Australian Government
Civil Aviation Safety Authority

Advisory Circular

AC 21-41(0) SEPTEMBER 2005

LIGHT SPORT AIRCRAFT CERTIFICATE OF AIRWORTHINESS

CONTENTS

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.

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 a 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 form 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.

Neville Probert
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Australian Government
Civil Aviation Safety Authority

Advisory Circular

AC 21-42(1) FEBRUARY 2006

LIGHT SPORT AIRCRAFT MANUFACTURER'S REQUIREMENTS

CONTENTS

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
- AC 21-41(0) – Light Sport Aircraft Certificate of Airworthiness
- AC 21.10(0) – Experimental Certificates

2. PURPOSE

This AC explains the certification requirements for a Light Sport Aircraft manufacturer.

3. STATUS OF THIS AC

This AC has been amended to include additional standards that were not previously available for weight shift and gyroplanes and existing standards ATSM designations have been amended to the current approval status.

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 (VS0) 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.

The types of aircraft that may satisfy these criteria are:

(a) Fixed wing aircraft;

(b) Powered parachutes;

(c) Weight shift aircraft;

(d) Gliders;

(e) Balloons;

(f) Airships; and

(g) Gyroplanes.

6. MANUFACTURING LIGHT SPORT AIRCRAFT

6.1 The certification and continuing airworthiness of LSA is the responsibility of the manufacturer. The manufacturer is to ensure that LSA are designed and manufactured to suitable standards. As well as this, the manufacturer is also responsible for ensuring the continuing airworthiness of each aircraft.

6.2 Manufacturer's Qualifications

6.2.1 Manufacturers need to demonstrate they are suitably qualified to manufacture a LSA. (Refer to CASR 21.172) To satisfy this, a manufacturer should either:

(1) Hold a current production certificate. (It is expected that the manufacturer will hold a production certificate for a similar aircraft type to the manufactured LSA); or

(2) If the manufacturer does not hold a production certificate, the manufacturer should make a declaration in writing indicating it has:

(i) contracted engineering personnel with experience in ultralight or light aircraft design to ensure compliance with LSA standards; and

(ii) facilities and tools suitable for the production of the aircraft in accordance with the applicable LSA standards; and

(iii) competent personnel, with appropriate training, skills and experience, to perform work that affects product quality.

6.3 Overseas Manufacturers

6.3.1 For LSA to be certified and operated in Australia, overseas LSA manufacturers are required to be from a Contracting State. To ensure compliance with the Australian LSA Standards, overseas manufacturers will be required to show evidence that they meet similar requirements to local manufacturers.

Note: An overseas manufacturer who holds a production approval (however described) for a similar type of aircraft issued by their National Airworthiness Authority (NAA) or approved organisation delegated by their NAA, would satisfy these requirements.

6.4 LSA Standards

6.4.1 Appendix 1 to this AC lists the LSA standards required to show compliance with each category of LSA. These include the American Society for Testing and Materials (ASTM) standards and alternative standards that CASA has deemed as acceptable for this type of aircraft. Although there is a range of different design standards it is not acceptable to "cherry pick" selected paragraphs out of these standards when signing a statement of compliance. If the manufacturer selects a design standard for their aircraft then compliance should be shown with the entire standard.

Note: The manufacturer must be aware that the USA FAA accept the ASTM standards only for aircraft operating in the USA.

6.5 LSA Statement of Compliance

6.5.1 For a production LSA to be issued a Special Certificate of Airworthiness, the manufacturer is required to sign a Statement of Compliance (see example at Appendix 2 to this AC) for each aircraft that is produced. This Statement of Compliance indicates the aircraft complies with all the applicable LSA standards for the aircraft type. (See Appendix 1 to this AC).

6.6 Exporting LSA aircraft overseas

6.6.1 It should be noted that other NAAs may have different requirements for LSA. For instance, the FAA definition for LSA has a number of differences that should be taken into consideration before aircraft will be accepted in the USA. For example, the FAA has a different stall speed (V_{SO}), never exceed speed (V_{NE}) and only accepts the ASTM standards. Therefore, prior to designing and manufacturing aircraft for the overseas market, it is crucial that the manufacturer considers the applicable NAA requirements for LSA certification and operation in that particular country.

6.7 Manufacturing production aircraft

6.7.1 To produce a LSA, the manufacturer needs to consider the design, the quality assurance of the product and the continuing airworthiness requirements. These requirements are all contained in the standards listed in Appendix 1 to this AC. For a particular market, a manufacturer should decide on the most applicable design standard prior to manufacturing the aircraft. The proposed market will influence the choice of standard. For example, if the manufacturer wants to export its aircraft to the USA then the only apparent choice is to ensure the aircraft complies only with the ASTM standards and meets the FAA LSA definition in FAR Part 1. Note the ASTM standards can be purchased online at http://www.astm.org.

6.7.2 A manufacturer does not require a CASA production certificate to manufacture a LSA. However, the manufacturer needs to be suitably qualified (see paragraph 6.2) and should comply with the quality assurance and production test acceptance standards as listed in Appendix 1 to this AC.

6.7.3 As CASA will not be responsible for the continuing airworthiness of these aircraft, the manufacturer will be required to continually monitor the airworthiness of these aircraft in accordance with the LSA Continued Operational Safety Monitoring standard. This will require the manufacturer to manage a database of all owners of aircraft in Australia and overseas, investigate service defects and address safety critical defects with corrective action in the form of a safety directives issued to all affected owners/registered operators.

6.7.4 The manufacturer will also need to provide product information in accordance with the LSA standards. This will include the data plate, conformity details of the aircraft, warning decals, aircraft operating instructions, the aircraft flight training supplement and the maintenance and inspection procedures.

6.7.5 If the manufacturer decides to include a type certificated product such as an engine or propeller in its aircraft, then these components are still subject to the requirements of the CASRs. For instance, the data plate of a type-certificated product such as an engine or propeller should be in accordance with CASR 21.820. Also an airworthiness directive (AD) applicable to an aeronautical product is required to be complied with in accordance with the requirements of the AD. This may include type certificated engines or propellers or other products such as transponders, flight instruments, and radio and communication equipment.

6.7.6 Upon completion of manufacturing the aircraft, the manufacturer is required to sign a Statement of Compliance (see example at Appendix 2 to this AC) indicating the aircraft conforms with the identified LSA standards contained in Appendix 1 to this AC. Also the manufacturer is required to provide copies of the aircraft operating instructions, the aircraft maintenance and inspection procedures and the aircraft flight training supplement. If the manufacturer resides/operates overseas, the manufacturer will need to provide evidence that the aircraft is manufactured in a Contracting State, and the aircraft is eligible for a certificate of airworthiness, or another document of similar effect, in the country of manufacture. (Refer to CASR 21.186 (2) (d)).

6.8 Manufacturing kit built LSA

6.8.1 An LSA kit is not required to follow the 51 percent rule as required for other experimental kit aircraft. However, before a kit built LSA can be accepted for an experimental certificate, the manufacturer will need to produce a production aircraft issued with a Special Certificate of Airworthiness in the LSA category of the same make and model. (Refer to CASR 21.191(j)(iii)).

Note: To indicate that the aircraft is kit built, the model number may have a different prefix or suffix to the production aircraft model number.

6.8.2 A kit built LSA is manufactured to the same applicable LSA standards as the production aircraft of the same make and model except the standards relating to production testing are not required. Instead of complying with the production aircraft test standards, the manufacturer needs to identify the assembly instructions for the aircraft meeting the applicable LSA standard for kit assembly.

6.8.3 For the kit built aircraft to be eligible for an experimental certificate, satisfactory evidence needs to be presented to show that the aircraft was manufactured and assembled to the applicable LSA standards. Therefore, the manufacturer will need to provide to the owner of the aircraft a Statement of Compliance indicating that the aircraft kit complies with the applicable LSA standards for a kit aircraft. (Note that the standard for production testing is not required). The manufacturer will also need to provide information that shows a Special Certificate of Airworthiness has been issued for a production aircraft of the same make and model. The manufacturer will also need to provide aircraft assembly instructions, operating instructions, aircraft maintenance and inspection procedures and an aircraft flight training supplement.

6.8.4 The manufacturer is not responsible for the assembly and acceptance testing of a kit built aircraft. This responsibility lies with the owner.

7. CONTINUED OPERATIONAL SAFETY MONITORING OF LIGHT SPORT AIRCRAFT

7.1 The manufacturer is required to have a system to monitor and correct safety of flight issues in accordance with the ASTM standard for Continued Operational Safety Monitoring of Light Sport Aircraft. Refer to CASR 21.186(2)(e). The manufacturer would be responsible for monitoring and notifying operators to correct unsafe conditions in aircraft for as long as the aircraft are registered in Australia. 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 of the aircraft to report any in-service difficulty.

7.2 Safety Directions

7.2.1 The manufacturer may decide that a Safety Direction (SD) is required to correct an unsafe condition. In such a circumstance, the manufacturer should 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 the manufacturer has the current contact information of all owners/registered operators of their aircraft in Australia and overseas. It is recommended, the manufacturer include a statement in the relevant documents that when the aircraft changes ownership, the manufacturer is notified of the new owner's (registered operator's) name and address.

7.2.2 When a registered operator receives a Safety Direction (SD), the operating rules require the operator to comply with the requirements of the directive. 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 is to assess the application and if the safety justification satisfactorily addresses the safety issue, the manufacturer may approve an alternative means of compliance against the SD. However, if the manufacturer does not approve an application, the registered operator must comply with the requirements of the manufacturer's SD. Failure to comply with a SD is considered a serious breach of the regulations and would result in regulatory action against the registered operator.

7.3 Modifications

7.3.1 For production LSA aircraft issued with a Special Certificate of Airworthiness, the manufacturer is responsible for approving all modifications. All modifications should be produced in accordance with the LSA standards applicable to the aircraft. Therefore, it is important to note that modifications issued by a person authorised under CAR 35 or an engineer authorised under CASR Part 146 (not introduced yet) still need approval from the manufacturer. Modifications that are not approved by the manufacturer will result in the revoking of the Special Certificate of Airworthiness. (refer to CASR 21.181(4)(b)).

8. PLACARDS AND WARNINGS

8.1 For production LSA aircraft, an information placard is required to be displayed in the cabin or cockpit at a location in full view of the passenger and the pilot (Refer to CAR 262APA (1)(f)), 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.

9. WHAT HAPPENS IF A MANUFACTURER NO LONGER EXISTS

9.1 In the event that a manufacturer no longer exists or can no longer provide continuing airworthiness (CAW) support to registered operators of their aircraft, a competent person may be appointed by CASA to carry out the CAW support. If no-one satisfies the CASA approval criteria or no person applies to CASA for appointment, the existing LSA can no longer operate under a Special Certificate of Airworthiness. In such situation these aircraft can continue to be operated under an experimental certificate for LSA

9.2 For CASA to appoint a competent person to carry out the CAW function of the manufacturer, a person should have:

(1) a system to monitor and correct safety of flight issues in accordance with the ASTM standard for Continued Operational Safety Monitoring of Light Sport Aircraft; and

(2) access to existing manufacturer's data of aircraft configuration and registered operators of the aircraft; and

(3) contracted engineering personnel with experience in ultralight or light aircraft design and repair to ensure compliance with the LSA standards; and

(4) facilities, tools and trained or appropriately experienced staff suitable for providing the CAW for these aircraft; and

(5) an audit system (internal or external) that complies with the LSA quality standards.

Greg Vaughan
Acting General Manager
Manufacturing, Certification and New Technologies Office

APPENDIX 1

LIGHT SPORT AIRCRAFT (LSA) STANDARDS

1. GENERAL

This Appendix to AC 21-42 lists the LSA standards as defined in CASR 21.172.

The LSA standards for a particular class of LSA are the ASTM standards (see paragraph 2) or alternative standards (see paragraph 3).

2. ASTM STANDARDS

2.1 The following table sets out the ASTM standard for each subject and class of LSA:

	CLASS OF LSA					
SUBJECT	**Fixed Wing**	**Gliders**	**Gyroplanes**	**Lighter - Than - Air**	**Powered Para-chutes**	**Weight Shift Control**
Design and Performance	F2245-04	Not yet available	F2352 -05	F2355-05 or -05a	F2244-05	F2317/F2317M-05
Required Equipment	F2245-04	Not yet available	F2352-05	F2427-05 or -05a	F2243-05	F2457-05
Quality Assurance	F2279-03	Not yet available	F2449-05	F2353-04 or -05	F2240-05	F2448-04
Production Acceptance Tests	F2279-03	Not yet available	F2449-05	F2356-05 or -05a	F2242-05	F2247-05
Aircraft Operating Instructions	F2245-04	Not yet available	F2352-05	F2427-05 or -05a	F2243-05	F2457-05
Continued Airworthiness	F2295-03	Not yet available	F2415-05	F2354-05 or -05b	F2241-05 or -05a	F2425-05 or -05a
Maintenance and Inspection Procedures	F2483-05	F2483-05	F2483-05	F2483-05	F2483-05	F2483-05
Wing Interface	N/A	N/A	N/A	N/A	F2426-05	N/A

2.2 The ASTM standards for Fixed Wing Aircraft are:

ASTM Standard F2245-04 - Standard Specification for the Design and Performance of a Light Sport Aircraft.

ASTM Standard F2279-03 - Standard Practice for Quality Assurance in the Manufacture of Light Sport Aircraft.

ASTM Standard F2295-03 - Standard Practice for the Continued Operational Safety Monitoring of a Light Sport Aircraft.

ASTM Standard F2483-05 - Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft.

2.3 The ASTM standards for Gliders are:

(Not yet available)

ASTM Standard F2483-05 - Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft.

2.4 The ASTM standards for Gyroplanes are:

ASTM Standard F2352-05 - Standard Specification for Design and Performance of Light Sport Gyroplane Aircraft

ASTM Standard F2449-05 – Standard Specification for Manufacturer Quality Assurance Program for Light Sport Gyroplane Aircraft.

ASTM Standard F2415-05 - Standard Practice for Continued Airworthiness System for Light Sport Gyroplane Aircraft

ASTM Standard F2483-05 - Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft.

2.5 The ASTM standards for Lighter-than-Air are:

ASTM Standard F2355-05 or -05a - Standard Specification for Design and Performance Requirements for Lighter-Than-Air Light Sport Aircraft

ASTM Standard F2353-04 or -05 - Standard Specification for Manufacturer Quality Assurance Program for Lighter –Than-Air Light Sport Aircraft.

ASTM Standard F2356-05 or -05a - Standard Specification for Production Acceptance Testing System for Lighter-Than-Air Light Sport Aircraft.

ASTM Standard F2354-05 or -05b - Standard Specification for Continued Airworthiness System for Lighter than Air Light Sport Aircraft.

ASTM Standard F2427-05 or -05a - Standard Specification for Required Product Information to be Provided for Lighter-Than-Air Light Sport Aircraft.

ASTM Standard F2483-05 - Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft.

2.6 The ASTM standards for Powered Parachutes are:

ASTM Standard F2244-05 - Standard Specification for the Design and Performance of Powered Parachute Aircraft.

ASTM Standard F2243-05 – Standard Specification for Required Product Information to be Provided with Powered Parachute Aircraft.

ASTM Standard F2240-05 - Standard Specification for a Manufacturer Quality Assurance Program for Powered Parachute Aircraft.

ASTM Standard F2242-05 - Standard Specification for a Product Acceptance Testing System for Powered Parachute Aircraft.

ASTM Standard F2241-05 or -05a - Standard Specification for a Continued Airworthiness System for Powered Parachute Aircraft.

ASTM Standard F2426-05 - Standard Guide on Wing Interface Documentation for Powered Parachute Aircraft

ASTM Standard F2483-05 - Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft.

2.7 The ASTM standards for Weight-Shift-Control Aircraft are:

ASTM Standard F2317/F2317M-05 – Standard Specification for Design of Weight-Shift-Control Aircraft

ASTM Standard F2457-05 - Standard Specification for Required Product Information to be Provided with Weight-Shift-Control Aircraft.

ASTM Standard F2448-04 - Standard Practice for Manufacturer Quality Assurance System for Weight-Shift-Control Aircraft.

ASTM Standard F2247-05 - Standard Specification for a Production Acceptance Testing System for Weight-Shift-Control Aircraft.

ASTM Standard F2425-05 or -05a – Standard Specification for Continued Airworthiness System for Weight-Shift-Control Aircraft

ASTM Standard F2483-05 - Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft.

2.8 The ASTM standards for "cross-cutting" issues are:

2.8.1 Engines

ASTM Standard F2339-04 or -05 Standard Practice for the Design and Manufacture of Reciprocating Spark Ignition Engines for Light Sport Aircraft.

2.8.2 Propeller

(Not yet available)

2.8.3 Emergency Parachutes

ASTM Standard F2316 - 03 – Standard Specification for Airframe Emergency Parachutes for Light Sport Aircraft.

3. ALTERNATIVE LSA STANDARDS ACCEPTABLE TO CASA

3.1 Fixed Wing Aircraft

Alternative Standards for **Design and Performance** (ASTM Standard F2245) are:

(1) BCAR Section S (Britain);

(2) CS VLA (EASA);

(3) CAO 101.55 (Australia);

(4) DaeC (BFU) 10/95 (Germany);

(5) UL/2 PT2 (Czech Republic);

(6) PICA 26 (Australia); and

(7) DS 10141E (Canada).

3.2 Gliders

(Nil at this time)

3.3 Gyroplanes

Alternative Standards for **Design and Performance** (ASTM Standard F2352 -04) are:

(1) BCAR Section T (Britain);

(2) ASRA Gyroplane Spec (Australia)

3.4 Lighter than Air Aircraft

Alternative Standards for **Design and Performance** (ASTM Standard F 2355-05) are:

(1) BCAR Part 31 – balloons (Britain);

(2) FAR Part 31 – balloons (USA);

(3) CAO 101.54 (Australia);

(4) BCAR Q – airships (Britain); and

(5) FAA AC-21-17-1 – airships (USA).

3.5 Powered Parachute Aircraft

Alternative Standards for **Design and Performance** (ASTM standard F2244) are:

(1) BCAR Section S (Britain); and

(2) DS 10141E (Canada).

3.6 Weight Shift Control Aircraft

Alternative standards for **Design and Performance** (Not yet available as an ASTM Standard) are:

(1) BCAR Section S (Britain);

(2) DS 10141E (Canada)

4. WHERE TO ACCESS LSA STANDARDS

4.1 The standards issued by the American Society for Testing and Materials (ASTM) may be found at: www.astm.org

4.2 The standards issued by CASA (CAO 101.54, CAO 101.55) may be found at: http://www.casa.gov.au/rules/orders/101.htm

4.3 The standards issued by CASA (Pica 26) may be found at:

http://rrp.casa.gov.au/casr/026_pica26_v1-oct99.pdf

4.4 The standards issue by the USA FAA (FAR Part 31) may be found at: www.faa.gov/regulations_policies/faa_regulations/

4.5 The following standards issued by CAA UK may be found at:

BCAR Section S

http://www.caa.co.uk/docs/33/CAP482.PDF

BCAR Section T

http://www.caa.co.uk/docs/33/CAP643.PDF

BCAR Section Q

http://www.caa.co.uk/docs/33/CAP471.pdf

BCAR Part 31

http://www.caa.co.uk/docs/33/CAP494.PDF

4.6 The standard issued by ASRA (Gyroplane Specification) may be found at:

http://www.asra.org.au/documents/TwoPlace%20Type%20Requirements.pdf

APPENDIX 2

EXAMPLE OF A STATEMENT OF COMPLIANCE

Light Sport Aircraft Statement of Compliance

Manufacturer's Name:		**Manufacturer's Address:**		
Aircraft Serial No	**Date of Manufacture**	**Aircraft Type**	**Aircraft Model**	**MTOW (kgs)**

Type of Light Sport Aircraft

☐ Aeroplane ☐ P/Parachute ☐ Weight-Shift ☐ Glider ☐ Gyroplane ☐ Lighter-Than-Air

Specify if the aircraft is a Production Aircraft or a Kit Aircraft? ……..

Applicable LSA Standards

Design and Performance:	……	Maintenance and Inspection Procedures:	……
Required Equipment:	……		
Quality Assurance:	……	Wing Interface *(if applicable)*:	……
Production Acceptance Tests:	……		……
Aircraft Operating Instructions:	……	Engine *(if applicable)*:	……
Continued Airworthiness:	……	Propeller *(if applicable)*:	……

Documents Supplied with Aircraft

Aircraft Operating Instructions	Yes/No	Other Documents *(if applicable – list below)*
Aircraft Maintenance and Inspection Procedures	Yes/No	……
Aircraft Flight Training Supplement	Yes/No	……
Manufacturer Safety Directions	Yes/No	……

Imported Light Sport Aircraft

In which ICAO Contracting State is the aircraft manufactured? .....……..
Is this aircraft type eligible for a Certificate of Airworthiness,
or like document, in the country of manufacture?.....*(written confirmation is required)*

Manufacturer's Certification

I hereby certify that the aircraft identified in this Statement of Compliance:

(1) complies with the Design and Performance standard specified above;
(2) was manufactured in accordance with the Quality Assurance standard specified above;
(3) was ground and flight tested to the Production Acceptance Tests specified above and is in a condition for safe operation; *(Strike out item 3 if this LSA is a kit built aircraft)*
I also certify that
(4) the aircraft will be supported throughout its life under a Continued Airworthiness System that meets the Continued Airworthiness standard referenced above, and
(5) the manufacturer is a qualified manufacturer as defined in CASR 21.172.(2).

Name:	Signature:
Title:	Date: