



Advisory Circular

AC 21-41(0)

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LIGHT SPORT AIRCRAFT CERTIFICATE OF AIRWORTHINESS

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1. REFERENCES

This Advisory Circular (AC) should be read in conjunction with:

- Civil Aviation Safety Regulations (CASR) Subpart 21.H
- Civil Aviation Safety Regulations (CASR) Dictionary
- Regulation 262APA of CAR 1988
- AC 21-42(0) – Light Sport Aircraft Manufacturer's Requirements
- AC 21.10(0) – Experimental Certificates

2. PURPOSE

This AC explains the requirements for the issue of a Certificate of Airworthiness for Light Sport Aircraft under CASR Subpart 21.H, and the rules for operating light sport aircraft.

3. STATUS OF THIS AC

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

Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Where an AC is referred to in a 'Note' below the regulation, the AC remains as guidance material.

ACs should always be read in conjunction with the referenced regulations

4. BACKGROUND

4.1 CASA has introduced new standards for the manufacture, certification, operation, and maintenance of light sport aircraft. The standards have been implemented as a result of other National Airworthiness Authorities (NAA's) adopting similar standards to address advances in sport and recreational aviation technology. The intended effect of the rules covering these standards is to allow the manufacture of safe and economical aircraft, to be operated for the purpose of sport and recreation, to carry a passenger, and to conduct flight training and glider towing.

5. WHAT IS A LIGHT SPORT AIRCRAFT?

5.1 A light sport aircraft (LSA) is a small, simple to operate, low performance aircraft. With regard to the requirements of the CASRs, a light-sport aircraft is an aircraft, other than a helicopter that complies with the following criteria:

- (1) A maximum takeoff weight of not more than 600 kilograms or 650 kilograms for an aircraft intended for operation on water or 560 kilograms for a lighter-than-air aircraft.
- (2) A maximum stalling speed in the landing configuration (V_{S0}) of not more than 45 knots CAS at the aircraft's maximum certificated takeoff weight and most critical center of gravity.
- (3) A maximum seating capacity of no more than two persons, including the pilot.
- (4) If powered, a single, non-turbine engine fitted with a propeller.
- (5) A non-pressurised cabin:
 - (i) For an aircraft operating over land, a fixed landing gear;
 - (ii) For an aircraft intended for operation on water, a fixed or repositionable landing gear; and
 - (iii) For a glider a fixed or retractable landing gear.
- (6) If the aircraft is a glider a maximum never exceed speed V_{ne} of 135 knots CAS.

5.2 The types of aircraft that may satisfy these criteria are:

- (1) Fixed wing aircraft;
- (2) Powered parachutes;
- (3) Weight shift aircraft;
- (4) Gliders;
- (5) Balloons;
- (6) Airships; and
- (7) Gyroplanes.

6. CERTIFICATE OF AIRWORTHINESS FOR LSA

6.1 Types of Certificate of Airworthiness for LSA

6.1.1 There are 2 types of Certificates of Airworthiness for LSA, a Special Certificate of Airworthiness for Light Sport Aircraft (LSA), and an Experimental Certificate for Light Sport Aircraft.

Special Certificate of Airworthiness for LSA

6.1.2 This certificate is for production LSA. These aircraft may be used for private operations, flying training and towing gliders. The Special Certificate of Airworthiness remains valid provided the aircraft is maintained in accordance with the requirements of the manufacturer and the aircraft has not been modified unless approved by the manufacturer.

Experimental Certificates for LSA

6.1.3 There are two types of experimental certificates for LSA. One is for kit built LSA and the other is for aircraft that no longer satisfy the requirements of the Special C of A for LSA.

- **Kit built LSA** – Before an experimental certificate for LSA can be issued, the manufacturer should have produced a production aircraft of the same model issued with a Special Certificate of Airworthiness. These aircraft can only be used for private purposes and for flying training of the owner. There is no requirement that the owner should build 51% of the aircraft.
- **Non-Compliant Production LSA** – The experimental certificate provides a means for aircraft that no longer comply with the requirements of the Special C of A for LSA. These aircraft can only be used for private purposes and for flying training of the owner. There are a number of circumstances where this could arise such as the production aircraft has been modified without the manufacturer's approval or has not been maintained in accordance with the manufacturer's requirements. Another circumstance may be that the manufacturer has gone out of business and no suitable persons or organisations have taken over the continuing airworthiness functions for the aircraft.

6.2 Application for a Certificate of Airworthiness

Special Certificate of Airworthiness for LSA

6.2.1 When applying for a Special Certificate of Airworthiness, the applicant should provide to CASA, or an authorised person, the following:

- (1) Copies of the aircraft operating instructions, the aircraft maintenance and inspection procedures and the aircraft flight-training supplement;
- (2) A statement of compliance by the manufacturer which indicates:
 - (i) The aircraft's make, model, serial number and date of manufacture;
 - (ii) The LSA standards that apply to the design of the aircraft, and the aircraft complies with the specified LSA standards;

Note: The LSA standards are listed in Appendix 1 of AC 21-42 (0) Light Sport Aircraft Manufacturer's Requirements.

- (iii) The manufacturer's quality assurance system complies with the LSA standards and based on that system, the aircraft conforms to the manufacturer's design data;
- (iv) The manufacturer will make available to any interested person the aircraft's operating instructions, the aircraft's maintenance and inspection procedures and the aircraft's flight training supplement that complies with the LSA standards;
- (v) The manufacturer will monitor the continuing airworthiness of the aircraft and will issue directions or requirements that comply with the LSA standards to correct any unsafe condition;
- (vi) The production acceptance test procedure complies with the LSA standards and the manufacturer has:
 - (A) ground-tested and flight-tested the aircraft;
 - (B) found the aircraft's performance during ground and flight testing acceptable; and
 - (C) the aircraft is in a condition for safe operation.
- (vii) Evidence of manufacturer's qualification to manufacture a LSA, either:
 - (A) Information detailing a current production certificate; or
 - (B) A declaration in writing indicating the manufacturer is qualified in accordance with regulation CASR 21.172.
- (viii) If the aircraft has been imported into Australia, written information indicating that the aircraft is eligible for a Certificate of Airworthiness or other similar document issued by the NAA of a contracting state.

6.2.2 CASA or the authorised person inspects the aircraft to determine if it is in a safe condition. The completion of the inspection and maintenance records and a manufacturer's compliance statement is a sound basis for establishing whether the aircraft is in condition for safe operation.

6.2.3 CASA or the authorised person may take a copy of the manufacturer's statement of compliance, and other relevant documentations for its records. However, the aircraft operating instructions, the aircraft maintenance and inspection procedures and the aircraft flight-training supplement should be returned to the applicant.

Experimental certificate for a LSA kit

6.2.4 When applying for an experimental certificate for a kit built LSA, the applicant should provide to CASA, or an authorised person, the following:

- (1) Written information that a production aircraft of the same make and model has been issued a Special Certificate of Airworthiness for LSA or a similar document from a Contracting State;
- (2) Copies of the aircraft operating instructions, the aircraft maintenance and inspection procedures and the aircraft flight-training supplement;
- (3) A statement of compliance by the manufacturer which indicates:
 - (i) The aircraft's make model serial number and date of manufacture;
 - (ii) The design of the aircraft complies with the LSA standards;

- (iii) The manufacturer's quality assurance system complies with the LSA standards and based on that system, the aircraft conforms to the manufacturer's design data;
- (iv) The manufacturer will make available to any interested person the aircraft's operating instructions, the aircraft's maintenance and inspection procedures and the aircraft's flight training supplement that complies with the LSA standards;
- (v) The manufacturer will monitor the continuing airworthiness of the aircraft and will issue directions or requirements that comply with the LSA standards to correct any unsafe condition;
- (vi) A copy of the manufacturer's assembly instructions;
- (vii) Evidence of manufacturer's qualification to manufacture a LSA, either:
 - (A) Information detailing a current production certificate, or
 - (B) A declaration in writing indicating the manufacturer is qualified in accordance with regulation CASR 21.172.

6.2.5 CASA or the authorised person inspects the aircraft to determine if it is in a safe condition. The completion of the inspection and maintenance records and a manufacturer's compliance statement is a sound basis for establishing whether the aircraft is in condition for safe operation.

6.2.6 CASA or the authorised person may take a copy of the manufacturer's statement of compliance, and other relevant documentations for its records. However, the aircraft operating instructions, the aircraft maintenance and inspection procedures and the aircraft flight-training supplement are required to be returned to the applicant.

7. AIRWORTHINESS DIRECTIVES

7.1 In general, CASA issues Airworthiness Directives (ADs) against type certificated aircraft and only in exceptional circumstances will CASA issue an AD against LSA. For critical safety of flight issues, the LSA Manufacturer will be responsible for issuing Safety Directions, which are mandatory for production LSA.

7.2 However, LSA are Australian aircraft as defined under the Act and are subject to applicable Australian airworthiness directives unless specifically exempt. Thus, if an aeronautical product installed on a LSA is subject to an Australian AD, it is the responsibility of the operator to ensure compliance with that AD.

7.3 Typical ADs that need to be considered include “/GENERAL/” ADs that are applicable to “all aircraft...”, ADs against type certificated products such as engines or propellers, or ADs applicable to equipment such as transponders, flight instruments, radio communication and navigation equipment. For example, an aircraft fitted with a transponder must comply with the requirements of AD/RAD/47 Amendment 1.

7.4 The requirement to comply with such ADs applies to both production aircraft with a Special Certificate of Airworthiness for LSA and to LSA issued with an Experimental Certificate.

8. OPERATING LIMITATIONS

8.1 LSA issued with an Experimental certificate

8.1.1 The operational requirements and the maintenance to be carried out on LSA issued with an experimental certificate are those same requirements issued for other experimental certificate aircraft. See AC 21.10(0) – Experimental Certificate, for further advice and guidance.

8.2 Production aircraft with a Special Certificate of Airworthiness for LSA

8.2.1 Production LSA issued with a Special Certificate of Airworthiness can be used for the following purposes:

- (1) private operations;
- (2) flight training; and
- (3) glider towing,

and are subject to those operating limitations specified in CAR 262APA.

Maintenance and Inspection

8.2.2 The maintenance for production aircraft issued with a Special Certificate of Airworthiness is required to be carried out in accordance with the manufacturer's maintenance procedures.

Note: In the case where the manufacturer no longer exists, CASA may approve a person to perform the functions of the manufacturer to approve modifications and maintenance procedures.

8.2.3 The inspection of these aircraft is required to be in accordance with the manufacturer's inspection procedures. If the aircraft is used for flying training, glider towing or hire, the aircraft is to be inspected every 100 Time in Service (TIS) or every year whichever occurs first. If the aircraft is used for private purposes only, the aircraft is required to be inspected every 12 months. If an aircraft has been idle for an extended period of 2 years or more, the inspection and maintenance is required only once during the period but within 12 months of the next flight.

Service Defects/ Safety Directions

8.2.4 The manufacturer is responsible for the continuing airworthiness of their aircraft in accordance with the American Society for Testing and Materials (ASTM) standard for Continued Operational Safety Monitoring of Light Sport Aircraft. This requires the manufacturer to evaluate all significant defects and correct any unsafe condition that may exist in the remaining fleet. To achieve this, the manufacturer should provide a method for the operator to report any service difficulty. It is therefore the responsibility of the registered operator to notify the manufacturer of any safety-of-flight issue or significant service difficulty upon discovery.

8.2.5 The manufacturer may decide that a Safety Direction (SD) is required to correct an unsafe condition. In such a circumstance, the manufacturer will issue a notice to all the known registered operators of the affected aircraft. It is therefore very important and is a requirement with the LSA standard that all registered operators provide the manufacturer with current contact information.

8.2.6 When a registered operator receives a Safety Direction, the operator is required to comply with the requirements of the SD. The operator may apply to the manufacturer for a variation or exemption against the SD provided suitable safety justification is included in the application. The manufacturer may assess the application and if the safety justification satisfactorily addresses the safety issue, the manufacturer can approve an alternative means of compliance or grant an exemption against the SD. However, if the manufacturer does not approve an application, the registered operator is required to comply with the requirements of the SD. Failure to comply with a SD is considered a serious breach of the regulations and could result in regulatory action.

Modifications

8.2.7 Because the manufacturer is responsible for the continuing airworthiness of their LSA, the rules require the manufacturer to approve all modifications to their aircraft. This is different to other aircraft where CASA or a person authorised under CAR 35 or an engineer authorised under CASR Part 146 (yet to be introduced) can approve modifications without notifying the manufacturer. Therefore if an owner of a production LSA contracts a CAR 35/CASR Part 146 engineer to modify the aircraft, the owner will also be required to seek approval from the manufacturer prior to carrying out the modification.

8.2.8 The owner of a production LSA should be aware that unapproved modification of the aircraft will result in the Special Certificate of Airworthiness no longer being in force. Therefore, the owner will be required to have the Special Certificate of Airworthiness amended to an experimental certificate for LSA. The owner should be aware that the operational privileges will be reduced when operating a production LSA under an experimental certificate.

CASA Safety Directions

8.2.9 In the interests of safety, CASA may include additional operating limitations to an aircraft. This would only occur if CASA considered that other requirements by the manufacturer were inappropriate or did not address a safety critical issue. In such circumstances CASA must write to the registered operator of the aircraft concerned detailing the operating limitations required for the aircraft. The operator is required to comply with the additional operating limitations to maintain the Special Certificate of Airworthiness for LSA.

Placards and Warnings

8.2.10 For production LSA, an information placard should be displayed in the cabin or cockpit at a location in full view of the passenger and the pilot, with the wording:

THIS AIRCRAFT WAS MANUFACTURED IN ACCORDANCE WITH THE LIGHT SPORT AIRCRAFT AIRWORTHINESS STANDARDS AND DOES NOT CONFORM TO STANDARD CATEGORY AIRWORTHINESS REQUIREMENTS.

8.2.11 Before operation of the aircraft, the pilot is required to inform the passenger that the aircraft does not meet the same requirements for a standard certificate of airworthiness.

9. CHANGE OF ADDRESS OR OWNERSHIP

9.1 The manufacturer is responsible for the continuing airworthiness of the aircraft and therefore it is very important that the aircraft Owner/Registered Operator notify the manufacturer of a change of address or ownership. In such circumstances where the manufacturer is not notified, the owner will not be aware of critical safety issues that may require urgent inspection or modification therefore compromising the safety integrity of the aircraft. Also if the manufacturer has issued mandatory requirements that have not been carried out due to the aircraft Owner/Registered Operator not notifying of change of address or ownership, then the Special Certificate of Airworthiness will no longer be valid. Continued operation with an invalid Special Certificate of Airworthiness is a contravention of the regulations.

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