

Revision **1**

21 September 2022

Adventure Aviation—Hot Air Balloon Operations

General

Civil Aviation Authority (CAA) Advisory Circulars (ACs) contain information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rule.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

Purpose

This AC describes an acceptable means of compliance with Civil Aviation Rule Part 115 *Adventure Aviation Certification and Operations* relating to hot air balloon operations.

Related Rules

This AC relates to Civil Aviation Rule Part 115 - specifically Subpart I 'Hot Air Balloon Operations'. It also refers to requirements in the operating rules of Parts 12, 43, 61, 91, 100, 101 and 141. It also refers to Part 1, which provides for definitions and abbreviations used in the Civil Aviation Rules.

Change Notice

Revision 1 of this AC updates advice in rule 91.247 to reflect new rules on the use of transponder and altitude reporting equipment to transmit ADS-B data, and updates advice on rule 91.513 about controlled airspace. It also standardises the format, corrects minor errors and adds a Version History. ~~This is the initial issue of AC115-2.~~

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Version History

History Log

Revision No.	Effective Date	Summary of Changes
0	26 May 2016	Initial issue
1	21 Sep 2022	<p>Updates advice on rule 91.247 to reflect new rules on the use of transponder and altitude reporting equipment to transmit ADS-B data.</p> <p>Updates advice on rule 91.513 about controlled airspace.</p> <p>Standardises the format and corrects minor errors.</p> <p>Adds a Version History.</p>

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Rule 115.501 Airworthiness

An applicant for an adventure aviation operator certificate using a hot air balloon must ensure that each balloon used for the operation has a current standard category airworthiness certificate, and there are no conditions precluding use under Part 115, for example: being endorsed “Not for hire and reward operations”.

Rule 115.503 Instruments and equipment

The applicant must review the requirements in Subpart F of Part 91, to ensure the balloon is appropriately equipped. While many of the requirements of Part 91 Subpart F are not applicable to balloons, rules 91.509(a)(3) and 115.503(2) specifically require a means of indicating altitude in feet.

Rule 91.525(e) requires that a manned balloon must be equipped with one life preserver for each person on board stowed in a visibly identified location and readily accessible from the position occupied by the person if the flight:

- (a) the flight crosses or might cross the shore of any lake or sea, or
- (b) the flight takes off from or intends to land at a site where the take-off or approach path is so disposed over water, that in the event of a mishap there is a likelihood of a ditching, or
- (c) the flight takes off from a site that is located within 1 nm of water at the ordinary high-water mark and the wind is offshore or is less than 5 knots onshore.

Rule 91.513 Communications equipment

- (a) Unless authorised by ATC to operate under VFR without radio communication, an aircraft operating under VFR in controlled or uncontrolled airspace must be equipped with radio communication equipment that:
 - i. meets Level 1 or Level 2 standards specified in Part 91 Appendix A A.9¹, as referred to in 91.501(2)(i)(A), or accepted as an alternative specification under rule 91.501(2)(ii)(A), and must be certificated in accordance with a technical standard order (TSO) issued by the FAA or ETSO-certificated by EASA (TSO'd)
 - ii. is capable of providing continuous two-way communication with an appropriate ATC unit.

To establish if an avionic component is TSO'd, refer to the component data label, or contact the manufacturer or avionics service provider.

¹ There is a list of specifications accepted under rule 91.501(2)(i)(A) in Part 91, Appendix A on the CAA website at www.aviation.govt.nz

- (b) An aircraft operating under VFR outside controlled airspace must be equipped with radio communications equipment that meets Level 1 or Level 2 standards if the equipment is to be used for communication with any ATS unit.

Rule 91.247 Use of transponder and altitude reporting equipment Operations in controlled airspace

- (a) Except as provided in paragraph (g), a pilot in command (PIC) of an aircraft operating in transponder mandatory controlled airspace designated under Part 71 within the NZFIR must, unless otherwise authorised or instructed by ATC:
- 1) operate the transponder to transmit ADS-B data, and
 - 2) ensure that ADS-B data is transmitted at all times when the aircraft begins to move under its own power until it has come to a complete stop at the end of the flight.
- (b) A PIC of an aircraft operating in uncontrolled transponder mandatory special use airspace, designated under Part 71 within the NZFIR, must operate the transponder:
- 1) in Mode A and Mode C, or
 - 2) in Mode S if the aircraft is equipped with Mode S equipment and allocated a unique Mode S code referred to in paragraph (d), or
 - 3) as referred to in rule 91.257(1), providing an ADS-B system as specified in that rule.
- (c) Except if paragraph (3) applies or if operating Mode S equipment, the PIC must set the transponder SSR code:
- 1) to the code assigned by ATC for the flight, or
 - 2) if not assigned a code by ATC, to 1300, or
 - 3) in the event of an in-flight emergency, loss of radio communications, or an act of unlawful interference, to the appropriate code in accordance with the table below:

Emergency SSR Codes

Occurrence	SSR code
Unlawful interference	7500
Loss of radio communication	7600
In flight emergency when no code has been allocated by ATC	7700

- (d) A PIC of an aircraft must not operate Mode S transponder equipment unless the aircraft is transmitting a unique Mode S code assigned by the State of Registry.
- (e) Reserved in rule 91.247.

- (f) A PIC of an aircraft operating in transponder-mandatory controlled airspace must immediately advise the ATC unit that has jurisdiction over that airspace of any failure or partial failure of the transponder equipment.
- (g) Unless otherwise required by ATC, only one of the aircraft in a formation flight is required to operate a transponder in accordance with paragraph (a) or paragraph (b).

~~The pilot in command of an aircraft operating transponder-mandatory airspace designated under Part 71 must unless otherwise authorised or instructed by ATC—~~

- a) ~~operate the transponder:~~
 - i. ~~in Mode A and Mode C; or~~
 - ii. ~~in Mode S if the aircraft is equipped with Mode S equipment and allocated a unique Mode S code assigned by the State of Registry; and~~
- b) ~~except if paragraph (c) applies or if operating Mode S equipment, set the transponder SSR code:~~
 - i. ~~to the code assigned by ATC for the flight; or~~
 - ii. ~~if not assigned a code by ATC, set SSR Code 1300; and~~
- c) ~~in the event of an in-flight emergency, loss of radio communications, or an act of unlawful interference, set the transponder to SSR Code 1300.~~

Rule 115.505 Maintenance

The intent of this rule is to ensure that the inherent airworthiness of a balloon is maintained throughout its operational life.

Any maintenance performed must ensure the balloon continues to meet the type design standards, that every applicable airworthiness directive is complied with, any defects are rectified, and a review of airworthiness has been carried out (refer to rule 91.615). If fitted with transponder or floatation equipment, the applicable requirements of rule 91.605(e) must be complied with.

The maintenance programme required by rule 115.61 is a compilation of the individual maintenance and inspection functions used by an operator to maintain airworthiness of the specific balloon to be listed on the operations specification.

The maintenance programme consists of two basic parts:

- (a) instructions and procedures that maintenance is performed in accordance with, and which must be equivalent to paragraph (b), and
- (b) a schedule of the maintenance actions, including required inspections and tests of the balloon and its components, together with details of parts and areas that:
 - (i) must be inspected, or
 - (ii) could result in a failure, malfunction, or defect endangering the safe operation of the balloon.

The instructions and procedures define **how** maintenance requirements as defined in rule 115.61 are to be carried out and must be equivalent to:

- (a) the applicable requirements prescribed in Subpart G of Part 91, and
- (b) the manufacturer's maintenance schedule.

The maintenance programme must include procedures for:

- (a) recording defects including examples of records, and
- (b) the correction or deferral of defects found during maintenance, and
- (c) inducting a balloon onto the programme, and
- (d) ensuring that every maintenance action required by the programme is performed, and
- (e) the retention of maintenance records under rule 91.623.

The maintenance programme must also include a schedule for:

- (a) for performance of required maintenance expressed in terms of time in service, cycles, calendar time, and
- (b) number of system operations or any combinations of these.

The maintenance inspection must be performed or supervised by and certified by a person who holds an appropriate qualification issued by the Director under the **Civil Aviation** Act or Part 66.

The review of airworthiness must be carried out by the holder of an inspection authorisation (IA) issued under Part 66.

Rule 115.507 Pilot qualification and experience requirements

~~The requirements~~ For a person to act as **PIC** pilot-in-command of a hot air balloon operating under Part 115, they must:

- (a) hold a current commercial balloon pilot licence
- (b) hold an aircraft type rating for the balloon, and
- (c) ~~has~~ **have** acquired at least:
 - (i) 100 hours flight time experience as pilot-in-command of a balloon, and
 - (ii) 10 hours flight time experience as pilot-in-command of the type of balloon used.