

# Civil Aviation Rules



## **Part 146**

### **CAA Consolidation**

**10 March 2017**

### **Aircraft Design Organisations — Certification**

## **DESCRIPTION**

Part 146 prescribes rules governing the certification and operation of an aircraft design organisation, and issue of a delegation for the approval of a design change.

**This document is the current consolidated version of Part 146 produced by the Civil Aviation Authority, and serves as a reference only. It is compiled from the official ordinary rules that have been signed into law by the Minister of Transport. Copies of the official rule and amendments as signed by the Minister of Transport may be obtained from the Civil Aviation Authority or may be downloaded from the official web site at: [www.caa.govt.nz](http://www.caa.govt.nz)**

**Bulletin**

This Part first came into force on 1 April 1997 and now incorporates the following amendments:

<b>Amendment</b>	<b>Effective Date</b>
Amendment 1	1 March 2007
Amendment 2	1 April 2014
Amendment 3	1 February 2016
Amendment 4	10 March 2017

***Summary of amendments:***

Amendment 1 (1/CAR/1357)	Rules 146.1, 146.9 and 146.105 are revoked and substituted, rules 146.19, 146.21 and Appendix B are revoked.
Amendment 2 (13/CAR/1)	Rule 146.7 is revoked and replaced.
Amendment 3 (8/CAR/1)	Rules 146.51, 146.65, 146.67 and 146.105 are revoked and replaced; rule 146.107 is revoked and rules 146.151 and 146.153 are inserted.
Amendment 4 (16/CAR/1)	Amending rule 146.151(the Safety Management transition rule) to clarify matters to do with the timing and submission of implementation plans and to correct references to applicants and to remove paragraph (f) of the existing rule.

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## Subpart A — General

### 146.1 Purpose

This Part prescribes rules governing the—

- (1) certification and operation of an aircraft design organisation; and
- (2) issue of a delegation for the approval of a design change.

### 146.3 Reserved

### 146.5 Requirement for certificate

No person shall exercise the privileges in 146.11 except under the authority of and in accordance with the provisions of an aircraft design organisation certificate issued under this Part.

### 146.7 Application for certificate

(a) An applicant for the grant of a design organisation certificate must complete form CAA 24146/01, which requires—

- (1) the name and address for service in New Zealand of the applicant; and
- (2) further particulars relating to the applicant that the Director may require as specified on the form.

(b) The applicant must submit the completed form CAA 24146/01 to the Director with a payment of the appropriate application fee prescribed by regulations made under the Act.

### 146.9 Issue of certificate

The Director must, in accordance with section 9 of the Act, grant a design organisation certificate to an applicant if the Director is satisfied that—

- (1) the applicant meets the requirements of Subpart B; and
- (2) the applicant and the senior person or senior persons required under rule 146.51(a) are fit and proper persons; and
- (3) the granting of the certificate is not contrary to the interests of aviation safety.

**146.11 Privileges of certificate holder**

(a) A design organisation certificate specifies one or more of the following design ratings for which the certificate is issued:

- (1) D1 for the development of designs for products and their components as defined in the organisation's exposition:
- (2) D2 for the development of design changes for products and their components as defined in the organisation's exposition:
- (3) D3 for the development of designs and design changes for appliances as defined in the organisation's exposition.

(b) The holder of a design organisation certificate may develop any design authorised by the design rating specified on the certificate.

(c) The holder of a design organisation certificate may employ a person in accordance with 146.51(a)(3) to approve design changes.

(d) The holder of a design organisation certificate may apply for the grant of a type certificate under Part 21, Subpart B.

**146.13 Duration of certificate**

(a) A design organisation certificate may be granted or renewed for a period of up to five years.

(b) A design organisation certificate remains in force until it expires or is suspended or revoked by the Director.

(c) The holder of a design organisation certificate that expires or is revoked shall forthwith surrender the certificate to the Director.

(d) The holder of a design organisation certificate that is suspended shall forthwith produce the certificate to the Director for appropriate endorsement.

**146.15 Notification of ceasing design**

(a) Each holder of a design organisation certificate who ceases to offer design services shall notify the Director in writing within 30 days of the date of cessation.

(b) The notification shall include a request for revocation of the design organisation certificate.

#### **146.17 Renewal of certificate**

(a) An application for the renewal of a design organisation certificate shall be made by the holder of a design organisation certificate on form CAA 24146/01.

(b) The application shall be submitted to the Director by the application renewal date specified on the certificate or, if no such date is specified, not less than 30 days before the certificate expires.

### **Subpart B — Certification Requirements**

#### **146.51 Personnel requirements**

(a) An applicant for the grant of a design organisation certificate must employ, contract, or otherwise engage—

- (1) a senior person identified as the chief executive who has the authority within the applicant's organisation to ensure that all activities undertaken by the organisation can be financed and carried out in accordance with the requirements and standards prescribed by this Part; and
- (2) a senior person or persons who is or are responsible for ensuring that the applicant's organisation complies with the requirements of this Part. Such nominated person or persons must be ultimately responsible to the chief executive for the following functions:
  - (i) design control;
  - (ii) inspection and testing;
  - (iii) the system for safety management; and
- (3) if design approval functions are required by the organisation, a senior person who holds a delegation to approve design changes in accordance with rule 21.73; and



- (4) sufficient personnel to plan, perform, supervise, inspect, and certify the design activities listed in the applicant's exposition.
- (aa) The senior person required by paragraph (a)(2)(iii) must be able to demonstrate competency and experience relevant to the management of safety systems and the activities of the certificate holder.
- (b) The applicant must—
  - (1) establish a procedure for initially assessing, and for maintaining, the competency of personnel involved in planning, performing, supervising, inspecting, or certifying the design activities performed by the applicant's organisation; and
  - (2) provide those personnel with written evidence of the scope of their authorisation.

#### **146.53 Facility requirements**

- (a) Each applicant for the grant of a design organisation certificate shall provide facilities appropriate for all design activities performed by the applicant's organisation.
- (b) The applicant shall provide—
  - (1) office accommodation for the administration of its design activities; and
  - (2) storage facilities for equipment, tools, and design data that include controls to prevent deterioration of, and damage to, stored items.
- (c) The applicant shall ensure that the environment it provides is appropriate for the tasks to be performed and, in particular, meets any special requirements specified by applicable testing specifications.

#### **146.55 Equipment, tools, and data**

Each applicant for the grant of a design organisation certificate shall—

- (1) have access to the equipment, tools, and design reference data necessary for all design activities performed by the applicant's organisation; and

- (2) establish a procedure to control the equipment, tools, and design reference data including, at a frequency and to a standard acceptable to the Director, the—
  - (i) calibration of tools and test equipment; and
  - (ii) confirmation of design reference data.

#### **146.57 Design control system**

Each applicant for the grant of a design organisation certificate shall establish a design control system that ensures—

- (1) the design reference data used by the applicant's organisation is confirmed at a frequency and to a standard that assures the data's applicability to each design activity; and
- (2) each design activity to be performed on behalf of the applicant's organisation by a subcontractor—
  - (i) is identified in the applicant's exposition; and
  - (ii) complies with the systems, procedures, and specifications detailed in the applicant's exposition; and
- (3) each design or design change to be issued with a statement of compliance by the applicant complies with the applicable airworthiness design standards and has no unsafe features; and
- (4) each design change to be approved by its senior person required by 146.51(a)(3) complies with the applicable airworthiness requirements, has no unsafe features, and is fit for embodiment.

#### **146.59 Design control procedures**

- (a) Each applicant for the grant of a design organisation certificate shall hold copies of design control manuals, facility manuals, airworthiness design standards, specifications, technical standards and practices, reference material, and any other documentation that is necessary for the provision of the design control system listed in its exposition.
- (b) Each applicant for the grant of a design organisation certificate shall establish procedures to—

- (1) control the drawing system to be used; and
- (2) produce, check, and control drawings; and
- (3) test and inspect specimens to the type design to show compliance with airworthiness design standards; and
- (4) produce, check, and control reports showing compliance with airworthiness design standards, including stress analysis and flight test reports; and
- (5) issue statements of compliance, and maintain the list of staff with authority to sign the statements; and
- (6) issue design change approvals, and maintain the list of senior persons required by 146.51(a)(3) with authority to sign the approvals; and
- (7) ensure that the senior person required by 146.51(a)(3)—
  - (i) complies with Appendix A; and
  - (ii) forwards a copy of the design change approval to the Authority within 28 days of the issue of the approval; and
- (8) control the documentation required by paragraph (a) to ensure—
  - (i) the documentation is reviewed and authorised by appropriate personnel before issue; and
  - (ii) current issues of relevant documentation are available to personnel at all locations where they need access to such documentation for the provision of the design activities listed in the applicant's exposition; and
  - (iii) obsolete documentation is promptly removed from all points of issue or use; and
  - (iv) changes to documentation are reviewed and approved by appropriate personnel; and

- (v) each item of documentation can be identified to ensure that only documentation relevant to the design is used; and
- (9) make type certificates, design information, drawings, test reports, and inspection records available to the Director, upon the Director's request.

#### **146.61 Continued airworthiness**

(a) Each applicant for the grant of a design organisation certificate shall establish procedures for—

- (1) collecting, investigating, and analysing information relating to defects in the design produced by the applicant and distributing that information to—
  - (i) each manufacturer of a product, component, or appliance to that design; and
  - (ii) each person who receives that design from the design organisation; and
- (2) providing defect incident information to the Authority in accordance with Part 12.

(b) Each applicant for the grant of a design organisation certificate shall establish procedures for any type certificated product they design to—

- (1) provide at least one set of Instructions for Continued Airworthiness, prepared in accordance with the applicable airworthiness design standards specified in Part 21 Appendix C, to each purchaser of the product, upon its delivery, or upon the grant of the first standard airworthiness certificate for the affected aircraft, whichever occurs later; and
- (2) make those Instructions and any changes to the Instructions available to any other person required by any CAR to comply with those Instructions; and
- (3) inform each owner of a product of the same type of the details of the procedures required in paragraph (a).

**146.63 Records**

- (a) Each applicant for the grant of a design organisation certificate shall establish procedures to identify, collect, index, store, maintain, and dispose of the records that are necessary to ensure that each design and design change conforms to the applicable design data.
- (b) Each applicant for the grant of a design organisation certificate shall establish procedures to—
- (1) record details of the experience, qualifications, training, and current authorisations of each person who exercises certification privileges on the holder's behalf; and
  - (2) record all designs and design changes that are developed by the holder; and
  - (3) retain all drawings, tests, analyses, and reports that show the designs and design changes comply with the applicable airworthiness design standards; and
  - (4) record the date of, and person certifying, each confirmation of design reference data; and
  - (5) record all calibrations on tools and test equipment specified in 146.55 and the standards used; and
  - (6) ensure that—
    - (i) all records are legible and of a permanent nature; and
    - (ii) except as provided in paragraph (c), the records required by paragraphs (b)(1) to (5) are retained for a period of 2 years from the date the last example of the product type is permanently withdrawn from service.
- (c) The Director may permit records to be retained for a lesser period than that required by paragraph (b)(6)(ii).

### **146.65 Safety management**

An applicant for the grant of a design organisation certificate must establish, implement and maintain a system for safety management in accordance with rule 100.3.

### **146.67 Design organisation exposition**

(a) An applicant for the grant of a design organisation certificate must provide the Director with an exposition that contains—

- (1) a statement signed by the chief executive on behalf of the applicant's organisation confirming that the exposition and any included manuals—
  - (i) define the design organisation and demonstrate its means and methods for ensuring ongoing compliance with this Part; and
  - (ii) are to be complied with at all times; and
- (1A) in relation to the system for safety management required by rule 146.65,—
  - (i) all of the documentation required by rule 100.3(b); and
  - (ii) for an applicant that is not applying for a renewal of a design organisation certificate, an implementation plan that describes how the system for safety management will be implemented; and
- (2) the titles and names of the senior person or persons required by rules 146.51(a)(1),(2), and (3); and
- (3) the duties and responsibilities of the senior person or persons required by rules 146.51(a)(1), (2), and (3), including—
  - (i) matters for which the person has the responsibility to deal directly with the Director or the Authority on behalf of the organisation; and
  - (ii) responsibilities for safety management; and

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- (4) an organisation chart showing lines of responsibility of the senior person or persons required by rules 146.51(a)(1), (2), and (3); and
  - (4A) information identifying the lines of safety responsibility within the organisation; and
  - (5) details of all locations where the applicant conducts design activities and testing, and the facilities at those locations; and
  - (6) details of the applicant's provision of satisfactory environmental conditions at each of the locations listed under paragraph (a)(5); and
  - (7) details of the applicant's staffing structure at each of the locations listed under paragraph (a)(5); and
  - (8) a detailed description of the scope of work to be undertaken by the applicant; and
  - (9) a detailed description of the applicant's design control system; and
  - (10) details of any authorisations made by the organisation to other persons for design work and testing; and
  - (11) details of the organisation's procedures required by—
    - (i) rule 146.51(b) regarding the competence of personnel; and
    - (ii) rule 146.51(b) regarding the on-going training of personnel; and
    - (iii) rule 146.55(2) regarding the control and calibration of tools and test equipment; and
    - (iv) rule 146.55(2) regarding the confirmation of design data; and
    - (v) rule 146.59(b) regarding the operation of the design control system; and

- (vi) rule 146.61(a) regarding the collecting, investigating, analysing, and distributing of information relating to defects and occurrences; and
  - (vii) rule 146.61(b) regarding the Instructions for Continued Airworthiness of any type certificated product they design; and
  - (viii) rule 146.63(a) regarding the identification, collection, indexing, storage, maintenance and disposal of records; and
  - (ix) rule 146.63(b) regarding the content and retention of records; and
  - (x) [*revoked*]
- (12) procedures to control, amend, and distribute the exposition.
- (b) The applicant's exposition must be acceptable to the Director.

## Subpart C — Operating Requirements

### 146.101 Continued compliance

Each holder of a design organisation certificate shall—

- (1) hold at least one complete and current copy of its exposition at each work location specified in its exposition; and
- (2) comply with all procedures and systems detailed in its exposition; and
- (3) make each applicable part of the exposition available to personnel who require those parts to carry out their duties; and
- (4) continue to meet the standards and comply with the requirements Subpart B prescribes for certification under this Part; and
- (5) determine that each design or design change approved or submitted for approval complies with the applicable



airworthiness requirements, has no unsafe features, and is fit for embodiment.

### **146.103 Continuation of designs**

Each design or design change developed by an approved firm under regulation 176 of the Civil Aviation Regulations 1953 at the time this Part comes into force shall be deemed to have been developed by an organisation certificated under this Part.

### **146.105 Changes to certificate holder's organisation**

(a) A holder of a design organisation certificate must ensure that the exposition for the holder's organisation is amended so that it remains a current description of the holder's organisation.

(b) The certificate holder must—

- (1) ensure that any amendment made to its exposition meets the applicable requirements of this Part; and
- (2) complies with the amendment procedures contained in its exposition.

(c) Subject to paragraph (d), the certificate holder must forward to the Director for retention a copy of each amendment to its exposition as soon as practicable after the amendment is incorporated into its exposition.

(d) Before a certificate holder changes any of the following, prior acceptance by the Director is required:

- (1) the chief executive;
- (2) the listed senior persons;
- (3) the scope of the design activities the certificate holder undertakes;
- (4) the location at which work is carried out;
- (5) the system for safety management, if the change is a material change.

- (e) The Director may impose conditions under which the certificate holder must operate during or following any of the changes specified in paragraph (d).
- (f) The certificate holder must comply with any condition imposed by the Director under paragraph (e).
- (g) If any change referred to in this rule requires an amendment to the design organisation certificate, the certificate holder must forward the certificate to the Director for endorsement of the change as soon as practicable.
- (h) The certificate holder must amend its exposition as the Director may consider necessary in the interests of aviation safety.

#### **146.107 Revoked**

### **Subpart D – Transition Provisions**

#### **146.151 Transition for design organisation certificate holders and applicants**

- (a) This rule applies to each—
- (1) holder of a design organisation certificate:
  - (2) applicant for the grant of a design organisation certificate.
- (b) Before the date for implementation set in accordance with subparagraph (e)(2), an organisation to which this rule applies is not required to comply with—
- (1) rule 146.51(a)(2)(iii), if instead of a senior person responsible for the system for safety management, the organisation has a senior person responsible for internal quality assurance:
  - (2) rule 146.65, if instead of establishing, implementing, and maintaining the system for safety management, the organisation has established an internal quality assurance system that complies with rule 146.153:
  - (3) rule 146.67(a)(1A)(i):

- (4) rule 146.67(a)(3)(ii):
  - (5) rule 146.67(a)(4A).
- (c) A completed CAA form and implementation plan must be submitted to the Director—
- (1) after 1 February 2016 for an applicant for the grant of a design organisation certificate under subparagraph (a)(2); and
  - (2) by 30 July 2018 for a holder of a design organisation certificate under subparagraph (a)(1).
- (d) The implementation plan referred to in paragraph (c) must—
- (1) include a proposed date for implementation of the system for safety management; and
  - (2) outline how the organisation plans to implement the system for safety management required under rule 146.65.
- (e) The Director will, if acceptable—
- (1) approve the organisation's implementation plan; and
  - (2) set the date for implementation of the system for safety management.
- (f) In setting the date under subparagraph (e)(2), the Director must have regard to the following:
- (1) the capability of the organisation:
  - (2) the complexity of the organisation:
  - (3) the risks inherent in the activities of the organisation:
  - (4) the date of any certificate renewal:
  - (5) any resource or scheduling impacts on the organisation or the Authority or both:

- (6) the date for implementation must not be later than 1 February 2021.
- (g) A holder of a design organisation certificate under subparagraph (a)(1) does not have to submit an implementation plan with its certificate renewal application.
- (h) This rule expires on 1 February 2021.

### **146.153 Transitional internal quality assurance for design organisation certificate holders and applicants**

- (a) The internal quality assurance system required by rule 146.151(b)(1)(ii) must be established to ensure the organisation's compliance with, and the adequacy of, the procedures required by this Part.
- (b) The internal quality assurance system must include—
- (1) a safety policy and safety policy procedures that are relevant to the applicant's organisational goals and the expectations and needs of its customers; and
  - (2) a procedure to ensure quality indicators, including defect and incident reports, and personnel and customer feedback, are monitored to identify existing problems or potential causes of problems within the system; and
  - (3) a procedure for corrective action to ensure that existing problems that have been identified within the system are corrected; and
  - (4) a procedure for preventive action to ensure that potential causes of problems that have been identified within the system are remedied; and
  - (5) an internal audit programme to audit the applicant's organisation for conformity with its safety policy; and
  - (6) management review procedures to ensure the continuing suitability and effectiveness of the internal quality assurance system in satisfying the requirements of this Part.

- (c) The safety policy procedures must ensure that the safety policy is understood, implemented, and maintained at all levels of the organisation.
- (d) The procedure for corrective action must specify how—
- (1) existing problems are to be corrected; and
  - (2) corrective action are to be followed up to ensure the action is effective; and
  - (3) any procedure required for this Part is to be amended as a result of corrective action; and
  - (4) management will review the effectiveness of any corrective action taken.
- (e) The procedure for preventive action must specify how—
- (1) potential problems are to be corrected; and
  - (2) preventive action is to be followed up to ensure the action is effective; and
  - (3) any procedure required for this Part is to be amended as a result of preventive action; and
  - (4) management will review the effectiveness of any preventive action taken.
- (f) The internal quality audit programme must—
- (1) specify the frequency and location of the audits taking into account the nature of the activity to be audited; and
  - (2) ensure audits are performed by trained auditing personnel who are independent of those having direct responsibility for the activity being audited; and
  - (3) ensure the results of audits are reported to the personnel responsible for the activity being audited and the manager responsible for internal audits; and

- (4) require preventive or corrective action to be taken by the personnel responsible for the activity being audited if problems are found by the audit; and
  - (5) ensure follow up audits to review the effectiveness of any preventive or corrective action taken.
- (g) The procedure for management review must—
- (1) specify the frequency of management reviews of the quality assurance system taking into account the need for the continuing effectiveness of the system; and
  - (2) identify the manager who is responsible for the review of the quality assurance system; and
  - (3) ensure the results of the review are evaluated and recorded.
- (h) The senior person who has the responsibility for internal quality assurance must have direct access to the chief executive on matters affecting safety.
- (i) This rule expires on 1 February 2021.

## **Appendix A — Delegation for the approval of design changes**

This appendix prescribes the qualifications and experience required for, and the privileges and limitations associated with, the grant of a delegation, in accordance with section 23B of the Civil Aviation Act 1990, for the approval of design changes.

### **A.1 Privileges and limitations**

- (a) A holder of a delegation for the approval of design changes may be authorised by an aircraft design organisation to act as the senior person prescribed in 146.51(a)(3).
- (b) An aircraft design organisation may only authorise a holder of a delegation for the approval of design changes to exercise that delegation if the holder is a senior person nominated under 146.51(a)(3).

- (c) A delegation for the approval of design changes shall cease when the holder ceases to be employed by an aircraft design organisation certificated under this Part.
- (d) For the purposes of defining the scope of the design changes that may be approved by the holder of a delegation, design changes are classed as follows:
  - (1) Class A are those design changes that require comprehensive engineering justification, assessment, and substantiation:
  - (2) Class B are those design changes that do not require comprehensive engineering justification, assessment, and substantiation.
- (e) The Director may prescribe limitations and restrictions on the scope of design approvals issued by the holder of a delegation for the approval of design changes.
- (f) The senior person required by 146.51(a)(3) shall only approve a supplement to a flight manual that—
  - (1) has resulted directly from, and forms part of, a design change; and
  - (2) is in a format acceptable to the Director.

[98/DET/13]

## **A.2 Qualifications**

- (a) An applicant for the grant of a delegation for the approval of design changes shall be employed by an aircraft design organisation certificated under this Part.
- (b) The senior person responsible for the issue of design approvals in a design organisation shall—
  - (1) have a clear knowledge and understanding of—
    - (i) the design control system detailed in the organisation's exposition; and

- (ii) the applicable design provisions of Part 21 and this Part; and
- (2) undertake any examination or interview that the Director may require to determine the senior person's competency; and
- (3) for Class A design changes, have—
  - (i) an acceptable Bachelor of Engineering degree or equivalent; and
  - (ii) eight years experience, of which a maximum of four years may be university engineering training; and
  - (iii) sufficient relevant experience acceptable to the Director that demonstrates their ability to undertake engineering tasks relating to Class A design changes.
- (4) for Class B design changes—
  - (i) meet the requirements of paragraph (3) except that the Director may accept lesser qualifications and experience than prescribed; and
  - (ii) demonstrate an ability to distinguish Class A and Class B design changes.