time compliance with paragraph (b) is shown and the time it is presented to the Director-General for test.

HKAR 21.35 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 Director-General.
- (b) The applicant shall make all flight tests that the Director-General finds necessary:
 - 1 to determine compliance with the applicable type certification basis and environmental protection requirements, and
 - 2 for aircraft to be certificated under this Section, except sailplanes and powered sailplanes and except aeroplanes of 2,722 kg or less maximum take-off mass (MTOM), to determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly.
- (c) (Reserved)
- (d) (Reserved)
- (e) (Reserved)

- (f) The flight tests prescribed in subparagraph (b)2 shall 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 a type certificate; and
 - 2 for all other aircraft, at least 150 hours of operation.

HKAR 21.41 Type certificate

The type certificate is considered to include the type design, the operating limitations, the type certificate data sheet for airworthiness and emissions, the applicable type certification basis and environmental protection requirements with which the Director-General records compliance, and any other conditions or limitations prescribed for the product in the applicable certification specifications and environmental protection requirements. The aircraft type certificate, in addition, includes the type certificate data sheet for noise. The engine type certificate data sheet includes the record of emission compliance.

HKAR 21.44 Obligations of the holder

Each holder of a type certificate shall:

- (a) undertake the obligations laid down in HKAR 21.3, HKAR 21.3B, HKAR 21.4, HKAR 21.55, HKAR 21.57 and HKAR 21.61; and, for this purpose, shall continue to meet the qualification requirements for eligibility under HKAR 21.14; and
- (b) specify the marking in accordance with Subpart Q.

HKAR 21.47 Transferability

Transfer of a type certificate may only be made to a natural or legal person that is able to undertake the obligations under HKAR 21.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of HKAR 21.14.

HKAR 21.51 Duration and continued validity

- (a) A type certificate will be issued for an unlimited duration. They shall remain valid subject to:
 - 1 the holder remaining in compliance with HKAR-21; and
 - 2 the certificate not being surrendered or revoked under the applicable administrative procedures established by the Director-General.

- (b) Upon surrender or revocation, the type certificate shall be returned to the Director-General.

HKAR 21.55 Record keeping

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 Director-General and shall be retained in order to provide the information necessary to ensure the continued airworthiness and compliance with applicable environmental protection requirements of the product.

HKAR 21.57 Manuals

The holder of a type certificate shall produce, maintain and update master copies of all manuals required by the applicable type certification basis and environmental protection requirements for the product, and provide copies, on request, to the Director-General.

HKAR 21.61 Instructions for continued airworthiness

- (a) The holder of the type certificate shall furnish at least one set of complete instructions for continued airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type certification basis, to each known owner of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other person required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.
- (b) In addition, changes to the instructions for continued airworthiness shall be made available to all known operators of the product and shall be made available on request to any person required to comply with any of those instructions. A programme showing how changes to the instructions for continued airworthiness are distributed shall be submitted to the Director-General.

SECTION 1

HKAR-21

(SUBPART C NOT APPLICABLE)

SUBPART D CHANGES TO TYPE CERTIFICATES

HKAR 21.90 Scope

This Subpart establishes the procedure for the approval of changes to type designs and type certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals.

HKAR 21.91 Classification of changes in type design

Changes in type design are classified as minor and major. A 'minor change' is one that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, noise, fuel venting, exhaust emission, or other characteristics affecting the airworthiness of the product. Without prejudice to HKAR 21.19, all other changes are 'major changes' under this Subpart. Major and minor changes shall be approved in accordance with HKAR 21.95 or HKAR 21.97 as appropriate, and shall be adequately identified.

HKAR 21.92 Eligibility

- (a) Only the type certificate holder may apply for approval of a major change to a type design under this Subpart; all other applicants for a major change to a type design shall apply under Subpart E.
- (b) Any natural or legal person, who have sound knowledge of the design principles embodied in the aircraft type being modified, may apply for approval of a minor change to a type design under this Subpart.

HKAR 21.93 Application

An application for approval of a change to a type design shall be made in a form and manner established by the Director-General and shall include:

- (a) A description of the change identifying:
 - 1 all parts of the type design and the approved manuals affected by the change; and
 - 2 the certification specifications and environmental protection requirements with which the change has been designed to comply in accordance with HKAR 21.101.
- (b) Identification of any re-investigations necessary to show compliance of the changed product with the applicable certification specifications and environmental protection requirements.

HKAR 21.95 Minor changes

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

- (a) by the Director-General; or
- (b) by an appropriately approved design organisation under a procedure agreed with the Director-General.

HKAR 21.97 Major changes

- (a) An applicant for approval of a major change shall:
 - 1 submit to the Director-General substantiating data together with any necessary descriptive data for inclusion in the type design;
 - 2 show that the changed product complies with applicable certification specifications and environmental protection requirements, as specified in HKAR 21.101;
 - 3 declare that it has shown compliance with the applicable type certification basis and environmental protection requirements and shall provide to the Director-General the basis on which such a declaration is made; and
 - 4 where the applicant holds an appropriate design organisation approval, make the declaration of subparagraph (a)3 according to the provisions of Subpart J;
 - 5 comply with HKAR 21.33 and, where applicable, HKAR 21.35.
- (b) Approval of a major change in a type design is limited to that or those specific configuration(s) in the type design upon which the change is made.

HKAR 21.101 Designation of applicable certification specifications and environmental protection requirements

- (a) An applicant for a change to a type certificate shall demonstrate that the changed product complies with the airworthiness code that is applicable to the changed product and that is in effect at the date of the application for the change, and with the applicable environmental protection requirements laid down in HKAR 21.18.
- (b) By derogation from paragraph (a), an applicant may show that the changed product complies with an earlier amendment of the airworthiness code defined in paragraph (a), and of any other certification specification the Director-General finds is directly related. However, the earlier amended airworthiness code may not precede the

corresponding airworthiness code incorporated by reference in the type certificate. The applicant may show compliance with an earlier amendment of an airworthiness code for any of the following:

- 1 A change that the Director-General finds not to be significant. In determining whether a specific change is significant, the Director-General considers the change in context with all previous relevant design changes and all related revisions to the applicable certification specifications incorporated in the type certificate for the product. Changes that meet one of the following criteria are automatically considered significant:
 - (i) The general configuration or the principles of construction are not retained.
 - (ii) The assumptions used for certification of the product to be changed do not remain valid.
 - 2 Each area, system, part or appliance that the Director-General finds is not affected by the change.
 - 3 Each area, system, part or appliance that is affected by the change, for which the Director-General finds that compliance with an airworthiness code described in paragraph (a) would not contribute materially to the level of safety of the changed product or would be impractical.
- (c) An applicant for a change to an aircraft (other than a rotorcraft) of 2,722 kg (6,000 lb) or less maximum weight or to a non-turbine rotorcraft of 1,361 kg (3,000 lb) or less maximum weight may show that the changed product complies with the type certification basis incorporated by reference in the type certificate. However, if the Director-General finds that the change is significant in an area, the Director-General may designate compliance with an amendment to the type certification basis incorporated by reference in the type certificate, in effect at the date of the application, and any certification specification that the Director-General finds is directly related, unless the Director-General also finds that compliance with that amendment or certification specification would not contribute materially to the level of safety of the changed product or would be impractical.
- (d) If the Director-General finds that the airworthiness code in effect at the date of the application for the change does not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed under the provisions of HKAR 21.16B, to provide a level of safety equivalent to that established in the airworthiness code in effect at the date of the application for the change.
- (e) An application for a change to a type certificate for large aeroplanes and large rotorcraft is effective for five years, and an application for a change to any other type

certificate is effective for three years. In a case where the change has not been approved, or it is clear that it will not be approved under the time limit established under this paragraph, the applicant may:

- 1 file a new application for a change to the type certificate and comply with all the provisions of paragraph (a) applicable to an original application for a change; or
- 2 file for an extension of the original application and comply with the provisions of paragraph (a) for an effective date of application, to be selected by the applicant, not earlier than the date which precedes the date of approval of the change by the time period established under this subparagraph for the original application for the change.

HKAR 21.103 Issue of approval

- (a) The applicant shall be entitled to have a major change to a type design approved by the Director-General after:
 - 1 submitting the declaration referred to in HKAR 21.97(a)3; and
 - 2 it is shown that:
 - (i) the changed product meets the applicable certification specifications and environmental protection requirements, as specified in HKAR 21.101;
 - (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) A minor change to a type design shall only be approved in accordance with HKAR 21.95 if it is shown that the changed product meets the applicable certification specifications, as specified in HKAR 21.101.

HKAR 21.105 Record keeping

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 Director-General and shall be retained in order to provide the information necessary to ensure the continued airworthiness and compliance with applicable environmental protection requirements of the changed product.

HKAR 21.107 Instructions for continued airworthiness

- (a) The holder of a minor change approval to type design shall furnish at least one set of the associated variations, if any, to the instructions for continued airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type certification basis, to each known owner of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person required to comply with any of the terms of those instructions.
- (b) In addition, changes to those variations of the instructions for continued airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person required to comply with any of those instructions.

HKAR 21.109 Obligations and Hong Kong Part Approval (HPA) marking

The holder of a minor change approval to type design shall:

- (a) undertake the obligations laid down in HKAR 21.4, HKAR 21.105 and HKAR 21.107;
and
- (b) specify the marking, including HPA letters, in accordance with HKAR 21.804(a).

SUBPART E SUPPLEMENTAL TYPE CERTIFICATES**HKAR 21.111 Scope**

This Subpart establishes the procedure for the approval of major changes to the type design under supplemental type certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

HKAR 21.112 Eligibility

Any natural or legal person ('organisation') that has demonstrated, or is in the process of demonstrating, its capability under HKAR 21.112B shall be eligible as an applicant for a supplemental type certificate under the conditions laid down in this Subpart.

HKAR 21.112B Demonstration of capability

- (a) Any organisation applying for a supplemental type certificate shall demonstrate its capability by holding a design organisation approval, issued by the Director-General in accordance with Subpart J.
- (b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Director-General agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

HKAR 21.113 Application for a supplemental type certificate

- (a) An application for a supplemental type certificate shall be made in a form and manner established by the Director-General.
- (b) An application for a supplemental type certificate shall include the descriptions and identification required by HKAR 21.93. In addition, such an application shall include a justification that the information on which those identifications are based is adequate either from the applicant's own resources, or through an arrangement with the type certificate holder.

HKAR 21.114 Showing of compliance

Any applicant for a supplemental type certificate shall comply with HKAR 21.97.

HKAR 21.115 Issue of a supplemental type certificate

The applicant shall be entitled to have a supplemental type certificate issued by the Director-General after:

- (a) complying with HKAR 21.103(a);
- (b) demonstrating its capability in accordance with HKAR 21.112B;
- (c) where, under HKAR 21.113(b), the applicant has entered into an arrangement with the type certificate holder,
 - 1 the type certificate holder has advised that it has no technical objection to the information submitted under HKAR 21.93; and
 - 2 the type certificate holder has agreed to collaborate with the supplemental type certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with HKAR 21.44 and HKAR 21.118A.

HKAR 21.116 Transferability

A supplemental type certificate shall only be transferred to a natural or legal person that is able to undertake the obligations of HKAR 21.118A and for this purpose has demonstrated its ability to qualify under the criteria of HKAR 21.112B.

HKAR 21.117 Changes to that part of a product covered by a supplemental type certificate

- (a) Minor changes to that part of a product covered by a supplemental type certificate shall be classified and approved in accordance with Subpart D.
- (b) Each major change to that part of a product covered by a supplemental type certificate shall be approved as a separate supplemental type certificate in accordance with this Subpart.
- (c) By way of derogation from paragraph (b), a major change to that part of a product covered by a supplemental type certificate submitted by the supplemental type certificate holder itself may be approved as a change to the existing supplemental type certificate.

HKAR 21.118A Obligations and HPA marking

Each holder of a supplemental type certificate shall:

- (a) undertake the obligations:
 - 1 laid down in HKAR 21.3, HKAR 21.3B, HKAR 21.4, HKAR 21.105, HKAR 21.119 and HKAR 21.120;
 - 2 implicit in the collaboration with the type certificate holder under HKAR 21.115(c)2;and for this purpose continue to meet the criteria of HKAR 21.112B;
- (b) specify the marking, including HPA letters, in accordance with HKAR 21.804(a).

HKAR 21.118B Duration and continued validity

- (a) A supplemental type certificate will be issued for an unlimited duration. It shall remain valid subject to:
 - 1 the holder remaining in compliance with HKAR-21; and
 - 2 the certificate not being surrendered or revoked under the applicable administrative procedures established by the Director-General.
- (b) Upon surrender or revocation, the supplemental type certificate shall be returned to the Director-General.

HKAR 21.119 Manuals

The holder of a supplemental type certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type certificate, and furnish copies of these manuals to the Director-General on request.

HKAR 21.120 Instructions for continued airworthiness

- (a) The holder of the supplemental type certificate for an 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 type certification basis, to each known owner of one or more aircraft, engine, or propeller incorporating the features of the supplemental type certificate, upon its delivery, or upon issuance of

the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

- (b) In addition, changes to those variations of the instructions for continued airworthiness shall be made available to all known operators of a product incorporating the supplemental type certificate and shall be made available, on request, to any person required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continued airworthiness are distributed shall be submitted to the Director-General.

(SUBPART F)

**(RESERVED FOR PRODUCTION WITHOUT PRODUCTION ORGANISATION
APPROVAL)**

SUBPART G PRODUCTION ORGANISATION APPROVAL

HKAR 21.131 Scope

This Subpart establishes:

- (a) The procedure for the issuance of a production organisation approval for a production organisation showing conformity of products, parts and appliances with the applicable design data.
- (b) The rules governing the rights and obligations of the applicant for, and holders of, such approvals.

HKAR 21.133 Eligibility

Any natural or legal person ('organisation') shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

- (a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and
- (b) hold or have applied for an approval of that specific design; or
- (c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

HKAR 21.134 Application

Each application for a production organisation approval shall be made to the Director-General in a form and manner established by him, and shall include an outline of the information required by HKAR 21.143 and the terms of approval requested to be issued under HKAR 21.151.

HKAR 21.135 Issue of production organisation approval

An organisation shall be entitled to have a production organisation approval issued by the Director-General when it has demonstrated compliance with the applicable requirements under this Subpart.

HKAR 21.139 Quality System

- (a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation 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 HKAR 21.163.
- (b) The quality system shall contain:
- 1 As applicable within the scope of approval, control procedures for:
 - (i) document issue, approval, or change.
 - (ii) vendor and subcontractor assessment audit and control.
 - (iii) verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data.
 - (iv) identification and traceability.
 - (v) manufacturing processes.
 - (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 for, or holder of, the design approval.
 - (x) records completion and retention.
 - (xi) personnel competence and qualification.
 - (xii) issue of airworthiness release documents.
 - (xiii) handling, storage and packing.
 - (xiv) internal quality audits and resulting corrective actions.

- (xv) work within the terms of approval performed at any location other than the approved facilities.
- (xvi) reserved.
- (xvii) Software quality assurance

The control procedures need to include specific provisions 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 shall include a feedback system to the person or group of persons referred to in HKAR 21.145(c)2 and ultimately to the manager referred to in HKAR 21.145 (c)1 to ensure, as necessary, corrective action.

HKAR 21.143 Exposition

- (a) The organisation shall submit to the Director-General a production organisation exposition providing the following information:
 - 1 A statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times.
 - 2 The title(s) and names of managers accepted by the Director-General in accordance with HKAR 21.145(c)2.
 - 3 The duties and responsibilities of the manager(s) as required by HKAR 21.145(c)2 including matters on which they may deal directly with the Director-General on behalf of the organisation.
 - 4 An organisational chart showing associated chains of responsibility of the managers as required by HKAR 21.145(c)1 and 2.
 - 5 A list of certifying staff as referred to in HKAR 21.145(d).
 - 6 A general description of man-power resources.
 - 7 A general description of the facilities located at each address specified in the production organisation's certificate of approval.
 - 8 A general description of the production organisation's scope of work relevant to the terms of approval.
 - 9 The procedure for the notification of organisational changes to the

Director-General.

- 10 The amendment procedure for the production organisation exposition.
 - 11 A description of the quality system and the procedures as required by HKAR 21.139(b)1.
 - 12 A list of those outside parties referred to in HKAR 21.139(a).
- (b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Director-General.

HKAR 21.145 Approval requirements

The production organisation shall demonstrate, on the basis of the information submitted in accordance with HKAR 21.143 that:

- (a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under HKAR 21.165.
- (b) with regard to all necessary airworthiness, noise, fuel venting and exhaust emissions data:
 - 1 The production organisation is in receipt of such data from the Director-General, and from the holder of, or applicant for, the type certificate or design approval, to determine conformity with the applicable design data.
 - 2 The production organisation has established a procedure to ensure that airworthiness, noise, fuel venting and exhaust emission data are correctly incorporated in its production data.
 - 3 Such data are kept up to date and made available to all personnel who need access to such data to perform their duties.
- (c) with regard to management and staff:
 - 1 A manager has been nominated by the production organisation, and is accountable to the Director-General. His or her responsibility within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in HKAR 21.143.

- 2 A person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with HKAR-21, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The persons nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities.
 - 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 coordination within the production organisation in respect of airworthiness, noise, fuel venting and exhaust emission data matters.
- (d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under HKAR 21.163 under the scope or terms of approval:
- 1 The knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities.
 - 2 The production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation.
 - 3 Certifying staff are provided with evidence of the scope of their authorisation.

HKAR 21.147 Changes to the approved production organisation

- (a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and characteristics of noise, fuel venting and exhaust emissions of the product, part or appliance, particularly changes to the quality system, shall be approved by the Director-General. An application for approval shall be submitted in writing to the Director-General and the organisation shall demonstrate to the Director-General before implementation of the change, that it will continue to comply with this Subpart.
- (b) The Director-General shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Director-General determines that the approval should be suspended.

HKAR 21.148 Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with HKAR 21.147.

HKAR 21.149 Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of HKAR 21.147, a production organisation approval is not transferable.

HKAR 21.151 Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under HKAR 21.163.

Those terms will be issued as part of a production organisation approval.

HKAR 21.153 Changes to the terms of approval

Each change to the terms of approval shall be approved by the Director-General. An application for a change to the terms of approval shall be made in a form and manner established by the Director-General. The applicant shall comply with the applicable requirements of this Subpart.

HKAR 21.157 Investigations

A production organisation shall make arrangements that allow the Director-General to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart.

HKAR 21.158 Findings

- (a) When objective evidence is found showing non-compliance of the holder of a production organisation approval with the applicable requirements of HKAR-21, the finding shall be classified as follows:
- 1 A level one finding is any non-compliance with HKAR-21 which could lead to uncontrolled non-compliances with applicable design data and which could affect the safety of the aircraft.
 - 2 A level two finding is any non-compliance with HKAR-21 which is not classified as level one.
- (b) An observation is any item where it has been identified, by objective evidence, to contain potential problems that could lead to a non-compliance under paragraph (a).

- (c) After receipt of notification of findings/observations:
- 1 In case of a level one finding, the holder of the production organisation approval shall demonstrate corrective action to the satisfaction of the Director-General within a period of no more than 21 working days after written confirmation of the finding.
 2. In case of level two findings, the corrective action period granted by the Director-General shall be appropriate to the nature of the finding but in any case initially shall not be more than six months. In certain circumstances and subject to the nature of the finding the Director-General may extend the six month period subject to a satisfactory corrective action plan agreed by the Director-General.
 - 3 An observation shall not require immediate action by the holder of the production organisation approval.
- (d) In case of level one or level two findings, the production organisation approval may be subject to a partial or full limitation, suspension or revocation. The holder of the production organisation approval shall provide confirmation of receipt of the notice of limitation, suspension or revocation of the production organisation approval in a timely manner.

HKAR 21.159 Duration and continued validity

- (a) A production organisation approval will be issued for a duration of two years. It shall remain valid unless:
- 1 the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
 - 2 the Director-General is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with HKAR 21.157; or
 - 3 there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or
 - 4 the production organisation no longer meets the requirements of HKAR 21.133; or
 - 5 the certificate has been surrendered or revoked.
- (b) Upon surrender or revocation, the certificate shall be returned to the Director-General.

HKAR 21.163 Privileges

Pursuant to the terms of approval issued under HKAR 21.135, the holder of a production organisation approval may:

- (a) perform production activities under HKAR-21.
- (b) reserved.
- (c) in the case of appliances, parts or products other than complete aircraft, issue authorised release certificates (CAD Form One) under HKAR 21.307.
- (d) reserved.

HKAR 21.165 Obligations of the holder

The holder of a production organisation approval shall:

- (a) ensure that the production organisation exposition furnished in accordance with HKAR 21.143 and the documents to which it refers, are used as basic working documents within the organisation.
- (b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval.
- (c)
 - 1 reserved, or
 - 2 determine that appliances, parts or products other than complete aircraft are complete and conform to the approved design data and are in condition for safe operation before issuing CAD Form One to certify airworthiness, and additionally in case of engines, determine according to data provided by the engine type certificate holder that each completed engine is in compliance with the applicable emissions requirements as defined in HKAR 21.18(b), current at the date of manufacture of the engine, to certify emissions compliance, or
 - 3 determine that appliances, parts or products other than complete aircraft conform to the applicable data before issuing CAD Form One as a conformity certificate.
- (d) record all details of work carried out.
- (e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information.

- (f)
 - 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 organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type certificate or design approval in order to identify those deviations which could lead to an unsafe condition.
 - 2 report to the Director-General the deviations which could lead to an unsafe condition identified according to subparagraph 1. Such reports shall be made in a form and manner established by the Director-General under HKAR 21.3(b)2.
 - 3 where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.
- (g) 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.
- (h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Director-General and be retained in order to provide the information necessary to ensure the continuing airworthiness of the products, parts or appliances.
- (i) reserved.

SUBPART H CERTIFICATES OF AIRWORTHINESS**HKAR 21.171 Scope**

This Subpart establishes the procedure for issuing certificates of airworthiness.

HKAR 21.172 Eligibility

Subject to article 4 of the Air Navigation (Hong Kong) Order 1995, any natural or legal person under whose name an aircraft is registered or will be registered in Hong Kong Special Administrative Region (HKSAR), or its representative, shall be eligible as an applicant for a certificate of airworthiness for that aircraft under this Subpart.

HKAR 21.173 Qualification

Before the issue of a certificate of airworthiness, the aircraft shall conform to a type certificate issued by the Director-General.

HKAR 21.174 Application

- (a) Pursuant to HKAR 21.172, an application for a certificate of airworthiness shall be made in a form and manner established by the Director-General.
- (b) Each application for a certificate of airworthiness shall include:
 1. the category of certificate of airworthiness applied for;
 2. with regard to new aircraft:
 - (i) A statement signed by the competent authority of the state of manufacture that the aircraft conforms to a design approved by the Director-General.
 - (ii) A weight and balance report with a loading schedule.
 - (iii) The flight manual, when required by the applicable airworthiness code for the particular aircraft.
 3. with regard to used aircraft :

- (i) originating from HKSAR, a certificate of airworthiness issued by the Director-General.
 - (ii) originating from outside HKSAR:
 - a. a statement by the competent authority of the State where the aircraft is registered, reflecting the airworthiness status of the aircraft on its register at time of transfer.
 - b. a weight and balance report with a loading schedule.
 - c. the flight manual when such material is required by the applicable airworthiness code for the particular aircraft.
 - d. historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with the certificate of airworthiness.
 - 4. aircraft certification documents specified by the Director-General.
 - 5. a recommendation for the issuance of a certificate of airworthiness issued by an organisation approved under HKAR-183.
- (c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii)(a) shall be issued no more than 60 days before presentation of the aircraft to the Director-General.

HKAR 21.175 Language

The manuals, placards, listings, instrument markings and other necessary information, required by applicable certification specifications and Hong Kong regulations and requirements, shall be presented in the English language and supplemented by the Chinese language as agreed by the Director-General.

HKAR 21.177 Amendment or modification

A certificate of airworthiness may be amended or modified only by the Director-General.

HKAR 21.179 Transferability and re-issuance within HKSAR

- (a) Where ownership of an aircraft has changed:
 - 1. a new certificate of airworthiness shall be issued;
 - 2. reserved.

(b) Reserved.

HKAR 21.180 Inspections

Each applicant for, or the holder of the certificate of airworthiness shall provide access to the aircraft for which that certificate of airworthiness has been applied for or issued respectively upon request by the Director-General.

HKAR 21.181 Duration and continued validity

- (a) A certificate of airworthiness is normally issued with a validity of 12 months. It shall remain valid subject to:
1. the aircraft in compliance with the applicable type-design and continuing airworthiness requirements; and
 2. the aircraft remaining on the register; and
 3. the type certificate under which it is issued not being previously invalidated under HKAR 21.51; and
 4. the certificate not being surrendered or revoked.
- (b) Upon surrender or revocation, the certificate shall be returned to the Director-General.
- (c) Upon renewal or re-issue, the previously issued certificate shall be returned to the Director-General.

HKAR 21.182 Aircraft identification

Each applicant for a certificate of airworthiness under this Subpart shall demonstrate that its aircraft is identified in accordance with HKAR 21.801.

SUBPART I NOISE CERTIFICATES**HKAR 21.201 Scope**

This Subpart establishes the procedure for issuing noise certificates.

HKAR 21.203 Eligibility

Any natural or legal person under whose name an aircraft is registered or will be registered in Hong Kong Special Administrative Region, or its representative, shall be eligible as an applicant for a noise certificate for that aircraft under this Subpart.

HKAR 21.204 Application

- (a) Pursuant to HKAR 21.203, an application for a noise certificate shall be made in a form and manner established by the Director-General.
- (b) Each application shall include:
 - 1. with regard to new aircraft:
 - (i) A statement of conformity signed by the exporting authority that the aircraft conforms to a design approved by the Director-General, and
 - (ii) The noise information determined in accordance with the applicable noise requirements.
 - 2. with regard to used aircraft :
 - (i) The noise information determined in accordance with the applicable noise requirements, and
 - (ii) Historical records to establish the production, modification, and maintenance standard of the aircraft.
- (c) Unless otherwise agreed, the statements referred to in subparagraph (b)(1)(i) shall be issued no more than 60 days before presentation of the aircraft to the Director-General.
- (d) Each application for the initial issuance of a noise certificate shall be verified by an organisation approved under HKAR-183.

HKAR 21.207 Amendment or modification

A noise certificate may be amended or modified only by the Director-General.

HKAR 21.209 Reserved**HKAR 21.210 Inspections**

Each applicant for, or the holder of the noise certificate shall provide access to the aircraft for which that noise certificate has been applied for or issued respectively upon request by the Director-General.

HKAR 21.211 Duration and continued validity

- (a) A noise certificate shall be issued for an unlimited duration. It shall remain valid subject to:
1. the aircraft in compliance with the applicable type-design, environmental protection and continuing airworthiness requirements; and
 2. the aircraft remaining on the register; and
 3. the type-certificate under which it is issued not being previously invalidated under HKAR 21.51; and
 4. the certificate not being surrendered or revoked.
- (b) Upon surrender or revocation, the certificate shall be returned to the Director-General

SUBPART J DESIGN ORGANISATION APPROVAL

HKAR 21.231 Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals.

HKAR 21.233 Eligibility

Any natural or legal person ('organisation') shall be eligible as an applicant for an approval under this Subpart:

- (a) in accordance with HKAR 21.14, HKAR 21.112B, HKAR 21.432B or HKAR 21.602B; or
- (b) for approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under HKAR 21.263.

HKAR 21.234 Application

Each application for a design organisation approval shall be made in a form and manner established by the Director-General and shall include an outline of the information required by HKAR 21.243, and the terms of approval requested to be issued under HKAR 21.251.

HKAR 21.235 Issue of design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Director-General when it has demonstrated compliance with the applicable requirements under this Subpart.

HKAR 21.239 Design assurance system

- (a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation:
 - 1 to ensure that the design of the products, parts and appliances or the design change thereof, comply with the applicable type certification basis and environmental protection requirements; and

- 2 to ensure that its responsibilities are properly discharged in accordance with:
 - (i) the appropriate provisions of HKAR-21; and
 - (ii) the terms of approval issued under HKAR 21.251.
 - 3 to independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feedback system to a person or a group of persons having the responsibility to ensure corrective actions.
- (b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Director-General.
 - (c) The design organisation shall 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 subcontractor according to methods which are the subject of written procedures.

HKAR 21.243 Data

- (a) The design organisation shall furnish a handbook to the Director-General describing, directly or by cross-reference, the organisation, the relevant procedures and the products or changes to products to be designed.
- (b) Where any parts or appliances or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by HKAR 21.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation 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 organisation, and copies of amendments shall be supplied to the Director-General.
- (d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection in the organisation.

HKAR 21.245 Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with HKAR 21.243 that, in addition to complying with HKAR 21.239:

- (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, noise, fuel venting and exhaust emission objectives for the product.

- (b) There is full and efficient coordination between departments and within departments in respect of airworthiness and environment protection matters.

HKAR 21.247 Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness and environmental protection of the product, shall be approved by the Director-General. An application for approval shall be submitted in writing to the Director-General and the design organisation shall demonstrate to the Director-General, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation.

HKAR 21.249 Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of HKAR 21.247, a design organisation approval is not transferable.

HKAR 21.251 Terms of approval

The terms of approval shall identify the types of design work, the categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness and characteristics of noise, fuel venting and exhaust emissions of products.

HKAR 21.253 Changes to the terms of approval

Each change to the terms of approval shall be approved by the Director-General. An application for a change to the terms of approval shall be made in a form and manner established by the Director-General. The design organisation shall comply with the applicable requirements of this Subpart.

HKAR 21.257 Investigations

- (a) The design organisation shall make arrangements that allow the Director-General to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart.

- (b) The design organisation shall allow the Director-General to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under HKAR 21.239(b).

HKAR 21.258 Findings

- (a) When objective evidence is found showing non-compliance of the holder of a design organisation approval with the applicable requirements of HKAR-21, the finding shall be classified as follows:
- 1 A level one finding is any non-compliance with HKAR-21 which could lead to uncontrolled non-compliances with applicable requirements and which could affect the safety of the aircraft.
 - 2 A level two finding is any non-compliance with HKAR-21 which is not classified as level one.
- (b) An observation is any item where it has been identified, by objective evidence, to contain potential problems that could lead to a non-compliance under paragraph (a).
- (c) After receipt of notification of findings/observations under the applicable administrative procedures established by the Director-General,
- 1 in case of a level one finding, the holder of the design organisation approval shall demonstrate corrective action to the satisfaction of the Director-General within a period of no more than 21 working days after written confirmation of the finding;
 - 2 in case of level two findings, the corrective action period granted by the Director-General shall be appropriate to the nature of the finding but in any case initially shall not be more than six months. In certain circumstances and subject to the nature of the finding the Director-General may extend the six month period subject to a satisfactory corrective action plan agreed by the Director-General.
 - 3 An observation shall not require immediate action by the holder of the design organisation approval.
- (d) In case of level one or level two findings, the design organisation approval may be subject to a partial or full suspension or revocation under the applicable administrative procedures established by the Director-General. The holder of the design organisation approval shall provide confirmation of receipt of the notice of suspension or revocation of the design organisation approval in a timely manner.

HKAR 21.259 Duration and continued validity

- (a) A design organisation approval will be issued for a duration of two years. It shall remain valid unless:
- 1 the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
 - 2 the Director-General is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with HKAR 21.257; or
 - 3 there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
 - 4 the certificate has been surrendered or revoked under the applicable administrative procedures established by the Director-General.
- (b) Upon surrender or revocation, the certificate shall be returned to the Director-General.

HKAR 21.263 Privileges

- (a) The holder of a design organisation approval shall be entitled to perform design activities under HKAR-21 and within its scope of approval.
- (b) Subject to HKAR 21.257(b), compliance documents submitted by the applicant for the purpose of obtaining:
- 1 a type certificate or approval of a major change to a type design; or
 - 2 a supplemental type certificate; or
 - 3 a HTSO authorisation under HKAR 21.602(b)1;
 - 4 a major repair design approval;
- shall be accepted by the Director-General without further verification.
- (c) The holder of a design organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:
- 1 to classify changes to type design and repairs as 'major' or 'minor'.
 - 2 to approve minor changes to type design and minor repairs.

- 3 to issue information or instructions containing the following statement: 'The technical content of this document is approved under the authority of DOA Reference No. XXXX.'
- 4 to approve documentary changes to the aircraft flight manual, and issue such changes containing the following statement: 'Revision No. XXXX to AFM Reference. YYY, is approved under the authority of DOA Reference No. XXXX.'
- 5 to approve the design of major repairs to products for which it holds the type certificate or the supplemental type certificate.

HKAR 21.265 Obligations of the holder

The holder of a design organisation 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 organisation;
- (c) determine that the design of products, or changes or repairs thereof, as applicable, comply with applicable requirements and have no unsafe feature;
- (d) except for minor changes or repairs approved under the privilege of HKAR 21.263, provide to the Director-General statements and associated documentation confirming compliance with paragraph (c);
- (e) provide to the Director-General information or instructions related to required actions under HKAR 21.3B.

SUBPART K MATERIALS, PARTS, PROCESSES AND APPLIANCES

HKAR 21.301 Scope

This Subpart establishes the procedure relating to the approval of certain materials, parts, processes and appliances.

HKAR 21.302 Compliance with applicable requirements

The showing of compliance of materials, parts and appliances to be installed in a type-certificated product shall be made:

- (a) in conjunction with the type certification procedures of Subpart B, D or E for the product in which it is to be installed;
- (b) where applicable, under the HTSO authorisation procedures of Subpart O; or
- (c) in the case of standard parts, in accordance with officially recognised Standards.

HKAR 21.303 Hong Kong Parts Manufacturer Approval

- (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 HPMA issued under this Subpart.
- (b) This Section does not apply to the following:
 - 1 Parts produced under a type certificate or production organisation approval of HKAR-21.
 - 2 Parts produced under a HTSO.
 - 3 Standard parts (such as bolts and nuts) conforming to officially recognised Standards.
- (c) An application for a HPMA shall be made to the Director-General and shall 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 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 shall be furnished.
- (d) An applicant shall be entitled to a HPMA for a replacement or modification part if:
- 1 the Director-General finds, upon examination of the design and after completing all tests and inspections, that the design meets the airworthiness requirements applicable to the product on which the part is to be installed; and
 - 2 the applicant submits a statement certifying that he has established the fabrication inspection system required by paragraph (h) of this Section.
- (e) Each applicant for a HPMA shall allow the Director-General to make any inspection or test necessary to determine compliance with the applicable airworthiness requirements. However, unless otherwise authorised by the Director-General:
- 1 no part may be presented to the Director-General for an inspection or test unless compliance with paragraphs (f)2 through (f)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 (f)4 of this Section is shown for that part and the time that the part is presented to the Director-General for the inspection or test.
- (f) Each applicant for a HPMA shall 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 conforms to the drawings in the design; and
 - 4 that the fabrication processes, construction, and assembly conform to those

specified in the design.

- (g) The Director-General does not issue a HPMA if the manufacturing facilities for the part are located outside of the Hong Kong Special Administrative Region, unless the Director-General finds that the location of the manufacturing facilities places no burden on the Director-General in administering applicable airworthiness requirements.
- (h) Each holder of a HPMA shall establish and maintain a fabrication inspection system that ensures that each completed part conforms to its design data and is safe for installation on applicable type certificated products. The system shall include the following:
 - 1 Incoming materials used in the finished part shall be as specified in the design data.
 - 2 Incoming materials shall be properly identified if their physical and chemical properties cannot otherwise be readily and accurately determined.
 - 3 Materials subject to damage and deterioration shall be suitably stored and adequately protected.
 - 4 Processes affecting the quality and safety of the finished product shall be accomplished in accordance with acceptable specifications.
 - 5 Parts in process shall 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 shall be readily available to manufacturing and inspection personnel, and used when necessary.
 - 7 Major changes to the basic design shall be adequately controlled and approved before being incorporated in the finished part.
 - 8 Rejected materials and components shall be segregated and identified in such a manner as to preclude their use in the finished part.
 - 9 Inspection records shall be maintained, identified with the completed part, where practicable, and retained in the manufacturer's file for a period of at least two years after the part has been completed.
- (i) A HPMA issued under this Section is not transferable and is effective until

surrendered or withdrawn or otherwise terminated by the Director-General.

- (j) The holder of a HPMA shall notify the Director-General 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 HPMA shall determine that each completed part conforms to the design data and is safe for installation on type certificated products.

HKAR 21.305 Approval of materials, parts, processes and appliances

In all cases where the approval of a material, part, process or appliance is explicitly required by the Director-General, it may be approved:

- (a) under a HPMA issued under Subpart K;
- (b) under a HTSO issued under Subpart O;
- (c) under the specifications recognised as equivalent by the Director-General in the particular case;
- (d) in conjunction with type certificate procedures of Subpart B, D or E for a product; or
- (e) in any other manner approved by the Director-General.

HKAR 21.307 Release of materials, parts and appliances for installation

No material, part or appliance (except a standard part), shall be eligible for installation in a type-certificated product unless it is:

- (a) accompanied by an authorised release certificate (CAD Form One), certifying airworthiness; and
- (b) marked in accordance with Subpart Q.

HKAR-21

SECTION 1

(SUBPART L)

(RESERVED)

SUBPART M REPAIRS

HKAR 21.431 Scope

- (a) This Subpart establishes the procedure for the approval of repair design, and establishes the rights and obligations of the applicants for, and holders of, those approvals.
- (b) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.
- (c) Elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under HKAR-21.
- (d) A repair to a HTSO article shall be treated as a change to the HTSO design and shall be processed in accordance with HKAR 21.611.

HKAR 21.432 Eligibility

- (a) Any natural or legal person that has demonstrated, or is in the process of demonstrating, its capability under HKAR 21.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.
- (b) Any natural or legal person, who has sound knowledge of the design principles embodied in the aircraft type being repaired, shall be eligible to apply for approval of a minor repair design.

HKAR 21.432B Demonstration of capability

- (a) An applicant for a major repair design approval shall demonstrate its capability by holding a design organisation approval, issued by the Director-General in accordance with Subpart J.
- (b) By way of derogation from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek the agreement of Director-General for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

HKAR 21.433 Repair design

- (a) The applicant for approval of a repair design shall:
- 1 show compliance with the type certification basis and environmental protection requirements incorporated by reference in the type certificate or supplemental type certificate, as applicable, or those in effect on the date of application (for repair design approval), plus any amendments to those certification specifications or special conditions the Director-General finds necessary to establish a level of safety equal to that established by the type certification basis incorporated by reference in the type certificate or supplemental type certificate.
 - 2 submit all necessary substantiation data, when requested by the Director-General.
 - 3 declare compliance with the certification specifications and environmental protection requirements of subparagraph (a)1.
- (b) Where the applicant is not the type certificate or supplemental type certificate holder, as applicable, the applicant may comply with the requirements of paragraph (a) through the use of its own resources or through an arrangement with the type certificate or supplemental type certificate holder as applicable.

HKAR 21.435 Classification of repairs

- (a) A repair may be 'major' or 'minor'. The classification shall be made in accordance with the criteria of HKAR 21.91 for a change in the type design.
- (b) A repair shall be classified 'major' or 'minor' under paragraph (a) either:
- 1 by the Director-General, or
 - 2 by an appropriately approved design organisation under a procedure agreed with the Director-General.

HKAR 21.437 Issue of a repair design approval

When it has been declared and has been shown that the repair design meets the applicable certification specifications and environmental protection requirements of HKAR 21.433(a)1, it shall be approved:

- (a) by the Director-General, or
- (b) by an appropriately approved organisation that is also the type certificate or the supplemental type certificate holder, under a procedure agreed with the

Director-General, or

- (c) for minor repairs only, by an appropriately approved design organisation under a procedure agreed with the Director-General.

HKAR 21.439 Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

- (a) reserved, or
- (b) by an organisation appropriately approved in accordance with Subpart G, or
- (c) by an appropriately approved maintenance organisation.

HKAR 21.441 Repair embodiment

- (a) The embodiment of a repair shall be made by an appropriately approved maintenance organisation, or by a production organisation appropriately approved in accordance with Subpart G, under HKAR 21.163 privilege.
- (b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

HKAR 21.443 Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Director-General.

HKAR 21.445 Unrepaired damage

- (a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made;
 - 1 by the Director-General, or
 - 2 by an appropriately approved design organisation under a procedure agreed with the Director-General.

Any necessary limitations shall be processed in accordance with the procedures of HKAR 21.443.

- (b) Where the organisation evaluating the damage under paragraph (a) is neither the Director-General nor the type certificate or supplemental type certificate holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type certificate or supplemental type certificate holder, or manufacturer, as applicable.

HKAR 21.447 Record keeping

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with HKAR 21.443, justification for classification and evidence of the design approval, shall:

- (a) be held by the repair design approval holder at the disposal of the Director-General, and
- (b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

HKAR 21.449 Instructions for continued airworthiness

- (a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continued airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Director-General. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight hours/cycles.
- (b) If updates to those changes to the instructions for continued airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the

instructions for continued airworthiness are distributed shall be submitted to the Director-General.

HKAR 21.451 Obligations and HPA marking

- (a) Each holder of a major repair design approval shall:
 - 1 undertake the obligations:
 - (i) laid down in HKAR 21.3, HKAR 21.3B, HKAR 21.4, HKAR 21.439, HKAR 21.441, HKAR 21.443, HKAR 21.447 and HKAR 21.449;
 - (ii) implicit in the collaboration with the type certificate or supplemental type certificate holder, or both, under HKAR 21.433 (b), as appropriate.
 - 2 specify the marking, including HPA letters, in accordance with HKAR 21.804(a).
- (b) Except for type certificate holders for which HKAR 21.44 applies, the holder of a minor repair design approval shall:
 - 1 undertake the obligations laid down in HKAR 21.4, HKAR 21.447 and HKAR 21.449; and
 - 2 specify the marking, including HPA letters, in accordance with HKAR 21.804(a).

HKAR-21

SECTION 1

(SUBPART N)

(RESERVED)

SUBPART O HONG KONG TECHNICAL STANDARD ORDER (HTSO) AUTHORISATIONS

HKAR 21.601 Scope

- (a) This Subpart establishes the procedure for issuing HTSO authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations.
- (b) For the purpose of this Subpart:
 - 1 'article' means any part and appliance to be used on civil aircraft.
 - 2 'Hong Kong Technical Standard Order' (HTSO) is a detailed airworthiness specification issued or adopted by the Director-General to ensure compliance with the essential requirements of the Air Navigation (Hong Kong) Order 1995 as amended, and is a minimum performance standard for specified articles.
 - 3 An article produced under a HTSO authorisation is an approved article for the purpose of Subpart K.

HKAR 21.602A Eligibility

Any natural or legal person that produces or is preparing to produce a HTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under HKAR 21.602B shall be eligible as an applicant for a HTSO authorisation.

HKAR 21.602B Demonstration of capability

Any applicant for a HTSO authorisation shall demonstrate its capability as follows:

- (a) for production, by holding a production organisation approval, issued in accordance with Subpart G; and
- (b) for design:
 - 1 for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Director-General in accordance with Subpart J;
 - 2 for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with HKAR-21.

HKAR 21.603 Application

- (a) An application for a HTSO authorisation shall be made in a form and manner established by the Director-General and shall include an outline of the information required by HKAR 21.605.
- (b) When a series of minor changes in accordance with HKAR 21.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

HKAR 21.605 Data requirements

The applicant shall submit the following documents, to the Director-General:

- (a) A statement of compliance certifying that the applicant has met the requirements of this Subpart.
- (b) A Declaration of Design and Performance (DDP).
- (c) One copy of the technical data required in the applicable HTSO.
- (d) The exposition (or a reference to the exposition) referred to in HKAR 21.143 for the purpose of obtaining an appropriate production organisation approval under Subpart G.
- (e) reserved.
- (f) For articles other than APU, the procedures referred to in HKAR 21.602B(b)2.

HKAR 21.606 Issue of HTSO authorisation

The applicant shall be entitled to have a HTSO authorisation issued by the Director-General after:

- (a) demonstrating its capability in accordance with HKAR 21.602B; and
- (b) demonstrating that the article complies with the technical conditions of the applicable HTSO, and submitting the corresponding statement of compliance.
- (c) Expressly stating that it is prepared to comply with point HKAR 21.609.

HKAR 21.607 HTSO authorisation privileges

The holder of a HTSO authorisation is entitled to produce and to mark the article with the appropriate HTSO marking.

HKAR 21.608 Declaration of Design and Performance (DDP)

- (a) The DDP shall contain at least the following information:
- 1 Information corresponding to HKAR 21.31(a) and (b), identifying the article and its design and testing standard.
 - 2 The rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.
 - 3 A statement of compliance certifying that the article has met the appropriate HTSO.
 - 4 Reference to relevant test reports.
 - 5 Reference to the appropriate maintenance, overhaul and repair manuals.
 - 6 The levels of compliance, where various levels of compliance are allowed by the HTSO.
 - 7 List of deviations accepted in accordance with HKAR 21.610.
- (b) The DDP shall be endorsed with the date and signature of the holder of the HTSO authorisation, or its authorized representative.

HKAR 21.609 Obligations of holders of HTSO authorisations

The holder of a HTSO authorisation under this Subpart shall:

- (a) manufacture each article in accordance with Subpart G that ensures that each completed article conforms to its design data and is safe for installation;
- (b) prepare and maintain, for each model of each article for which a HTSO authorisation has been issued, a current file of complete technical data and records in accordance with HKAR 21.613;
- (c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

- (d) make available to users of the article and to the Director-General on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;
- (e) mark each article in accordance with HKAR 21.807; and
- (f) comply with points HKAR 21.3, HKAR 21.3B and HKAR 21.4.
- (g) continue to meet the qualification requirements of HKAR 21.602B.

HKAR 21.610 Approval for deviation

- (a) Each manufacturer who requests approval to deviate from any performance standard of a HTSO shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.
- (b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Director-General.

HKAR 21.611 Design changes

- (a) The holder of the HTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Director-General. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Director-General any revised data that are necessary for compliance with HKAR 21.603(b).
- (b) Any design change by the holder of the HTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with a HTSO is a major change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under HKAR 21.603.
- (c) No design change by any natural or legal person other than the holder of the HTSO authorisation who submitted the statement of compliance for the article is eligible for approval under this Subpart O unless the person seeking the approval applies under HKAR 21.603 for a separate HTSO authorisation.

HKAR 21.613 Record keeping

Further to the record keeping requirements appropriate to or associated with the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Director-General and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted.

HKAR 21.615 Inspection by the Director-General

Upon a request of the Director-General, each applicant for, or holder of a HTSO authorisation for an article shall allow the Director-General to:

- (a) witness any tests.
- (b) inspect the technical data files on that article.

HKAR 21.619 Duration and continued validity

- (a) A HTSO authorisation will be issued for an unlimited duration. It shall remain valid unless:
 - 1 the conditions required when HTSO authorisation was granted are no longer being observed; or
 - 2 the obligations of the holder specified in HKAR 21.609 are no longer being discharged; or
 - 3 the article has proved to give rise to unacceptable hazards in service; or
 - 4 the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Director-General.
- (b) Upon surrender or revocation, the certificate shall be returned to the Director-General.

HKAR 21.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with HKAR 21.147 and HKAR 21.247 as applicable, a HTSO authorisation issued under HKAR-21 is not transferable.

HKAR-21

SECTION 1

(SUBPART P)

(RESERVED)

SUBPART Q IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

HKAR 21.801 Identification of products

- (a) The identification of products shall include the following information:
 - 1 Manufacturer's name.
 - 2 Product designation.
 - 3 Manufacturer's Serial number.
 - 4 Any other information the Director-General finds appropriate.
- (b) Aircraft registered in Hong Kong shall bear marks in accordance with Part B of Schedule 1 to the Air Navigation (Hong Kong) Order 1995.
- (c) reserved.
- (d) reserved.

HKAR 21.803 Handling of identification data

- (a) No person shall remove, change, or place identification information referred to in HKAR 21.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in HKAR 21.807(a) on an APU, without the approval of the Director-General.
- (b) No person shall remove or install any identification plate referred to in HKAR 21.801, or in HKAR 21.807 for an APU, without the approval of the Director-General.
- (c) By way of derogation from paragraphs (a) and (b), any natural or legal person performing maintenance work under the applicable associated Hong Kong Aviation Requirements may, in accordance with methods, techniques and practices established by the Director-General:
 - 1 Remove, change, or place the identification information referred to in HKAR 21.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in HKAR 21.807(a) on an APU; or
 - 2 Remove an identification plate referred to in HKAR 21.801, or HKAR 21.807 for an APU, when necessary during maintenance operations.

- (d) No person shall install an identification plate removed in accordance with subparagraph (c)2 on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

HKAR 21.804 Identification of parts and appliances

- (a) Each manufacturer of a part or appliance shall permanently and legibly mark the part or appliance with:
- 1 a name, trademark, or symbol identifying the manufacturer; and
 - 2 the part number, as defined in the applicable design data; and
 - 3 the letters HPA for parts or appliances produced in accordance with approved design data not belonging to the type certificate holder of the related product, except for HTSO articles.
- (b) By way of derogation from paragraph (a), if the Director-General agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

HKAR 21.805 Identification of critical parts

In addition to the requirement of HKAR 21.804, each manufacturer of 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 and a serial number.

HKAR 21.807 Identification of HTSO articles

- (a) Each holder of a HTSO authorisation under Subpart O shall permanently and legibly mark each article with the following information:
- 1 the name and address of the manufacturer;
 - 2 the name, type, part number or model designation of the article;
 - 3 the serial number or the date of manufacture of the article or both; and
 - 4 the applicable HTSO number.

- (b) By way of derogation from paragraph (a), if the Director-General agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.
- (c) reserved.

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SECTION 2 - ACCEPTABLE MEANS OF COMPLIANCE (AMC)1 *GENERAL*

- 1.1 This Section contains Acceptable Means of Compliance that has been agreed by the Director-General for inclusion in HKAR-21.
- 1.2 Where a particular HKAR-21 paragraph does not have an Acceptable Means of Compliance, it is considered that no supplementary material is required.

2 *PRESENTATION*

- 2.1 The Acceptable Means of Compliance are presented on loose pages, each page being identified by the date of issue and issue/revision number under which it is amended or re-issued.
- 2.2 A numbering system has been used in which the Acceptable Means of Compliance uses the same number as the HKAR-21 paragraph to which it refers. The number is introduced by the letters AMC to distinguish the material from the HKAR itself.
- 2.3 The acronym AMC also indicate the nature of the material and for this purpose the material is defined as follows:

Acceptable Means of Compliance (AMC) illustrate a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met.

- 2.4 Explanatory Notes not forming part of the AMC text appear in a smaller typeface.
- 2.5 New, amended or corrected text is indicated by a marginal line.

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SUBPART A GENERAL PROVISIONS**AMC 21.3(b)2****Reporting to the Director-General**

Within the overall limit of 72 hours the degree of urgency for submission of a report should be determined by the level of hazard judged to have resulted from the occurrence.

Where an occurrence is judged by the person identifying the possible unsafe condition to have resulted in an immediate and particularly significant hazard the Director-General expects to be advised immediately and by the fastest possible means (telephone, fax, e-mail, telex, etc.) of whatever details are available at that time. This initial report must be followed up by a full written report within 72 hours. A typical example would be an uncontained engine failure resulting in damage to aircraft primary structure.

Where the occurrence is judged to have resulted in a less immediate and less significant hazard, report submission may be delayed up to the maximum of three days in order to provide more details.

AMC 21.3B(b)**Unsafe condition**

An unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that:

- (a) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:
 - (i) A large reduction in safety margins or functional capabilities, or
 - (ii) Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
 - (iii) Serious or fatal injury to one or more occupants

unless it is shown that the probability of such an event is within the limit defined by the applicable airworthiness requirements, or

- (b) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or

- (c) Design features intended to minimise the effects of survivable accidents are not performing their intended function.

Note 1: Non-compliance with applicable airworthiness requirements is generally considered as an unsafe condition, unless it is shown that possible events resulting from this non-compliance do not constitute an unsafe condition as defined under paragraphs (a), (b) and (c).

Note 2: An unsafe condition may exist even though applicable airworthiness requirements are complied with.

Note 3: The above definition covers the majority of cases where the Director-General considers there is an unsafe condition. There may be other cases where overriding safety considerations may lead the Director-General to issue an airworthiness directive.

Note 4: There may be cases where events can be considered as an unsafe condition if they occur too frequently (significantly beyond the applicable safety objectives) and could eventually lead to consequences listed in paragraph (a) in specific operating environments. Although having less severe immediate consequences than those listed in paragraph (a), the referenced events may reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example, a significant reduction in safety margins or functional capabilities, a significant increase in crew workload, or in conditions impairing crew efficiency, or discomfort to occupants, possibly including injuries.

AMC 21.4

Transferring of information on eligibility and approval status from the design holder to production organisations

Where there is a need to provide (normally outside the design organisation) a visible statement of approved design data or airworthiness or environmental protection data associated with the approved design data, the following minimum information must be provided. The need for a visible statement may be in relation to Company holding a production organisation approval (POA) in relation to HKAR 21.163(c).

The procedures related to the use of forms or other electronic means to provide this information must be agreed with the Director-General.

Information to be provided:

Company Name: the name of the responsible design organisation (TC, STC, approval of repair or minor change design, HTSO authorisation holder) issuing the information.

Date: the date at which the information is released.

Eligibility: indicate the specific products or articles, in case of HTSO authorisation, for which data have been approved.

Identification: the part number of the part or appliance. Preference should be given to the use of the Illustrated Parts Catalogue (IPC) designation. Alternatively the reference to the instruction for continued airworthiness (e.g., SB, AMM, etc.) could be stated. Marking requirements of HKAR-21 Subpart Q should be taken into account.

Description: the name or description of the part or document should be given. In the case of a part or appliance preference should be given to use of IPC designation. The description is to include reference to any applicable HTSO authorisation or HPA marking.

Purpose of data: the reason for the provision of the information should be stated by the design approval holder.

Examples:

- a) Provision of approved design data to a production organisation to permit manufacture (AMC No. 1 to HKAR 21.133(b) and (c))
- b) Information regarding eligibility for installation (replacement parts, repair, modification, etc.)
- c) Direct Delivery Authorisation (AMC No. 1 to HKAR 21.133(b) and (c))

If the data is in support of a change or repair, then reference to the aircraft level approval should be given (make reference to the approved STC, change or repair).

Limitations/Remarks: state any information, either directly or by reference to supporting documentation that identifies any particular data or limitations (including specific importing requirements) needed by a production organisation to complete Block 13 of the CAD Form One.

Approval: provide reference information related to the approval of the data (Director-General document or DOA privilege).

Authorised signature: name and hand-written normal or electronic signature of a person who has written authority from the design organisation, as indicated in the procedures agreed with the Director-General.

SUBPART B TYPE CERTIFICATES

AMC 21.14(b)

Alternative procedures

Alternative procedures are an acceptable means to demonstrate design capability in the cases described in HKAR 21.14, HKAR 21.112B or HKAR 21.432B. This concept is the implementation, in the context of specific projects, of procedures required in Subpart J DOA, to ensure that the applicant will perform relevant activities as expected by the Director-General, but without the requirements on the organisation itself that can be found in Subpart J. The establishment of these alternative procedures may be seen as a starting phase for a Subpart J DOA, allowing at a later stage, at the discretion of the applicant, to move towards a full Subpart J DOA by the addition of the missing elements.

1 Scope

- 1.1 As alternative to DOA, a manual of procedures must set out specific design practices, resources and sequence of activities relevant for the specific projects, taking account of HKAR-21 requirements.
- 1.2 These procedures must be concise and limited to the information needed for quality and proper control of activities by the applicant/holder, and by the Director-General.

2 Management of the (supplemental) type certification process

- 2.1 For a particular project, at the beginning of the process, the applicant must propose to the Director-General for acceptance a certification programme that includes:

Part 1 Procedures for the management of the certification programme: creation and update all along the certification process to integrate the progress of the activities, distribution.

This part must also include the milestones of the project development up to the type certification or approval of the major change, with the minimum administrative delays imposed by the Director-General when necessary.

Part 2 The attribution of responsibilities, as follows:

- names of the persons having specific responsibilities in the frame of the certification programme
- the description of their tasks, responsibilities and associated competences

- scope of authority of signatories.

Part 3 The airworthiness requirements applicable to the project, corresponding interpretations, and the equivalence of safety or other specific cases related to the applicable requirements.

Part 4 Working methods for showing of compliance and providing to the Director-General the means by which such compliance has been shown.

This includes all or part of the following, depending on the complexity of the product:

- the means by which compliance will be shown (means of compliance), in relation with the requirements and/or their detailed interpretation
- the technical criteria associated with the means of compliance
- milestones specific to particular technical areas in relation with the general planning of the project
- the decision process, especially the key points where a Director-General decision is needed before further action
- the flow of information to the Director-General
- the configuration control, especially of the test specimen used to show compliance
- the organisation of the work for the interfaces or multidisciplinary subjects
- those compliance documents that will be subject to verification by the Director-General
- the establishment of the compliance documentation, including the time schedule and availability to the Director-General
- the control of the time schedule, for the accomplishment of the tasks in due time.

The applicant must submit all revisions of the certification programme to the Director-General for acceptance.

- 2.2 The applicant must establish procedures for creating compliance documents in such a way that:
- the kind of document and the technical objectives for each document are determined at the beginning of the process
 - the production of the documents is carefully managed all along the process, in accordance with the milestones defined in the certification programme
 - the various issues of a document are controlled.

Each document must contain:

- the reference of the requirements covered by the document
- data showing compliance and a statement by the applicant declaring compliance with these requirements

A numbering system to identify the compliance documents must be defined in order to have an adequate link with the certification programme.

Except as otherwise agreed with the Director-General, all compliance documents must be produced before issuance of the final statement of compliance required by HKAR 21.20(b) or HKAR 21.97(a)3.

- 2.3 There are no privileges associated with alternative procedures, however the Director-General will decide on the extent of its involvement in the verification of compliance documents. This involvement may vary according to the Director-General knowledge of the applicant from previous and on-going activities and the resulting assessment of competence, and must be addressed in the certification programme.

3 Management of design changes

3.1 Approval of changes to type design, repairs and production deviations from the approved design data

The TC or STC applicant must provide procedures acceptable to the Director-General for classification and approval of changes to type design (see paragraphs 3.2 and 3.3), and repairs and production deviations from the approved design data (see paragraph 3.4).

3.2 Classification**3.2.1 Content**

The procedure must address the following points:

- identification of changes to type design
- airworthiness classification
- changes to type design initiated by subcontractors
- documents to justify the classification
- authorised signatories

Criteria used for classification must be in compliance with HKAR 21.91 and corresponding interpretations.

3.2.2 Identification of changes to type design

The procedure must indicate how the following are identified:

- major changes to type design
- those minor changes to type design where additional work is necessary to show compliance with the airworthiness requirements
- other minor changes to type design requiring no further showing of compliance.

3.2.3 Airworthiness classification

The procedure must show how the effects on airworthiness are analysed, from the very beginning, by reference to the applicable requirements.

If no specific requirements are applicable to the change, the above review must be carried out at the level of the part or system where the change is integrated and where specific requirements are applicable.

3.2.4 Control of changes to type design initiated by subcontractors

The procedure must indicate, directly or by cross-reference to written procedures, how changes to type design initiated by subcontractors are controlled.

3.2.5 Documents to justify the classification

All decisions of classification of changes to type design must be documented and approved by the Director-General. It may be in the format of meeting notes or register.

3.2.6 Authorised signatories

The procedure should identify the persons authorised to sign the proposed classification before release to the Director-General for approval.

3.3 Approval of changes to type design

3.3.1 Content

The procedure must address the following points:

- compliance documentation
- approval process
- authorised signatories

3.3.2 Compliance documentation

For major changes and those minor changes to type design where additional work to show compliance with the applicable airworthiness requirements is necessary, compliance documentation must be established following guidelines of paragraph 2.2.

3.3.3 Approval process

A For the approval of major changes to type design, a certification programme as defined in paragraph 2.1 must be established.

B For major changes and those minor changes to type design where additional work to show compliance with the applicable airworthiness requirements is necessary, the procedure should define a document to support the approval process.

This document must include at least:

- identification and brief description of the change and its classification
- applicable requirements

- reference to the compliance documents
- effects, if any, on limitations and on the approved documentation
- authorised signatory

C For the other minor changes, the procedure must define a means:

- to identify the change
- to present the change to the Director-General for approval.

3.3.4 Authorised signatories

The procedure must identify the persons authorised to sign the change before release to the Director-General for approval.

3.4 Repairs and production deviations from the approved design data

A procedure following the principles of paragraphs 3.2 and 3.3 must be established for the classification and approval of repairs and unintentional deviations from the approved design data occurring in production (concessions or non-conformance's). For repairs, the procedure must be established in accordance with HKAR-21 Subpart M and associated acceptable means of compliance (AMC) or guidance material (GM).

4 Issue of information and instructions to owners

4.1 General

The information or instructions issued by a TC, STC, approval of changes to type design, approval of repair design holder are intended to provide the owners of a product with all necessary data to implement a change on the product, or a repair, or to inspect it.

The information or instructions may be issued in a format of a Service Bulletin as defined in ATA 100 system, or in Structural Repair Manuals, Maintenance Manuals, Engine and Propeller Manuals, etc.

The preparation of this data involves design, production and inspection. The three aspects should be properly addressed and a procedure should exist.

4.2 Procedure

The procedure should address the following points:

- preparation
- verification of technical consistency with corresponding approved change(s), repair(s) or approved data, including effectivity, description, effects on airworthiness, especially when limitations are changed
- verification of the feasibility in practical applications.

The persons authorised to sign before release of information and instructions to the Director-General for approval should be identified in the procedure.

The procedure should include the information or instructions prepared by subcontractors or vendors, and declared applicable to its products by the TC, STC, approval of changes to type design or approval of repair design holders.

4.3 Statement

The information and instructions should contain a statement showing Director-General approval.

5 Obligations addressed in HKAR 21.44 (TC holder), HKAR 21.118A (STC holder) or HKAR 21.451 (repair design approval holder)

The applicant should establish the necessary procedures to show to the Director-General how it will fulfil the obligations required under HKAR 21.44, HKAR 21.118A or HKAR 21.451, as appropriate.

6 Control of design subcontractors

The applicant should establish the necessary procedures to show to the Director-General how it will control design subcontractors.

AMC 21.16A Airworthiness codes

The Director-General adopts the following as the airworthiness codes referred as 'CS' in this HKAR-21:

- (a) European Aviation Safety Agency Certification Specifications (EASA CS);
- (b) European Joint Aviation Authorities Joint Aviation Requirements (JAR);

(c) USA Federal Aviation Administration Federal Aviation Regulations (FAR).

AMC 21.18(c)

Designation of applicable environmental protection requirements and certification specifications – carbon dioxide (CO₂) Emissions

The Director-General will recognise valid aeroplane exemptions granted by an authority of the state responsible for production of the aeroplane provided that an acceptable process was used.

Note: Guidance on acceptable processes and criteria for granting exemptions is provided in the ICAO Environmental Technical Manual (Doc 9501), Volume III – Procedures for the CO₂ Emissions Certification of Aeroplanes.

(SUBPART C – NOT APPLICABLE)

SUBPART D CHANGES TO TYPE CERTIFICATES

There are no AMC items associated with this Subpart.

SUBPART E SUPPLEMENTAL TYPE CERTIFICATES

AMC 21.112 Eligibility

An application for a supplemental type certificate (STC) will be accepted by the Director-General if the application is supported by an STC issued by another civil aviation authority and the major change is to be incorporated onto a Hong Kong registered aircraft.

AMC 21.113(a) Application for a supplemental type certificate

1. Applicants are encouraged to discuss any proposed supplemental type certificate with the Director-General at the earliest opportunity. An application for a supplemental type certificate should be made on CAD Form 33 (DCA 534) which is available from the Director-General.
2. The application should be accompanied by a letter that includes a description of the project, the type of product involved, where the design and installation will be conducted, and a schedule for completion of the project.
3. The applicant should submit a Project Specific Certification Plan (PSCP) for agreement with the Director-General. The PSCP will assist both the applicant and the Director-General in the identification and planning of the certification activities necessary for the grant of the supplemental type certificate. The PSCP should include the following:
 - (a) general information identifying the applicant, application date, model designation, etc.;
 - (b) a description of the change, the area affected, manuals to be updated, etc.;
 - (c) the certification basis of the STC including applicable airworthiness design standards, exemptions, equivalent safety findings and special conditions;
 - (d) how compliance will be shown (tests, analysis, similarity, etc.) and what will be submitted to show compliance;
 - (e) a project schedule identifying dates of major milestones; when data and test plan submittals will be made; when conformity inspections, installation, and testing are required; and when the project will be completed.

The PSCP should be updated throughout the project and any changes should be agreed with the Director-General. A sample PSCP is provided in **Appendix 1**.

4. An application for validation of an STC not issued by the Director-General should be submitted via the issuing authority of the STC. An application for a validated supplemental type certificate (VSTC) should be made on CAD Form 33A (DCA 539) which is available from the Director-General.
5. The application for VSTC should be supported with following data:
 - a) A duly completed 'Application for Validation of Supplemental Type Certificate VSTC' form CAD Form 33A
 - b) A copy of the Companies Register
 - c) Confirmation of deposit for the application fee
 - d) A copy of the STC to be validated
 - e) A copy of all data/documents referenced on the STC (MDL, FMS, ICA, IPC, etc)
 - f) A copy of the Compliance Summary Document (PSCP & compliance summary document)
 - g) A copy of all Certification Review Items (CRI) or Issue Papers (IP) which may document/apply the certification basis, special conditions, equivalent safety findings, acceptable means of compliance or interpretative materials.
6. The applicant shall pay deposit for charges prescribed in the Hong Kong Air Navigation (Fees) Regulations at time of application. The amount of deposit is stipulated in the applicable application form CAD Form 33 or CAD Form 33A.
7. Application for variation against HKAR 21.111 may only be applied by a Design Organisation with controlled process agreed by the Director-General and approved under Subpart J for the purpose of obtaining a certificate of release to service prior to obtaining a supplemental type certificate for major changes to the type design that have been incorporated into the aircraft.

(SUBPART F)

(RESERVED FOR PRODUCTION WITHOUT PRODUCTION ORGANISATION
APPROVAL)

SUBPART G PRODUCTION ORGANISATION APPROVAL**AMC No. 1 to HKAR 21.133(b) and (c)****Eligibility – Link between design and production organisations**

An arrangement is considered appropriate if it is documented and satisfies the Director-General that co-ordination is satisfactory.

To achieve satisfactory coordination the documented arrangements must at least define the following aspects irrespective of whether the two organisations are separate legal entities or not:

- The responsibilities of a design organisation which assure correct and timely transfer of up-to-date airworthiness data (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.);
- The responsibilities and procedures of a POA holder/applicant for developing, where applicable, its own manufacturing data in compliance with the airworthiness data package;
- The responsibilities of a POA holder/applicant to assist the design organisation in dealing with continuing airworthiness matters and for required actions (e.g., traceability of parts in case of direct delivery to users, retrofitting of modifications, traceability of processes' outputs and approved deviations for individual parts as applicable, technical information and assistance, etc.);
- The scope of the arrangements must cover HKAR 21 Subpart G requirements and associated AMC and GM, in particular: HKAR 21.145(b), HKAR 21.165(c), (f) and (g);
- The responsibilities of a POA holder/applicant, in case of products prior to type certification to assist a design organisation in showing compliance with CS (access and suitability of production and test facilities for manufacturing and testing of prototype models and test specimen);
- The procedures to deal adequately with production deviations and non conforming parts;
- The procedures and associated responsibilities to achieve adequate configuration control of manufactured parts, to enable the production organisation to make the final determination and identification for conformity or airworthiness release and eligibility status;
- The identification of the responsible persons/offices who control the above;

- The acknowledgment by the holder of the TC/STC/repair or change approval/HTSO authorisation that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved.

In many cases the production organisation may receive the approved design data through an intermediate production organisation. This is acceptable provided an effective link between the design approval holder and the production organisation can be maintained to satisfy the intent of HKAR 21.133.

When the design and production organisations are two separate legal entities a Direct Delivery Authorisation must be available for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.

Where there is no general agreement for Direct Delivery Authorisation, specific permissions may be granted (refer to AMC 21.4).

AMC No. 2 to HKAR 21.133(b) and (c)

Eligibility – Link between design and production organisations

In accordance with AMC No.1 to HKAR 21.133(b) and (c) the POA holder must demonstrate to the Director-General that it has entered into an arrangement with the design organisation. The arrangement must be documented irrespective of whether the two organisations are separate legal entities or not.

The documented arrangement must facilitate the POA holder to demonstrate compliance with the requirement of HKAR 21.133(b) and (c) by means of written documents agreed.

In the case where the design organisation and POA holder are part of the same legal entity these interfaces may be demonstrated by company procedures accepted by the Director-General.

In all other cases to define such a design/production interface the following sample format is offered:

Instructions for completion:

Title: The title of the relevant document must clearly indicate that it serves the purpose of a design/production interface arrangement in accordance with HKAR 21.133(b) and (c).

Commitment: The document must include the basic commitments between the design organisation and the POA holder as addressed in AMC 21.4 and AMC No. 1 to 21.133(b) and (c).

Relevant Procedures: Identify an entry point into the documentary system of the organisations with respect to the implementation of the arrangement (for example a contract, quality plan, handbooks, common applicable procedures, working plans etc.).

Scope of arrangement: The scope of arrangement must state by means of a list or reference to relevant documents those products, parts or appliances that are covered by the arrangement.

Transfer of applicable design data: Identify the relevant procedures for the transfer of the applicable design data required by HKAR 21.131 and AMC 21.131 from the design organisation to the POA holder. The means by which the design organisation advises the POA holder whether such data is approved or not approved must also be identified (ref. HKAR 21.4 / AMC 21.4).

Direct Delivery Authorisation: Where the design organisation and the POA holder are separate legal entities the arrangement must clearly identify whether authorisation for direct delivery to end users is permitted or not.

Where any intermediate production / design organisations are involved in the chain between the original design organisation and the POA holder evidence must be available that this intermediate organisation has received authority from the design organisation to grant Direct Delivery Authorisation.

Signature: AMC No. 1 to HKAR 21.133(b) and (c) requests the identification of the responsible persons / offices who control the commitments laid down in the arrangement. Therefore the basic document must be signed mutually by the authorised representatives of the design organisation and the POA holder in this regard.

AMC 21.145(d)1**Approval requirements – Certifying staff**

- 1 Certifying Staff are nominated by the production organisation to ensure that products, parts, appliances and/or materials qualify for Statements of Conformity or Release Certificates. Certifying Staff positions and numbers are to be appropriate to the complexity of the product and the production rate.

- 2 The qualification of certifying staff is based on their knowledge, background and experience and a specific training (or testing) established by the organisation to ensure that it is appropriate to the product, part, or appliance to be released.
- 3 Training must be given to develop a satisfactory level of knowledge of organisation procedures, aviation legislation, and associated Hong Kong Aviation Requirements, CS, relevant to the particular role.
- 4 For that purpose, in addition to general training policy, the organisation must define its own standards for training, including pre-qualification standards, for personnel to be identified as certifying staff.
- 5 Training policy is part of the Quality System and its appropriateness forms part of investigation by the Director-General within the organisation approval process and subsequent surveillance of persons proposed by managers.
- 6 The training must be updated in response to experience gained and changes in technology.
- 7 A feedback system to ascertain that the required standards are being maintained must be put in place to ensure the continuing compliance of personnel to authorisation requirements.
- 8 For release of products, parts or appliances, the responsibilities to issue Statements of Conformity / Release Certificates (CAD Form One) are allocated to the certifying staff identified in HKAR 21.145 (d)2.
- 9 The Director-General holds the right to reject those personnel, appointed by the organisation, if found to have inappropriate experience or not to otherwise comply with its requirements.

AMC 21.145(d)2**Approval Requirements – Record of certifying staff**

- 1 The following is the minimum information to be recorded in respect of each certifying person:
 - a. Name
 - b. Date of Birth
 - c. Basic Training and standard attained
 - d. Specific Training and standard attained

- e. If appropriate – Continuation Training
 - f. Experience
 - g. Scope of the authorisation
 - h. Date of first issue of the authorisation
 - i. If appropriate – expiry date of the authorisation
 - j. Identification Number of the authorization
- 2 The record may be kept in any format and must be controlled by an internal procedure of the organisation. This procedure forms part of the quality system.
 - 3 Persons authorised to access the system must be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner and that confidential records cannot become accessible to unauthorised persons.
 - 4 The certifying person must be given reasonable access on request to his or her own records.
 - 5 Under the provision of HKAR 21.157 the Director-General has a right of access to the data held in such a system.
 - 6 The organisation must keep the record for at least two years after the certifying person has ceased employment with the organisation or withdrawal of the authorisation, whichever is the sooner.

AMC 21.145(d)3**Approval requirements – Evidence of authorisation**

- 1 The authorisation document must be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, an interpretation document should be readily available.
- 2 Certifying staff are not required to carry the authorisation document at all times but should be able to make it available within a reasonable time of a request from an authorized person. Authorised persons include the Director-General.

AMC 21.148**Changes of location – Management during change of location**

- 1 The relocation of any work, to an unapproved location, or a location with inappropriate scope of approval, constitutes a change of significance to the organisation and requires approval by the Director-General as prescribed in HKAR 21.147. An unapproved relocation will invalidate the production organisation approval, and may necessitate re-application for any similar approval required at the new location. However, suitable transitional arrangements may be agreed with the Director-General, in advance of the relocation, which can allow continuation of the approval.
- 2 When an organisation expands its facility to include a new production location or moves parts of its production to a new location the production organisation approval may continue in force, but the approval does not include the new location until the Director-General has indicated his satisfaction with the arrangements.
- 3 For a change in location, taking an extended period of time, suitable transitional arrangements would require preparation of a co-ordination plan for the removal. The plan must, at least, identify the following:
 - a. A clearly identified person, or group of persons, responsible for co-ordinating the removal and acting as focal point for communication with all parties, including the Director-General.
 - b. The basis of the co-ordination plan, e.g., whether by product or area.
 - c. Planned timing of each phase of relocation.
 - d. Arrangements for maintaining the standards of the approval up to the point where the production area is closed down.
 - e. Arrangements for verifying continued production quality upon resumption of work at the new location.
 - f. Arrangements for check and/or re-calibration of inspection aids or production tools and jigs before resuming production.
 - g. Procedures which ensure that goods are not released from the new location until their associated production and quality systems have been verified.
 - h. Arrangements for keeping the Director-General informed of progress with the relocation.

- 4 From the co-ordination plan, the Director-General can determine the points at which he wishes to conduct investigation.
- 5 If an agreed co-ordination plan is in operation, the Director-General will normally allow the existing approval to remain in force and will, where appropriate, grant an additional approval to cover the new address for the duration of the move.

AMC 21.153**Changes to the terms of approval – Application for a change to the terms of approval**

CAD Form 51 must be obtained from the Director-General and completed in accordance with the procedures of the POE.

The information entered on the form is the minimum required by the Director-General to assess the need for change of the production organisation approval.

The completed form and an outline of the changed production organisation exposition, and details of the proposed change to POA terms of approval must be forwarded to the Director-General.

**AMC No. 1 to HKAR 21.163(c)
Computer generated signature****1 Submission to the Director-General**

Any POA holder intending to implement a computer generated signature procedure to issue CAD Form One must document it and submit it to the Director-General as part of the documents attached with its exposition and dealing with the issue of airworthiness certifications.

2 Characteristics of the computer generated signature system

The electronic system must:

- guarantee secure access for each certifying staff;
- provide for a "personal" signature;
- insure integrity and validity of the data that may be used coming from the computer system to issue the Form;
- be active only at the location where the part is being released with a CAD Form One;

- not permit to sign a blank form;
- not permit modification after signature (if modification is necessary after issuance, i.e., re-certification of a part), a new form with a new number and reference to the initial certification should be made;
- insure integrity of the data certified by the signature of the Form and be able to show evidence of the authenticity of the CAD Form One (recording and record keeping).

POA holders / applicants are reminded that additional requirements may need to be satisfied when operating computer generated signature systems.

3 Characteristics of the computer generated signature

The computer generated signature must take the form of a representation of the hand-written signature of the person signing (i.e. scanned signature). In addition to facilitate understanding and acceptance of the CAD Form One released with a computer generated signature the following statement should be printed in Block 13 of the Form: "This document has been issued according to an approved computer generated signature procedure".

AMC No. 2 to HKAR 21.163(c) CAD Form One

For use and instructions for the completion of the Authorised Release Certificate (CAD Form One), refer to HKAR-2 Chapter 31.

AMC 21.163(d) Privileges – Maintenance

(Reserved)

SUBPART H CERTIFICATES OF AIRWORTHINESS

There are no AMC items associated with this Subpart.

SUBPART I NOISE CERTIFICATES

There are no AMC items associated with this Subpart.

SUBPART J DESIGN ORGANISATION APPROVAL

AMC 21.239(a)3

Design assurance system - Independent system monitoring

The system monitoring function required by HKAR 21.239(a)3 may be undertaken by the existing quality assurance organisation when the design organisation is part of a larger organisation.

AMC 21.239(b)

Design assurance system - Independent checking function of the showing of compliance

- 1 The independent checking function of the showing of compliance should consist of the verification by a person not creating the compliance data. Such person may work in conjunction with the individuals who prepare compliance data.
- 2 The verification should be shown by signing compliance documents, including test programmes and data.
- 3 For a product, there is normally only one compliance verification engineer nominated for each relevant subject.

A procedure should cover the non-availability of nominated persons and their replacement when necessary.

- 4 For STC cases, when compliance statement and associated documentation are produced by the TC holder, and when these data are approved under the system of the authority of TC holder, then the STC applicant does not need to provide, within its own DOA, the independent checking function required in HKAR 21.239(b) for these data.

AMC No. 1 to HKAR 21.243(a)

Data requirements

The handbook should provide the following information for each product covered by the design organisation approval.

- 1 A description of the tasks which can be performed under the approval, according to the following classification:
 - a. General areas, like subsonic turbojet aeroplanes, turbopropeller aeroplanes,

- small aeroplanes, rotorcraft.
- b. Technologies handled by the organisation (composite, wood or metallic construction, electronic systems, etc.)
 - c. A list of types and models for which the design approval has been granted and for which privileges may be exercised, supported by a brief description for each product.
 - d. For repair design, classification and (if appropriate) approval activities it is necessary to specify the scope of activity in terms of structures, systems, engines, etc.
- 2 A general description of the organisation, its main departments, their functions and the names of those in charge; a description of the line management and of functional relationships between the various departments.
 - 3 A description of assigned responsibilities and delegated authority of all parts of the organisation which, taken together, constitute the organisation's design assurance system together with a chart indicating the functional and hierarchical relationship of the design assurance system to Management and to other parts of the organisation; also the chains of responsibilities within the design assurance system, and the control of the work of all partners and sub-contractors.
 - 4 A general description of the way in which the organisation performs all the design functions in relation to airworthiness and environmental protection approvals including:
 - a. The procedures followed and forms used in the type investigation process to ensure that the design of, or the change to the design of, the product as applicable is identified and documented, and complies with the applicable CS and environmental protection requirements, including specific requirements for import by importing authorities.
 - b. The procedures for classifying design changes as "major" or "minor" and for the approval of minor changes.
 - c. The procedures for classifying and approving unintentional deviations from the approved design data occurring in production (concessions or non-conformance's).
 - d. The procedure for classifying and obtaining approval for repairs.
 - 5 A general description of the way in which the organisation performs its functions in relation to the continuing airworthiness of the product it designs, including

- co-operation with the production organisation when dealing with any continuing airworthiness actions that are related to production of the product, part or appliance, as applicable.
- 6 A description of the human resources, facilities and equipment, which constitutes the means for design, and where appropriate, for ground and flight testing.
 - 7 An outline of a system for controlling and informing the staff of the organisation of current changes in engineering drawings, specifications and design assurance procedures.
 - 8 A description of the recording system for:
 - a. The type design, including relevant design information, drawings and test reports, including inspection records of test specimens.
 - b. The means of compliance.
 - c. The compliance documentation (compliance check list, reports...).
 - 9 A description of the record keeping system to comply with HKAR 21.55 and HKAR 21.105.
 - 10 A description of the means by which the organisation monitors and responds to problems affecting the airworthiness of its product during design, production and in service in particular to comply with HKAR 21.3.
 - 11 The names of the design organisation authorised signatories. Nominated persons with specific responsibilities such as mentioned in HKAR 21.33 and HKAR 21.35 should be listed.
 - 12 (Reserved).
 - 13 A clear definition of the tasks, competence and areas of responsibility of the Office of Airworthiness.
 - 14 A description of the procedures for the establishment and the control of the maintenance and operating instructions (see HKAR 21.57, HKAR 21.61, HKAR 21.107, HKAR 21.119, HKAR 21.120 and HKAR 21.449).
 - 15 A description of the means by which the continuing evaluation (system monitoring) of the design assurance system will be performed in order to ensure that it remains effective.

AMC No. 2 to HKAR 21.243(a)

Data requirements - Model content of handbook for organizations designing minor changes to type design or minor repairs to products

Part 1 Organisation

- 1.1 Objective of handbook and binding statement
- 1.2 Responsible person for administration of handbook
- 1.3 Amendment procedure
- 1.4 List of effective pages
- 1.5 Distribution list
- 1.6 Presentation of design organisation (including locations)
- 1.7 Scope of work (with identification of type and models of products)
- 1.8 Organisation charts
- 1.9 Human resources
- 1.10 Management staff
- 1.11 Certifying personnel
- 1.12 Independent system monitoring

Part 2 Procedures

- 2.1 Management of changes to type design and design of repairs
 - configuration control
 - classification
 - approval of minor changes to type design and minor repairs
- 2.2 Control of design subcontractors
- 2.3 Collecting/investigating of failures, malfunctions and defects
- 2.4 Co-ordination with production

- 2.5 Documentation control
- in relations with the changes and repairs
 - in relation with failures/malfunctions and defects (i.e. Services - Bulletins)

- 2.6 Record keeping

AMC No. 1 to HKAR 21.263(c)1

Procedure for the classification of changes to type design and repairs as minor and major

1 INTENT

This acceptable means of compliance provides means to develop a procedure for the classification of changes to type design and repairs.

Each DOA applicant must develop its own internal classification procedure following this AMC, in order to obtain the associated HKAR 21.263(c)1 privilege.

2 PROCEDURE FOR THE CLASSIFICATION OF CHANGES TO TYPE DESIGN AND REPAIRS

2.1 Content

The procedure must address the following points:

- the identification of changes to type design or repairs
- classification
- justification of the classification
- authorised signatories
- supervision of changes to type design or repairs initiated by subcontractors

For changes to type design, criteria used for classification must be in compliance with HKAR 21.91.

For repairs, criteria used for classification must be in compliance with HKAR 21.435.

2.2 Identification of changes to type design or repairs

The procedure must indicate how the following are identified:

- major changes to type design or major repairs
- those minor changes to type design or minor repairs where additional work is necessary to show compliance with the CS and environmental protection requirements
- other minor changes to type design or minor repairs requiring no further showing of compliance.

2.3 Classification

The procedure must show how the effects on airworthiness and environmental protection are analysed, from the very beginning, by reference to the applicable requirements.

If no specific CS or environmental protection requirements are applicable to the change or repairs, the above review must be carried out at the level of the part or system where the change or repair is integrated and where specific CS or environmental protection requirements are applicable.

2.4 Justification of the classification

All decisions of classification of changes to type design or repairs as "major" or "minor" must be recorded and, for those which are not straightforward, also documented. These records must be easily accessible to the Director-General for sample check.

2.5 Authorised signatories

All classifications of changes to type design or repairs must be accepted by an appropriate authorised signatory.

The procedure must indicate the authorised signatories for the various products listed in the terms of approval.

For those changes or repairs that are handled by subcontractors, as described under paragraph 2.6, it must be described how the DOA holder manages its classification responsibility.

2.6 Supervision of changes to type design or repairs initiated by subcontractors

The procedure must indicate, directly or by cross-reference to written procedures, how changes to type design or repairs may be initiated and classified by subcontractors and are controlled and supervised by the DOA holder.

AMC No. 2 to HKAR 21.263(c)1

Privileges - Organisations designing minor changes to type design or minor repairs to products : classification procedure

1 Content

The procedure must address the following points:

- configuration control rules, especially the identification of changes to type design or repairs
- classification, in compliance with HKAR 21.91 for changes
- justification of the classification
- authorised signatories

2 Identification of changes to type design or repairs

The procedure must indicate how the following minor changes to type design or minor repairs are identified:

- those minor design changes to type design or minor repairs where additional substantiation data is necessary to show compliance with the CS or environmental protection requirements
- other minor design changes to type design or minor repairs requiring no further showing of compliance.

3 Classification

The procedure must show how the effects on airworthiness and environmental protection are analysed, from the very beginning, by reference to the applicable requirements.

If no specific requirements are applicable to the change or the repair, the above review must be done at the level of the part or system where the change or repair is integrated and where specific CS or environmental protection requirements are applicable.

4 Justification of the classification

All decisions of classification of changes to type design or repairs as "minor " must be recorded and, for those which are not straightforward, also documented. These records must be easily accessible to the Director-General for sample check.

It may be in the format of meeting notes or register.

5 Authorised signatories

All classifications of changes to type design or repairs must be accepted by an appropriate authorised signatory.

The procedure must indicate the authorised signatories for the various products listed in the terms of approval.

AMC No. 1 to HKAR 21.263(c)2**Procedure for the approval of minor changes to type design or minor repairs****1 INTENT**

This acceptable means of compliance provides means to develop a procedure for the approval of minor changes to type design or minor repairs.

Each DOA applicant must develop its own internal procedures following this AMC, in order to obtain the associated privilege under HKAR 21.263(c)2.

2 PROCEDURE FOR THE APPROVAL OF MINOR CHANGES TO TYPE DESIGN OR MINOR REPAIRS**2.1 Content**

The procedure must address the following points:

- compliance documentation
- approval under the DOA privilege
- authorised signatories
- supervision of minor changes to type design or minor repairs handled by subcontractors.

2.2 Compliance documentation

For those minor changes to type design or minor repairs where additional work to show compliance with the applicable CS and environmental protection requirements is necessary, compliance documentation must be established and independently checked as required by HKAR 21.239(b).

The procedure must describe how the compliance documentation is produced and checked.

2.3 Approval under the DOA privilege

- 2.3.1 For those minor changes to type design or minor repairs where additional work to show compliance with the applicable CS and environmental protection requirements is necessary, the procedure must define a document to formalise the approval under the DOA privilege.

This document must include at least:

- identification and brief description of the change or repair and reasons for change or repair

- applicable CS or environmental protection requirements and methods of compliance
- reference to the compliance documents
- effects, if any, on limitations and on the approved documentation
- evidence of the independent checking function of the showing of compliance
- evidence of the approval under the privilege of HKAR 21.263(c)2 by an authorised signatory
- date of the approval

For repairs, see AMC 21.433(a).

2.3.2 For the other minor changes to type design or minor repairs, the procedure must define a means to identify the change or repair and reasons for the change or repair, and to formalise its approval by the appropriate engineering authority under an authorised signatory. This function may be delegated by the Office of Airworthiness but must be controlled by the Office of Airworthiness, either directly or through appropriate procedures of the DOA holder's design assurance system.

2.4 **Authorised signatories**

The persons authorised to sign for the approval under the privilege of HKAR 21.263(c)2 must be identified (name, signature and scope of authority) in appropriate documents that may be linked to the handbook.

2.5 **Supervision of minor changes to type design or minor repairs handled by subcontractors**

For the minor changes to type design or minor repairs described in 2.3.2, that are handled by subcontractors, the procedure must indicate, directly or by cross-reference to written procedures how these minor changes to type design or minor repairs are approved at the subcontractor level and the arrangements made for supervision by the DOA holder.

AMC No. 2 to HKAR 21.263(c)2

Privileges - Organisations designing minor changes to type design or minor repairs to products : procedure for the approval of minor changes to type design or minor repairs

1 **Content**

The procedure must address the following points:

- compliance documentation
- approval under the DOA privilege
- authorised signatories

2 Compliance documentation

For those minor changes to type design or minor repairs where additional work to show compliance with the applicable CS and environmental protection requirements is necessary, compliance documentation must be established and independently checked as required by HKAR 21.239(b).

The procedure must describe how the compliance documentation is produced and checked.

3 Approval under the DOA privilege

- 3.1 For those minor changes to type design or minor repairs where additional work to show compliance with the applicable CS or environmental protection requirements is necessary, the procedure must define a document to formalise the approval under the DOA privilege.

This document must include at least:

- identification and brief description of the change or the repair and reason for change or repair
- applicable CS or environmental protection requirements and methods of compliance
- reference to the compliance documents
- effects, if any, on limitations and on the approved documentation
- evidence of the independent checking function of the showing of compliance
- evidence of the approval under the privilege of HKAR 21.263(c)2 by an authorised signatory
- date of the approval

For repairs, see also AMC 21.433(a).

- 3.2 For the other minor changes to type design or minor repairs, the procedure must define a means to identify the change or repair and reasons for the change or repair, and to formalise its approval by the appropriate engineering authority under an authorised signatory. This function must be controlled through appropriate procedures of the DOA holder's design assurance system.

4 Authorised signatories

The persons authorised to sign for the approval under the privilege of HKAR 21.263(c)2 must be identified (name, signature and scope of authority) in appropriate documents that may be linked to the handbook.

AMC HKAR 21. 265(a)
Administration of the Handbook

- 1 The handbook of the applicant must be in English. The applicant may in addition provide a translation of the handbook and other supporting documents as necessary in the language which will permit the best use of them by all personnel charged with the tasks performed for the purpose of the design organisation.
- 2 The handbook must be produced in a concise form with sufficient information to meet HKAR 21.243 relevant to the scope of approval sought by the applicant. The handbook must include the following:
 - a. Organisation name, address, telephone, telex and facsimile numbers.
 - b. Document title, and company document reference No (if any).
 - c. Amendment or revision standard identification for the document.
 - d. Amendment or revision record sheet.
 - e. List of effective pages with revision/date/amendment identification for each page.
 - f. Contents list or index.
 - g. A distribution list for the Handbook.
 - h. An introduction, or foreword, explaining the purpose of the document for the guidance of the organisation's own personnel. Brief general information concerning the history and development of the organisation and, if appropriate, relationships with other organisations which may form part of a group or consortium, must be included to provide background information for the Director-General.
 - i. The certificate of approval must be reproduced in the document.
 - j. Identification of the department responsible for administration of the Handbook.

Note: In the case of an initial or revised approval it is recognised that certificate will be issued after Director-General's agreement to the Handbook content in draft form. Arrangements for formal publication in a timely manner must be agreed before the certificate of approval is issued.
- 3 An updating system must be clearly laid down for carrying out required amendments and modifications to the handbook.

- 4 The Handbook may be completely or partially integrated into the company organisation manual. In this case, identification of the information required by HKAR 21.243 must be provided by giving appropriate cross references, and these documents must be made available, on request, to the Director-General.

SUBPART K PARTS AND APPLIANCES

**AMC 21.307(a)
CAD Form One**

For use and instructions for the completion of the Authorised Release Certificate (CAD Form One), refer to HKAR-2 Chapter 31.

(SUBPART L)

(RESERVED)

SUBPART M REPAIRS

AMC 21.433 (a) and AMC 21.447 Repair design and Record Keeping

- 1 Relevant substantiation data associated with a new major repair design and record keeping should include:
 - a. damage identification and reporting source,
 - b. major repair design approval sheet identifying applicable requirements and references of justifications,
 - c. repair drawing and/or instructions and scheme identifier,
 - d. correspondence with the TC, STC, design approval or HTSO Authorisation holder, if its advice on the design has been sought,
 - e. structural justification (static strength, fatigue, damage tolerance, flutter etc) or references to this data,
 - f. effect on the aircraft, engines and/or systems, (performance, flight handling, etc as appropriate)
 - g. effect on maintenance programme,
 - h. effect on Airworthiness limitations, the Flight Manual and the Operating Manual,
 - i. weight and moment change,
 - j. special test requirements.
- 2 Relevant minor repair documentation includes paragraphs 1(a) and (c). Other points of paragraph 1 may be included where necessary. If the repair is outside the approved data, justification for classification is required.
- 3 Special consideration should be given to repairs that impose subsequent limitations on the part, product or appliance, (e.g., engine turbine segments that may only be repaired a finite number of times, number of repaired turbine blades per set, oversizing of fastener holes, etc.).

- 4 Special consideration should also be given to Life Limited parts and Critical Parts, notably with the involvement of the type-certificate or STC holder, when deemed necessary under HKAR 21.433 (b).
- 5 Repairs to engine critical parts would normally only be accepted with the involvement of the TC holder.

AMC HKAR 21.437**Issue of repair design approval**

When it has been declared and has been shown that the repair design meets the applicable certification specifications and environmental protection requirements of HKAR 21.433(a)1, it may be approved by an appropriately approved organisation with the support of the type certificate or the supplemental type certificate holder, under a procedure agreed with the Director-General.

AMC HKAR 21.437(b)**Issue of repair design approval**

In order for the approved design organisation that is also the type-certificate holder to approve 'Major' repair design the following should be considered applicable:

- i) The type certificate holder being approved under HKAR-21 Subpart J.
- ii) Procedures having been established that comply with HKAR-21 Subpart M as agreed with the Director-General.
- iii) The type-certification basis for the product, part or appliance to be repaired having been identified together with all other relevant requirements.
- iv) All records and substantiation data including documents showing compliance with all relevant airworthiness requirements being held for reviews by the Director-General.
- v) A summary list of all major repair approvals being provided to the Director-General on a regular basis as agreed with the Director-General.
- vi) Whether the repair design is affected by the presence of any supplemental type certificate.

(SUBPART N)

(RESERVED)

SUBPART O HONG KONG TECHNICAL STANDARD ORDER AUTHORISATIONS

AMC 21.601(b)2

Scope

The Director-General adopts the European Joint Technical Standard Orders, European Technical Standard Orders and USA Federal Aviation Administration Technical Standard Orders.

AMC 21.602B(b)2

Procedures for HTSO authorizations

1 Scope

- 1.1 A manual of procedures must set out specific design practices, resources and sequence of activities relevant for the specific projects, taking account of HKAR-21 requirements.
- 1.2 These procedures must be concise and limited to the information needed for quality and proper control of activities by the applicant/holder, and by the Director-General.

2 Management of the HTSO authorisation process

- 2.1 For HTSO authorisation, a procedure following the principles of AMC 21.14(b), paragraph 2.1, 2.2 and 2.3, with the necessary adaptation related to HKAR-21 Subpart O context, must be established.

3 Management of design changes

- 3.1 A procedure following the principles of AMC 21.14(b), paragraphs 3.2 and 3.3, with the necessary adaptation to take into account HKAR 21.611, must be established for the classification and approval of design changes on articles under HTSO authorization.

3.2 Repairs and production deviations from the approved design data

A procedure following the principles of paragraph 3.1 must be established for the classification and approval of repairs and unintentional deviations from the approved design data occurring in production (concessions or non-conformance's). For repairs, the procedure must be established in accordance with HKAR-21 Subpart M and associated AMC. For deviations, the procedure must be established in accordance

with HKAR 21.610.

4 Obligations addressed in HKAR 21.609

The applicant should establish the necessary procedures to show to the Director-General how it will fulfil the obligations under HKAR 21.609.

For issue of information and instructions, a procedure following the principles of AMC 21.14(b), paragraph 4 must be established.

5 Control of design subcontractors

The applicant must establish the necessary procedures to show to the Director-General how it will control design subcontractors.

**AMC 21.608
Declaration of Design and Performance**

STANDARD FORM

DDP No.

ISSUE No.

- 1 Name and address of manufacturer.
- 2 Description and identification of article including:
 - Type No
 - Modification Standard
 - Master drawing record
 - Weight and overall dimensions
- 3 Specification reference, i.e., HTSO No. and Manufacturer's design specification.
- 4 The rated performance of the article directly or by reference to other documents.
- 5 Particulars of approvals held for the equipment.
- 6 Reference to qualification test report.

- 7 Service and Instruction Manual reference number.
- 8 Statement of compliance with the appropriate HTSO and any deviations therefrom.
- 9 A statement of the level of compliance with the HTSO in respect of the ability of the article to withstand various ambient conditions or to exhibit various properties.

The following are examples of information to be given under this heading depending on the nature of the article and the requirements of the HTSO.

- a. Environmental Qualification
 - i. Temperature and Altitude
 - ii. Temperature Variation
 - iii. Humidity
 - iv. Operational Shocks and Crash Safety
 - v. Vibration
 - vi. Explosion Proofness
 - vii. Waterproofness
 - viii. Fluids Susceptibility
 - ix. Sand and Dust
 - x. Fungus Resistance
 - xi. Salt Spray
 - xii. Magnetic Effect
 - xiii. Power Input
 - xiv. Voltage Spike
 - xv. Audio Frequency Conducted Susceptibility - Power Inputs
 - xvi. Induced Signal Susceptibility
 - xvii. Radio Frequency Susceptibility (Radiated and Conducted)
 - xviii. Emission of Radio Frequency Energy
 - xix. Lightning Induced Transient Susceptibility
 - xx. Lightning Direct Effects
 - xxi. Icing
 - xxii. Electrostatic Discharge
 - xxiii. Fire, Flammability

Note: The manufacturer should list environmental categories for each of the sections of the issue of EUROCAE ED-14/RTCA DO-160 that was used to qualify the article.
- b. For radio transmitters the transmitting frequency band, maximum transmitting power, and emission designator.
- c. Working and ultimate pressure or loads.

- d. Time rating (e.g., continuous, intermittent) or duty cycle.
- e. Limits of accuracy of measuring instruments.
- f. Any other known limitations which may limit the application in the aircraft e.g., restrictions in mounting attitude.

10 A statement of the software level(s) used or “None” if not applicable.

Note: Software levels are those defined in the applicable issue of EUROCAE ED-12/RTCA document DO-178.

11 A statement of design assurance level for complex hardware or a statement indicating whether complex hardware is embedded or not in the product.

Note: Complex hardware design assurance levels are those defined in the applicable issue of EUROCAE ED-80/RTCA DO-254.

12 The declaration in this document is made under the authority of

.....(name of manufacturer)

(Manufacturer's name) cannot accept responsibility for equipment used outside the limiting conditions stated above without their agreement.

Date: Signed (Manufacturer's authorised representative)

(SUBPART P)

(RESERVED)

**SUBPART Q IDENTIFICATION OF PRODUCTS, PARTS
AND APPLIANCES**

There are no AMC items associated with this Subpart.

SECTION 3 - GUIDANCE MATERIAL (GM)1 *GENERAL*

- 1.1 This Section contains Guidance Material that has been agreed by the Director-General for inclusion in HKAR-21.
- 1.2 The 'GM to Section A of EASA Implementing Rules (IR) Part 21' is adopted by the Director-General as GM to HKAR-21.
- 1.3 The following table shows the equivalence of the terminology used in the 'GM to EASA IR Part 21' to that of HKAR-21:

<u>'GM to EASA IR Part 21' Terminology</u>	<u>HKAR-21 Terminology</u>
Agency	Director-General
Competent Authority	Director-General

- 1.4 If a corresponding GM to HKAR-21 is issued, the GM to HKAR-21 shall prevail.
- 1.5 Where a particular HKAR-21 paragraph does not have a Guidance Material, it is considered that no supplementary material is required.

2 *PRESENTATION*

- 2.1 The Guidance Material are presented on loose pages, each page being identified by the date of issue and issue/revision number under which it is amended or re-issued.
- 2.2 A numbering system has been used in which the Guidance Material uses the same number as the HKAR-21 paragraph to which it refers. The number is introduced by the letters GM to distinguish the material from the HKAR itself.
- 2.3 The acronym GM also indicates the nature of the material and for this purpose the material is defined as follows:
- Guidance Material (GM)* helps to illustrate the meaning of a specification or requirement.
- 2.4 Explanatory Notes not forming part of the GM text appear in a smaller typeface.
- 2.5 New, amended or corrected text is indicated by a marginal line.

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SUBPART A GENERAL PROVISIONS

Refer to EASA IR Part 21.

SUBPART B TYPE CERTIFICATES

Refer to EASA IR Part 21.

(SUBPART C – NOT APPLICABLE)

SUBPART D CHANGES TO TYPE CERTIFICATES

GM 21.90

Scope

1. The term “changes to type designs” has the same meanings of “aircraft ... is ... modified ...” or “modification” as stipulated in article 8(7)(a) of Air Navigation (Hong Kong) 1995.
2. Hong Kong approvals are issued under HKAR-21 by the Director-General or by the Design Organisations which are approved under Subpart J of HKAR-21. Changes to type design shall be supported by Hong Kong approvals or ‘Arrangements’ with other civil aviation authorities.
Note: Some design changes covered under ‘Arrangements’ require validation by the Director-General. Refer to details of subparagraph 4 below.
3. The aircraft registered owner is responsible for (i) compliance of additional airworthiness requirements stipulated in Air Navigation (Hong Kong) Order 1995 and Hong Kong Airworthiness Notices at aircraft level, and (ii) implementation of aircraft flight manual supplement and instructions for continued airworthiness where applicable.
4. The following ‘Arrangements’ with other civil aviation authorities are established:

	Authority	Type	Title
a	CAAC & AACM	Cooperation Arrangement	Approvals of Design Change and Repair Design
b	EASA	Working Arrangement	Validation of certificates for civil aeronautical products, parts and appliances
c	FAA	Working Procedure	Type Validation and Continued Airworthiness of U.S. Aeronautical Products
d	CASA	Technical Arrangement	Acceptance of Design Change, Repair Design, Parts and Appliances

GM 21.91

Classification of changes to a type design

Refer to EASA GM 21A.91.

Appendix A to GM 21.91

Examples of Major Changes per discipline

Refer to Appendix A to EASA GM 21A.91.

Appendix B to GM 21.91

Criteria for the classification of changes to a type design

1 GENERAL

The following criteria outline the decisions needed in assessing a change to a type design as major or minor. For each issue, it must be determined whether or not the proposed change will have other than a negligible effect. The questions require "yes" or "no" responses. An affirmative answer to any individual question indicates that the change should be classified as major. The examples and tests listed are for illustration only and not intended to be all encompassing.

2 CRITERIA

2.1 General

Is the change being accomplished as an alternative means of compliance with an airworthiness directive or equivalent?

2.2 Mass and balance

- (a) Does the change involve a revision in the approved mass limitations or center of gravity range limits?
- (b) Does the change require the installation of ballast or use of other methods to maintain the center of gravity within the approved limits?

2.3 Operational characteristics

Does the change involve alterations to the configuration of the aircraft which may:

- (a) increase drag;
- (b) alter the thrust or power;

- (c) affect stability or controllability;
- (d) induce flutter or vibration; or
- (e) alter the stalling characteristics to an extent which necessitates analysis or test?

2.4 **Structural strength**

- (a) Does the change involve a principal component of the aircraft structure such as a frame, stringer, rib, spar or stressed skin?
- (b) Does the change involve a structural element which is addressed as part of a damage tolerance or fatigue/fail-safe evaluation?
- (c) Is a pressure vessel penetration or change involved?
- (d) Does the change involve the installation of an item of mass necessitating structural re-evaluation?
- (e) Does the change involve the installation or alteration of a containment or restraint system intended for the stowage of items of significant mass?
- (f) Does the change involve repairs or modifications to the load-bearing structure of seats, harnesses or their means of attachment or any other occupant restraint equipment?
- (g) Does the change involve the substitution of materials?

2.5 **Powerplant operation**

- (a) Does the change significantly affect the powerplant or propeller or their accessories?
- (b) Does the change involve any rotating parts?

2.6 **Other qualities affecting airworthiness**

- (a) Does the change involve equipment for which there is no performance standard which has been approved or accepted by the airworthiness authority?
- (b) Does the change affect the probability of failure conditions that could impair or preclude continued safe flight or landing?

- (c) Does the change affect the pilot's visibility or impair the pilot's capability to control the aircraft?
- (d) Does the change involve alterations to the interior arrangement or cabin materials that must meet the applicable test criteria prescribed in other than Part I of Appendix F of CS25 or equivalent standards?
- (e) Does the change involve systems for cabin pressurisation or the provision of breathing oxygen?
- (f) Does the change involve flight controls or an autopilot?
- (g) Does the change involve critical or essential components of the electrical system such as generators, alternators, inverters, batteries, distribution buses, or bus protection and control devices?
- (h) Does the change affect instruments or indicators or their subsystems that provide navigation information?
- (i) Does the change affect instruments, indicators or their subsystems that provide essential or critical information concerning the aircraft status?
- (j) Does the change affect a regulated placard?
- (k) Does the change affect any approved information contained in the flight manual or equivalent document?
- (l) Does the change affect reliability characteristics?

2.7 Other qualities affecting environmental characteristics

Does the change alter the aircraft noise, fuel venting or exhaust emission characteristics?

2.8 Non-standard practices

Does the change involve practices or techniques which are novel or unproven in the proposed application?

SUBPART E SUPPLEMENTAL TYPE CERTIFICATES**GM 21.111****Scope**

1. Supplemental Type Certificates (STC) issued by other civil aviation authorities such as EASA, FAA, TCCA, etc require the approval of the Director-General. The approval is signified by issuing a STC. Refer to AMC 21.113(a) for application procedures of VSTC.

(SUBPART F)

(RESERVED FOR PRODUCTION WITHOUT PRODUCTION ORGANISATION APPROVAL)

SUBPART G PRODUCTION ORGANISATION APPROVAL

Refer to EASA IR Part 21.

SUBPART H CERTIFICATES OF AIRWORTHINESS**GM 21.174(a)****Application form and manner****1 Application Form**

CAD Form DCA 46D shall be completed and submitted to the Director-General.

2 Timeline

- a) The applicant shall submit the completed application form at least 3 months, 6 months and 12 months prior to the anticipated date of issuing the C of A for a new Series, Variant and Prototype aircraft respectively. Additional 3 months shall be allowed for an application for used aircraft.

NOTE: Additional 3 months shall be allowed for aircraft equipped with peculiar interior, such as VIP interior for business jets or major changes in cabin layout in jetliners.

- b) The applicant shall submit all related substantiation documents and reports at least ten working days prior to the anticipated date of issuing the C of A.

3 Fee

- a) The applicant shall pay deposit for charges prescribed in the Hong Kong Air Navigation (Fees) Regulations at the time of application.
- b) During the investigation, if it is necessary for an Officer to travel outside Hong Kong, the Director-General will require the applicant to meet the additional costs involved.

GM 21.174(b)(2)(i)**Statement of conformity**

1. The statement declaring that the aircraft conforms to a design approved by the Director-General shall be accompanied by the Certificate of Airworthiness or Export Certificate of Airworthiness issued by the State of Manufacture.
2. During the investigation, the Director-General may decide that additional requirements must be met and these will be published as Additional Requirements for Issue of Certificate of Airworthiness in writing to the applicant.

GM 21.174(b)(2)(iii)
Flight manual

1. The applicant shall submit to the Director-General a Flight Manual conforming to Hong Kong requirements including an index showing the applicable flight manual supplements for the particular aircraft.
2. Maximum Approved Passenger Seating Configuration (MAPSC) is the maximum passenger seating capacity of an individual aircraft, excluding pilot seats or flight deck seats and cabin crew seats as applicable, approved by the Director-General and specified in the Certificate of Airworthiness. The MAPSC shall be specified in the individual Aircraft Flight Manual or its supplement. The passenger seats certified for take-off and landing shall be clearly identified on a Layout of Passenger Accommodation (LOPA) as part of the MAPSC presentation in the Aircraft Flight Manual or its supplement.

GM 21.174(b)(3)(ii)(a)
Statement reflecting airworthiness status

1. The statement reflecting the airworthiness status shall be accompanied by the Certificate of Airworthiness or Export Certificate of Airworthiness issued by the State where the aircraft is registered.
2. During the investigation, the Director-General may decide that additional requirements must be met and these will be published as Additional Requirements for Issue of Certificate of Airworthiness in writing to the applicant.

GM 21.174(b)(3)(ii)(c)
Flight manual

Refer to GM 21.174(b)(2)(iii).

GM 21.174(b)(4)
Aircraft certification documents

The aircraft certification documents are specified in subparagraph 4.1 of Airworthiness Notice No. 17A.

SUBPART I NOISE CERTIFICATES**GM 21.204(a)****Application**

1. An application for a Noise Certificate shall be made to the Director-General using form DCA 300, normally at the same time when applying for issuance of Certificate of Airworthiness. The form is available on the Hong Kong Civil Aviation Department website. The application shall be accompanied by:
 - i. a deposit cheque for charges prescribed in the Civil Aviation (Aircraft Noise) (Certification) Regulations at the time of application;
 - ii. any documents upon which the applicant relies to show that the aircraft complies with the relevant standards of noise; and
 - iii. such other evidence in support of the application as the Director-General may reasonably require for the consideration of the application.
2. The applicant shall provide evidence showing that the aircraft complies with requirements specified in HKAR 21.18(a). Noise data with numerical values approved by the primary certification authority is acceptable to the Director-General.
3. Noise data determined by reading from chart is not acceptable.
4. Appendix 3 to HKAR-21 provides a summary of noise requirements. For details of the requirements, refer to ICAO Annex 16 Volume I.

SUBPART J DESIGN ORGANISATION APPROVAL

Refer to EASA IR Part 21.

**SUBPART K MATERIALS, PARTS, PROCESSES AND
APPLIANCES**

Refer to EASA IR Part 21.

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SECTION 3

(SUBPART L)

(RESERVED)

SUBPART M REPAIRS**GM 21.431****Scope**

1. Hong Kong approvals are issued under HKAR-21 by the Director-General or by the Design Organisations which are approved under Subpart J of HKAR-21. Repair designs shall be supported by Hong Kong approvals or 'Arrangements' with other civil aviation authorities.

Note: Repair designs covered under 'Arrangements' do not require validation by the Director-General. Refer to details of subparagraph 4 below.

2. The aircraft registered owner is responsible for (i) compliance of additional airworthiness requirements stipulated in Air Navigation (Hong Kong) Order 1995 and Hong Kong Airworthiness Notices at aircraft level, and (ii) implementation of instructions for continued airworthiness where applicable.

3. The following 'Arrangements' with other civil aviation authorities are established:

	Authority	Type	Title
a	CAAC & AACM	Cooperation Arrangement	Approvals of Design Change and Repair Design
b	EASA	Working Arrangement	Validation of certificates for civil aeronautical products, parts and appliances
c	FAA	Working Procedure	Type Validation and Continued Airworthiness of U.S. Aeronautical Products
d	CASA	Technical Arrangement	Acceptance of Design Change, Repair Design, Parts and Appliances

GM 1 to HKAR 21.435(a)**Classification of Repairs**

Refer to EASA GM 21A.435(a).

**GM 2 to HKAR 21.435(a)
Classification of Repairs**

Refer to Appendix B to GM 21.91 for criteria for the classification of repairs. The criteria outline the decisions needed in assessing a repair as major or minor. For each issue, it must be determined whether or not the proposed repair will have other than a negligible effect. The questions require "yes" or "no" responses. An affirmative answer to any individual question indicates that the repair should be classified as major. The examples and tests listed are for illustration only and not intended to be all encompassing.

(SUBPART N)

(RESERVED)

**SUBPART O HONG KONG TECHNICAL STANDARD
ORDER AUTHORISATIONS**

Refer to EASA IR Part 21.

(SUBPART P)

(RESERVED)

**SUBPART Q IDENTIFICATION OF PRODUCTS, PARTS
AND APPLIANCES**

Refer to EASA IR Part 21.

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APPENDIX 1

SAMPLE PROJECT SPECIFIC CERTIFICATION PLAN (PSCP)

PART 1 INTRODUCTION

PART 2 DESCRIPTION

PART 3 CERTIFICATION REQUIREMENTS

- 3.1 Applicable airworthiness design standards
- 3.2 System special requirements, unique or novel aspects
- 3.3 Compliance checklist (see HKAR-21, Appendix 2)

PART 4 METHOD OF COMPLIANCE

- 4.1 Analyses – failure, safety, performance, etc.
- 4.2 Test – qualification, flammability, laboratory, simulator, ground, flight, etc.
- 4.3 Software compliance
- 4.4 Design

PART 5 FUNCTIONAL HAZARD ASSESSMENT SUMMARY

- 5.1 System criticality
- 5.2 Software criticality
- 5.3 Functional failure conditions summary

PART 6 OPERATIONAL CONSIDERATIONS

- 6.1 Master Minimum Equipment List (MMEL)
- 6.2 Aircraft Flight Manual (AFM)
- 6.3 Instruction for Continued Airworthiness (ICA)

PART 7 CERTIFICATION DOCUMENTATION

PART 8 CERTIFICATION SCHEDULE

- 8.1 Descriptive submittal
- 8.2 Compliance data submittal
- 8.3 Test schedule
- 8.4 Compliance inspection schedule
- 8.5 Conformity inspection schedule
- 8.6 Final approval

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APPENDIX 2

SAMPLE COMPLIANCE CHECKLIST

The purpose of the compliance checklist is to document the applicable airworthiness design standards for the supplemental type certificate project and how compliance with those design standards is shown.

Instructions for completing this sample compliance checklist are as follows:

Paragraph: List the applicable requirements by paragraph number.

Subject: The subject or title of the applicable paragraph.

Method of Compliance: The method of compliance may include design drawings (D), analyses (A), tests (T), or other methods (O). A compliance checklist simply lists the letter corresponding to the applicable method of compliance or a more specific reference may be used. There should be an explanation of the format used if required.

Documentation Reference: List the documentation (test report number, analysis report number, etc.) that demonstrates compliance paragraph.

To illustrate how the compliance checklist may be completed, the example of the installation of new passenger seats on an aircraft where the USA is the State of Design is considered. In this case, one of the several requirements that may be applicable could be FAR 25.562, Emergency landing dynamic conditions. If compliance is to be demonstrated by a dynamic test and a report is to be submitted to the Director-General then the entry in the compliance checklist may be as follows:

No.	Paragraph	Subject	Method of Compliance	Documentation Reference
1	FAR 25.562	Emergency landing dynamic conditions	Test	Test Report TR12345
2				
3				
4				
5				
6				

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APPENDIX 3

SUMMARY OF ICAO ANNEX 16 VOLUME I NOISE REQUIREMENTS

Item #	Chapter	Section	Aircraft Type	Maximum Certificated Take-off Mass	Type Certificate Application Date
A	2	2.4.1	Subsonic jet aeroplanes		Before 6 October 1977
B	2	2.4.2	Subsonic jet aeroplanes		Before 6 October 1977 with derived versions for which the application for certification of the change in type design was submitted on or after 26 November 1981
D	3		Subsonic jet aeroplanes		On or after 6 October 1977 and before 1 January 2006
E	3		Propeller-driven aeroplanes	Over 8,618 kg	On or after 1 January 1985 and before 1 January 2006
F	4		Subsonic jet aeroplanes and propeller-driven aeroplanes	55,000 kg and over	On or after 1 January 2006 and before 31 December 2017
G	4		Subsonic jet aeroplanes	Less than 55,000 kg	On or after 1 January 2006 and before 31 December 2020
H	4		Propeller-driven aeroplanes	Over 8,618 kg and less than 55,000 kg	On or after 1 January 2006 and before 31 December 2020
I	5		Propeller-driven aeroplanes	Over 8,618 kg	Before 1 January 1985
J	6		Propeller-driven aeroplanes	Not exceeding 8,618 kg	Before 17 November 1988
K	7		Propeller-driven STOL aeroplanes		
L	8	8.4.1	Helicopters		On or after 1 January 1985
M	8	8.4.1	Helicopters		On or after 1 January 1985 with a derived version of a helicopter for which the application for certification of the change in type design was submitted on or after 17 November 1988
N	8	8.4.2	Helicopters		For all helicopters, including their derived versions, for which the application for the type certificate was submitted on or after 21 March 2002
O	9		Installed auxiliary power units (APU) and associated aircraft systems during ground operations		

Item #	Chapter	Section	Aircraft Type	Maximum Certificated Take-off Mass	Type Certificate Application Date
P	10	10.4 a)	Propeller-driven aeroplanes	Not exceeding 8,618 kg	Application for type certificate or certification of derived version submitted on or after 17 November 1988
Q	10	10.4 a)	Propeller-driven single-engined aeroplanes, except float planes and amphibians	Not exceeding 8,618 kg	Apply to those derived versions of aeroplanes for which the application for the type certificate was submitted on or after 17 November 1988 and before 4 November 1999, and where the application for certification of change in type design was submitted on or after 4 November 1999 and before 4 November 2004 and which exceed the maximum noise levels of paragraph 10.4 b) of ICAO Annex 16, Vol. I, Chapter 10
R	10	10.4 b)	Propeller-driven single-engined aeroplanes, except float planes and amphibians	Not exceeding 8,618 kg	On or after 4 November 1999
S	10	10.4 b)	Propeller-driven single-engined aeroplanes, except float planes and amphibians	Not exceeding 8,618 kg	Apply to those derived versions of aeroplanes for which the application for the type certificate was submitted before 4 November 1999 and for which the application for certification of the change in type design was submitted on or after 4 November 1999
T	11	11.4.1	Helicopters	Not exceeding 3,175 kg	Except for those helicopters specified in Item U, (i) all helicopters for which the application for the type certificate was submitted on or after 11 November 1993; (ii) for a derived version of a helicopter for which the application for certification of the change in type design was submitted on or after 11 November 1993.
U	11	11.4.2	Helicopters	Not exceeding 3,175 kg	All helicopters, including their derived versions, for which the application for the type certificate was submitted on or after 21 March 2002
V	12		Supersonic aeroplanes		
W	13		Tilt-rotors		
X	14		Subsonic jet aeroplanes and propeller-driven aeroplanes	55,000 kg and over	On or after 31 December 2017
Y	14		Subsonic jet aeroplanes	Less than 55,000 kg	On or after 31 December 2020
Z	14		Propeller-driven aeroplanes	Over 8,618 kg and less than 55,000 kg	On or after 31 December 2020