Explanatory Statement

Civil Aviation Act 1988

Civil Aviation Order 100.5 Amendment Instrument 2013 (No. 1)

**Purpose**

The purpose of *Civil Aviation Order 100.5 Amendment Instrument 2013 (No. 1)* (the *CAO amendment*) is to consolidate in a single Civil Aviation Order (*CAO*) (for aircraft other than those involved in regular public transport operations), uniform maintenance requirements for barometric altimeters, and modified versions of existing testing requirements for these and other similar instruments, including pitot-static systems, air data computers, airspeed indicators, and fuel quantity gauges.

The revised standards for altimeters are needed to eliminate the unacceptable risks associated with the previous airworthiness directives (*ADs*) which offered 2 alternative standards. These could result in different aircraft flying in the same airspace but operating with equipment maintained to different maintenance standards and potentially broadcasting inaccurate altitude data with risks to the capacity of air traffic control to ensure appropriate aircraft separation.

The revised standards for pitot-static systems, air data computers, airspeed indicators, and fuel quantity gauges are modified forms of the previous standards that were located in CAO 108.56 but which are now consolidated with the altimeter maintenance standards in CAO 100.5. CAO 108.56 is consequentially repealed.

The standards are in the form of instrumentation testing requirements, the test procedures to be followed, the standards that the relevant instrumentation is to meet, the intervals to be observed between tests and the associated occasions for some tests.

An additional amendment is included to take account of the application of Part 42 of the *Civil Aviation Safety Regulations 1998* (***CASR 1998***) to the maintenance of aircraft involved in regular public transport (***RPT***) operations, with the result that CAO 100.5 (including the amendments in the CAO amendment) will not apply to such aircraft.

**Legislation**

Section 98 of the *Civil Aviation Act 1988* (the ***Act***) empowers the Governor-General to make regulations for the Act and the safety of air navigation.

Under subregulation 38 (1) of the *Civil Aviation Regulations 1988* (***CAR 1988***), CASA may issue directions relating to the maintenance of Australian aircraft.

Under regulation 5 of CAR 1988, CASA may, among other things, issue a direction in Civil Aviation Orders (the ***CAOs***).

CAO 100.5 contains general directions relating to the maintenance of Australian aircraft in respect of which an Australian certificate of airworthiness is in force.

CAO 108.56 contained general directions setting out test procedures and accuracy requirements for airspeed indicators, pressure-type altimeters, pitot-static systems and fuel quantity gauges.

**Background**

Aircraft pilots use barometric altimeters as the primary means of monitoring and measuring their desired altitude. Barometric altimeters measure ambient air pressure (static pressure) and display units of height. These instruments, whether aneroid based or solid state, must be checked on a regular basis to ensure that what is displayed to the pilot is accurate. Such accuracy is particularly critical during approach and departures where there are terrain obstacles in close proximity.

CASA considered that previous checking requirements, contained in several ADs (to be cancelled in a separate procedure), were unsatisfactory because instead of a uniform altimeter maintenance standard, including simultaneous maintenance of other related instruments or instrument systems, they offered alternative standards under which related instruments or instrument systems might not be simultaneously maintained, resulting in a potential degrading of overall instrumentation accuracy.

The previous requirements could also give rise to conflicting maintenance standards for aircraft operating under the Visual Flight Rules (***V.F.R.***) or the Instrument Flight Rules (***I.F.R.***) but in the same airspace, creating a worst-case potential for loss of separation between aircraft. Accuracy of aircraft altitude information, whether V.F.R. or I.F.R., broadcast for Air Traffic Control (***ATC***) purposes via a Mode C transponder, has become all the more critical with the introduction of Wide Area Multilateration (***WAM***) ATC systems in the Sydney area (SYDWAM) as well as Tasmania (TASWAM).

**CAO amendment**

The CAO amendment resolves these issues by adding a new subsection 11 to CAO 100.5, directing that, subject to subsection 12 (for transitional arrangements — see below), the registered operator of an Australian aircraft must comply with, and ensure compliance with, each additional maintenance requirement set out in Appendix 1 of CAO 100.5, as it applies to or for the aircraft. The revised requirements do not apply to exempted aircraft.

An exempted aircraft is defined in Appendix 1 as an aircraft with an approved system of maintenance (***SOM***) under regulation 42M of CAR 1988, or a with maintenance schedule under regulation 41 of CAR 1988, but only if the SOM or the schedule incorporates instructions for the continuing airworthiness of all instruments and instrument systems fitted to the aircraft that would otherwise be subject to the additional maintenance requirements set out in clauses 2 to 6 of this Appendix.

For non-exempt aircraft, the new Appendix 1 creates a revised uniform and comprehensive standard for the maintenance of barometric altimeters.

In doing so, Appendix 1 also creates a revised uniform and comprehensive standard for the maintenance of certain related and other instrumentation in the form of pitot‑static systems, air data computers, airspeed indicators, and fuel quantity gauges, including test intervals for the relevant tests. The standards for these instruments are modified forms of the standards that were previously contained in CAO 108.56 specifying testing of certain aircraft instruments. CASA considers that it is preferable to locate all of these relevant standards, including for altimeters, in a single CAO, namely CAO 100.5 and to repeal CAO 108.56.

To this end a separate CAO instrument repeals CAO 108.56 (*Civil Aviation Order 108.56 Repeal Instrument 2013*).

The revised testing standards, intervals and procedures for altimeters, pitot-static systems, air data computers, airspeed indicators, and fuel quantity gauges are, by definition, technical and detailed, and even more detailed testing procedures for these instruments are also set out in an Attachment to the CAO Appendix 1.

The opportunity has been taken in the CAO amendment to take proper account of the application of Part 42 of CASR 1998 to the maintenance of aircraft involved in RPT operations. CAO 100.5 does not apply to such aircraft and an amendment makes this clear. Thus, the additional maintenance requirements set out in Appendix 1 of the CAO amendment do not apply to an aircraft to which Part 42 of CASR 1998 applies.

The opportunity has also been taken in the CAO amendment to restate in clearer terms the maintenance requirements for the replacement of time-lifed aircraft components. Thus, for subregulation 38 (1) of CAR 1988, CASA directs the registered operator of an Australian aircraft to comply with the maintenance requirements for the aircraft and its aeronautical products, including life-limits, as established under the approved design for the aircraft or product. A Note explains that contravention of a CASA maintenance direction under this subsection is a strict liability offence under regulation 38 of CAR 1988.

**Transitional arrangements**

Appendix 1 of CAO 100.5 sets out test intervals for the relevant tests. To take proper account of the testing regime and tests which preceded the CAO amendment, new subsection 12 sets out the rules to be followed in determining when *the first test* for Appendix 1 is to occur (that is, the first test after commencement of the CAO amendment on 1 August 2013). The test intervals set out in Appendix 1 apply after, and are based on, the time of the first test. These rules are necessarily detailed to cover the range of first test circumstances arising and are set out in Appendix 1 of this Explanatory Statement.

**Legislative Instruments Act 2003 (*LIA 2003*)**

Under subsections 98 (5) and 98 (5AAA) of the Act, where the regulations provide for certain instruments to be issued in the form of CAOs, such CAOs are legislative instruments. As noted above, under regulation 5 of CAR 1988, CASA may issue regulation 38 directions in CAOs. The CAO amendment is, therefore, a legislative instrument and it is subject to registration, and tabling and disallowance in the Parliament, under sections 24, and 38 and 42, of the LIA 2003.

**Gazettal**

Under subregulation 38 (2) of CAR 1988, a maintenance direction is not binding on a person unless it has been served on the person. Under subregulation 5 (3) of CAR 1988, when a direction to a person is contained in a CAO, it is taken to have been served on the person on the date on which the making of the CAO was notified in the *Gazette*.

Under subsection 56 (1) of the LIA 2003, if certain enabling legislation requires *the text of a legislative instrument, or particulars of its making,* to be published in the *Gazett*e, such requirements are taken to be satisfied when the instrument is registered.

This facilitative provision for registration to take the place of gazettal does not appear to cover the specific case of the service requirements under subregulations 38 (2) and 5 (3) of CAR 1988. Therefore, to avoid doubt, the CAO amendment was also gazetted on the day on which it commenced, that is, on 1 August 2013.

**Consultation**

Consultation under section 17 of the LIA was undertaken as follows. A Notice of Proposed Rule Making (***NPRM***) for the proposals was published by CASA on its website and by broadcast email, on 7 September 2011, inviting comments from the public and aviation industry generally up until 4 November 2011. The NPRM set out proposals for the testing and ongoing maintenance of certain aircraft instrument systems, and the cancellation of the previously relevant ADs.

CASA considered that responses received to its NPRM were from a representative cross-section of the aviation industry, including the Aircraft Owners and Pilots Association (AOPA), the Gliding Federation of Australia and the Australian Ballooning Federation. Qantas, Virgin Australia and Skywest, together with other individuals contributed to the final total of 140 responses.

Some respondents expressed concern about CASA cancelling the previous ADs and embodying the revised maintenance requirements in a CAO. However, CASA considers that a CAO is a more appropriate, effective and enforceable vehicle for the revised requirements to be broadcast and implemented. Some respondents also urged CASA to retain the previous system of dual maintenance standards for altimeters. However, CASA considers that retention of 2 standards would continue to give rise to greater aviation safety risks, particularly for aircraft separation as noted above.

CASA responded to the comments made by some respondents by clarifying its proposals regarding the applicability of the revised standards to aircraft fitted with modern computer-based systems. Overall, the majority of respondents to the NPRM consultation (approximately 60%) indicated support for the proposals either unchanged or with minor amendments which CASA took into account.

**Statement of Compatibility with Human Rights**

The Statement in Appendix 1 is 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.

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

OBPR assessed that the proposed amendment will have minor impacts only and no further analysis in the form of a Regulation Impact Statement was required (OBPR ID: 14831).

**Making and commencement**

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

The CAO amendment commences on 1 August 2013.

*[Civil Aviation Order 100.5 Amendment Instrument 2013 (No. 1]*

**Appendix 1**

12 Transitional requirements for additional maintenance

 12.1 Under this provision, **the first** **pitot-static system leaks tests** required after 1 August 2013 must be carried out not later than the date when whichever of the following first occurs:

(a) the day that is 24 months from the date of the last ***verified*** pitot-static system leak test that is at least of a standard equivalent to that under Appendix 1; or

(b) if there is no such verified pitot-static system leak test — when the first pressure altimeter tests required after 1 August 2013 are carried out, or should be carried out, under the amendments; or

(c) the first occasion after 1 August 2013 of a change or modification to, or the maintenance of, the pitot-static system.

 12.2 Under this provision, **the first** **pressure altimeter tests** required after 1 August 2013 must be carried out within 24 months after the date on which the last pressure altimeter tests required under the following were carried out, or should have been carried out, before 1 August 2013:

(a) Airworthiness Directive AD/INST/8 Amdt 4;

(b) Airworthiness Directive AD/INST/9 Amdt 6.

 12.3 Under this provision, **the first automatic pressure altitude encoder tests** required after 1 August 2013 must be carried out not later than the date when whichever of the following first occurs:

(a) the first pressure altimeter tests are carried out under the amendments, and in conjunction with those tests; or

(b) if a separate direct reading altimeter is used and an automatic altitude reporting system — the first occasion after 1 August 2013 of the removal or the installation of, or a change to, or a modification to, a system component or the system interwiring.

 12.4 Under this provision, **the first** **airspeed indicator tests**, (and scale error determination), required after 1 August 2013 must be carried out:

(a) not later than the day that is 48 months from the date of the last verified airspeed indicator test that is at least of a standard equivalent to that under Appendix 1; or

(b) if there is no such verified airspeed indicator test — when the first pressure altimeter tests required after 1 August 2013 are carried out, or should be carried out, under the amendments.

 12.5 Under this provision, **the first determination of the accuracy of the aircraft‑installed system for measuring fuel** required after 1 August 2013 must be carried out:

(a) not later than the day that is 48 months from the date of the last verified determination of the accuracy of the aircraft-installed system for measuring fuel that is at least of a standard equivalent to that under Appendix 1; or

(b) if there is no such verified determination of accuracy — when the first pressure altimeter tests after 1 August 2013 are carried out, or should be carried out, under the amendments.

12.6 Under this provision, ***verified***, in relation to a test, is defined as meaning recorded in the aircraft log book (or approved alternatives) for the relevant aircraft.

**Appendix 2**

**Statement of Compatibility with Human Rights**

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

Civil Aviation Regulations 1988

**Civil Aviation Order 100.5 Amendment Instrument 2013 (No. 1)**

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 *Civil Aviation Order 100.5 Amendment Instrument 2013 (No. 1)* (the *CAO amendment*) is to consolidate in a single Civil Aviation Order (*CAO*), revised, uniform, maintenance requirements for barometric altimeters, and modified versions of existing CAO 108.56 testing requirements for these and other similar instruments, including pitot‑static systems, air data computers, airspeed indicators, and fuel quantity gauges for aircraft other than those involved in regular public transport operations.

The revised standards for altimeters are needed to eliminate the unacceptable risks associated with the previous airworthiness directives which offered 2 alternative standards and maintenance intervals. These could result in different aircraft flying in the same airspace but operating under different maintenance requirements and potentially broadcasting inaccurate altitude data with risks to the capacity of air traffic control to ensure appropriate aircraft separation.

The revised standards for pitot-static systems, air data computers, airspeed indicators, and fuel quantity gauges are modified forms of the previous standards that were located in CAO 108.56 but which are now consolidated with the altimeter maintenance standards in CAO 100.5. CAO 108.56 is consequentially repealed. The standards are in the form of instrumentation testing requirements, the test procedures to be followed, the standards that the relevant instrumentation is to meet, the intervals to be observed between tests and the associated occasions for some tests. These are fundamental aviation safety requirements that do not impinge on human rights or freedoms.

Transitional arrangements ensure that allowance is made for previous relevant tests so that there is a smooth transition to the new arrangements.

**Human rights implications**

The CAO amendment 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*. The 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**