



Australian Government
Civil Aviation Safety Authority

Civil Aviation Order 82.1 (as amended)

made under paragraph 28BA (1) (b) and subsection 98 (4A) of the *Civil Aviation Act 1988*.

This compilation was prepared on 21 May 2014 taking into account amendments up to *Civil Aviation Order 82.1 Amendment Instrument 2014 (No. 1)*.

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Contents

Section 82.1 (Conditions on Air Operators' Certificates authorising charter operations and aerial work operations)

	Page
1.....Application of conditions	1
2.....Obligations in relation to organisation and facilities	1
3.....Obligations in relation to training and checking	2
4.....Obligations in relation to flight crew requirements	2
5.....Obligations in relation to foreign registered aircraft	3
6.....Obligations in relation to operating different aircraft models.....	4
7.....Obligations in relation to AOC Holder's Safety Questionnaire.....	5
Appendix 1	6
Appendix 2	8
Appendix 3	10
Appendix 3A.....	13
Appendix 4	15
Notes to Civil Aviation Order 82.1	18

Section 82.1

Conditions on Air Operators' Certificates authorising charter operations and aerial work operations

1 Application of conditions

- 1.1 This section applies to certificates authorising charter operations and aerial work operations.
- 1.2 For the purposes of paragraph 28BA (1) (b) of the Act, each certificate authorising charter operations and aerial work operations is subject to the condition that the obligations set out in this section are complied with.
- 1.3 The condition and obligations set out in this section are in addition to the conditions set out in section 82.0.

2 Obligations in relation to organisation and facilities

- 2.1 Each operator must provide sufficient qualified personnel to operate the services proposed by the operator.

- 2.2 Each operator must establish a position of Chief Pilot and appoint a person to that position.
- 2.3 CASA may, having regard to the size of the organisation or the nature and scope of services of an operator:
 - (a) require the operator to provide additional supervisory positions; or
 - (b) approve the allocation of the duties and responsibilities associated with more than 1 position to 1 person.
- 2.4 Each operator must provide and maintain facilities and documentation sufficient to enable the operator to conduct services with safety and in compliance with Appendix 1. The scale of the facilities and documentation required of each operator may vary according to the size and scope of the operation.
- 2.5 For the purposes of subregulations 215 (3) and (6) of the *Civil Aviation Regulations 1988*, each operator must include in the operator's operations manual so much of the information set out in CASA's publication 'Guide to the preparation of Operations Manuals' that is relevant to the operator's operations and must provide copies of the manual to all operating crew members employed by the operator.

3 Obligations in relation to training and checking

- 3.1 Each operator who is required to provide a training and checking organisation under regulation 217 of the *Civil Aviation Regulations 1988*:
 - (a) must do so in accordance with Appendix 2; or
 - (b) may use the training and checking organisation provided by another operator if:
 - (i) that use is in accordance with a written agreement with that other operator; and
 - (ii) that agreement has had the prior written approval of CASA.
- 3.2 An agreement under subparagraph 3.1 (b) must not be varied without the approval of CASA.
- 3.3 Persons must not be nominated to supervisory positions within the training and checking organisation without the approval of CASA.

4 Obligations in relation to flight crew requirements

- 4.1 Each operator who holds a certificate authorising charter operations must ensure that a person does not act as pilot in command of multi-engined aeroplanes not exceeding 5 700 kg MTOW that are engaged in charter operations unless the pilot satisfies the following requirements:
 - (a) in the case of V.F.R. operations, the pilot must, unless he or she has at least 100 hours experience as pilot in command of multi-engined aeroplanes, have, in addition to endorsement time, at least 5 hours experience as pilot in command of the aircraft type;
 - (b) in the case of I.F.R. operations, the pilot must have at least 10 hours experience as pilot in command of the aircraft type which may include flight time accrued as pilot acting in command under supervision.

- 4.1.1 Each operator who holds a certificate authorising charter operations must ensure that a person does not act as pilot in command of a single engine turbine powered aeroplane approved for the purpose of carrying passengers for hire or reward while engaged in charter operations under the V.F.R. or under the I.F.R., unless the pilot satisfies the following requirements:
- (a) in the case of V.F.R. operations, the pilot must have:
 - (i) at least 5 hours experience as pilot in command of the aircraft type; or
 - (ii) at least 100 hours experience as pilot in command of either multi-engine aeroplanes or turbine powered aeroplanes;
 - (b) in the case of I.F.R. operations, the pilot must have at least 10 hours experience as pilot in command of the aircraft type which may include flight time accrued as pilot acting in command under supervision.
- 4.2 Each operator must ensure that a person does not act as pilot in command, or pilot acting in command under supervision, of a helicopter engaged in charter operations unless the pilot satisfies the aeronautical experience requirements in Appendix VI of section 40.3.0.

5 Obligations in relation to foreign registered aircraft

- 5.1 This subsection applies to foreign registered aircraft only.
- 5.2 Subject to paragraphs 5.3 and 5.5, an operator who holds a certificate authorising charter operations must ensure that a turbine engined aeroplane that:
- (a) has a maximum take-off weight of more than 15 000 kg; or
 - (b) is carrying 10 or more passengers;
- is not operated under the I.F.R. in charter operations unless it is fitted with a ground proximity warning system (GPWS) that meets the requirements of section 108.36.
- 5.3 Paragraph 5.2 does not apply to the operator if:
- (a) at any time before the aeroplane is operated under the I.F.R. in charter operations, the person who was, at that time, the holder of the certificate authorising the operation of the aeroplane has given to CASA an undertaking in an approved form that the aeroplane will, on or before 1 January 2001, be fitted with an approved GPWS that has a predictive terrain hazard warning function; and
 - (b) the operations manual provided by the holder of the certificate authorising the operation of the aeroplane sets out the details of a course of training in awareness of controlled flight into terrain; and
 - (c) the pilot in command of the aeroplane, and (if applicable) any other pilot occupying a control seat in the aeroplane, have completed the course of training.
- 5.4 Paragraphs 5.2 and 5.3 cease to have effect at the end of 31 December 2000.
- 5.5 An operator who holds a certificate authorising the operation of a turbine engined aeroplane that:
- (a) has a maximum take-off weight of more than 15 000 kg or is carrying 10 or more passengers; and
 - (b) is engaged in charter operations;
- must ensure that the aeroplane is not operated under the Instrument Flight Rules unless it is fitted with:
- (c) an approved ground proximity warning system (GPWS) that has a predictive terrain hazard warning function; or

- (d) if paragraph 5.6 applies — a GPWS that meets the requirements of section 108.36 (a section 108.36 GPWS); or
 - (e) if the aeroplane has a maximum take-off weight of 5 700 kg or less, but is carrying 10 or more passengers — a TAWS-B+ system.
- 5.6 Up to the end of June 2005, an aeroplane may be fitted with a section 108.36 GPWS:
- (a) if, immediately before 1 January 2001, paragraph 5.2 applied to the aeroplane; or
 - (b) if the aeroplane first becomes a foreign registered aircraft on or after 1 January 2001 (unless it is an aircraft in respect of which an undertaking has been given under paragraph 9.1A of section 20.18, as in force immediately before 1 January 2001); or
 - (c) if:
 - (i) immediately before 1 January 2001, paragraph 5.2 did not apply to the aeroplane because of paragraph 5.3; and
 - (ii) the holder of the AOC authorising the operation of the aeroplane (the AOC holder) provides satisfactory evidence to CASA, in accordance with paragraph 5.7, that it is not possible to fit the aeroplane with an approved GPWS that has a predictive terrain hazard warning function.
- 5.7 For the purposes of sub-subparagraph 5.6 (c) (ii), evidence is taken to be satisfactory only if it is:
- (a) a statement in writing to the AOC holder from the manufacturer of an approved GPWS that has a predictive terrain hazard warning function; or
 - (b) a statutory declaration by the AOC holder;
- to the effect that the FAA's list of supplemental type certificates does not include any reference to a supplemental type certificate relating to the fitting of an approved GPWS that has that function.
- 5.8 The operator of a foreign registered aircraft must ensure that it complies with the requirements (*Directions*) in Appendices 3 and 3A. The definitions in Appendix 3 also apply for Appendices 3A and 4.

6 Obligations in relation to operating different aircraft models

- 6.1 This subsection applies to each operator who holds a certificate authorising charter, or aerial work, operations in an aircraft identified in the certificate by:
- (a) manufacturer and type only; or
 - (b) aircraft class only.
- 6.2 The operator must ensure that:
- (a) the operations manual contains current and appropriate operating information, procedures and instructions (the *specific instructions*) for each aircraft type and model operated; and
 - (b) before a pilot operates an aircraft, the chief pilot is satisfied that the pilot:
 - (i) is competent to operate the aircraft in accordance with the specific instructions for the aircraft type and model; and
 - (ii) understands the differences in each model of the aircraft type operated by the operator; and
 - (c) the operations manual, the maintenance control manual or other airworthiness control document contains appropriate maintenance control instructions for each aircraft type and model operated.

- 6.3 A current pilot operating handbook (**POH**) or aircraft flight manual (**AFM**) for the aircraft type and model when attached to the operations manual is taken to contain the specific instructions.
- 6.4 However, if the specific instructions in the POH or AFM do not contain instructions to ensure compliance with the Australian legislative requirements for operations of the aircraft type and model, these instructions must be stated in the operations manual.

6.5 In this subsection:

appropriate means sufficiently detailed to enable the safe operation of the aircraft type and model in accordance with the Australian legislative requirements.

Australian legislative requirements means the requirements of the Civil Aviation Regulations 1988, the Civil Aviation Safety Regulations 1998 and the Civil Aviation Orders.

Note An example of an Australian legislative requirement mentioned in paragraph 6.4 is the obligation, under regulation 220 of the *Civil Aviation Regulations 1988*, to include in the operations manual specific instructions for computation of fuel quantities.

7 Obligations in relation to AOC Holder's Safety Questionnaire

- 7.1 CASA may in writing or by electronic means or by facsimile ask an AOC holder to complete an AOC Holder's Safety Questionnaire (**AHSQ**) by accurately answering all questions in the AHSQ.
- 7.2 Each AOC holder must:
- (a) comply with the request; and
 - (b) ensure that the AHSQ is completed and submitted not later than 28 days after being asked by CASA.
- 7.3 An AOC holder may before the end of the 28 day period apply in writing to CASA for an extension.
- 7.4 CASA may grant the extension subject to conditions.

Appendix 1

Paragraph 2.4

Facilities and documentation

1 Facilities

- 1.1 Each operator must provide and maintain at least the following facilities:
 - (a) an operating headquarters through which CASA may communicate with the person or persons responsible for any aspect of the operations conducted under the terms of the operator's certificate;
 - (b) buildings, at each place where operating crew are based, of adequate size and suitable for the conduct of the operator's operations.
- 1.2 Each operator who holds a certificate authorising aerial work operations and who conducts agricultural operations must ensure that the following facilities are provided:
 - (a) agricultural aircraft suitable for the proposed operations and fitted with appropriate equipment;
 - (b) suitable equipment and methods for determining the weight of the agricultural load of the aircraft.

2 Documentation

- 2.1 Each operator must provide a reference library of operational documents which is readily available to all operating crews and which includes:
 - (a) a copy of the Act, the *Civil Aviation Regulations 1988*, the *Civil Aviation Regulations 1998* and those Parts of the Civil Aviation Orders that apply to the operator's operations; and
 - (b) those parts of the Aeronautical Information Publications that are relevant to the class of operations conducted by the operator; and
 - (c) an operations manual; and
 - (d) if the carriage of dangerous goods is intended — a dangerous goods manual or an operations manual supplement.
- 2.2 Each operator who distributes operational documents to flight crews and other operating staff must maintain records of that distribution and must provide an amendment system for such documents.
- 2.3 Each operator must maintain:
 - (a) up-to-date records showing the recent experience status of each flight crew member and the currency of licences, ratings and endorsements held by each member; and
 - (b) up-to-date records showing the flight time and duty time achieved by each flight crew member during the immediately preceding 7 consecutive days, 30 consecutive days and 365 days and during each fortnight standing alone for the preceding 12 months.
- 2.4 Each operator must maintain a training file in respect of each flight crew member, recording at least:
 - (a) each ground training course completed or attempted, including the results for each phase or subject and the final assessment of the standard achieved; and

- (b) each endorsement training course completed or attempted, including the results of each phase of training, the number of times each exercise was undertaken and the results of each test or check; and
 - (c) each flight or simulator proficiency check completed or attempted, including the results of each phase of training, the number of times each exercise was undertaken and the results of each check; and
 - (d) each period of training, other than training referred to in paragraph (a), (b) or (c), undertaken in an aircraft or simulator, including the exercises completed or attempted, and an assessment of the standard achieved.
- 2.5 Each operator must provide the following documentation:
- (a) copies of expired maintenance releases and approved trip records for all aircraft covering the immediately preceding 12 months of operation, where applicable;
 - (b) for aircraft having a maximum take-off weight exceeding 5 700 kg, copies of previous loadsheets as required by section 20.16.1 for the immediately preceding 3 months of operations;
 - (c) copies of passenger lists as required by section 20.16.1 for the immediately preceding 3 months of operations;
 - (d) fuel instructions and records as required by regulation 220 for all aircraft for the immediately preceding 12 months of operations;
 - (e) in the case of aeroplanes — a catalogue of authorised landing and alighting areas where operations are frequently conducted showing, in diagrammatic form, location by co-ordinates or in reference to prominent geographic features or nearest navigation aid, direction of runways, length and width of runways, nature of surfaces, elevation above sea level, hazards in the area, and the name, and method, of contacting the owner or controlling authority;
 - (f) in the case of helicopters — a catalogue of heliports and helicopter landing sites in the area of operations showing, in diagrammatic form, location by co-ordinates or in reference to prominent geographic features or nearest navigation aid, direction of approach and departure paths, dimensions of the approach and take-off areas, ground effect area(s), nature and slope (if any) of the surfaces, elevation above sea level, hazards in the area, any restrictions or specific conditions relating to the use of the particular site and the name, and method, of contacting the owner or controlling authority.
 - (g) for a leased aircraft — details of the lease conditions to enable CASA to:
 - (i) assess the arrangements for operational control of the aircraft; and
 - (ii) assess the arrangements for the maintenance of the aircraft; and
 - (iii) ensure that the aircraft meets airworthiness requirements.

Appendix 2

Paragraph 3.1

Training and checking organisation

1 General

- 1.1 Subject to subsection 3, a training and checking organisation provided by an operator:
 - (a) must be wholly contained within the operator's organisational structure; and
 - (b) must be wholly responsible to the operator for the standard of flight operations.
- 1.2 If a flight simulator training organisation (a *trainer*) is used in accordance with subclause 3.4A by a training and checking organisation (*TCO*) provided by an operator, the trainer is taken to comply with subclause 1.1.

2 Management

- 2.1 Each operator must ensure that the Chief Pilot is responsible for the effective management of the training and checking organisation.
- 2.2 Where an operator provides training and checking on behalf of another operator, the operator must ensure that the Chief Pilot is responsible to the Chief Pilot of the other operator for the conduct of the training and checking functions.
- 2.3 Each operator must appoint sufficient personnel to ensure that all training programs, examinations and proficiency checks can be undertaken to the satisfaction of CASA.

3 Ground facilities, equipment and training aids

- 3.1 Each operator must provide facilities, equipment and training aids to meet the requirements of each training program.
- 3.2 Each operator must maintain an up-to-date library of training reference publications and other related operational documents for the use of staff and personnel under training.
- 3.3 Each operator may, subject to the approval of CASA, use flight simulators and/or synthetic trainers for training and testing purposes to the extent prescribed in each training program and provided for in section 45.0.
- 3.4 Flight simulators and synthetic trainers must be operated and maintained in accordance with the procedures mentioned in Manual of Standards (*MOS*) — Part 60 Synthetic Training Devices and the document entitled *Operational Standards and Requirements — Approved Synthetic Trainers FSD2*.
- 3.4A Each operator may use a trainer in an overseas ICAO contracting state for all or part of its flight crew competency checking (*competency checking*) only if:
 - (a) the national aviation authority of the state (the *NAA*) has approved the trainer as a flight simulator training organisation for competency checking; and
 - (b) the flight simulator used by the trainer for the competency checking (the *equipment*) has a qualification certificate issued by the NAA and recognised by CASA; and

Note Advisory Circular AC 60-2 (0) (April 2003) states that CASA currently recognises the flight simulator qualification certificates issued by Canada, Hong Kong (Special Administrative Region of China), New Zealand, the United States of America, Germany, Finland, France, Ireland, the Netherlands, Denmark, Norway, Sweden, Switzerland and the United Kingdom.

 - (c) the trainer has a system under which successful completion of the competency checking is certified on the trainer's relevant checking form by an employee of

the trainer who is also a delegate of the NAA for certifying flight crew competency of the kind checked; and

- (d) without affecting the requirements of clause 4 — the operator's training and checking manual includes, for the equipment, details acceptable to CASA of the trainer's relevant syllabus and completion standards.

3.5 Each operator must provide a facility suitably equipped for the periodic demonstrations of proficiency in emergency procedures required by section 20.11 and must make available such items of emergency equipment as may be necessary.

4 Training and checking manual

4.1 Each operator must provide a training and checking manual acceptable to CASA which may be a section of an operations manual or a separate document.

4.2 Each operator must ensure that a copy of the manual is kept in a convenient and accessible place for use by all operating crew members.

4.3 If the training and checking manual is not part of the operations manual, the operator must provide a copy to CASA.

4.4 The training and checking manual must include the following matters:

- (a) an outline of the structure of the training and checking organisation and a statement of its authority and role;
- (b) the duties and responsibilities of all training and checking personnel;
- (c) recent experience and proficiency requirements applicable to training and checking personnel and any special limitations;
- (d) course outlines, syllabuses and completion standards for each flight or simulator training program currently in use;
- (e) command responsibility requirements for the conduct of flight proficiency checks;
- (f) special procedures and limitations relating to the conduct of practice and simulated emergency and abnormal flight operations;
- (g) other general limitations and procedures to be observed for the conduct of flying training operations;
- (h) instructions and general requirements relating to the conduct of training sequences and proficiency checks in flight simulators and synthetic trainers;
- (i) administrative requirements and examples of all documents, records and certificates associated with each training program and proficiency check;
- (j) details of security arrangements for all examination material;
- (k) procedure to be followed when a satisfactory standard is not achieved.

Appendix 3

Paragraph 5.8

Directions relating to carriage and use of automatic dependent surveillance – broadcast equipment

1 In this Appendix:

ADS-B means automatic dependent surveillance – broadcast.

ADS-B test flight means a flight to prove ADS-B transmitting equipment that is newly installed on the aircraft undertaking the flight.

aircraft means a foreign aircraft.

aircraft address means a unique code of 24 binary bits assigned to an aircraft by or under the authority of an NAA for the purpose of air to ground communication, navigation and surveillance.

approved equipment configuration means an equipment configuration that:

- (a) meets the conditions for approval set out in Appendix 4; or
- (b) is approved in writing by CASA.

Note Equipment configurations approved by CASA are published in Appendix D of Advisory Circular 21-45.

ATC means air traffic control.

ATSO means Australian Technical Standard Order of CASA.

EASA means the European Aviation Safety Agency.

EASA AMC 20-24 means EASA document AMC 20-24 titled *Certification Considerations for Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) via 1090 MHz Extended Squitter*, dated 2 May 2008.

EHS DAPs means enhanced surveillance downlink of aircraft parameters.

ETSO means European Technical Standard Order of the EASA.

FAA means the Federal Aviation Administration of the United States.

FDE means Fault Detection and Exclusion, a feature of a GNSS receiver that excludes faulty satellites from position computation.

FL 290 means flight level 290.

Note Flight level 290 is defined in subregulation 2 (1) of CAR 1988.

GNSS means the Global Navigation Satellite System installed in an aircraft to continually compute the position of the aircraft by use of the GPS.

GPS means the Global Positioning System.

HPL means the Horizontal Protection Level of the GNSS position of an aircraft as an output of the GNSS receiver or system.

Mode A is a transponder function that transmits a 4-digit octal identification code for an aircraft when interrogated by an SSR, the code having been assigned to the aircraft by ATC for the relevant flight sector.

Mode A code is the 4-digit octal identification code transmitted by a Mode A transponder function.

Mode C is a transponder function that transmits a 4-digit octal code for an aircraft's pressure altitude when interrogated by an SSR.

Mode C code is the 4-digit octal identification code transmitted by a Mode C transponder function.

Mode S is a monopulse radar interrogation technique that improves the accuracy of the azimuth and range information of an aircraft, and uses a unique aircraft address to selectively call individual aircraft.

NAA has the same meaning as in regulation 1.4 of the *Civil Aviation Safety Regulations 1998*.

Note “**NAA**, for a country other than Australia, means:

- (a) the national airworthiness authority of the country; or
- (b) EASA, in relation to any function or task that EASA carries out on behalf of the country.”

NIC means Navigation Integrity Category as specified in paragraph 2.2.3.2.7.2.6 of RTCA/DO-260A.

NUCp means Navigation Uncertainty Category – Position as specified in paragraph 2.2.8.1.5 of RTCA/DO-260.

RTCA/DO-229D means document RTCA/DO-229D titled *Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment*, dated 13 December 2006, of the RTCA Inc. of Washington D.C. USA (**RTCA Inc.**).

RTCA/DO-260 means RTCA Inc. document RTCA/DO-260 titled *Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast*, dated 13 September 2000.

RTCA/DO-260A means RTCA Inc. document RTCA/DO-260A titled *Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast (ADS-B) and Traffic Information Services – Broadcast (TIS-B)*, dated 10 April 2003.

SA means Selective Availability, and is a function of the GPS that has the effect of degrading the accuracy of the computed GPS position of a GNSS-equipped aircraft.

SSR means a secondary surveillance radar system that is used by ATC to detect an aircraft equipped with a radar transponder.

TSO means Technical Standard Order of the FAA.

Note **NAA** is defined in regulation 1.4 of the *Civil Aviation Safety Regulations 1998*.

- 2 If an aircraft carries ADS-B transmitting equipment for operational use in Australian territory, the equipment must comply with an approved equipment configuration.
- 3 If an aircraft carries serviceable ADS-B transmitting equipment for operational use in Australian territory, the equipment must transmit:
 - (a) a flight identification that corresponds exactly to the aircraft identification mentioned on the flight notification filed with, or relayed to, air traffic control (**ATC**) for the flight; or
 - (b) if no flight notification is filed for the flight and the aircraft is registered by an **NAA** — a flight identification that is the aircraft’s nationality or common mark, and its registration mark, without any hyphen included; or
 - (c) another flight identification directed or approved by **ATC**.
- 4 If an aircraft carries serviceable ADS-B transmitting equipment that complies with an approved equipment configuration, the equipment must be operated continuously during the flight in all airspace at all altitudes unless the pilot is directed or approved otherwise by **ATC**.

- 5 If an aircraft carries ADS-B transmitting equipment which does not comply with an approved equipment configuration, the aircraft must not fly in Australian territory unless the equipment is:
 - (a) deactivated; or
 - (b) set to transmit only a value of zero for the NUCp or NIC.

Note It is considered equivalent to deactivation if NUCp or NIC is set to continually transmit only a value of zero.
- 6 However, the equipment need not be deactivated as mentioned in clause 5 if the aircraft is undertaking an ADS-B test flight in VMC in airspace below FL 290.
- 7 Subject to clause 8, on and after 12 December 2013, if an aircraft operates at or above FL 290, it must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration.
- 7A Subject to clause 8, on and after 2 February 2017, an aircraft that is operated under the I.F.R. must carry serviceable ADS-B equipment that complies with an approved equipment configuration.
- 8 Clauses 7 and 7A do not apply to an aircraft if:
 - (a) the aircraft owner, operator or pilot has written authorisation from CASA for the operation of the aircraft without the ADS-B transmitting equipment; or
 - (b) the equipment is unserviceable for a flight, and each of the following applies:
 - (i) the flight takes place within 3 days of the discovery of the unserviceability; and
 - (ii) at least 1 of the following applies for the flight:
 - (A) flight with unserviceable instruments or equipment has been approved by CASA, subject to such conditions as CASA specifies;
 - (B) the unserviceability is a permissible unserviceability set out in the minimum equipment list as approved by the NAA of the State of registration of the aircraft;
 - (C) CASA has approved the flight with the unserviceable equipment and any applicable conditions that CASA has specified in writing have been complied with; and
 - (iii) ATC clears the flight before it commences despite the unserviceability.

Appendix 3A

Paragraph 5.8

Standards for Mode S transponder equipment

- 1 If the aircraft carries Mode S transponder equipment (the *equipment*), the equipment must meet the standards set out in this Appendix.
- 2 The equipment must be of a type that is authorised by:
 - (a) the FAA, in accordance with TSO-C112 as in force on 5 February 1986, or a later version as in force from time to time; or
 - (b) EASA, in accordance with ETSO-C112a as in force on 24 October 2003, or a later version as in force from time to time; or
 - (c) CASA, in accordance with an instrument of approval of the type.

Note 1 CASA Advisory Circular 21-46 provides guidelines on Mode S transponder equipment.

Note 2 If Mode S transponder equipment incorporates ADS-B functionality, the standards set out in Appendix 3 for ADS-B transmitting equipment will also apply to the Mode S transponder equipment.

- 3 The aircraft address entered into the equipment must exactly correspond to the aircraft address assigned to the aircraft by the NAA of the State of registration of the aircraft.
- 4 The equipment must transmit each of the following when interrogated on the manoeuvring area of an aerodrome or in flight:
 - (a) the aircraft address;
 - (b) the Mode A code;
 - (c) the Mode C code;
 - (d) subject to clause 6, the aircraft flight identification in accordance with clause 5.
- 5 The aircraft flight identification must:
 - (a) if a flight notification is filed with ATC for the flight — correspond exactly with the aircraft identification mentioned on the flight notification; or
 - (b) if no flight notification is filed with ATC for the flight — be the aircraft's nationality and registration mark; or
 - (c) be another flight identification directed or approved for use by ATC.
- 6 Mode S transponder transmission of the aircraft flight identification is optional for any aircraft that was first registered in its State of registration before 9 February 2012 (an *older aircraft*). However, if an older aircraft is equipped to transmit, and transmits, an aircraft flight identification then that aircraft flight identification must be in accordance with clause 5.

- 7 If the equipment transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards set out in paragraph 3.1.2.10.5.2.3 and Table 3-10 of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.

Note 1 Paragraph 3.1.2.10.5.2.3 includes 3.1.2.10.5.2.3.1, 3.1.2.10.5.2.3.2 and 3.1.2.10.5.2.3.3.

Note 2 Australian Mode S SSR are EHS DAPs-capable, and operational use of EHS DAPS is to be introduced in Australia. Implementation of Mode S EHS DAPs transmissions that are not in accordance with the ICAO standards may be misleading to ATC. Operators need to ensure that correct parameters are being transmitted.

- 8 If the equipment is carried in an aircraft first registered in its State of registration on or after 9 February 2012:
 - (a) having a certificated maximum take-off weight above 5 700 kg; or
 - (b) that is capable of normal operation at a maximum cruising true air speed above 250 knots;

Civil Aviation Order 82.1

the equipment's receiving and transmitting antennae must:

- (c) be located in the upper and lower fuselage; and
- (d) operate in diversity, as specified in paragraphs 3.1.2.10.4 to 3.1.2.10.4.5 (inclusive) of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.

Note Paragraph 3.1.2.10.4.2.1 is recommendatory only.

Appendix 4

Paragraph 5.8 and definition of *approved equipment configuration*
in clause 1 of Appendix 3

Part A

Approved equipment configuration

- 1 An equipment configuration is approved if it complies with the standards specified in Part B or Part C of this Appendix.

Part B

ADS-B transmitting equipment — standard for approval

- 2 ADS-B transmitting equipment must be of a type that:
 - (a) is authorised by:
 - (i) the FAA in accordance with TSO-C166 as in force on 20 September 2004, or a later version as in force from time to time; or
 - (ii) CASA, in writing, in accordance with:
 - (A) ATSO-C1004a as in force on 16 December 2009, or a later version as in force from time to time; or
 - (B) ATSO-C1005a as in force on 16 December 2009, or a later version as in force from time to time; or
 - (b) meets the following requirements:
 - (i) the type must be accepted by CASA as meeting the specifications in RTCA/DO-260 dated 13 September 2000, or a later version as in force from time to time;
 - (ii) the type must utilise HPL at all times HPL is available; or
 - (c) is otherwise authorised, in writing, by CASA for the purposes of subsection 9B of Civil Aviation Order 20.18 as being equivalent to one of the foregoing types.

GNSS position source equipment — standard for aircraft manufactured on or after 8 December 2016

- 3 For an aircraft manufactured on or after 8 December 2016, the geographical position transmitted by the ADS-B transmitting equipment must be determined by:
 - (a) a GNSS receiver of a type that is authorised by the FAA in accordance with TSO-C145a or TSO-C146a as in force on 19 September 2002, or a later version as in force from time to time; or
 - (b) a GNSS receiver of a type that is authorised by the FAA in accordance with TSO-C196 as in force on 9 September 2009, or a later version as in force from time to time; or
 - (c) a GNSS receiver or system which meets the following requirements:
 - (i) is certified by an NAA for use in flight under the I.F.R.;
 - (ii) has included in its specification and operation the following:
 - (A) FDE, computed in accordance with the definition at paragraph 1.7.3 of RTCA/DO-229D;
 - (B) the output function HPL, computed in accordance with the definition at paragraph 1.7.2 of RTCA/DO-229D;
 - (C) functionality that, for the purpose of HPL computation, accounts for the absence of the SA of the GPS in accordance with paragraph 1.8.1.1 of RTCA/DO-229D; or

(d) another equivalent system authorised in writing by CASA.

Note The following GNSS receivers meet the requirements of clause 3, namely, those certified to TSO-C145a or TSO-C146a, or later versions, or those manufactured to comply with TSO-C196.

GNSS position source equipment — standard for aircraft manufactured before 8 December 2016

- 4 For an aircraft manufactured before 8 December 2016, the geographical position transmitted by the ADS-B transmitting equipment must be determined by:
- (a) a GNSS receiver or system that complies with the requirements of clause 3, other than sub-subparagraph 3 (c) (ii) (C) which is optional; or
 - (b) an equivalent GNSS receiver or system that has been approved in writing by CASA.

Note The following GNSS receivers meet the requirements of clause 4, namely, those certified to TSO-C145a or TSO-C146a, or later versions, or those manufactured to comply with TSO-C196. Some later versions of GNSS receivers certified to TSO-C129 may also meet the requirements, i.e. those having FDE and HPL features incorporated.

Altitude source equipment — standard

- 5 The pressure altitude transmitted by the ADS-B transmitting equipment must be determined by:
- (a) a barometric encoder of a type that is authorised by:
 - (i) the FAA in accordance with TSO-C88a as in force on 18 August 1983, or a later version as in force from time to time; or
 - (ii) EASA in accordance with ETSO-C88a as in force on 24 October 2003, or a later version as in force from time to time; or
 - (b) another equivalent system authorised in writing by CASA.

Aircraft address — standard

- 6 Unless otherwise approved in writing by CASA, the ADS-B transmitting equipment must:
- (a) transmit the current aircraft address; and
 - (b) allow the pilot to activate and deactivate transmission during flight.

Note The requirement in paragraph 6 (b) is met if the ADS-B transmitting equipment has a cockpit control that enables the pilot to turn the ADS-B transmissions on and off.

Part C

Alternative approved equipment configuration — standard for aircraft manufactured on or after 8 December 2016

- 7 For an aircraft manufactured on or after 8 December 2016, an equipment configuration is approved if:
- (a) it has been certified by EASA as meeting the standards of EASA AMC 20-24; and
 - (b) the aircraft flight manual attests to the certification; and
 - (c) the GNSS receiver or system complies with the requirements of clause 3 in Part B.

Civil Aviation Order 82.1

Alternative approved equipment configuration — standard for aircraft manufactured before 8 December 2016

- 8 For an aircraft manufactured before 8 December 2016, an equipment configuration is approved if:
 - (a) it has been certified by EASA as meeting the standards of EASA AMC 20-24; and
 - (b) the aircraft flight manual attests to the certification; and
 - (c) the GNSS receiver or system complies with the requirements of clause 4 in Part B.

Notes to Civil Aviation Order 82.1

Note 1

The Civil Aviation Order (in force under the *Civil Aviation Act 1988*) as shown in this compilation comprises Civil Aviation Order 82.1 amended as indicated in the Tables below.

Table of Orders

Year and number	Date of notification in <i>Gazette</i> / registration on FRLI	Date of commencement	Application, saving or transitional provisions
CAO 2004 No. R53	23 December 2004	23 December 2004 (see s. 2)	
CAO 2005 No. 1	FRLI 27 January 2005	28 January 2005 (see s. 1)	
CAO 2005 No. 3	FRLI 18 March 2005	19 March 2005 (see s. 1)	
CAO 82.1 2005 No. 1	FRLI 25 July 2005	26 July 2005 (see s. 2)	
CAO 82.1 2006 No. 2	FRLI 6 January 2006	7 January 2006 (see s. 2)	
CAO 82.1 2006 No. 3	FRLI 25 May 2006	26 May 2006 (see s. 2)	
CAO 82.1 2007 No. 1	FRLI 18 June 2007	19 June 2007 (see s. 2)	
CAO 82.1 2007 No. 2	FRLI 30 October 2007	31 October 2007 (see s. 2)	
CAO 82.1 2009 No. 1	FRLI 5 March 2009	6 March 2009 (see s. 2)	
CAO 82.1 2009 No. 2	FRLI 22 December 2009	23 December 2009 (see s. 2)	
CAO 82.1 2010 No. 1	FRLI 12 April 2010	13 April 2010 (see s. 2)	
CAO 82.1 2011 No. 1	FRLI 13 January 2012	14 January 2012 (see s. 2)	
CAO 82.1 2014 No. 1	FRLI 21 May 2014	22 May 2014 (see s. 2)	

Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
s. 82.1	rs. CAO 2004 No. R53
subs. 5	am. CAO 2005 No. 1; CAO 2005 No. 3; CAO 82.1 2007 No. 1; CAO 82.1 2009 No. 1; CAO 82.1 2011 No. 1
subs. 6	ad. CAO 82.1 2005 No. 1
subs. 7	ad. CAO 82.1 2007 No. 2
Appendix 1	am. CAO 82.1 2010 No. 1
Appendix 2	am. CAO 82.1 2006 No. 2; CAO 82.1 2006 No. 3

Civil Aviation Order 82.1

Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
Appendix 3	ad. CAO 82.1 2009 No. 1 am. CAO 82.1 2009 No. 2; CAO 82.1 2011 No. 1; CAO 82.1 2014 No. 1
Appendix 3A	ad. CAO 82.1 2011 No. 1
Appendix 4	ad. CAO 82.1 2009 No. 1 rs. CAO 82.1 2009 No. 2 am. CAO 82.1 2011 No. 1
