



Advisory Circular

AC 21.7(0)

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PRIMARY CATEGORY AIRCRAFT — CERTIFICATION

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Advisory Circulars (ACs) are advisory only. ACs provide recommendations and guidance to illustrate a method, or several methods, not necessarily being the only method by which legislative requirements may be met. They also provide a means of illustrating the meaning of certain requirements by offering interpretive and explanatory guidance. ACs should always be read in conjunction with the referenced regulations.

1. REFERENCES

- Civil Aviation Safety Regulations (CASRs) Parts 21 to 35
- AC 21.3 “Special certificates of airworthiness - overview”
- AC 21.13 “Australian designed aircraft - type certification”
- AC 21.15 “Supplemental type certificates - certification”
- AC 21.30 “Type acceptance certificates for imported aircraft”
- AC 21.31 “Type certificates for imported aircraft”

Note: CASRs referred to above are currently enacted as CAR 1998.

2. PURPOSE

This AC provides guidance and information for applicants applying for Type Certificates (TCs) to be issued for primary category aircraft designed in Australia under CASR Part 21 “Certification and Airworthiness Requirements for Aircraft and Parts”. Also, guidance is provided on conversion of an existing standard category aircraft to primary category, and the importation of primary category aircraft. This AC describes the requirements and procedures involved, and the responsibilities of the industry applicants, authorised persons and CASA staff.

3. STATUS OF THIS AC

This is the first AC to be written on this subject.

4. BACKGROUND

4.1 CASR Part 21 introduced a new category of aircraft known as primary category aircraft, which is identical to the FAA primary category. These aircraft are of simple design and intended for pleasure and personal use only. To be eligible for primary category certification, the aircraft (aeroplanes, gliders, rotorcraft, manned free balloons, etc.) must meet the description defined in CASR 21.24(1)(a).

4.2 The simplified certification procedures allowed under CASR 21.24 should result in less CASA involvement as compared with traditional certification procedures. The intent is to speed up and reduce the cost of primary category aircraft type certification, with minimum CASA participation in any individual type certification program.

4.3 Primary category certification is optional. An applicant may certificate an aircraft meeting the description of CASR 21.24(1)(a) in the primary category or may choose to use one of the other small aircraft procedures and standards as listed in AC 21.13 paragraph 12.7. However, as specified in CASR 21.184(6), a primary category aircraft cannot have a multiple category Certificate of Airworthiness. An applicant’s decision as to certification category may be influenced by the design of the aircraft to be certificated, and the use and demand the applicant foresees for the particular aircraft being developed.

4.4 AC 21.13 describes the full certification procedures for Australian-designed aircraft. These processes apply also to primary category aircraft, as CASA must be satisfied that compliance with the applicable regulations have been shown to be able to issue a TC. This AC provides specific guidance on the simplifications and unique requirements available to primary category aircraft. These can be summarised as:

- (a) the design standard and means of compliance are negotiable;
- (b) a properly authorised person can make findings of compliance on behalf of CASA; and
- (c) pilot-owner maintenance programs can be included in the certification (when this facility is available).

5. FINDING OF COMPLIANCE BY AUTHORISED PERSONS

5.1 For the approval of the design of aircraft meeting the definition of CASR 21.33(3) (that is, not more than two seats, a maximum take-off weight not exceeding 750 kg and a stall speed in the landing configuration of 45 knots or less), in the primary category, the Authority may authorise suitably qualified and experienced persons to conduct the calculations, ground tests and flight tests to establish that the design of an aircraft complies with the applicable airworthiness requirements.

5.2 Such persons must have qualifications and experience acceptable to the Authority, and normally would have participated in the certification of several new products, either with the manufacturer or in some previous employment. Persons seeking an Instrument of Appointment (IoA) for the purposes of CASR 21.33(3) may apply to the nearest Engineering Support Branch (ESB) Office.

5.3 An applicant seeking a TC for an aircraft meeting this description is encouraged to use the services of such authorised persons. The ESB offices can provide a list of authorised persons.

5.4 The Authority will normally accept the finding of compliance by an authorised person or persons in accordance with the agreed certification plan. The Authority will reduce its own participation in the project to the minimum necessary to substantiate compliance with the airworthiness requirements, depending on the experience and knowledge the Authority has of the person(s) who approved the data.

6. DESIGN STANDARDS

6.1 The applicable airworthiness standards are given in CASR 21.17(6) as those mentioned in CASR Part 26, namely applicable parts of CASRs 22, 23, 27, 32, 33 and 35. These in turn refer to other recognised international standards such as FAR 23, JAR-VLA etc.

6.2 However, the intent of CASR 21.17(6) is to provide a means whereby industry can develop airworthiness design standards for primary category aircraft and submit them to the Authority for assessment. As used here, industry includes, but is not limited to, associations such as the Sports Aircraft Association of Australia (SAAA), consensus industry or professional groups, manufacturers, aircraft designers and individuals. However, the Authority will normally only evaluate proposed standards if an applicant seeking a TC in the primary category intends to use that standard.

6.3 The intention is not to lower the level of safety provided by the currently recognised design codes, but to permit flexibility by allowing the development of simpler or conservatively empirical methods to simplify and reduce the costs of the design and certification process.

6.4 The applicant may propose a unique design standard as the certification basis. Detailed negotiations would then be undertaken jointly by the applicant and the Authority.

When agreement is reached, the design standard will be issued under regulation 21 of CAR 1988, and published on the CASA web site, as a simplified set of airworthiness requirements that may be suitable for other aircraft design projects.

6.5 One such set of simplified airworthiness requirements that CASA considers suitable for a broad range of aeroplanes of conventional design in the primary and intermediate category is titled *PICA26 - Airworthiness design requirements for aeroplanes of conventional design in the primary and intermediate category*.

7. SPECIAL INSPECTION AND PREVENTATIVE MAINTENANCE PROGRAM

7.1 Regulations are currently being developed by CASA with industry consultation to permit Production Certificate (PC) holders to include a special inspection and preventive maintenance program, designed to be accomplished by a qualified pilot-owner, as part of the primary category aircraft's design or supplemental design (as referred to in CASR 21.24(2)). However, this provision is not available yet.

7.2 The preventive maintenance program referred to in CASR 21.163(1), which will be allowed once the regulations are issued, is to be a part of the TC or Supplemental Type Certificate (STC). An applicant who desires this privilege will be required to submit a preventive maintenance program along with the other TC or STC data for evaluation by the Authority's maintenance specialists.

8. CONVERSION OF STANDARD CATEGORY AIRCRAFT TO PRIMARY CATEGORY

8.1 CASR 21.184(3) allows an applicant to exchange a standard Certificate of Airworthiness (CoA) for a special CoA in the primary category. The conversion will be made through the STC process. The STC process is described in AC 21.15.

8.2 The principal reason for making this conversion would be to allow a qualified pilot-owner to perform appropriate preventive maintenance as allowed under this category (when this facility is available) beyond what already is allowed under pilot maintenance.

8.3 Prior to making the conversion, the applicant should consider the following:

- (a) there must be a preventive maintenance program approved by the Authority for the specific aircraft model being converted. If there is no approved program or if any additional preventive maintenance items are to be added, the applicant must include the program or additional items as part of the approved STC design data.
- (b) only a properly qualified pilot-owner may perform the additional preventive maintenance items listed in the preventive maintenance program (when this facility is available). To be properly qualified, a pilot-owner must successfully complete a course approved by the Authority (when this facility is available) provided by:
 - (i) an approved aviation maintenance training organisation;
 - (ii) the holder of the PC; or
 - (iii) another entity approved by the Authority for the purpose;
- (c) the Authority cautions that once an aircraft is converted to primary category, the same aircraft cannot be returned to the standard category without showing

that it meets all the criteria for issue of a standard CoA. (Refer to AC 21.2). Such showing historically has been difficult when an aircraft has remained in a different classification or category for a prolonged period. To facilitate the return to a standard CoA, among other requirements, the aircraft records should indicate that the aircraft has been maintained according to the manufacturer's instructions and that any modifications to the aircraft were either removed or approved by an authorised person or the Authority.

9. APPLICATION FOR TYPE CERTIFICATE ISSUE

9.1 Application for a TC is fully described in section 8 of AC 21.13. The 3-year limitation for a TC application applies also to primary category aircraft, as explained in section 12 of AC 21.13.

9.2 In the spirit of the primary category concept, the Authority will minimise its participation and try to restrict its involvement to critical review and testing requirements (e.g., loads analysis, selected flight testing, or reviewing video tapes of structural/flight testing, etc.). At the preliminary Type Certification Board meeting, the Authority will inform the applicant of the extent of the Authority's participation. Only the Authority may issue a TC.

10. TYPE CERTIFICATION DATA

10.1 As required by CASR 21.24(1)(b), the applicant must submit a statement to the Authority certifying that the applicant has completed the engineering analysis necessary to demonstrate compliance with the applicable airworthiness requirements.

10.2 Until a unique CASA form is developed, the US FAA Form 8110-3 "Statement of Compliance with Federal Aviation Regulations" may be used to record technical information relevant to the application.

10.3 All type certification data must be retained by the applicant and be made available to the Authority on demand. If the applicant terminates operation while aircraft are still in service, the applicant should contact the Authority to arrange suitable disposition of the complete TC data file.

10.4 The preventive maintenance program referred to in section 7 will be included as part of the Type Design (when this facility is available).

11. RESPONSIBILITY OF PC HOLDER

11.1 Production approval is a separate issue from type certification, but should be progressed concurrently as noted in paragraph 10.2 of AC 21.13. For further information see AC 21.14. Note that production under a TC only is not permitted for primary category aircraft (reference CASR 21.184), as is the case for standard category aircraft.

11.2 CASR 21.165(b) allows a PC holder to supervise and take responsibility for the assembly of any of its kits. The kit aircraft must be type-certificated as a primary category aircraft. The assembly may take place at a location other than the PC holder's facility, provided that the PC holder can accomplish the necessary supervision. The assembler does not have to be employed by the PC holder. For example the assembler may be an individual who purchased a kit from the PC holder.

11.3 If these conditions are met, the aircraft may qualify for a special CoA. However, the Authority emphasises that to qualify for a special CoA under CASR 21.184, the aircraft must have been assembled under the supervision and quality control of the PC holder.

12. KIT-BUILT AIRCRAFT

12.1 If a primary category aircraft kit manufactured by the holder of a PC for that kit is assembled without the benefit of the PC holder's supervision, the aircraft may qualify for an experimental certificate under CASR 21.191(h).

12.2 The owner of the kit is neither required to assemble nor fabricate any specific portion of the kit. Assistance for some or all of the work may be obtained from other sources, such as the PC holder or some other fabricator.

12.3 Section 16 of AC 21.4 provides further information..

13. ISSUE OF THE SPECIAL CoA

13.1 CASR 21.184 allows an applicant to obtain a special CoA in the primary category when the applicable provisions of CASR Part 21 are met. Primary category aircraft are not eligible for multiple category airworthiness certificates, as stated in paragraph 21.184(6).

13.2 For further information, refer to AC 21.3.

14. IMPORTED PRIMARY CATEGORY AIRCRAFT

14.1 CASR 21.184(2) allows an applicant to obtain a special CoA in the primary category for an imported aircraft type that has been certificated in the primary category of another country. For further information refer to:

- (a) AC 21.30 for aircraft imported from a recognised country (as defined in CASR 21.12); or
- (b) AC 21.31 for aircraft imported from a non-recognised country, as applicable.

14.2 Offshore design of an aircraft type specifically intended to be imported to Australia is provided for under CASR 21.24(3), provided there is a written agreement between the Authority and the foreign National Airworthiness Authority for certification of the design. There must be a similar agreement for the quality assurance if the aircraft is to be manufactured offshore . The Authority is not able to provide the regulatory services for the design and manufacture.

15. DURATION OF THE CERTIFICATE OF AIRWORTHINESS.

In accordance with CASR 21.181(6), a primary category aircraft special CoA for an Australian aircraft is effective unless the Authority or an authorised person gives a written notice of suspension or cancellation of the special CoA. This would be if maintenance, preventive maintenance and alterations are not carried out in accordance with Part 4A of CAR 1988, or as considered necessary in the interests of aviation safety.

16. NOISE CERTIFICATION.

16.1 Noise certification requirements, including requirements for primary category aircraft are addressed in AC 21.13.

16.2 When a standard category CoA is converted to a primary category CoA, no further action relating to noise certification is necessary unless the STC involves an acoustical change. Such changes might occur with a change to the engine, propeller or the exhaust system. For further information see AC 21.15.

17. MAINTENANCE, PREVENTIVE MAINTENANCE, REBUILDING, AND ALTERATION.

17.1 Primary category terms and their relationship to the preventive maintenance regulations to be developed are:

- (a) **Primary category aircraft** - From a preventive maintenance perspective, an aircraft with a special CoA in the primary category.
- (b) **Primary category preventive maintenance** - A defined list of maintenance tasks identified on the Type Certificate Data Sheet (TCDS) or listed in the STC of a primary category aircraft (when this facility is available). These tasks will be in addition to the preventive maintenance list in Schedule 8 of CAR 1988 that may be performed by the holder of a Private Pilot Licence (PPL). The additional maintenance tasks listed on the TCDS or STC may be performed by a pilot-owner who has been trained by and received a certificate of competency from a CASA-approved source (when this provision is available) to perform those items on a specific make, model, or similar type primary category aircraft (e.g., Cessna 120, 140, 150, 152, etc.) .
- (c) **Pilot-owner** - A person holding at least a PPL who is the Certificate of Registration holder.
- (d) **CASA-approved course** - A structured course that will provide the pilot-owner with the general knowledge and manipulative skills to perform the additional tasks listed in the TC or STC as preventive maintenance for a specific make/model primary category aircraft (when this provision is available).

NOTE: The instruction requirement for preventive maintenance items is intended to create a measurable baseline of knowledge, skills, and abilities for the student and help to ensure that students have the basic knowledge and skills to perform the more complex preventive maintenance items specified in the TCDS or STC.

17.2 The performance rules (to be developed) will apply to each person performing this preventive maintenance. These persons will use the methods, techniques, and practices prescribed in the current manufacturer's manual and instructions for continued airworthiness, or other methods, techniques, and practices acceptable to the Authority. The individual shall use the tools, equipment, and test apparatus necessary to ensure completion of the work in accordance with accepted industry practices. The work shall be done in such a manner that the aircraft will still meet its certification standards.

17.3 Each person who performs this preventive maintenance shall make an entry in the aircraft maintenance records containing the following information (when this facility is available), of:

- (a) the date of completion of the preventive maintenance work and aircraft total time-in-service;

- (b) a description of the work performed and identified as preventive maintenance; and
- (c) the name, signature, certificate number, and kind of certificate held.

17.4 A list of preventive maintenance tasks that may be shown on the TCDS or STC for a primary category aircraft will be developed and published when this facility is available.

18. GENERAL OPERATING AND FLIGHT RULES.

18.1 Regulation 262AQ of CAR 1988 specifies important operating limitations applicable to primary category aircraft.

18.2 If maintained by a LAME or an approved maintenance organisation, a primary category aircraft may be used for flying training, and may be rented for personal use. Inspections at intervals of 100 hours are required.

18.3 If maintained by the pilot-owner (when this facility is available), a primary category aircraft may only be used for private flying, with no commercial operations for hire or reward permitted. Annual inspections are required in this case.

18.4 A person other than the pilot-owner will be permitted to operate a primary category aircraft maintained by the pilot-owner (when this facility is available), but no financial compensation may be made to the pilot-owner for use of the aircraft. For example, this will allow a pilot-owner to lend the aircraft to a pilot friend or to demonstrate the aircraft to a prospective buyer. It will also allow a pilot-owner whose PPL is not current to regain currency using an authorised flight instructor in the pilot-owner's self-maintained primary category aircraft.

19. AVIATION MAINTENANCE TECHNICIAN SCHOOLS.

The requirements for aviation maintenance technician schools to conduct training programs for primary category preventive maintenance programs are currently being developed under CASR Part 147.

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