Aircraft Airworthiness Certification Department
of Civil Aviation Administration of China
(CAAC-AAD)

Advisory Circular

No. : AC-21-AA-2009-37
Date: May 5, 2009

Primary Category Aircraft

1. Purpose.

This advisory circular (AC) provides an acceptable means of ensuring compliance with the Chinese Civil Aviation Regulations part 21 (CCAR-21) § 21.24, Issuance of Type Certificate: Primary Category Aircraft. This AC discusses type, production, and airworthiness certification of primary category aircraft.

2. Cancellation.

The Airworthiness Management Document AR93002, Notice of Interim Provisions on Primary Category Aircraft Airworthiness Management, is canceled.

3. References.

FAA AC 21.37, Primary Category Aircraft, dated June 14, 1994.

4. Related Regulations and Documents.

CCAR-21, Certification procedures for civil aviation products and parts

CCAR-23, Airworthiness standards: normal, utility, acrobatic, and commuter category airplanes.

CCAR-27, Airworthiness standards: normal category rotoraircraft.

CCAR-31, Airworthiness standards: manned free air balloons.

CCAR-33, Airworthiness standards: aircraft engines.

CCAR-35, Airworthiness standards: propellers.

CCAR-36, Noise standards: aircraft type and airworthiness certification

CCAR-183, Rules on airworthiness designated representatives and designated organization representatives of civil aircraft.

5. Background.

5.1 Regulations, bases and related activities of primary category aircraft certification.

On January 10, 1994, CAAC-AAD issued Airworthiness Management Document AR93002, Notice of Interim Provisions on Primary Category Aircraft Airworthiness Management, a primary category aircraft can be issued a Type Design Approval (TDA) provided it meets the relavent airworthiness requirements in the airworthiness standards which considered applicable by CAAC, or other airworthiness requirements that have the equivalent level of safety. According to this Notice, some light aircratfs, such as LY100, were certified under primary category aircraft and issued TDA by the CAAC.

CCAR-21-R3, effective on April 15, 2007, added the section 21.24, which specifies the definition of primary category aircraft and the requirements of the issurance of TDA for primary category aircraft.

5.2 History of the airworthiness regulations for primary category aircraft developed by FAA.

On March 7, 1989, the FAA issued a Notice of Proposed Rulemaking (NPRM), Notice No. 89-7, proposing the adoption of a new category of aircraft to be known as primary category aircraft, which would be of simple design and intended for pleasure and personal use only. As described in the notice, primary category aircraft (airplanes, gliders, rotorcraft, manned free balloons, etc.) would be unpowered or powered by a single naturally aspirated engine having a certificated takeoff rating of 200 shaft horsepower or less, would have maximum weight of 2,500 pounds or less, and would have an unpressurized cabin. The notice proposed to permit pilot-owners of primary category aircraft to do certain maintenance procedures, including inspections, on their own aircraft after receiving the appropriate training. The notice also proposed to permit the conversion of aircraft that are within the primary category engine and weight limits from standard category to primary tegory. The notice proposed to allow the use of primary category aircraft for pilot training and to prohibit the use of all primary category aircraft for compensation or hire.

On August 1, 1991, the FAA issued a Supplemental Notice of Proiosed Rulemaking (SNPRM), to correct a statement in the original NPRM that indicated that part 36 noise requirements do not apply to primary category aircraft. The SNPRM explained that the FAA has no discretion in the application of noise requirements: part 36 applies to primary category aircraft.

On August 1, 1991, the FAA also published Notice No. 8907A, reopening the comment period to address new information and proposals presented to the FAA. The reopening was based on a February 1990 meeting between

representatives of the Experimental Aircraft Association (EAA), the Aircraft Owners and Pilots Association, and the FAA. Because of that meeting and subsequent EAA comments, the FAA reopened the comment period to solicit comments on several EAA-requested changes from the original March 1989 NPRM. Those proposed changes were: changing the maximum weight criteria from 2,500 to 2,700 pounds; replacing the 200-horsepower engine limitation with a 61-knot stall speed limitation for airplanes and a 6-pound per square foot main rotor disc maximum load for rotorcraft; allowing the use of primary category aircraft for primary pilot training and for rental if the aircraft is maintained by an FAA certificated mechanic or repair station: and allowing the use of primary category aircraft that are maintained by the pilot-owner, rather than an FAA-certificated mechanic or repair station, to provide limited checkouts for other primary category pilots.

6. Definition of Primary Catesory Aircraft.

A primary category aircraft is of simple design and is intended exclusively for pleasure and personal use. A primary category aircraft (airplanes, gliders, rotorcraft, manned free balloons, etc.) may be unpowered or powered by a single, naturally aspirated engine, with a 113-km per hour (61-knot) or less stall speed limitation for airplanes and a 29.3-kg per square meters (6-pound per square foot) main rotor disc loading limitation for rotorcraft. A primary category aircraft may have a maximum certificated weight of no more than 1,225 kg (2,700 pounds) or 1,530.9 kg (3,375 pounds) for seaplane, a maximum seating capacity of four, and an unpressurized cabin. Although a primary category aircraft may be available for flight instruction under certain conditions, the carrying of persons or property for hire is prohibited.

7. Optional Nature of Primary Catecfory Aircraft.

Primary category certification is optional. An applicant may certificate his or her aircraft design to these standards or may choose to use one of the other small aircraft procedures. An applicant’s decision may be influenced by the design of the aircraft to be certificated, the individual financial status of the applicant, and the demand the applicant foresees for the particular aircraft being developed. Besides the primary category procedures, other available small aircraft certification procedures and standards are listed below:

a. Traditional certification standards: i.e., CAR-23 for small airplanes and

CAR-27 for small rotorcraft.

b AC 21.17-3, Type Certification of Very Light Airplanes (VLA) under § 21.17(b).

c. AC 23-11, Type Certification of Very Light Airplanes pre-certified under Joint Aviation Regulations (JAR-VLA) under CCAR-23.

8. Use of Designated Engineering Representative (DER).

An aiplicant is encouraged to use the services of CAAC DER's.

a. A DER can participate in various engineering examination: approval of a type certificate/TDA, a type design change or a supplemental type certificate (STC)/MDA; and in data approval for major alterations and repairs.

b Engineering data approved by a DER within the limits of DER's authority is a means of finding compliance with previously approved CAAC airworthiness requirements. These requirements can take many forms including, but not limited to, Chinese Civil Aviation Regulations, special conditions, technical standard orders (CTSO), Airworthiness Procedures, and Airworthiness standards -- such as the EASA's specifications for very light aircraft (CS-VLA, i.e. previous JAR-VLA) -- that have been adopted or accepted by the CAAC as a certification basis for an aircraft or aircraft component.

9. § 21.17 Designation of Applicable Regulations.

a. § 21.17(f) specifies that for primary category aircraft, the applicable requirements will be portions of the airworthiness requirements contained in CCAR-23, 27, 31, 33 and 35 which are applicable, or any other airworthiness requirements that the CAAC finds are applicable to the special type design, and its proposed purpose, and may provide an equivalent level of safety to those parts. This means the industry can develop airworthiness design standards for primary category aircraft and submit them to the CAAC for approval.

b. Applicable airworthiness standards will be approved using a procedure similar to the CAAC's CTSO program. Primary category standards may be proposed to the CAAC-AAD. The public comments will have been solicited. After disposition of any comments and after all necessary evaluations and revision, the standards will be published by the CAAC-AAD.

10. § 21.24 Issuance of TC: Primary Cateqory Aircraft.

a. The certification basis for primary category aircraft is § 21.17(f). Application for a TC must be made in accordance with § 21.15.

b. An applicant for a TC may use airworthiness standards previously approved under § 21.17, or the applicant may propose other airworthiness standards. If an applicant chooses to propose his or her own standards, the applicant can proceed in one of two ways. The applicant may submit its own standards under § 21.17 simultaneously with its application for a TC. Alternatively, the applicant may first propose and obtain approval of its standards prior to making application. Section 21.17(c), the 3-year limitation for a TC application, applies to primary category aircraft. When applying for a TC, the applicant will present its proposed TC program to the CAAC, indicating when and where the applicant wants CAAC involvement.

c. Any specific type certification data must be submitted to the CAAC. All type certification data must be retained by the applicant and be available to the CAAC on demand. If the applicant terminates operation while aircraft are still in service, it shall submit the complete TC data file to the CAAC.

11. § 21.31 Type Design.

The type design of primary category aircraft should include the specific inspection and the preventive maintenance program.

12. § 21.35 Flight Tests.

Flight tests must show that the aircraft complies with all applicable airworthiness standards. The applicant must submit a statement, in a form and manner acceptable to the Administrator, certifying that the applicant has conducted the necessary and appropriate flight tests that show that the aircraft, its components, and its equipment are reliable and function properly; certifying that the type design complies with applicable noise requirements, and no any unsafe characteristic for its intended use.

13. § 21.93 Classification of Changes in Type Design.

Unless designed for “agricultural aircraft operations” or for dispersing fire fighting materials, or land configured aircraft reconfigured with floats or skis, any change in the type design of a primary category aircraft that may increase the noise level of that aircraft is an "acoustica change."

14. § 21.163 Privileges.

A production certificate holder may conduct a training course for pilot-owners who want to perform the preventive maintenance program. The course must be approved by the CAAC, specifically the Flight Standards Department. The actual training must be accomplished by a person holding a mechanic certificate with an appropriate rating issued under CCAR-66. The production holder may issue a certificate of competency to persons successfully completing the approved course. The certificate must specify the aircraft make and model to which the training applies.

15. § 21.165 Responsibility of Holder.

The aircraft must have been assembled under the supervision and quality control of the production certificate holder for a special airworthiness certificate.

16. § 21.171 Airworthiness Certificates: Classification.

The airworthiness certificate is classified into the standard airworthiness certificate and the special airworthiness certificate, furthermore, the special airworthiness certificate is classified into the primary special airworthiness certificate and restricted airworthiness certificate. The aircraft which has obtained primary category TDA is issued the primary special airworthiness certificate.

17. § 21.179 Duration.

A primary category aircraft special airworthiness certificate is effective as long as the maintenance, preventive maintenance, and alterations are performed in accordance with CCAR-43 and 91 and the aircraft is registered in the China.

18. CCAR-21 Subpart J - Placards or Markings.

The aircraft must be identified as required by CCAR-21 Subpart J - Placards or Markings to be issued a special airworthiness certificate.

19. § 21.175 General Requirements and Limitations of Issue of a Special Airworthiness Certificate.

a. An applicant can obtain a special airworthiness certificate-primary

category when the applicable provisions of CCAR-21 are met. Primary category aircraft are not eligible for multiple category airworthiness certificates. Designated manufacturing inspection representatives (DMIR) may issue airworthiness certificates for aircraft manufactured under their organization's production approval.

b An imported aircraft which type certificated under § 21.29 can obtain a special airworthiness certificate-primary category, if the civil airworthiness authority of the country in which the aircraft was manufactured certifies, and the Administrator finds after inspection, that the aircraft meets the criteria of § 21.24(a)(l) and is in a condition for safe operation. Only an CAAC inspector may issue airworthiness certificates.

20. CCAR-36 Noise Standards: Aircraft Type and Airworthiness Certification.

a. In the case of a primary category TC application:

(1) For an airplane that previously was not certificated under Appendix F of CCAR-36, that airplane must comply with Appendix G of CCAR-36.

(2) For a helicopter that previously was not certificated under Appendix H of CCAR-36, that helicopter must comply with appendix H or J of CCAR-36.

b In the case of a STC application for converting an existing type certificated aircraft to a primary category aircraft:

(1) An airplane does not have to show compliance with CCAR-36 if it previously has not been certificated under appendix F or G and has not undergone an acoustical change.

(2) A helicopter does not have to show compliance with CCAR-36 if it previously has not been certificated under appendix H and has not undergone an acoustical change.

(3) If the aircraft has been certificated under CCAR-36, no further showing is necessary unless the STC involves an acoustical change.

c. A primary category aircraft with an existing type certificate that is undergoing an acoustical change must comply with § 36.9 in the case of an airplane or with § 36.11 in the case of a helicopter.