

CIVIL AVIATION AUTHORITY — AUSTRALIA

CIVIL AVIATION ADVISORY PUBLICATION

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SUBJECT: BALLOON MAINTENANCE

IMPORTANT

This publication describes the preferred method of complying with the directions given under regulations 41(1) and 42A, 42B and 42C of the Civil Aviation Regulations for the maintenance of manned balloons and hot-air airships.

The information in this publication is advisory only. The Civil Aviation Regulations set out the legal requirements that must be complied with in relation to the subject matter of this publication. There may be a number of ways of ensuring that the requirements of the CARs are met. This publication sets out the method that is preferred to be used and which experience has shown should, in the majority of cases, ensure compliance with the regulations. However, before using the information in this publication the user should always read the CARs listed in the reference section below to ensure compliance with the legal obligations of the CARs.

PURPOSE

This publication addresses the maintenance requirements for manned balloons and hot-air airships operated commercially or under the control of the Australian Ballooning Federation.

STATUS

This is the first issue of CAAP 41-1, and will remain current until withdrawn or superseded.

REFERENCES

This publication should be read in conjunction with Civil Aviation Regulations 41(1) and 42A, 42B and 42C.

HOW TO OBTAIN COPIES OF THIS PUBLICATION

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1 - DEFINITIONS

'Hot-air airship' means a power driven lighter-than-air aircraft where buoyancy is provided by hot air.

'Time-in-service' means the time-in-service of the balloon or balloon component from initiation of burner operation prior to flight until cessation of burner operation at the completion of flight.

'Major repair' means the repair of damage which involves the replacement of more than one panel in the upper half of the envelope or more than three adjacent panels in the lower half of the envelope or load tape repairs or replacement. In addition, the making of any re-

pair to the suspension system or any repair to the burner system other than seal replacement or the cleaning of jets constitutes a major repair.

‘Manned balloon’ means a non-power-driven lighter-than-air aircraft capable of carrying one or more persons and equipped with controls to permit the pilot to control the altitude of the aircraft.

2 - GENERAL

2.1 Where the term balloon is used in this publication it also refers to hot-air airships.

2.2 Reference to regulations in this publication is to regulations contained in CARs.

2.3 The definition for Approved Maintenance Data, in CAR 2A, specifies data that is in force from time to time. This means that the data used when performing maintenance must be the current edition in force at the time the maintenance was being performed.

3 - MAINTENANCE REQUIREMENTS

3.1 All balloons, by virtue of being classified as class B aircraft, are required by regulation 42A to have maintenance schedules. This regulation allows three choices for the Certificate of Registration holder to select from; for balloons, however, the CAA Maintenance Schedule is obviously not suitable. This then leaves the manufacturer’s maintenance schedules or one developed by the Certificate of Registration holder and approved by the Authority.

3.2 As required by regulation 50A, when the schedule has been selected it must be entered on the balloon’s Log Book Statement, a copy of which is to forwarded to the airworthiness office having administrative control over that balloon’s records.

3.3 Regulation 42ZC specifies that all maintenance that is performed on balloons must be performed by appropriate persons. Major repairs may only be performed by the holder of an appropriate Certificate of Approval.

3.4 The appropriate persons to perform and certify for maintenance are as follows, to the extent indicated:

- (a) the pilot-in-command, other than a student pilot and other than a pilot acting in the course of employment with an employer, to perform and certify for maintenance limited to:
 - (i) post assembly, daily or pre take-off inspections;
 - (ii) repairs which are not major repairs;
- (b) the holder of a valid appropriate maintenance authority, other than a person acting in the course of employment with an employer, to perform and certify for maintenance other than major repairs; and
- (c) the holder of a valid certificate of approval, to perform and certify for maintenance covered by that certificate.

3.5 Persons acting in the course of employment would be performing and certifying for the maintenance on the behalf of their employers.

3.6 The certifications for periodic inspections can only be made by:

- (a) the holder of a valid appropriate certificate of approval, this certification is made, on behalf of the certificate of approval holder, by the holder of a valid appropriate maintenance authority, employed by that certificate holder; or
- (b) the holder of a valid appropriate maintenance authority who is listed with the CAA for automatic distribution of CAO 105 (lighter-than-air).

3.7 As inflation and propulsion engines are required for the safe operation of hot-air airships their maintenance is also required to be carried out by an appropriate person. The appropriate person to perform this maintenance is the holder of a valid maintenance authority endorsed for that type engine and installa-

tion or the holder of an appropriate certificate of approval.

3.8 If the Certificate of Registration holder is developing a system of maintenance for approval by the Authority as specified in regulation 42C, then that system should ensure that the balloon is required to be inspected at the following periods:

- (a) post assembly;
- (b) daily or pre-take off inspection, before each flight;
- (c) periodic inspection; and
- (d) hard landing inspection, whenever a landing has been made while the balloon was experiencing an excessive rate of descent.

3.9 Periodic inspections required by paragraph 3.8 should be complied with at the following periods:

- (a) for private balloons, every 100 hours time-in-service or 12 months, whichever is the earlier; or
- (b) for commercial balloons:
 - (i) where no mixing of the balloon's components with those of another balloon has occurred, every 100 hours time-in-service or 12 months, whichever is the earlier; or
 - (ii) where mixing of the balloon's components approved for interchanging with those of another balloon has occurred, every 100 hours time-in-service for the envelope and suspension system and every 6 months for the components.

3.10 As an Airworthiness Directive is a direction under regulation 37A, any additional special inspection, test, check or modification requirements that are contained in an Airworthiness Directive must be observed.

3.11 As the log book also performs the function of the maintenance release, any maintenance, other than post assembly

and pre-take-off inspections, that will be required to be performed on the balloon between each periodic inspection, is required to be entered in the log book by the person certifying for the completion of the periodic inspection.

4 - CERTIFICATION

4.1 A certification is required for all maintenance that is performed on the balloon to ensure a continuous airworthiness history. These certifications are required by regulation 42ZE of the CARs.

4.2 Regulation 42ZE directs that all maintenance is to be certified. When any of the following maintenance has been completed an entry and certification is required in the balloon's log book to record that maintenance:

- (a) periodic inspections;
- (b) hard landing inspections;
- (c) defect rectifications;
- (d) repairs;
- (e) modifications;
- (f) component replacements; or
- (g) special inspections, tests, checks or modifications specified as a requirement in an airworthiness directive.

4.3 The entries and certifications need to include a complete and detailed description of the maintenance that has been performed.

5 - MAINTENANCE RECORDS

5.1 A balloon, for the purpose of record keeping, means the envelope and suspension system. The basket and burner are considered as major components of that balloon.

5.2 The balloon requires a log book to record its airworthiness and maintenance history and maintenance certifications. The approved log book is one approved by the Australian Ballooning Federation and it will be retained by the the Certificate of Registration holder, as specified in regulation 50C, for at least 12 months after the balloon has been withdrawn from service.

6 - LOG BOOK ENDORSEMENTS

6.1 The log book is to be made available to the pilot-in-command prior to and at the completion of each flight. The pilot-in-command is to record the time-in-service, both daily and cumulative, in the log book, as soon as practicable after each flight.

6.2 An endorsement needs to be made in the log book to identify damage or defects that if not corrected could compromise the safe operation of the balloon. This endorsement will also state that the balloon is unairworthy, and will need to be signed and dated by the person making the endorsement.

6.3 Where a balloon has become unairworthy the reason will be entered in the log book and the balloon will not be flown until there is an entry in the log book certifying that the maintenance necessary to rectify or repair that defect has been completed.

6.4 Provided the damage or defect mentioned in the endorsement does not render the balloon unairworthy, that endorsement may be cancelled by making a further endorsement cancelling the original endorsement. This further endorsement may only be made by:

- (a) the holder of a valid appropriate maintenance authority;
- (b) the holder of a valid appropriate certificate of approval; or
- (c) the pilot-in-command, being other than a student pilot.

6.5 It is an offence under the CARs for a person to cancel an endorsement if the damage or defect compromises the continued safe operation of the balloon.
