

## Explanatory Statement

### Civil Aviation Regulations 1988

#### Civil Aviation Order 100.5 Amendment Instrument (No. 1) 2018

##### Purpose

The purpose of *Civil Aviation Order 100.5 Amendment Instrument (No. 1) 2018* (the **Amendment Instrument**) is to make various amendments to *Civil Aviation Order 100.5 (General requirements in respect of maintenance of Australian aircraft) 2011 (CAO 100.5)*.

The Amendment Instrument makes amendments to CAO 100.5 that clarify the status of approved systems of maintenance and maintenance programs, and inserts a new Appendix 3 that requires maintenance releases to comply with the directions set out in that Appendix. It will also rectify unintended consequences introduced by a 2015 amendment.

##### Legislation

*Civil Aviation Act 1988* (the **Act**)

Section 98 of the Act empowers the Governor-General to make regulations for the Act and in the interests of the safety of air navigation. Relevantly, the Governor-General has made the *Civil Aviation Safety Regulations 1998 (CASR)* and *Civil Aviation Regulations 1988 (CAR)*.

Subsection 98 (5D) of the Act provides that a legislative instrument made under the Act or the regulations may apply, adopt or incorporate any matter contained in any instrument or other writing as in force or existing from time to time, even if the other instrument or writing does not yet exist when the legislative instrument is made.

##### *Maintenance regulations in CAR*

Under subregulation 2A (4) of CAR, the Civil Aviation Safety Authority (**CASA**) may approve instructions relating to how maintenance on aircraft, aircraft components or aircraft materials is to be carried out. Those instructions become part of the **approved maintenance data** for the aircraft, component or material.

Under regulation 30 of CAR, CASA can grant a certificate of approval to a person that is engaged, or intending to engage, in any stage of distribution or maintenance of aircraft, aircraft components or aircraft materials. Such a person is referred to as a CAR 30 maintenance organisation.

Part 4A (regulations 38 to 50G) of CAR concerns aircraft maintenance and prescribes rules about how class A and class B aircraft must be maintained, who may carry out maintenance, how the maintenance must be carried out, certification of maintenance, issue of maintenance releases and the keeping of aircraft log books.

Under regulation 38 of CAR, CASA may give directions relating to the maintenance of Australian aircraft for the purpose of ensuring the safety of air navigation.

Regulation 42ZC sets out who may conduct maintenance on Australian aircraft.

Subregulation 42ZC (4) provides, among other things, that the holder of a pilot licence that is valid for the aircraft may conduct maintenance that is specified in Schedule 8 of CAR.

Schedule 8 specifies a range of maintenance activities, including replacement of seat belts or harnesses, replacement of bulbs and lights, replenishment of hydraulic fluid and other matters.

Regulation 43 of CAR relates to maintenance releases in respect of Australian aircraft. Under that regulation, CASA may direct or approve the manner and form of maintenance releases, and give directions specifying the information to be entered in a maintenance release before its issue. CASA may give directions about retention and transfer of maintenance releases and the period, or maximum period, that a maintenance release of a specified kind is to be expressed to remain in force. A maintenance release may be issued in respect of an aircraft for which there is no certificate of airworthiness in force only if CASA has approved the issue of the maintenance release.

Regulation 47 of CAR states the circumstances under which a maintenance release will cease to be in force. Broadly, if a person mentioned in subregulation 47 (1) – which includes the holder of a certificate of registration (**COR**), the aircraft operator, a flight crew member or an authorised person engaged in maintenance – is aware that:

- an aircraft requires maintenance due to a defect or other maintenance requirement mentioned in the regulations; and
- that defect may affect the safety of the aircraft; and
- the aircraft is likely to be flown before that maintenance is conducted;

then that person must enter on the maintenance release an endorsement describing the issue and stating that the aircraft is unairworthy. The maintenance release will, thereafter, cease to be in force.

Should a maintenance release cease to be in force due to regulation 47 of CAR, regulation 48 sets out circumstances where that maintenance release may again commence to be in force. Among other things, regulation 48 provides that if an endorsement entered on the maintenance release is certified – also referred to as a “clearing endorsement” – in accordance with regulations 42ZE and 42ZN of CAR due to completion of the maintenance required, then the maintenance release will again commence to be in force. Depending on the maintenance required, persons who may make this certification include:

- a person who holds a pilot licence that is valid for the aircraft; or
- a holder of an aircraft engineer licence that permits the holder to perform, or certify for, the maintenance on the aircraft.

Under subregulation 50A (2) of CAR, CASA may issue written instructions relating to how aircraft log books are to be kept and requiring aircraft log books to be made available to CASA and to persons engaged in maintenance on aircraft.

Under regulation 50B of CAR, CASA may approve the use, in relation to an Australian aircraft, of an alternative to an aircraft log book or to a particular section of an aircraft log book. The approval is subject to such conditions as CASA considers necessary in the interests of the safety of air navigation.

Subregulation 50C (1) of CAR empowers CASA to give directions in relation to the retention and transfer of, and the making and keeping of copies of, aircraft maintenance records.

*Approved single engine turbine powered aeroplanes (ASETPA)*

Under paragraph 174B (2) (d) of CAR, CASA may approve single engine turbine powered aeroplanes that may be flown at night under the Visual Flight Rules (**V.F.R.**) for charter operations that involve the carrying of passengers for hire or reward.

Similarly, under paragraph 175A (1) (d) of CAR, CASA may approve ASETPA that may be flown under the Instrument Flight Rules (*I.F.R.*) for charter or regular public transport operations that involve the carrying of passengers for hire of reward.

#### *Civil Aviation Orders*

Under regulation 5 of CAR, if CASA is empowered or required under CAR or CASR to issue a direction or instruction or give an approval, CASA may issue the direction or instruction or give the approval in Civil Aviation Orders (*CAOs*).

Under various provisions of CAR, CASA made CAO 100.5 to prescribe more detailed requirements in relation to the maintenance of various aircraft and aircraft systems, including requirements that relate to aircraft log books, maintenance releases and retention of maintenance records.

Paragraph 1.1 of CAO 100.5 states that CAO 100.5 applies to all Australian aircraft in respect of which an Australian certificate of airworthiness is in force, other than aircraft to which Part 42 of CASR applies. Generally, Part 42 of CASR applies to aircraft used for regular public transport operations. Therefore, CAO 100.5 generally applies to aircraft that are not used for regular public transport operations. Under paragraph 1.2 of CAO 100.5, CASA may determine that CAO 100.5, or a specified provision of CAO 100.5, does not apply to a specified Australian aircraft.

#### *Power to repeal and amend*

Under subsection 33 (3) of the *Acts Interpretation Act 1901* (the *AI Act*), where an Act confers a power to make, grant or issue any instrument of a legislative or administrative character (including rules, regulations or by-laws), the power shall be construed as including a power exercisable in the like manner and subject to the like conditions (if any) to repeal, rescind, revoke, amend, or vary any such instrument.

### **Background**

CASA made *Civil Aviation Order 100.5 Amendment Instrument 2015 (No. 1)*, which transferred aircraft maintenance requirements from airworthiness directives (*ADs*), made under Part 39 of CASR, that were general in nature into CAO 100.5.

Subsequent feedback from industry has revealed unintended consequences in the amended CAO, which require the COR holder for an aircraft to: have the aircraft fuel quantity measuring system calibration checked every 4 years; retain all documents referenced in a maintenance certification for the aircraft, regardless of relevance; have automatic direction finding (*ADF*) and VHF omnidirectional radio range (*VOR*) systems tested annually; and have pre-departure battery capacity checks carried out on ASETPA. These requirements are not appropriate and do not reflect CASA policy.

#### *Testing of fuel quantity gauges*

For example, the additional maintenance requirements for fuel quantity gauges in clause 6 of Appendix 1 to CAO 100.5 are inappropriate for aircraft with more modern fuel quantity indication systems. Notably, defueling is required to implement those requirements, but it is not necessary to defuel many more modern aircraft to test the fuel quantity gauge systems.

In addition, transport category aircraft are often maintained according to maintenance programs developed in accordance with the Maintenance Steering Group (*MSG*) principles administered by Airlines for America, formerly the Air Transport Association of America (*ATA*). Such maintenance programs make it unnecessary to apply requirements such as those

in clause 6 of Appendix 1 to CAO 100.5. While most transport category aircraft are maintained under Part 42 of CASR, some are not, including many private and business jets. Such aircraft are class A aircraft for the purposes of CAR. CASA has assessed the MSG specifications and is satisfied that they provide for appropriate monitoring and maintenance of fuel indication systems.

Pending this amendment of CAO 100.5, CASA issued a determination granting a separate dispensation from the requirements in clause 6 of Appendix 1 so that relevant aircraft could avoid the inefficient clause 6 processes in the short term (instrument number CASA 92/17).

#### *Maintenance releases*

CASA has published Form 918 – *Maintenance Release (includes Flight and Technical Records)* – in book format. It comprises 50 separate maintenance releases, each individually perforated and detachable from the book. CASA Form 918 is available for purchase from the CASA website and is suitable for industry use. The current publication, dated May 2013, uses a unique 6-digit serial number prefixed with an “A” for each separate maintenance release in the book. Instructions for completing the maintenance releases, titled *Maintenance Release – CAR 43 Directions* (the **Instructions**), are currently contained in a single A4 page behind the covering page of the book.

The Instructions are not formally issued as an instrument and are not signed by a delegate of CASA. They were ambiguous in their application in that it was unclear whether the requirements applied to maintenance engineers, pilots or other persons involved in aircraft maintenance. CASA is updating the publication and considers that it would be appropriate, to avoid doubt, to reissue the Instructions as a new Appendix 3 to CAO 100.5. A copy of the Appendix would replace the Instructions in the next version of the publication. The 50 separate, uniquely identifiable maintenance releases would then follow the Appendix in the publication.

#### **Instrument**

In accordance with subsection 33 (3) of the AI Act, the Amendment Instrument amends CAO 100.5. This Amendment Instrument will correct the matters raised in industry feedback, accommodate several policy developments, clarify some aspects of existing policy, and update the instructions for preparing, issuing and using the CASA maintenance release.

In particular, the Amendment Instrument:

- amends requirements for retention of maintenance records, including removing the unintended requirement for a COR holder for an aircraft to retain documents referenced in an aircraft log book (items 7 to 13 of Schedule 1)
- introduces a permission for persons issuing or making entries on a maintenance release to use computerised maintenance tracking print-outs to list required maintenance. This option was requested by industry to provide an alternative to the current requirement for an authorised person to enter lengthy maintenance due lists by hand (item 17 of Schedule 1 and item 4 of Schedule 2)
- more clearly defines which parts of a composite structure aircraft are the subject of ‘composite maintenance’ (item 20 of Schedule 1)
- adds a provision for CASA to issue maintenance authorisations for maintenance of composite aircraft structures under regulation 42ZC of CAR. There is a shortage of approved maintainers for composite aircraft and this change allows CASA to issue maintenance authorisations to suitably qualified composite maintainers. The requirements are more flexible than Part 66 licence requirements (item 22 of Schedule 1)

- deletes redundant Table 1 in subsection 7A, which contains a list of specified composite structure aircraft, and makes consequential amendments. The list does not take into account the rapidly growing numbers of composite construction aircraft and leads to confusion about the status of composite aircraft that are not mentioned in the table (items 23 to 27 of Schedule 1)
- clarifies requirements for maintainers of airframe parachute systems used in general aviation recovery devices (**GARD**) (items 28 to 33 of Schedule 1)
- clarifies the status of certification maintenance requirements and airworthiness limitations that are approved as part of an aircraft or engine certification package. This is a clarification with no change to existing requirements (item 34 of Schedule 1)
- specifies that aircraft engaged in flight training under Part 141 or 142 of CASR are to be maintained as if they are aerial work aircraft. This is a continuation of existing requirements that were overlooked during the development of Parts 141 and 142 of CASR and supports subregulation 2 (7) of CAR, which specifies that these activities are not to be regarded as private operations (item 35 of Schedule 1)
- broadens the categories of people who may conduct certain database updating activities, such as updating of Global Navigation Satellite System (**GNSS**) maps, for an aircraft (item 36 of Schedule 1)
- clarifies that a COR holder must comply with the prescribed additional maintenance requirements, except to the extent that a maintenance requirement is covered by an approved system of maintenance, a manufacturer's maintenance schedule or the CASA maintenance schedule that is in use for the aircraft (items 37 and 39 of Schedule 1)
- provides for some flexibility in the specified duration between required maintenance actions by allowing a planning latitude of 10% for most of the additional maintenance requirements listed in Appendix 1 (item 38 of Schedule 1)
- specifies that advisory documents issued by CASA, such as Civil Aviation Advisory Publications, Advisory Circulars and Airworthiness Bulletins, may be treated as approved data, subject to conditions (items 40 to 42 of Schedule 1)
- removes the requirement to perform regular calibration checks on fuel quantity indication systems that have non-mechanical systems of measurement or systems with self-test functions (item 46 of Schedule 1)
- removes the requirement to perform routine testing of emergency exits (item 47 of Schedule 1)
- amends instructions for maintenance of towing release systems. This amendment improves the wording of several instructions but does not introduce any additional requirements (item 48 of Schedule 1)
- more clearly expresses requirements relating to marking of compressed gas cylinders after testing (item 50 of Schedule 1)
- deletes requirements for testing combustion type aircraft cabin heaters (item 51 of Schedule 1)
- specifies standards for replenishing aircraft oxygen systems (item 51 of Schedule 1)
- extends testing fire protection systems in toilet areas to all aeroplanes that have a toilet equipped with receptacles for paper waste and used linen (item 52 of Schedule 1)
- removes an unintended requirement to test ADF and VOR systems in aircraft not flying under the I.F.R. This restores the regulatory requirements that were in place before 2015 and is therefore not a new change (items 53 and 55 of Schedule 1)
- revises and simplifies the required accuracy standards for the testing of ADF navigation systems (item 54 of Schedule 1)
- removes certain requirements relating to maintenance of aircraft engaged in ASETPA operations that are unique to Australia (items 58 and 59 of Schedule 1)

- amends provisions to facilitate the use of the CASA maintenance release in Appendix 3 and the related requirements (items 1 to 3 of Schedule 2)
- inserts a new Appendix (Appendix 3 to CAO 100.5), which provides directions for the use of the CASA maintenance release. This provision properly codifies directions that are currently printed inside the front cover of the CASA Form 918 maintenance release book (item 4 of Schedule 2).
- introduces a provision for issue of a maintenance release for aircraft engaged in flight training under Part 141 or 142 of CASR. This provision is necessary to facilitate the new flight training regulations and does not introduce any new requirements (item 4 of Schedule 2)

The Amendment Instrument also makes editorial amendments to CAO 100.5 (items 1 to 6, 10, 11, 14 to 16, 18, 19, 21, 43, 44, 45, 49, 56 and 57 of Schedule 1).

Further detail on the clauses of the instrument is provided in Attachment 1.

### **Incorporation by reference**

The Amendment Instrument applies, adopts or incorporates matters contained in instruments or other writing that come from a variety of sources, including private organisations. In accordance with subsection 98 (5D) of the Act, the instruments and other writing are incorporated as in force or existing at a particular time or from time to time and may not yet exist when the Amendment Instrument is made.

The Amendment Instrument applies, adopts or incorporates matters contained in other legislative instruments, such as provisions of CAR, CASR and CAOs and ADs.

In accordance with paragraph 15J (2) (c) of the *Legislation Act 2003* (the **LA**), the following table contains a description of the documents incorporated by reference into the Amendment Instrument, the organisation responsible for each document and how they may be obtained.

<b>Document</b>	<b>Description</b>	<b>Source</b>
Australian Civil Aircraft Register	The register, kept by CASA, of aircraft registered in accordance with Part 47 of CASR.	Freely available at: <a href="https://www.casa.gov.au/aircraft/landing-page/civil-aircraft-register">https://www.casa.gov.au/aircraft/landing-page/civil-aircraft-register</a>
Advisory documents published by CASA, the European Aviation Safety Agency ( <b>EASA</b> ) or the national aviation authority ( <b>NAA</b> ) of a recognised country	Documents, such as Advisory Circulars and Civil Aviation Advisory Publications, published by certain NAAs.	Freely available from the CASA website at: <a href="https://www.casa.gov.au/publications-and-resources/landing-page/guidance-materials">https://www.casa.gov.au/publications-and-resources/landing-page/guidance-materials</a> or the corresponding website of EASA or the relevant NAA.

<b>Document</b>	<b>Description</b>	<b>Source</b>
AC 42-3(0)	An Advisory Circular that provides guidance on the practical application of the regulations on reliability programs and provides examples of processes suitable for organisations operating under Subpart 42.L of CASR and regulations 42L, 42M and 132 of CAR.	Freely available on the CASA website at: <a href="https://www.casa.gov.au/files/042c03pdf">https://www.casa.gov.au/files/042c03pdf</a>
Airworthiness Directives issued by the Gliding Federation of Australia ( <i>GFA</i> )	Directives issued by GFA requiring action to be taken that is necessary to correct an unsafe condition in an aircraft or aeronautical product.	Freely available from the GFA website at: <a href="https://glidingaustralia.org/member-services/airworthiness/119-airworthiness">https://glidingaustralia.org/member-services/airworthiness/119-airworthiness</a>
MIL-PRF-27210 Revision J — Oxygen, Aviator's Breathing, Liquid and Gas	Specification for oxygen intended for use in military aircraft breathing oxygen systems.	Available for purchase from the IHS Markit Standards Store website at: <a href="https://global.ihs.com/">https://global.ihs.com/</a>
MSG-2 and MSG-3	Maintenance methodology, standards and principles documented and published by Airlines for America (formerly the Air Transport Association of America) for the maintenance of transport category aircraft.	MSG-3 is available for purchase from the Airlines for America website at: <a href="http://www.airlines.org">www.airlines.org</a> . MSG-2 is available for viewing free of charge at any office of CASA.
SAE AS8010D — Aviator's Breathing Oxygen Purity Standard	This document defines the minimum degree of purity and maximum levels of certain deleterious impurities allowable for aviator's breathing oxygen at the point of manufacture or generation.	Available for purchase from the SAE International website at: <a href="https://www.sae.org/standards/content/as8010d/">https://www.sae.org/standards/content/as8010d/</a>
Approved design of the aircraft, engine or propeller	Data including drawings, specifications, information on dimensions, materials and processes, airworthiness and operating limitations of the aircraft, engine or propeller.	Available to the aircraft operator from the relevant manufacturer.
Approved system of maintenance ( <i>SOM</i> )	An SOM, including a schedule of maintenance inspections, tests and checks to be carried out on an aircraft, approved under regulation 42M of CAR.	Prepared by the relevant registration holder of an aircraft and given to CASA or an authorised person.
Instructions of the manufacturer of the GNSS navigation equipment	Instructions on updating the navigation system database of GNSS navigation equipment.	Available to the aircraft operator from the relevant equipment manufacturer.

<b>Document</b>	<b>Description</b>	<b>Source</b>
Manufacturer's data	Data, including specifications and instructions, that specify how maintenance is to be carried out, issued by the relevant aircraft, aircraft component or material manufacturer.	Available to the COR holder for the aircraft from the relevant manufacturer.
Manufacturer's data and instructions (in relation to towing release systems)	Data and instructions relating to the maintenance of a towing release system issued by the manufacturer of the system.	Available to the COR holder for the aircraft from the relevant manufacturer.
Manufacturer's maintenance program	A program of maintenance for the continuing airworthiness of the type of aircraft.	Available to the COR holder for the aircraft from the relevant manufacturer.
Manufacturer's maintenance schedule	A schedule issued by the manufacturer of an aircraft that sets out what maintenance should be carried out on the aircraft and when it should be carried out.	Available to the COR holder for the aircraft from the relevant manufacturer.
Operator's maintenance control manual	A manual, prepared by the operator of an aircraft in accordance with regulation 42ZY of CAR, that includes details of arrangements for the control of maintenance of the aircraft.	Prepared by the relevant aircraft operator and available for inspection by CASA.
Operator's operations manual	A manual or set of documents for the use and guidance of the operations personnel of an aircraft operator.	Prepared by the relevant operator and a copy given to CASA.
Reliability program	A program for an aircraft to ensure the effectiveness of the approved maintenance program for the aircraft in ensuring the continuing airworthiness of the aircraft.	Prepared by the person responsible for continuing airworthiness of an aircraft and a copy given to CASA.

AC 42-3(0) is incorporated as at 18 June 2018. Otherwise, in accordance with subsection 98 (5D) of the Act, all of the above documents are incorporated as in force or existing from time to time. This ensures that maintenance is conducted in accordance with current regulatory requirements and using current data.

Many of the documents that are held by a manufacturer or operator of an aircraft are available to COR holders, aircraft operators and pilots who are affected by the instrument, but may not otherwise be publicly available. Other documents that are not freely available, such as SAE AS8010D and MSG-3, are publicly available but subject to copyright. CASA has incorporated the documents in the instrument because aviation safety requires the use of the information and data in the documents by COR holders, aircraft operators and pilots and because there are no freely available documents serving the relevant purpose.

The cost of obtaining a copy of a document is a matter for the COR holder or operator of the aircraft. CASA has no effective control over those costs. However, where practicable, by prior arrangement with CASA, copies of those documents can be made available for viewing free of charge at any office of CASA. Given the large number of documents that fall within



the classes of documents listed in the table, it is not practicable for many of these documents to be held and made available by CASA. CASA considers it extremely unlikely that the owners of the documents would sell CASA the copyright, so that CASA could make the documents freely available, at a price that would be an effective and efficient use of CASA funds.

The MSG specifications are proprietary to Airlines for America and underpin the foreign manufacturers' maintenance programs that are not regulated by CASA. It is not practicable for these specifications to be freely available and the referenced manufacturer standards are the most appropriate to be applied in relation to the subject matter of the instrument. However, a registered operator is not required to access the MSG specifications and only needs to understand that the manufacturer's maintenance program was developed using the specifications. This information will be clear on the face of the manufacturer's maintenance program that is provided to registered operators of the aircraft.

### ***Legislation Act 2003***

Paragraph 10 (1) (d) of the LA provides that an instrument will be a legislative instrument if it includes a provision that amends or repeals another legislative instrument. The Amendment Instrument amends CAO 100.5, which is a legislative instrument.

The Amendment Instrument is, therefore, a legislative instrument, and is subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LA.

### **Consultation**

The individual changes to CAO 100.5 in the Amendment Instrument were developed in consultation with the relevant stakeholders who raised concerns about specific matters. Drafts of relevant sections were sent to maintenance controllers, the Gliding Federation of Australia and the Parachute Federation of Australia.

The remaking of the Instructions as a new Appendix to CAO 100.5 does not substantially alter existing arrangements for persons who are required to complete a maintenance release. Rather, the Amendment Instrument clarifies that the direction is issued by CASA under regulation 43 of CAR. Some minor or machinery changes have been made to clarify requirements, a new provision has been inserted to allow for supplementary pages to be attached, and references and notes have been updated where necessary. Available methods for completing the maintenance release have also been expanded. These changes have been requested by industry.

A consultation draft of the Amendment Instrument was published on CASA's website for public comment from 1 September 2017 to 29 September 2017. Six responses were received, and no changes were required as a result of those responses.

In these circumstances, it is CASA's view that no further consultation under section 17 of the LA is necessary or appropriate.

### **Office of Best Practice Regulation (OBPR)**

A Regulation Impact Statement (*RIS*) is not required in this case as the measures in the Amendment Instrument are covered by OBPR's assessment that a RIS is not required (OBPR id: 11547).

In addition, the instrument is covered by a standing agreement between CASA and OBPR under which a RIS is not required for directions and approvals (OBPR id: 14507).

The new Appendix 3 to CAO 100.5 contained in the Amendment Instrument does not substantially alter existing arrangements (CASA Form 918) governing how a maintenance release must be issued, and the changes made are minor or machinery in nature and generally relieve regulatory burden relating to the maintenance of aircraft.

### **Statement of Compatibility with Human Rights**

The Statement of Compatibility with Human Rights at Attachment 2 has been prepared in accordance with Part 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*. The instrument does not engage any of the applicable rights or freedoms, and is compatible with human rights, as it does not raise any human rights issues.

### **Making and commencement**

The instrument has been made by the Director of Aviation Safety, on behalf of CASA, in accordance with subsection 73 (2) of the Act.

The instrument commences on the day after registration and will be automatically repealed in accordance with section 48A of the LA.

# Civil Aviation Order 100.5 Amendment Instrument (No. 1) 2018

## Notes on clauses

### 1 – Name

Section 1 provides that the name of the instrument is the *Civil Aviation Order 100.5 Amendment Instrument (No. 1) 2018*.

### 2 – Commencement

Section 2 provides that the Amendment Instrument commences on the day after it is registered on the Federal Register of Legislation.

### 3 – Amendment of Civil Aviation Order 100.5

Section 3 provides that Schedules 1 and 2 of the Amendment Instrument amend *Civil Aviation Order 100.5 (General requirements in respect of maintenance of Australian aircraft) 2011 (CAO 100.5)*. The current compilation of CAO 100.5 has Federal Register of Legislation reference number F2016C00070.

### Schedule 1 – Amendments — general

Schedule 1 of the Amendment Instrument contains 59 items that repeal, substitute or amend various provisions in CAO 100.5.

Item 1 substitutes a revised subsection 1A of CAO 100.5, relating to the name of CAO 100.5 and how it may be cited. It also omits subsection 1B of CAO 100.5 which provided for the commencement of CAO 100.5 and is no longer required.

Item 2 replaces a reference to ‘the *Civil Aviation Safety Regulations 1998*’ with a reference to ‘CASR’. This utilises the definition of ‘CASR’ in the Dictionary at the end of CASR (the *CASR Dictionary*) that applies to CAO 100.5 in accordance with paragraph 13 (1) (b) of the LA.

Item 3 substitutes a revised subsection 2 of CAO 100.5, which contains definitions of certain terms and phrases to support the operation of CAO 100.5. Compared to the previous version of subsection 2, the new subsection 2:

- omits definitions of *approved maintenance program*, *CAR 1988*, *CASR 1998*, *civil aviation legislation, covered by a maintenance program*, *SOM*, *time-in-service* (in relation to an aircraft) and *Regulations*; and
- inserts new definitions of *approved design*, *approved SOM*, *CAR 30 maintenance organisation*, *certificate of approval*, *MSG*, *NAA*, *recognised country* and *work documentation package*; and
- simplifies the definitions of *STC*, *TAC* and *TC*, utilising definitions in the CASR Dictionary.

The term *civil aviation legislation* is adequately defined in the Act. The term *time-in-service*, in relation to an aircraft, is adequately defined in the CASR Dictionary. Those definitions apply to CAO 100.5 in accordance with paragraph 13 (1) (b) of the LA.

Items 4 to 6 make editorial amendments utilising the definitions of **CAR** and **CASR** in the CASR Dictionary that apply to CAO 100.5 in accordance with paragraph 13 (1) (b) of the LA. Item 4 amends specified provisions to replace references to ‘CAR 1988’ with references to ‘CAR’. Item 5 amends specified provisions to replace references to ‘CASR 1998’ with references to ‘CASR’. Item 6 amends specified provisions to replace references to ‘the Regulations’, which was previously defined in subsection 2 of CAO 100.5 to mean ‘the *Civil Aviation Regulations 1988*’, with references to ‘CAR’.

Item 7 is a consequential amendment to items 8 to 12. It amends paragraph 3.3 of CAO 100.5 to remove the requirement for documents referred to in an aircraft log book to be made available to CASA and to persons engaged in maintenance on the aircraft.

Items 8 to 12 amend subsection 5, relating to retention of maintenance records. They remove the unintended requirement for a COR holder for an aircraft to retain all documents referred to in an aircraft log book. A maintainer may refer to documents in a log book for reasons of clarity or convenience, but only those documents specifically prescribed in subsection 5 are required to be retained by a COR holder. Items 8 and 12 also clarify that the responsibilities relating to retention of records lie with the COR holder for the aircraft.

Item 13 inserts a new subsection 5A (Work documentation packages created by a CAR 30 maintenance organisation for maintenance of aircraft), which specifies that if a CAR 30 maintenance organisation generates a set of work documents for the purpose of recording stages of maintenance carried out on an aircraft, then the work package must be retained by the organisation for a period of 2 years after the date of final certification being made for the maintenance. This requirement closes a gap in maintenance recording procedures and aligns with accepted practice.

Items 14 and 15 each change a reference to a ‘certificate of approval holder’ to a reference to a ‘CAR 30 maintenance organisation’. This reflects the new definition of ‘CAR 30 maintenance organisation’ inserted by item 3.

Item 16 amends a reference to ‘Orders’ to a reference to ‘the CAOs’, reflecting the definition of ‘CAO’ in subsection 2 of CAO 100.5.

Item 17 amends subsection 6 (Maintenance releases for class A aircraft) of CAO 100.5 to permit the use of computerised maintenance tracking print-outs to list required maintenance on a maintenance release. This option was requested by industry to provide an alternative to the current requirement for an authorised person to enter lengthy maintenance due lists by hand. It is a condition of this permission that an operator’s maintenance control manual must include a procedure for ensuring that the required information is kept up to date.

Items 18 to 27 amend subsection 7A of CAO 100.5 relating to structural maintenance of composite structure aircraft.

Item 18 amends the heading of subsection 7A to better reflect its subject.

Item 19 omits definitions of **CAR 30 maintenance organisation**, **CAR 1988** and **CASR 1998**. A definition of **CAR 30 maintenance organisation** is now in paragraph 2.1 of CAO 100.5. The definitions of **CAR 1988** and **CASR 1998** are redundant as definitions of **CAR** and **CASR** in the CASR Dictionary apply to CAO 100.5 in accordance with paragraph 13 (1) (b) of the LA.

Item 20 substitutes a revised definition of **composite maintenance** to mean maintenance of the primary structure, seat support structures, wings, empennage or flight control surfaces of a composite structure aircraft. Under paragraph 7A.3, if such maintenance is carried out by a CAR 30 maintenance organisation, it must be certified by a specially qualified person.

Item 21 is an editorial amendment relating to a reference to CAO 100.91.

Item 22 amends the definition of **specially qualified person**. The amendment adds a provision for CASA to issue maintenance authorisations under regulation 42ZC of CAR to carry out composite maintenance. There is a shortage of approved maintainers for composite aircraft and this change allows CASA to issue maintenance authorisations to suitably qualified composite maintainers. The requirements are more flexible than Part 66 licence requirements. The definition also no longer includes references to persons affected by obsolete transitional provisions in CASR.

Item 23 omits the definition of **specified aircraft**. That definition is no longer required because of the omission of Table 1 of subsection 7A by item 27 and the amendments made by items 24 to 26.

Items 24, 25 and 26 substitute references to “specified aircraft” with references to “composite structure aircraft”. The provisions of subsection 7A are intended to apply to all composite structure aircraft, and not just those that were listed in Table 1 of that subsection.

Item 27 deletes redundant Table 1 – Specified composite structure aircraft, which contained a list of specified composite structure aircraft, such as the Grob 115 and Diamond DA 40. The list does not take into account the rapidly growing numbers of composite construction aircraft and leads to confusion about the status of composite aircraft that are not mentioned in the table.

Items 28 to 33 amend subsection 8A, relating to maintenance of general aviation recovery device, or GARD, equipment.

Item 28 substitutes a new heading for subsection 8A to reflect that it relates to the maintenance of GARD equipment, rather than airframe parachute systems.

Item 29 inserts a new definition of **airframe parachute** to mean a parachute that is a component of GARD equipment.

Item 30 amends the definition of **approved course of training** so that such a course is not required to be designed to convey detailed knowledge of an airframe parachute.

Item 31 omits the definition of **CAR 30 maintenance organisation** in paragraph 8A.1. A definition of **CAR 30 maintenance organisation** is now in paragraph 2.1 of CAO 100.5.

Item 32 substitutes the definition of **general aviation recovery device (GARD equipment)** so that it now defines GARD equipment as a recovery system, rather than an aircraft parachute system, with specified characteristics.

Item 33 replaces paragraph 8A.3 with paragraphs 8A.3 to 8A.5. They specify requirements for maintenance of GARD equipment that is carried out under the control of a maintenance organisation approved under regulation 30 of CAR. Maintenance of GARD equipment, other than the airframe parachute, may only be performed by a specially qualified licensed aircraft

maintenance engineer. Only a person qualified as a parachute Packer B or Rigger granted by the Australian Parachute Federation (*APF*), or holding a document evidencing successful completion of an equivalent course of training approved by CASA, may perform maintenance on the airframe parachute portion of the GARD equipment. This amendment ensures that persons maintaining survival equipment and the associated rocket projectile have been properly trained in all aspects of the maintenance.

Under paragraph 8A.4, the maintenance that can be carried out by a person under a Packer B qualification granted by the APF is limited to inspecting and packing parachutes.

Paragraph 8A.5 requires certification of the completion of maintenance of an airframe parachute by a person mentioned in paragraph 8A.3 signing the maintenance organisation's relevant maintenance record.

Item 34 clarifies a regulatory reference in paragraph 9.1 of CAO 100.5 with no change to existing maintenance requirements. The obligation under that provision is now on the holder of the certificate of registration, rather than the registered operator, of the aircraft.

Item 35 inserts a new paragraph 9.3 which directs that an aircraft operated for flight training under Part 141 or 142 of CASR (but not charter operations) must be maintained as if it is operated for aerial work operations. The intent of this provision is to clarify that the minimum maintenance standard for flight training aircraft is that which applies to aerial work aircraft. If an aircraft is also being operated for charter purposes, the charter maintenance requirements satisfy this requirement.

Item 36 amends paragraph 9A.1 to allow the pilot or operating crew of an aircraft to update a GNSS map database if the updating does not require dismantling of any part of the GNSS equipment. The amendment also permits the operator to authorise persons other than a flight crew member to perform the update.

Item 37 amends subsection 11 of CAO 100.5, relating to additional maintenance requirements. It clarifies that a COR holder must comply with the additional maintenance requirements set out in Appendix 1 to CAO 100.5, except that if a maintenance requirement in Appendix 1 is covered by an approved system of maintenance, a manufacturers maintenance schedule or the CASA maintenance schedule that is in use for the aircraft, then the system of maintenance or maintenance schedule requirement will prevail. The maintenance set out in clause 17 of Appendix 1 (relating to fire protection in toilet areas) and any other maintenance action set out in Appendix 1 that is not addressed by the approved system of maintenance or the relevant maintenance schedule, must be carried out by a person permitted under regulation 42ZC of CAR.

Item 38 omits expired transitional requirements for additional maintenance that were in subsection 12 of CAO 100.5. It inserts a new subsection 12 entitled 'Compliance time extensions for additional maintenance'. The new subsection allows for up to 10% flexibility in time intervals specified in 12 clauses in Appendix 1. The planning latitude does not apply to emergency exits, life jackets, life rafts, inflatable flotation devices, rescue hoists, compressed gas cylinders, oxygen systems, fire protection in toilet areas or glideslope systems used in I.F.R. aircraft. The planning latitude reflects the less safety critical nature of the maintenance requirements and aligns with policies of international aviation authorities. The time interval may be extended only once for each additional maintenance requirement, and the subsequent time interval for the maintenance requirement must be reduced accordingly.

Item 39 omits subsection 13 – Approved SOM or maintenance schedules. The relevant text from this subsection has been incorporated into subsection 11 by item 37 of Schedule 1.

Item 40 amends subsection 14 – Approval of certain maintenance data. It adds advisory documents published by CASA to the list of approved data.

Items 41 to 43 make machinery changes to clarify matters mentioned in subsection 14 of CAO 100.5, which relates to approval of certain maintenance data for subregulation 2A (4) of CAR.

The definition of *recognised country* that was in paragraph 14.3 is omitted by item 43. A revised definition of that term is inserted in subsection 2 by item 3 of Schedule 1.

Appendix 1 to CAO 100.5 sets out the additional maintenance requirements referred to in subsection 11 of CAO 100.5.

Item 44 omits the note under the heading to Appendix 1. That note is no longer required because of the omission, by item 38 of Schedule 1, of the spent transitional provisions that were in subsection 12 of CAO 100.5.

Item 45 amends paragraph 4.2 (b) of Appendix 1 to use the new definitions of *NAA* and *recognised country* inserted in subsection 2 by item 3 of Schedule 1.

Item 46 amends clause 6 of Appendix 1, relating to fuel quantity gauges. It excludes aircraft from the requirement to have fuel quantity systems tested for accuracy every 4 years if the aircraft does not rely on float type measuring equipment, has float type measuring equipment that includes a self test function, or is maintained in accordance with a maintenance program that is based on MSG-2 or MSG-3 principles.

Non-float measuring equipment, which has no or very few moving parts, has an established record of reliability, and regular testing is not considered necessary or desirable due to the high cost of carrying out the testing, which requires an aircraft to be raised on jacks, levelled and drained of all but unusable fuel. Float systems that have built-in self test functionality that can determine whether the system is performing within specifications are also excluded from the requirements for similar reasons of cost and necessity.

New subclause 6.1A disapplies the requirements in clause 6 from aircraft that are maintained in accordance with a maintenance program that adheres to MSG-2 or MSG-3 principles. The provision operates by reference to the fact of whether the maintenance program (incorporated into the aircraft approved system of maintenance) was developed in accordance with MSG principles. The provision applies in relation to the MSG principles that existed at the time the maintenance program was approved.

MSG-2 and MSG-3 are specifications presently published by Airlines for America. MSG publishes documents that set out specifications used by aircraft manufacturers during the initial design and ongoing monitoring of maintenance programs for new transport category aircraft. The documents have no direct relevance to an aircraft operator other than as background information about the maintenance system for their aircraft. For new subclause 6.1A, an aircraft operator will need to know that the maintenance program for their aircraft was developed using the MSG specifications. That information accompanies the aircraft certification documents provided with every aircraft.

This change aligns the requirements with internationally accepted standards and established CASA policy of giving due consideration to manufacturers' published data where applicable, and approved systems of maintenance that make provision for fuel system calibration.

Item 47 omits subclause 10.5 of Appendix 1. It therefore removes the requirement to perform testing of emergency exits at specified intervals. CASA policy intent is that manufacturers' instructions should be observed, particularly in cases which require the maintainer to replace seals around the exit after carrying out the test.

Item 48 is a rewrite of the requirements for testing and overhauling towing release systems in clause 12 of Appendix 1. Revised subclause 12.1 excludes towing release systems that are covered by a manufacturers maintenance program from the requirements of clause 12. It clarifies who may carry out the maintenance and does not introduce any new maintenance requirements.

Item 49 corrects a typographical error in subclause 14.8 of Appendix 1.

Item 50 is a machinery change to subclause 15.3 of Appendix 1, which relates to compressed gas cylinders. It more clearly expresses requirements relating to marking of cylinders after testing.

Item 51 omits requirements for testing combustion type aircraft cabin heaters, previously contained in clause 16 of Appendix 1. Original equipment manufacturer instructions and state of design ADs now fully cover testing and maintenance of cabin heaters with the result that the CAO requirements are redundant.

Item 51 also inserts a new clause 16, which specifies standards for replenishing and maintaining aircraft oxygen systems for the use of operating crew and passengers.

Item 52 substitutes a revised subclause 17.1 of Appendix 1, which relates to the application of the requirements for testing fire protection systems in toilet areas. This amendment is a clarification with no change to existing requirements.

Item 53 amends subclause 18.1 of Appendix 1 to remove an unintended requirement to test ADF systems in aircraft not flying under the I.F.R. This restores the regulatory requirements that were in place before 2015 and is therefore not a new change.

Item 54 substitutes a revised paragraph 18.3 (b) of Appendix 1. It simplifies the required accuracy standards for the testing of ADF navigation systems.

Item 55 amends subclause 19.1 of Appendix 1 to remove an unintended requirement to test VOR systems in aircraft not flying under the I.F.R. This restores the regulatory requirements that were in place before 2015 and is therefore not a new change.

Appendix 2 to CAO 100.5 contains requirements relating to ASETPA.

Items 56 and 57 correct cross-references in Appendix 2 to CAO 100.5 to other provisions in CAO 100.5.



Items 58 and 59 amend Part 2 of Appendix 2 to CAO 100.5, which sets out requirements for the approval of operators to conduct ASETPA operations under the I.F.R or at night under the V.F.R. They remove requirements relating to training of maintenance personnel and maintenance of aircraft engaged in ASETPA operations. These amendments remove requirements that are unique to Australia and aligns Australian requirements with International Civil Aviation Organization standards and recommended practices.

### **Schedule 2 – Amendments — Maintenance releases**

Schedule 2 of the Amendment Instrument makes various amendments to CAO 100.5 relating to the requirements for maintenance releases for a class B aircraft. It inserts an approved form of maintenance release in Attachment 1 to new Appendix 3 of CAO 100.5.

Item 1 of Schedule 2 amends paragraph 7.1 of CAO 100.5 to provide that, for the purposes of regulation 43 of CAR, a maintenance release in the form set out in Attachment 1 to Appendix 3 is approved, instead of CASA Maintenance Release Form 918. Each maintenance release is a 3-part form with a unique serial number. CASA publishes maintenance releases in book format.

Item 2 of Schedule 2 omits paragraphs 7.4 to 7.7 of CAO 100.5 which contain requirements relating to the completion and issue of maintenance releases for class B aircraft. These provisions are not required because requirements on this subject are contained in new Appendix 3 of CAO 100.5, which is inserted by item 4 of Schedule 2.

Item 3 of Schedule 2 inserts new subsection 7AA of CAO 100.5. For subsections 6 and 7 of CAO 100.5, new paragraph 7AA.1 requires a maintenance release completed in the form set out in Attachment 1 to Appendix 3 to comply with the requirements in Appendix 3.

New paragraph 7AA.2 relates to the CAA or CASA Maintenance Release Form DA741 if acquired or printed in bulk before 22 December 2015. That form is an approved alternative form to, and substantively identical to, the maintenance release in Attachment 1 to Appendix 3. Paragraph 7AA.2 requires a Form DA741 to be completed in accordance with the requirements in Appendix 3 as if it was a form set out in Attachment 1 to Appendix 3.

Item 4 of Schedule 2 inserts a new Appendix (Appendix 3 to CAO 100.5), which contains directions for the use of the CASA maintenance release, and directs persons mentioned in the Appendix to comply with the directions. The Appendix applies to an Australian aircraft mentioned in paragraph 43 (6) (a) of CAR, being an aircraft for which there is a certificate of airworthiness in force.

No new requirements have been introduced by Appendix 3, which is based on former paragraphs 7.4 to 7.7 of CAO 100.5 and the Instructions that are currently printed on the inside front cover of the CASA Form 918 Maintenance Release book. Appendix 3 codifies those Instructions.

New Appendix 3 clarifies how each part of a maintenance release must be completed and directs the relevant persons responsible for completing each part to enter specified details in the relevant columns in the maintenance release. The policy concerning the completion of a maintenance release by various parties who interact with an aircraft, in accordance with the requirements of CAR, has not been changed.

The Appendix also permits persons entering maintenance requirements in Part 1 of the maintenance release to use computer print-outs and provides for the use of supplementary pages when extra space is required for making entries on the maintenance release. This amendment is made in response to requests from operators and maintainers, and removes the need to either obtain CASA approval for such extensions on an individual basis or have a new maintenance release issued.

Clause 1 of Appendix 3 describes the 5 categories of persons to which Appendix 3 applies, being:

- persons authorised to issue maintenance releases in accordance with regulation 43 of CAR; and
- persons entering endorsements in accordance with regulation 47 of CAR; and
- persons making certifications (mentioned as clearing endorsements in Part 2 of a maintenance release) in accordance with regulation 48 of CAR; and
- a person making a daily inspection certification or a pilot making the last flight of the day; and
- any other person who is responsible for completing Part 1 of the maintenance release.

Clause 2 of Appendix 3 provides, for the purposes of Appendix 3, that **MR** means the maintenance release form at Attachment 1 to the Appendix. It is identifiable by a unique 6-digit serial number prefixed by a capitalised letter, for example, A123456. Each form is comprised of Parts 1, 2 and 3, and includes any supplementary pages attached in accordance with clause 8 of the Appendix.

Under clause 3 of Appendix 3, each of the persons mentioned in clause 1 is directed to comply with the relevant clause or clauses in Part 2 of Appendix 3 in respect of completing, signing or issuing the maintenance release.

Part 2 of the Appendix contains 5 clauses dealing with the requirements for issuing a maintenance release and how each of the 3 parts of the maintenance release must be completed.

Clause 4 of the Appendix directs how a maintenance release may be issued. It requires a person, who is authorised to issue maintenance releases in accordance with regulation 43 of CAR, to ensure that, after completion of the nominated maintenance release inspection, all data related to aircraft component changes have been transferred to the aircraft log book and any CASA Form 956 or CASA Form 946, in respect of changed aircraft components, has also been transferred to the aircraft log book. Additionally, before signing and issuing the maintenance release, that person must ensure that each of the details mentioned in paragraph 4.1 (b) of the Appendix are entered in Part 1 of the maintenance release, such as the date and total time-in-service, and any requirements and conditions in the relevant columns.

Subparagraph 4.1 (b) (viii) of the Appendix is a new requirement that applies to certain aeroplanes. It requires specified words to be entered in Part 1 of the maintenance release if it is intended that the aeroplane engage in an aerial application operation at night and the aeroplane is not equipped and certificated under Part 21 of CASR for night V.F.R. flight.

Clauses 5, 6 and 7 of the Appendix direct how each of Parts 1, 2 and 3 of the maintenance release must be respectively completed. A note has been inserted after clause 5 to clarify that, for subparagraph 5 (a) (i), a computer printout of required maintenance may be attached to Part 1 of the maintenance release.

Clause 8 of the Appendix is a change to the former Instructions and allows a person to record further details using 1 or more supplementary pages that are securely attached to the maintenance release, provided that each supplementary page is identified with the unique serial number mentioned in Part 1 of the maintenance release.

Attachment 1 to Appendix 3 contains the approved maintenance release form, divided into Parts 1, 2 and 3. Each Part of the form contains notes on where to find the provisions on Appendix 3 that are relevant to the Part.

## Statement of Compatibility with Human Rights

*Prepared in accordance with Part 3 of the  
Human Rights (Parliamentary Scrutiny) Act 2011*

### Civil Aviation Order 100.5 Amendment Instrument (No. 1) 2018

This legislative instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

#### Overview of the legislative instrument

The purpose of this legislative instrument is to make various amendments to the *Civil Aviation Order 100.5 (General requirements in respect of maintenance of Australian aircraft) 2011 (CAO 100.5)*, which was made under various provisions of the *Civil Aviation Regulations 1988 (CAR)* relating to maintenance of aircraft.

The amendments will clarify the status of approved systems of maintenance and maintenance programs. The instrument gives aircraft owners and operators relief from maintenance requirements that have been identified as onerous or incorrectly applied to some aircraft. It also incorporates existing instructions from other sources and only introduces one new requirement relating to retention of maintenance records, which does not impose additional costs to affected aircraft maintenance providers. The instrument will rectify unintended consequences introduced by a 2015 amendment.

This legislative instrument also inserts a new Appendix 3 into CAO 100.5. The Appendix formalises requirements for persons, who are required to issue and complete maintenance releases in accordance with CAR. These directions concern how details on maintenance releases must be entered and how the maintenance release must be maintained.

#### Human rights implications

This legislative instrument does not engage any of the applicable rights or freedoms.

#### Conclusion

This legislative instrument is compatible with human rights as it does not raise any human rights issues.

**Civil Aviation Safety Authority**