



Advisory Circular

AC21-1

Aircraft Type Acceptance

Issue 1

01 October 2021

GENERAL

Civil Aviation Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

This Advisory Circular also includes Explanatory Material (EM) where it has been shown that further explanation is required. Explanatory Material must not be regarded as an acceptable means of compliance.

PURPOSE

This Advisory Circular provides methods, acceptable to the Director, for showing compliance with the type acceptance requirements of Part 21 Subpart B and explanatory material to assist in showing compliance.

RELATED CAR

This AC relates specifically to Civil Aviation Rule Part 21.

CHANGE NOTICE

This AC replaces Issue Initial Issue dated 1 July 2002

APPROVAL

This AC has been approved for publication by the Director of Civil Aviation.

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Type Acceptance Certificates

EM 21.11 Applicability

To be eligible to operate in Papua New Guinea, under Part 91 an aircraft must have been issued with an airworthiness certificate.

Civil Aviation Rule Part 21 Subpart D prescribes the requirements for the issue of airworthiness certificates to aircraft. Airworthiness certificates are issued in three categories; Standard, Restricted, and Special.

Aircraft are only eligible for the standard or restricted airworthiness category if they have been type certificated in a foreign State and subsequently type accepted in Papua New Guinea.

Part 21 Subpart B prescribes the requirements for the issue and amendment of type acceptance certificates.

EM 21.1 Certificate Categories

Type acceptance certificates are issued in the standard and restricted categories.

EM 21.15 Application for Certificate

Any person or organisation may apply for a type acceptance certificate, including a foreign person or organisation such as the aircraft manufacturer. The support of the manufacturer or foreign type certificate holder will always be required however, due to the nature of the data required to be supplied.

The type acceptance certificate is issued in respect of the aircraft type itself, there is no certificate holder as such.

A type acceptance certificate is issued on the basis of the supply of the data specified in 21.25. It is not necessary for an example of the aircraft type to have been imported in order to apply for and be granted a type acceptance certificate.

An application for a type acceptance certificate is to be made on CA Form 21/01. This form is available from the CASA Airworthiness authority.

The foreign type certificate and exactly which models the type acceptance certificate is to cover should be carefully specified on the application form. The only restriction on the number of models that can be included in the application is that they must all be included on the same foreign type certificate and the data supplied, including flight manuals, must cover all the models.

EM 21.17 Issue of Certificate

A type acceptance certificate is issued to recognise a foreign type certificate in Papua New Guinea. Once issued, any aircraft of that type may enter Papua New Guinea without going through the type acceptance process.

The category of type acceptance granted will usually follow the category shown on the foreign type certificate, subject to a review of the certification basis by the CASA Airworthiness authority.

EM 21.19 Special Conditions

This rule is self explanatory.

EM 21.21 Duration of Certificate

This rule is self explanatory.

AMC 21.23 Airworthiness Requirements

For the issue of a type acceptance certificate, 21.23 requires the applicant to show that the aircraft complies with a set of airworthiness standards listed in Part 21, Appendix B.

Standard Category

The airworthiness standards to be complied with for the issue of a standard category type acceptance certificate are prescribed in Part 21 Appendix B (a)—

- FAR Parts 23 through 35 inclusive (referred to as the basic standards); or
- airworthiness standards that are found by the Director to—
 - comply with the International Civil Aviation Organisation (ICAO) Annex 8 requirements and
 - provide levels of safety equivalent to the basic airworthiness standards of the FARs.

In addition, Part 21, Appendix C (c) details the requirement to provide a flight manual as part of the design standards for an aircraft.

Basic Airworthiness Standards

FAR Parts 23 through 35 inclusive are considered the basic airworthiness standards. Any equivalence is measured against these standards.

Equivalent Airworthiness Standards

The following paragraphs list the sets of standards accepted by the Director as being equivalent standards for the issue of a standard category type acceptance certificate. When an applicant applies for acceptance of a type certificated to one of these standards, the flight manual requirements of Part 21, Appendix C (c) should also be applied.

(a) British Civil Airworthiness Requirements

- BCAR Part 23 – Light aeroplanes
- BCAR Part 29 – Rotorcraft
- BCAR Part 31 – Manned Free Balloons
- Older superseded BCARs (accepted for aircraft certificated to those standards at the time)—
 - Section D – Aeroplanes
 - Section E – Gliders
 - Section G – Rotorcraft
 - Section K – Light Aeroplanes
 - British Airworthiness Requirements – Hot Air Balloons

British Civil Airworthiness Requirements are published by the—

Civil Aviation Authority
Printing & Publications Service
Greville House

37 Gratton Road, Cheltenham
 Gloucester GL50 2BN
 United Kingdom

British Airworthiness Requirements – Hot Air Balloons are published by the—

British Balloon and Airship Club
 Artillery Mansions
 75 Victoria Street
 London SW 1
 United Kingdom

(b) Civil Air Regulations

- Part 3 – Airplane Airworthiness: Normal, Utility and Acrobatic Categories
- Part 4 b – Airplane Airworthiness: Transport Category, subject to compliance with the Special Airworthiness Requirements of Federal Aviation Regulations Part 121 Subpart J
- Part 6 – Rotorcraft Airworthiness: Normal Category
- Part 7 – Rotorcraft Airworthiness: Transport Category

Civil Air Regulations were published by the Civil Aeronautics Board of the USA. They have now been superseded by Federal Aviation Regulations. Copies may be accessed through the CAA Airworthiness authority.

(c) Special Federal Aviation Regulation (SFAR) No. 41

SFAR 41 allowed certain aircraft to have passenger seat numbers increased beyond nine and take-off weights extended beyond 12 500 pounds. It applied only to aircraft certified under FAR Part 23 standards in force on or after 13 March 1971. Airworthiness certificates were not issued under SFAR 41 after 17 October 1991.

The standards of SFAR 41 will be accepted as equivalent standards, for aircraft issued with amended or supplementary type certificates by the FAA under SFAR 41, if—

- airworthiness certificates have been issued to the aircraft by the FAA; and
- for weights above 12 500 pounds, the additional requirements of SFAR 41 section 4(c) are complied with; and
- the exception of SFAR 41 section 5(b)(1) is not applied; and
- for weights above 12 500 pounds, the applicant provides evidence that FAR 25.853(a) in force on 6 March 1995 is complied with.

SFAR 41 section 4(c) applies certain FAR Part 25 standards unless the airworthiness certificate states that ICAO Annex 8 requirements are not met. Included are—

- approach, climb, and take-off performance
- gust load standards
- smoke evacuation design
- engine rotation, restarting, and cooling design

The **SFAR 41 section 5(b)(1)** exception was only granted by the FAA for aircraft limited to FAR Part 91 non-commercial operations.

The **FAR Part 25.853(a)** requirements are applied by FAR 135.170 for aircraft certificated under SFAR 41 that are to be used for commercial operations. They are compartment interior requirements.

Special Federal Aviation Regulations are issued by the Department of Transportation, Federal Aviation Administration (FAA) of the United States of America and may be obtained from the FAA website.

(d) Joint Aviation Requirements

- JAR-22 – Sailplanes and Powered Sailplanes
- JAR-23 – Small Aeroplanes
- JAR-25 – Large Aeroplanes
- JAR-E – Engines
- JAR-P – Propellers

Joint Aviation Requirements are published, for the Airworthiness Authorities Steering Committee, by—

Civil Aviation Authority
Printing and Publication Services
Greville House
37 Gratton Road, Cheltenham
Gloucester GL50 2BN
United Kingdom

(e) Other Equivalent Standards

Other sets of standards may be accepted by the Director as equivalent airworthiness standards if they meet the criteria of Part 21 Appendix B (a)(2). To provide evidence that the criteria are met, the Director may require an applicant to supply any or all of the following—

- a copy of the set of standards and, if they are written in a foreign language, a certified English translation
- evidence of the effective date
- evidence that the standards apply, in the country of origin, to operations equivalent to the types of operations defined in the CARs
- evidence that the standards are accepted as meeting the requirements of ICAO Annex 8
- a comparison of the requirements with those of the basic standards that apply for the class of aircraft, engine, or propeller at the same effective date
- accident data relating to the class of aircraft, engine, or propeller complying with the standards

At an early stage, the Director should be advised of any intentions to use a set of other equivalent standards. The Director may already hold the necessary evidence or may have accepted the proposed set of standards as equivalent. In other cases the Director may have previously decided that that particular set of standards does not meet the requirements for acceptance in the standard category.

Restricted Category

For the issue of a restricted category type acceptance certificate, Part 21 Appendix B (b) prescribes acceptable airworthiness standards as—

- any of the Federal Aviation Regulations prescribed in Part 21 Appendix B (a)(1) excluding those requirements that the Director finds inappropriate for the purpose for which the aircraft is to be used; or
- a set of airworthiness design standards that the Director finds appropriate for the purpose for which the aircraft is to be used

Purposes

Restricted category type acceptance certificates may be issued for the following purposes—

- air operations under Part 135, provided the flight manual allows such operations
- Non-AOC operations under Part 91
- agricultural aircraft operations under Part 137
- special purpose operations, such as helicopter external load operations under Part 136.

Aircraft with a restricted category type acceptance certificate will only be eligible for the issue of an airworthiness certificate in the restricted category for the purpose the type acceptance certificate was issued.

Appropriate Standards

The following paragraphs list the sets of standards accepted by the Director as appropriate for the issue of a restricted category type acceptance certificate for each type of operation quoted. In each case, the flight manual requirements of Part 21, Appendix B (c) should also be applied.

(a) Air Operations under Part 135

(b) Operations under Part 91

- (i) British Civil Airworthiness Requirements (BCAR) Section S – Small Light Aeroplanes

Applies to aeroplanes with—

- a maximum total weight of 390 kg
- a wing loading at maximum total weight not exceeding 25 kg per square metre
- a maximum fuel capacity of 50 litres
- a maximum of two occupants

Aircraft certificated under this standard are only certificated for Day-VFR non-aerobatic operations as specified in the flight manual and will be limited to non-hire or reward operations under Part 91 as will be specified on the airworthiness certificate.

(ii) Australian Civil Aviation Order (CAO) Section 101.55

Applies to aeroplanes with—

- a maximum total weight of 450 kg
- a stalling speed in the landing configuration of not more than 40 knots

The accepted sets of standards are those of CAO 101.55 except paragraph 3.3(d) and the noise certification requirements of paragraph 9.

Aircraft type certificated under this standard are only certificated for Day-VFR operation as specified in the flight manual, and will be limited to non-hire or reward operations under Part 91 as will be specified on the airworthiness certificate. The limitations may be reduced if the aircraft is fitted with a type certificated engine and propeller combination.

(iii) Joint Airworthiness Requirements JAR-VLA Very Light Aeroplanes

Applies to aeroplanes with

- a maximum certified take-off weight of not more than 750 kg
- a stalling speed in the landing configuration of not more than 45 knots

The acceptable means of compliance and interpretations of JAR-VLA Section 2 will also be accepted.

Aircraft type certified under these standards will be limited to operations under Part 91 and day-VFR flight.

(iv) Other Standards

Other sets of standards may be accepted by the Director under Part 21 Appendix B (b)(2) if the standards are appropriate for the purpose for which the aircraft is to be used. To provide evidence that the standards are appropriate, the Director may require the applicant to provide any of the following—

- a copy of the set of standards and, if they are written in a foreign language, a certified English translation
- evidence of the effective date
- for standards issued by a foreign Authority a statement of any conditions relating to the standards applied by the foreign Authority
- a comparison of the standards with those for standard type certificates for the same class of aircraft
- safety records of the aircraft for which the certificate has been applied for or for other aircraft of a similar type complying with the set of standards

Operational limitations may be applied by the Director to ensure an adequate level of safety is maintained.

Sets of standards that may be accepted for operations under Part 91 include—

- standards accepted for standard type certification with exceptions that do not reduce the level of safety significantly
- standards that applied before being replaced by standards accepted for standard type certification

- military airworthiness design standards that closely relate to civil airworthiness design standards
- standards that are not shown to fully comply with ICAO Annex 8
- standards limited by foreign Authorities to purposes equivalent to those listed above

To be acceptable, standards should include Instructions for Continuing Airworthiness.

The level of safety provided for the occupants will be assessed when applying limitations on a restricted category aircraft. A principle to be applied will be that a higher degree of protection should be provided when operating under Part 135 for hire or reward than when operating under Part 91 for other purposes. How closely the aircraft meets a Part 21 Appendix B (a)(1) standard will also be considered.

Depending on the degree of non-compliance with a Part 21 Appendix B (a)(1) standard – the reason for classification in the restricted category – the airworthiness certificate may either be limited to flight within New Zealand or may be endorsed—

This aircraft does not meet the airworthiness requirements of ICAO, as prescribed by Annex 8 of the Convention on International Civil Aviation. For this reason special permission to operate must be obtained from each country over whose territory the aircraft is to be flown.

(c) **Agricultural Aircraft Operations**

The following additional standards must be complied with for agricultural aircraft—

- Part 26 Appendix E which calls up the crew protection requirements prescribed in Section 35 of Appendix B of the United States of America Civil Aeronautics Manual 8 (CAM 8), dated 1 February 1965; and
- Part 137 Subpart F which calls up instrument and equipment requirements, including aircraft marking and placarding, and for an aeroplane fitted with internal dispensing equipment, jettison requirements.

CAM 8 Appendix B Section 35 includes requirements for—

- withstanding acceleration forces in crash landings for seats and harnesses
- locating and installing hoppers and spray tanks in a way to provide crew crash protection
- ventilating the cockpit to minimise the hazard to the crew from toxic materials
- corrosion protection of structure
- protection from flammable materials
- baffling of liquid containers

Part 137 jettison requirements require a system that should be simple to operate with the control locking automatically when moved to the jettison position. This arrangement should enable the load to be fully discharged without requiring the pilot to continue holding the control. Control operating forces should not be excessive. The system must be able to jettison 80% of the load within 5 seconds.

While the airworthiness standards may prescribe take-off weight limitations, 137.101 exempts aircraft from compliance with these limitations for certain types of agricultural operations.

Although the above Section of CAM 8 is called up as additional requirements for agricultural aircraft, CAM 8 in its entirety has never been accepted in Papua New Guinea as an appropriate overall standard for an agricultural aircraft. This is because the structural and handling requirements are considerably abbreviated from the standard category airworthiness standard for that class of aircraft. Aircraft certificated to CAM 8 have only been accepted where the aircraft has also been shown to meet

the structural requirements of FAR Part 23, or an equivalent set of standards, either by a statement on the type certificate or a certified statement from the manufacturer. In addition the overall level of non-compliance with a Part 21 Appendix B (a)(1) standard shall be assessed.

(d) Special Purpose Operations

FAA type certificates issued in the restricted category for special purpose operations by ex-military aircraft, in accordance with FAR 21.25, may be accepted as the basis of the issue of a type acceptance certificate in the restricted category in Papua New Guinea. Issue of a type acceptance certificate will be subject to review of the airworthiness standards used and the types of operation approved.

The usual type acceptance process would apply including full support of the aircraft by the type certificate holder, who is often not the original manufacturer. In Papua New Guinea the aircraft will only be permitted to conduct the types of operation specified on the FAA type certificate.

EM 21.25 Data Requirements

Data supporting an application for type acceptance should be supplied at the time of the application, or, if it is not available at that time, a covering letter should be supplied giving the reasons and details of when the data will be available.

The applicant should supply with the application—

- photocopies of the—
 - aircraft type certificate
 - type certificate data sheet
 - any special condition or exemption documents quoted on the type certificate data sheet
 - compliance summary document
 - a copy of the airworthiness design standards only if it is one not already held by the CASA
- originals of the—
 - flight manual
 - illustrated parts catalogue
 - maintenance manual (only where required by the CASA)
 - service information for the aircraft, engine and propeller (only where required by the CASA).

As expressed in 21.25(c), an inherent part of type acceptance is continued support of the aircraft and component documentation. This will inevitably require the support of the respective manufacturers. 21.25(a)(7) requires an applicant to provide evidence that those manufacturers have formally agreed in writing to provide amendments and reissues of documents. This evidence may be a letter from the manufacturer's (aircraft, engine and propeller) or a completed form which is available from the CASA.

Where the application is for a model on a foreign type certificate, where another model on the same type certificate has already been type accepted, the CASA should be consulted before requesting data from the manufacturer as some or all of the data requirements may already be held by the CASA.

For larger aircraft certificated under FAR Part 25 or an equivalent, it is desirable to supply additional data that may subsequently be required for other CASA certificates or approvals. Examples of such additional data are—

DATA	USE
Maintenance, overhaul and repair manuals for airframe, engines, propellers and equipment additional to those required under 21.43	Evaluation and issue of airworthiness directives. Defect and engineering investigations.
The detailed specification for the type	Conformity with operating rule equipment requirements.
Electrical load analysis	Approval of design changes.
Operations manual	Approval of Operators Operations Manual and training courses.
Master minimum equipment list (MMEL)	Approval of PNG MEL.
Maintenance planning document (MPD)	Approval of maintenance programmes.
Maintenance review board document (MRB)	Approval of maintenance programmes.
Maintenance schedule	Approval of maintenance programmes.

EM 21.29 Changes to Certificates

The purpose of this rule is to define what changes would require a change to a type acceptance certificate.

Essentially any change to the foreign type certificate, and any change to either the category of type acceptance certificate or associated conditions, requires a new type acceptance certificate. For example, if the type certificate holder imposed revised operating limitations on the aircraft and these resulted in an amendment to the type certificate data sheet or the flight manual, or both, a new type acceptance certificate should be issued. Similarly if a restricted category type acceptance certificate had been issued for a type, and later, an applicant showed that all requirements for the airworthiness standard would be complied with for aircraft the applicant wished to have certificated, then a new type acceptance would be issued for both standard and restricted categories.

EM 21.31 Changes Requiring a New Certificate

21.31 requires applications for changes to a type acceptance certificate to be treated as applications for a new type acceptance certificate. Because there is no holder of a type acceptance certificate, this is the most practical way of consolidating evidence of type acceptance.

Generally, the most likely reason to amend a type acceptance certificate is to add an additional model to those accepted under that existing certificate. Even if the new model is included on the same foreign type certificate as models covered by the existing type acceptance certificate and the additional data requirements are minimal, a new type acceptance certificate will be issued.

Appendix 1 - List of Type Accepted Aircraft Models

A Register containing a list of aircraft types is available for download from the CASA website. This AC will be reissued from time to time to update the list. An applicant seeking acceptance of an aircraft type not included in the list should first apply to the Director for Type Acceptance.

Effective Dates for Type Acceptance Certificates

For type acceptance certificates, 21.41 accepts the effective date of the applicable standards as the date assigned in the foreign type certificate, or an equivalent document, unless another date is specified by the Director.

The Director will only specify other dates where the foreign procedures would make the level of standards inconsistent with those that apply for Papua New Guinea Aircraft type certification.

Additional Airworthiness Requirements

In addition to the requirements of the applicable airworthiness standards from Part 21, Appendix C, each applicant for a type certificate in either category is required to provide evidence that the product complies with the applicable airworthiness requirements prescribed in Part 26.

In the case of Air Transport aircraft seating more than 19 passengers that must comply with Appendix C to Part 26, it will be necessary for compliance to be shown by the manufacturer.

