



WELLINGTON NEW ZEALAND

PURSUANT to Section 28 of the Civil Aviation Act 1990

I, HARRY JAMES DUYNHOVEN, Associate Minister of Transport,

HEREBY MAKE the following ordinary rules.

SIGNED AT Wellington

This *19th* day of *June* 2003

by **HARRY JAMES DUYNHOVEN**

Associate Minister of Transport

Civil Aviation Rules

Part 21, Amendment 6

Certification of Products and Parts

Docket 99/CAR/1342

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Amendment objective

The objective of Amendment 6 to Rule Part 21 is to prescribe the certification requirements for product types regarding aircraft noise and engine emissions.

Extent of consultation

This Amendment 6 to Part 21, together with Amendment 8 to Part 91, is the result of informal consultation completed in 1998 that included an informal draft rule proposal and covering letter. The informal draft was presented to 30 industry members for comment. Five written responses were received and incorporated into the Notice of Proposed Rulemaking (NPRM).

NPRM 99-2 containing the proposed rule amendment was issued for public consultation under Docket 99/CAR/1342 on 28 May 1999.

The publication of this NPRM was notified in the Gazette on 3 June 1999 and advertised in the daily newspapers in the five main provincial centres on 29 May 1999. The NPRM was also published on the CAA web site and mailed to identified stakeholders including representative organisations who were considered likely to have an interest in the proposal.

A period of 28 days was provided for comment on the proposed rule.

Three comments were received in response to the NPRM publication.

Following the formal consultation process carried out in 1999 a number of amendments were made to the draft rule. These amendments relate to the noise and emission standards when making design changes, applying for supplemental type certification, and applying for approval of technical data. These amendments are contained in 21.79, 21.117, and 21.505.

In February 2002 ERMA was consulted to verify that the content of the rule had no issues requiring their consideration.

ERMA advised that the normal discharge of exhaust gas and small quantities of aviation fuel was excluded from the requirements of the Dangerous Goods Regulations and the Hazardous Substances and New Organisms Act.

Due to the 3 year delay between the publication of the NPRM and the completion of the draft final rule, members of the wider aviation community were sent copies of the draft final rule in September 2002 for further comment. The draft final rule circulated in September 2002 also included an amendment to Part 43 that was not included in the original NPRM. Recipients of the draft final rule included the Royal New Zealand Aero Club Inc, the New Zealand Aviation Industry Association, the New Zealand Aircraft Owners Pilot Association, and the New Zealand Aviation Federation. These industry organisations were asked to comment on the changes made to the rule proposal since the publication of the NPRM. A period of 4 weeks was allocated for comment. These organisations were selected as they were likely to have members who may be new entrants into the aviation industry, and whose views may not have been available at the time of the NPRM publication.

A copy of the draft final rule was also made available on the CAA website in an effort to reach the wider aviation community and the general public. Notification that changes had been made to the original NPRM was similarly advised in the October 2002 issue of the Civil Aviation Rules Register Information Leaflet.

One comment was received in response to this notification which is summarised under *Consultation details* covered later in this document.

Summary of comments

Of the three NPRM responses received, one response queried whether the rule will apply to individual aircraft or aircraft types, the use of flight manuals to include evidence of compliance, and the use of aircraft serial numbers when issuing noise and emission certificates.

The second response queried why FAR Parts 34 and 36 had not been incorporated *in toto*.

The third response received related to the consultative process carried out in developing the NPRM.

The rule as amended was then referred to Parliament's Regulations Review Committee who noted the period of time that had elapsed between the publication of the NPRM and the finalisation of the draft final rule. Also noted was the amendment to Part 43 that had not been included in the NPRM. In September 2002 the CAA circulated the draft

final rule to those industry participants previously mentioned to address these comments.

One comment was received from industry following the circulation of the draft final rule. That comment related to the speed limitation that prevents the creation of a sonic boom over territorial New Zealand.

The draft final rule was then presented to the Associate Minister of Transport for his signing.

Examination of comments

Comments may be examined by application to the Docket Clerk at the Civil Aviation Authority between 8:30 am and 4:30 pm on weekdays, except statutory holidays.

Insertion of Amendments

The amendments to the rules in this Part are reflected by:

1. the revocation of existing rules and insertion of the amended rules; and
2. the insertion of the new rules.

Effective date of rule

Amendment 6 to Part 21 comes into force on 28 July 2003.

Availability of rules

Civil Aviation Rules are available from–

CAA web site: <http://www.caa.govt.nz/>

Freephone: 0800 GET RULES (0800 438 785)

Part 21 Amendments

Rule 21.31 is revoked and the following new rule is inserted:

21.31 Airworthiness requirements

An applicant for the grant of a type certificate for a product type must provide the Director with evidence that—

- (1) except as provided in paragraph (2), the product type design complies with—
 - (i) the applicable airworthiness design standard specified in Appendix C or any later amendment of that standard as selected by the applicant; and
 - (ii) any special conditions prescribed by the Director under 21.23; and
 - (iii) any other airworthiness requirement the Director considers to be relevant; and
 - (iv) the applicable aircraft noise and engine emission standards specified in Appendix C or any later amendment of those standards as selected by the applicant; and
- (2) any airworthiness requirement not complied with is compensated for by factors providing an equivalent level of safety; and
- (3) no feature or characteristic of the product type makes it, when operated in accordance with the correctly amended flight manual or other prescribed limitations, unsafe for the intended use.

The following new rule is inserted:

21.32 Aircraft noise and engine emission certification

An applicant for the grant of a type certificate for a product type must provide the Director with—

- (1) for an aircraft type, aircraft noise certification information consisting of—
 - (i) the manufacturer's type and model designation, engine type and model, and if applicable the propeller type and model; and
 - (ii) a statement identifying the applicable noise standard for the aircraft type in accordance with the standard category aircraft noise standard specified in Appendix C; and
 - (iii) a list of any modifications that have been incorporated in the aircraft design to ensure compliance with the noise standard identified by the applicant under paragraph (1)(ii); and
 - (iv) a statement specifying the average aircraft noise levels measured in accordance with the standards and procedures prescribed for the noise standard identified by the applicant under paragraph (1)(ii); and
 - (v) a statement specifying the maximum weight of the aircraft during the noise level measurements required in paragraph (1)(iv); and
- (2) for turbojet and turbofan engine types, engine emission certification information meeting the standard category engine emission standards specified in Appendix C, including —
 - (i) the manufacturer's type and model designation; and
 - (ii) a statement identifying the applicable engine emission standard for the engine type, in accordance with the standard category aircraft engine emission standard specified in Appendix C; and
 - (iii) a list of any modifications that have been incorporated in the engines to ensure compliance with the emission

- standard identified by the applicant under paragraph (2)(ii); and
- (iv) a statement of the rated output as prescribed in the emission standard identified by the applicant under paragraph (2)(ii); and
 - (v) a statement of the reference pressure ratio as required by the emission standard identified by the applicant under paragraph (2)(ii); and
 - (vi) a statement identifying compliance with the Smoke Number requirements in the emission standard identified by the applicant under paragraph (2)(ii); and
 - (vii) a statement identifying compliance with the gaseous pollutant requirements in the emission standard identified by the applicant under paragraph (2)(ii).

Rule 21.33 is revoked and the following new rule is inserted:

21.33 Type design

An applicant for the grant of a type certificate for a product type must—

- (1) provide the Director with a type design that consists of—
 - (i) the drawings, specifications, and information necessary to define the configuration and the design features of the product type which have been shown to comply with the applicable airworthiness requirements; and
 - (ii) a list of those drawings and specifications provided under paragraph (1)(i); and
 - (iii) the information on dimensions, materials, and processes necessary to define the structural strength of the product type; and

- (iv) the Airworthiness Limitations section of the Instructions for Continued Airworthiness, required in the applicable airworthiness design standards specified in Appendix C; and
 - (v) any other data necessary to allow the determination of the airworthiness of later products of the same type; and
- (2) identify each type design and each variant within the type design.

Rule 21.41 is revoked and the following new rule is inserted:

21.41 Airworthiness requirements

An applicant for the grant of a type acceptance certificate for an aircraft type must provide the Director with evidence that—

- (1) the aircraft type meets the applicable —
 - (i) airworthiness design standards; and
 - (ii) aircraft noise and engine emission standards —specified in Appendix C, and effective at the date assigned in the foreign type certificate or an equivalent document, unless another date is specified by the Director; and
- (2) the aircraft type meets any special conditions imposed under the foreign type certification or prescribed by the Director under 21.23; and
- (3) any airworthiness requirements not complied with are compensated for by factors providing an equivalent level of safety; and
- (4) no feature or characteristic of the aircraft type makes it unsafe for the intended use.

Rule 21.43 is revoked and the following new rule is inserted:

21.43 Data requirements

(a) An applicant for the grant of a type acceptance certificate for an aircraft type must provide the Director with—

- (1) evidence that the type design has been approved by an ICAO contracting state by the issue of a type certificate or an equivalent document; and
- (2) details of the airworthiness requirements complied with for the issue of the type certificate prescribed in paragraph (a)(1), including—
 - (i) the airworthiness design standards; and
 - (ii) the effective date of the standards; and
 - (iii) any special conditions imposed under the foreign type certification; and
 - (iv) any requirements not complied with and any compensating factors providing an equivalent level of safety; and
 - (v) any airworthiness limitations; and
- (3) details of the information required in 21.32(1) and (2) regarding aircraft noise and engine emission certification; and
- (4) a list identifying the data submitted for the issue of the type certificate prescribed in paragraph (a)(1), showing compliance with the applicable airworthiness design standards; and
- (5) a copy of the flight manual approved under a foreign type certificate or, if the applicable design standards do not require a flight manual to be provided, a flight manual meeting the standards specified in Appendix C paragraph (c); and
- (6) the illustrated parts catalogue; and

- (7) where required by the Director—
 - (i) the maintenance manual for the aircraft type; and
 - (ii) all current service information issued by the manufacturers of the aircraft, aircraft engine and propeller; and
 - (8) evidence that the manufacturer has agreed to provide the Director with a copy of all amendments and re-issues of the documents prescribed in paragraphs (a)(5), (a)(6) and (a)(7).
- (b) The Director may specify the range of serial numbers or models of aircraft to which the acceptance certificate relates or redefine the applicability of the certificate if the requirements under 21.41 and 21.43 are satisfied for any additional product.

Rule 21.79 is revoked and the following new rule is inserted:

21.79 Acceptance of design changes by the issue of an airworthiness certificate

- (a) A design change embodied on an aircraft may be accepted by the issue of an airworthiness certificate for that aircraft if —
- (1) the design change is recorded in the maintenance records for the aircraft at the time of issue of the airworthiness certificate; and
 - (2) there is sufficient evidence that the design change meets the applicable airworthiness requirements; and
 - (3) there is sufficient evidence that the design change meets the applicable aircraft noise and engine emission standards specified in Appendix C.
- (b) A design change accepted under this rule may only be embodied on the individual aircraft for which the airworthiness certificate has been issued.

Rule 21.117 is revoked and the following new rule is inserted:

21.117 Application for certificate

An applicant for a supplemental type certificate must complete form CAA 24021/09 and submit it to the Director with —

- (1) the name and address for service in New Zealand of the applicant; and
- (2) the information requested in—
 - (i) 21.33; and
 - (ii) 21.35; and
 - (iii) 21.505(a); and
 - (iv) 21.32 if the proposed changes may affect the aircraft noise or engine emission levels; and
- (3) such further particulars relating to the design change and the applicant as may be required by the Director as indicated on the form; and
- (4) payment of the appropriate application fee prescribed by regulations made under the Act.

Rule 21.191 is revoked and the following new rule is inserted:

21.191 Standard and restricted category requirements

An applicant for the grant of a standard or restricted category airworthiness certificate for an aircraft must provide the Director with evidence that—

- (1) a standard or restricted category type certificate or type acceptance certificate has been issued for the model of aircraft under Subpart B; and
- (2) the aircraft conforms to an applicable type certificate, or type acceptance certificate, issued under Subpart B; and

- (3) each modification and repair to the aircraft conforms to design changes approved for the type; and
- (4) the aircraft complies with any applicable airworthiness directives issued under the Act; and
- (5) the aircraft is issued with —
 - (i) the appropriate flight manual; and
 - (ii) any logbooks, repair and alteration forms and documents, that the Director may require; and
- (6) the aircraft is a New Zealand registered aircraft and displays nationality and registration marks in accordance with Part 47; and
- (7) the aircraft, its engines, propellers, and propeller hubs and blades are identified by the means specified in Subpart Q; and
- (8) the aircraft conforms with any applicable additional airworthiness requirements prescribed in Part 26; and
- (9) the aircraft has, within 60 days prior to application, undergone an annual or 100-hour inspection in accordance with Part 43 or an equivalent inspection acceptable to the Director; and
- (10) the aircraft is in a condition for safe operation; and
- (11) the aircraft and each modification and repair to the aircraft complies with the applicable aircraft noise and engine emission standards specified in Appendix C.

Rule 21.505 is revoked and the following new rule is inserted:

21.505 Form CAA 337 – approval of technical data

- (a) Except as provided in paragraphs (b), (c), and (d), an applicant for the approval of technical data must complete form CAA 337, and submit

it to the Director with a payment of the appropriate application fee prescribed by regulations made under the Act, and provide—

- (1) the name and address for service in New Zealand of the applicant; and
- (2) any documentation necessary to define the data; and
- (3) a description of any design change including—
 - (i) sufficient data to identify the change; and
 - (ii) the identification of all parts of a product, component, or appliance affected by the change; and
- (4) for a product, component, or appliance to be changed in accordance with the data—
 - (i) identification of any investigations necessary to show compliance with the applicable airworthiness requirements; and
 - (ii) adequate maintenance and operating data to ensure the product, component, or appliance can be properly maintained and operated; and
- (5) such further particulars relating to the technical data, any design change, and the applicant as may be required by the Director as indicated on the form; and
- (6) either—
 - (i) a statement of compliance provided by a certificated design organisation stating that the technical data meets the airworthiness requirements of 21.31 and the aircraft noise and engine emission requirements of 21.32, and any associated design change is fit for embodiment; or
 - (ii) an equivalent statement to that required by paragraph (a)(6)(i) issued in accordance with the requirements of an appropriate foreign authority; or

- (iii) a written request that a statement of compliance be provided during the technical data approval process.
- (b) Notwithstanding paragraph (a)(6)(i), a statement of compliance may state that the technical data—
 - (1) meets the airworthiness, aircraft noise, and engine emission requirements incorporated by reference in the type certificate; or
 - (2) if special conditions are applied, meets a level of safety equivalent to that provided in paragraph (a)(6)(i).
- (c) The Director may approve technical data without the applicant meeting the information requirements of paragraph (a) if—
 - (1) the application is limited to an individual product, component, or appliance; and
 - (2) the technical data for an aircraft that holds a special category airworthiness certificate meets the standards that applied to the issue of the airworthiness certificate; and
 - (3) where the complete data required is unavailable, the data provided by the applicant is sufficient to identify any associated design change.
- (d) A design organisation certificated under Part 146 may use documents other than form CAA 337 to record the information required by paragraph (a).
- (e) An applicant is entitled to the approval of technical data if—
 - (1) the applicant meets the applicable requirements under paragraph (a) in a manner acceptable to the Director; and
 - (2) the approval of the data is not contrary to the interests of aviation safety; and
 - (3) any airworthiness requirements not complied with are compensated for by factors that provide a level of safety acceptable to the Director; and

- (4) no feature or characteristic of a product, component, or appliance makes it unsafe for its intended use when—
 - (i) changed in accordance with the data; and
 - (ii) operated in accordance with the correctly amended flight manual or other prescribed limitations.

Appendix C is revoked and the following new appendix is inserted.

Appendix C

Airworthiness Design Standards

(a) Subject to paragraph (c), the standard category airworthiness design standards are —

- (1) any of the following Federal Aviation Regulations issued by the Federal Aviation Administration of the United States of America:
 - (i) Part 23 — Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Category Aeroplanes (dated 10 May 1993), except 23.785(a) and 23.807(b)(5);
 - (ii) Part 25 — Airworthiness Standards: Transport Category Aeroplanes (dated 29 March 1993);
 - (iii) Part 27 — Airworthiness Standards: Normal Category Rotorcraft (dated 16 September 1991);
 - (iv) Part 29 — Airworthiness Standards: Transport Category Rotorcraft (dated 16 September 1991);
 - (v) Part 31 — Airworthiness Standards: Manned Free Balloons (dated 18 August 1990);
 - (vi) Part 33 — Airworthiness Standards: Aircraft Engines (dated 16 August 1993);

- (vii) Part 35 — Airworthiness Standards: Propellers (dated 18 August 1990); or
- (2) a set of airworthiness design standards that the Director determines—
 - (i) comply with ICAO Annex 8; and
 - (ii) provide equivalent levels of safety to those airworthiness design standards specified in paragraph (a)(1).
- (b) Subject to paragraph (c), the restricted category airworthiness design standards are—
 - (1) any of the design standards specified in paragraph (a), and any relevant standards specified in paragraphs (d) and (e), excluding those requirements that the Director determines inappropriate for the purpose for which the aircraft is to be used; or
 - (2) a set of airworthiness design standards that the Director determines appropriate for the purpose for which the aircraft is to be used.
- (c) Airworthiness design standards for aircraft that, on the effective date, do not require an aircraft flight manual to be provided, must include an aircraft flight manual containing—
 - (1) the operating limitations and information required to be provided by the applicable airworthiness design standard in the form of a manual, markings, or placards; and
 - (2) for aeroplanes and rotorcraft, the maximum ambient atmospheric temperatures for which engine cooling was demonstrated in the performance information section of the aircraft flight manual; and
 - (3) the information required under 21.32 in the form of a certificate or a page in the flight manual.
- (d) The standard category aircraft noise standards are—

- (1) the standards prescribed in the applicable chapter of ICAO Annex 16 Volume I except that —
 - (i) after 28 July 2003 all subsonic turbo-jet and turbo-fan powered aeroplanes must comply with the standards specified in Annex 16, Volume 1, Chapter 3; and
 - (ii) where a higher standard has been specified on the aircraft type certificate, noise certificate or equivalent document, then that standard will apply; or
 - (2) a set of equivalent airworthiness design standards acceptable to the Director.
- (e) The standard category aircraft engine emission standards are —
- (1) the standards specified in the applicable chapter of ICAO Annex 16 Volume II; or
 - (2) a set of equivalent airworthiness design standards acceptable to the Director.

Consultation details

(This statement does not form part of the rules contained in Part 21. It provides details of the consultation undertaken in making the rules.)

Notice of Proposed Rule Making

To provide public notice, and the opportunity for comment on the proposed new rules for aircraft noise and engine emission, a Notice of Proposed Rule Making NPRM 99-2 was issued under Docket Number 99/CAR/1342 on 28 May 1999. This Notice proposed amendments to Part 91 *General Operating and Flight Rules*, and Part 21 *Certification of Products and Parts*.

Changes proposed in the NPRM that related to Appendix D have not been included in the draft final rule. Those changes were to include data listed in Appendix C as being Acceptable Technical Data. The information in Appendix C is not technical data for the purposes of Appendix D, and so should not be specified as a requirement under Appendix D.

Subsequent to the publication of the NPRM, a potential deficiency was identified in the Part 43 general maintenance requirements regarding continued compliance with aircraft noise and engine emission standards following maintenance. A consequential amendment to Part 43 was published in September 2002 for further comment.

Summary of Comments on Docket Number 99/CAR/1342 NPRM 99-2

The following responses to the publication of NPRM 99-2 were received—

Aeromotive Limited questioned why FAR Parts 34 and 36 have not been adopted *in toto*.

CAA response: Provision is made in the rule proposal for standards that are equivalent to those of ICAO Annex 16, such as FAR 34 and 36, to be used where the Director finds them to be acceptable.

The Aviation Industry Association of NZ (Inc) raised concerns that the proposed amendments to Rule Parts 21 and 91 had not been through the CIRAG process, and recommended the withdrawal of the NPRM.

CAA response: This project was discussed at the first CIRAG Executive meeting where it was agreed that it was not necessary for a TSG to be formed as it was implementing ICAO requirements.

When the draft final rule was circulated to the wider aviation community in September 2002, AIA representatives were sent drafts to comment on. No comments were received from the AIA as a result of this circulation.

An individual commenter sent an email to the Docket Clerk during the response period raising the following issues:

1. Will the standards apply to individual aircraft or new aircraft types?
2. Appendix C requires a statement of compliance to be included in the aircraft flight manual. Consideration should be given as to whether aircraft flight manuals are amended on an “individual” or “general” basis.
3. Rule 21.32 refers to “type certificates” and “serial numbers”, which seems incongruous given type certificates are not generally issued to a single aircraft.

CAA response:

1. The standards will apply to each aircraft. Since the mid 1950’s all aircraft that received a FAA type certificate have met the standards that ICAO incorporated into Annex 16.
2. Aircraft Flight Manuals are not necessarily going to need amendment. The CAA will issue an Advisory Circular that will list each standard aircraft type and model that are compliant with the standards. This will validate those aircraft for the purposes of meeting the requirements of Appendix C.
3. Rule 21.32 has been amended to more accurately reflect the information required for the issuing of aircraft noise and engine emission certificates.

Heliharvest Ltd questioned whether a 2,500 kg helicopter manufactured before 11 November 1993 and imported into New Zealand after the rule implementation would gain a Certificate of Airworthiness.

CAA response: Such aircraft will be required to meet the noise and emission standards applicable at the time of gaining type certification. Where a noise standard did not exist at the time of initial type certification, an aircraft cannot be found to be non-compliant. Additionally the aircraft will not need to meet later noise standards provided there have been no acoustic changes made to the aircraft since manufacture.

Heliharvest Ltd submitted that the figure of Mach 0.92, suggested by the Royal New Zealand Air Force (RNZAF), was less appropriate than Mach 1 for preventing sonic boom.

CAA response: The CAA accepts the RNZAF's view that sonic boom may start to be generated at some figure less than Mach 1. The wording of the proposed rule, allows for operations above 0.92 Mach with the Directors approval, thereby not unduly limiting the activities of such aircraft.

Summary of comments received from the circulation of the draft final rule.

A 3 year delay occurred between the publication of the NPRM and the completion of the draft final rule. This delay created concern that new entrants into the aviation industry may not have had the opportunity to view the proposed changes and make comment. Therefore the draft final rule was circulated to industry for comment in September 2002. This resulted in one comment being received from an individual aircraft owner. He expressed concern about the proposed change from Mach 1 to Mach 0.92 in rule 91.805 regarding aircraft sonic boom.

CAA response: This issue is similar in nature to the comment made by Heliharvest Ltd, and has been addressed earlier in this section.