



Australian Government

Civil Aviation Safety Authority

I, MARK ALAN SKIDMORE, Director of Aviation Safety, on behalf of CASA, make this instrument under regulations 5, 38 and 214, and subregulations 2 (2), 2A (4) and 43 (2), and paragraphs 174B (2) (d) and 175A (1) (d), of the *Civil Aviation Regulations 1988*.

[Signed M. Skidmore]

Mark Skidmore AM
Director of Aviation Safety and
Chief Executive Officer

21 December 2015

Civil Aviation Order 100.5 Amendment Instrument 2015 (No. 1)

1 Name of instrument

This instrument is the *Civil Aviation Order 100.5 Amendment Instrument 2015 (No. 1)*.

2 Commencement

This instrument commences on 22 December 2015.

3 Amendment of Civil Aviation Order 100.5

Schedule 1 amends Civil Aviation Order 100.5.

Schedule 1 Amendments

[1] Subsection 2, Interpretation

insert

aerial application operation or ***application operation*** has the same meaning as in regulation 137.010 of CASR 1998.

AMD means approved maintenance data, which has the same meaning as in regulation 2A of CAR 1988.

approved maintenance program has the same meaning as in Part 42 of CASR 1998.

CAR 1988 means the *Civil Aviation Regulations 1988*.

CASA maintenance schedule means Schedule 5 of CAR 1988.

CASR 1998 means the *Civil Aviation Safety Regulations 1998*.

CAO means Civil Aviation Order.

civil aviation legislation means the *Civil Aviation Act 1988* (the ***Act***), and any legislative instrument made under, or for the purposes of, the Act, including regulations, CAOs, Manuals of Standards and other instruments.

covered by a maintenance program, for an aircraft, means an aircraft covered by an approved SOM or maintenance schedule under Part 4A of CAR 1988 (***Part 4A***) that incorporates the additional maintenance requirements set out in Appendix 1.

DOT means the United States Department of Transportation.

SOM means a system of maintenance dealt with under Division 3 of Part 4A and approved under regulation 42M of CAR 1988.

STC or **supplementary type certificate** means a supplemental type certificate covered by Subpart 21.E of CASR 1998.

TAC or **type acceptance certificate** means a type acceptance certificate issued under regulation 21.029A of CASR 1998.

TC or **type certificate** has the same meaning as in regulation 21.041 of CASR 1998.

[2] After subsection 2

insert

2A Certain equipment not an aircraft component

2A.1 For a regulation mentioned in paragraph 2A.5, a headset used in an aircraft is not an aircraft component within the meaning of subregulation 2 (1) of CAR 1988 if the headset:

- (a) is not mentioned in the AMD for the aircraft; and
- (b) either:
 - (i) is maintained in accordance with the service instructions issued by the manufacturer of the headset (the **service instructions**); or
 - (ii) if there are no service instructions — is at least subject to a visual check by the pilot in command before a flight in which the headset is used.

Note 1 See also paragraph 233 (1) (a) and subregulation 242 (1) of CAR 1988 under which the pilot in command of an aircraft has certain responsibilities regarding instruments, equipment and radio apparatus.

Note 2 Paragraph 2A.1 replaces instrument CASA 307/03 which is not in force.

2A.2 For a regulation mentioned in paragraph 2A.5, night vision goggles (**NVG**) used in a helicopter is not an aircraft component within the meaning of subregulation 2 (1) of CAR 1988 if the NVG is maintained:

- (a) in accordance with approved maintenance data for the NVG within the meaning of regulation 2A of CAR 1988; and

Note See, for example, CAO 82.6.

- (b) by an organisation mentioned in paragraph 2A.3.

Note Paragraph 2A.2 replaces instrument CASA 347/07 which is not in force.

2A.3 For subparagraph 2A.2 (b), maintenance of NVG must be carried out by an organisation that:

- (a) complies with regulation 30 of CAR 1988 or Part 145 of CASR 1998 as if the regulation or the Part applied to the organisation for the maintenance of NVG and its related equipment; and
- (b) is endorsed by the manufacturer of the NVG as an appropriate organisation to carry out maintenance on the NVG.

2A.4 To avoid doubt, for paragraph 2A.2, maintenance includes the routine scheduled servicing of NVG.

2A.5 For paragraphs 2A.1 and 2A.2, the regulations are as mentioned in Table 1.

Table 1

| Item | CAR 1988 | Item | CAR 1988 |
|-------------|-----------------|-------------|-----------------|
| 1 | 30 | 6 | 42W |
| 2 | 39 | 7 | 42WA |
| 3 | 41 | 8 | 42ZA |
| 4 | 42A | 9 | 42ZP |
| 5 | 42L | 10 | 305 |

Note The following regulations in CAR 1988 are not affected by subsection 2A: r. 47 (maintenance release endorsement); r. 52 (defect reporting); r. 52B (defective component preservation); r. 53 (defect investigation); and r. 242 (testing of radio apparatus).

[3] Paragraph 7.1

substitute

- 7.1 For the purposes of subregulation 43 (1) of the Regulations, CASA directs that the maintenance release for a class B aircraft is 1 of the following:
- (a) the CASA Maintenance Release Form 918;
 - (b) the CAA or CASA Maintenance Release Form DA741, but only until stocks of this form, acquired or printed in bulk before 22 December 2015, have been exhausted;
 - (c) an alternative form approved in writing by CASA.

[4] Paragraph 7.3

omit

CAA

insert

CASA

[5] After paragraph 7.6

insert

- 7.7 For subregulation 43 (2) of CAR 1988, if:
- (a) an authorised person uses the CASA Maintenance Release Form 918 as a form of maintenance release for an aeroplane engaged in an aerial application operation conducted at night; and
 - (b) the aeroplane is not equipped and certificated under Part 21 of CASR 1998 for night V.F.R. flight;
- then, the specified information to be entered on the form before it is issued must be modified as follows:
- (c) the “Equipped for” box must be struck through or cross-hatched out;
 - (d) in the “Operational Category” box the following words must be entered: “Application operation — night”.

[6] Subsection 10, including the Notes

substitute

10 Approved single engine turbine-powered aeroplanes (ASETPA)

10.1 For subparagraph 174B (2) (d) (ii) of CAR 1988, a single engine turbine-powered aeroplane is approved for charter operations that involve the carrying of passengers for hire or reward in flights at night under the V.F.R. if it:

- (a) complies with each of the requirements mentioned in Part 1 of Appendix 2; and
- (b) is approved in writing by CASA in the STC, TAC or TC for the aeroplane.

Note Under subparagraph 174B (2) (d) (i), the aeroplane operator must also hold a CASA approval for the conduct of the operation.

10.2 For subparagraph 175A (1) (d) (ii), a single engine turbine-powered aeroplane is approved for charter operations that involve the carrying of passengers for hire or reward in flights under the I.F.R. if it:

- (a) complies with each of the requirements mentioned in Part 1 of Appendix 2; and
- (b) is approved in writing by CASA in the STC, TAC or TC for the aeroplane.

Note Under subparagraph 175A (1) (d) (i), the aeroplane operator must also hold a CASA approval for the conduct of the operation.

10.3 When CASA is providing an operator approval under subparagraph 174B (2) (d) (i) or 175A (1) (d) (i), each of the requirements mentioned in Part 2 of Appendix 2 will be assessed by CASA as part of the approval.

[7] Paragraph 11.2

substitute

11.2 Subject to subsection 12, the registered operator of an Australian aircraft that is not **covered by a maintenance program** must comply with, and ensure compliance with, each additional maintenance requirement set out in Appendix 1 as it applies to or for the aircraft.

[8] After subsection 12

insert

13 Approved SOM or maintenance schedules

If:

- (a) the holder of a certificate of registration for an aircraft uses 1 of the following as the aircraft's system of maintenance or maintenance schedule:
 - (i) an approved SOM;
 - (ii) the manufacturer's maintenance schedule;
 - (iii) the CASA maintenance schedule; and
- (b) the approved SOM or the schedule does not include the maintenance required by Appendix 1;

then, the maintenance required by Appendix 1 must be carried out in addition to the maintenance in the approved SOM or the schedule.

14 Approval of certain maintenance data

14.1 Subject to paragraph 14.2, instructions in an advisory document (however described) (a **relevant document**) published by the European Aviation Safety Agency (**EASA**) or the National Airworthiness Authority of a recognised country, relating to how

maintenance on an aircraft, an aircraft component or aircraft material is to be carried out, are approved for paragraph 2A (2) (e) of CAR 1988.

Note The approval under this paragraph of certain instructions in a relevant document as maintenance data under paragraph 2A (2) (e) of CAR 1988 does not constitute approval of a modification or repair for the purposes of regulation 42U of CAR 1988. The approval under this paragraph only provides for the instructions in the relevant documents to be used to supplement the information in an approved modification or repair in relation to how that modification or repair may be carried out.

- 14.2 The approval under paragraph 14.1 of the instructions in a relevant document is subject to the condition that the instructions may only be used if:
- (a) the maintenance data mentioned in paragraph 2A (2) (a), (b), (c) or (d) of CAR 1988 for the aircraft, aircraft component or aircraft material does not provide sufficient detail on how the maintenance is to be carried out; and
 - (b) the person carrying out the maintenance on the aircraft, aircraft component or aircraft material first determines that the instructions are:
 - (i) appropriate to the aircraft, aircraft component or aircraft material to be maintained; and
 - (ii) directly applicable to the maintenance that is to be carried out; and
 - (iii) not contrary to, or inconsistent with:
 - (A) the manufacturer's data; or
 - (B) any other applicable AMD mentioned in regulation 2A of CAR 1988.

- 14.3 In this subsection:

recognised country has the same meaning as in regulation 21.010B of CASR 1998.

Note The recognised foreign countries are:

- (a) Canada; and
- (b) France; and
- (c) Germany; and
- (d) New Zealand; and
- (e) Netherlands; and
- (f) United Kingdom; and
- (g) United States of America.

[9] Appendix 1 — Heading

substitute

Additional maintenance requirements

[10] Appendix 1, clause 1, definition of *exempted aircraft*

omit

[11] Appendix 1, subclause 3.1

substitute

- 3.1 This clause applies to an aircraft's pitot-static systems.

[12] Appendix 1, subclause 4.1

substitute

- 4.1 This clause applies to an aircraft's testing pressure altimeters and air data computers (if any).

[13] Appendix 1, subclause 5.1

substitute

5.1 This clause applies to an aircraft's airspeed indicators.

[14] Appendix 1, subclause 6.1

substitute

6.1 This clause applies to an aircraft's fuel quantity gauges.

[15] After clause 6

insert

7 Propeller systems

Application

7.1 This clause applies to an aircraft's fixed-pitch wooden or composite propellers.

Checks

7.2 Within the intervals mentioned in subclause 7.3, the following checks must be performed:

- (a) all propeller attachment bolts and hub retaining nuts must be checked to ensure they have the appropriate torque;
- (b) the propeller track must be checked to ensure that the blades are rotating in the same plane of rotation;
- (c) the propeller hubs and blades, including their surface finish, must be checked for breaks, scores, nicks, cracks, delamination, corrosion, and the security of the leading edge sheath, to confirm the continuing airworthiness of the propeller.

Note Where AMD for a specific propeller system is not available, the inspection, maintenance and field repair methods contained in FAA AC 20-37E, or subsequent revisions, should be used.

7.3 Each check mentioned in subclause 7.2 must be carried out as follows:

- (a) after the first flight following a propeller fitment;
- (b) when there has been significant change in the average ambient humidity, due to a seasonal change or a change in aircraft locality;
- (c) before a first flight after the aircraft has been idle for an extended period.

Intervals

7.4 Each check mentioned in subclause 7.2 must be carried out at intervals not exceeding whichever of the following happens first:

- (a) every 110 hours in service, or every 110 hours in service after a check for an event mentioned in paragraph 7.3 (a), (b) or (c);
- (b) every 12 months after manufacture, or every 12 months after a check for an event mentioned in paragraph 7.3 (a), (b) or (c).

8 Feathering propellers — functional check

Application

8.1 This clause applies to a piston engine aircraft fitted with 1 or more feathering propellers, other than a powered glider.

Checks

- 8.2 Within the intervals mentioned in subclause 8.3, the aircraft feathering propeller must be given a ground functional check in accordance with the manufacturer's procedures and instructions for feathering and unfeathering the propeller to ensure that the propeller fully feathers within the time limits specified by the aircraft manufacturer.

Intervals

- 8.3 The check mentioned in subclause 8.2 must be carried out at intervals not exceeding whichever of the following happens first:
- (a) every 110 hours in service;
 - (b) every 12 months after manufacture;
 - (c) the compliance times that have been published as AMD.

9 Cockpit voice recording systems

Application

- 9.1 This clause applies for a cockpit voice recording system (*CVRS*) installed on an aircraft for compliance with CAO 20.18 (Aircraft equipment — basic operational requirements).

Testing

- 9.2 Each voice channel of the CVRS must be tested in accordance with this subclause to ensure proper recording of each of the following audio inputs:
- (a) for the first channel — from each microphone and headset used at the First Officer's position;
 - (b) for the second channel — from each microphone and headset used at the Captain's position;
 - (c) for the third channel — from the flight deck mounted area microphone;
 - (d) for the fourth channel — from each microphone and headset used at the station for the third and fourth crew positions;
 - (e) if the positions mentioned in paragraph (d) of this subclause are not required — from each microphone and headset used at other flight deck positions having audio selection and transmit facilities;
 - (f) if the positions mentioned in paragraphs (d) and (e) of this subclause are not required — from each microphone on the flight deck that is used with the passenger address system, if its signals are not recorded on another channel;

Note The CVRS may need to be removed post-flight and replayed to objectively analyse the quality of the audio recorded on each discrete channel, and where applicable, the correct recording of the ATM data-link messages and related functionality.

- 9.3 The bulk erase inhibit logic of the CVRS must be tested to ensure that it is functioning properly.
- 9.4 The CVRS underwater locating device (if fitted) must be tested and maintained in accordance with the manufacturer's requirements and recommendations.
- 9.5 Crash sensor switches incorporated into the CVRS power feed must be tested in accordance with the manufacturer's procedures to ensure they are operating properly.

Intervals

- 9.6 Each of the tests mentioned in this clause must occur at intervals not exceeding:
- (a) for equipment utilising analogue technology (tape based):
 - (i) every 12 calendar months; or
 - (ii) 2 000 hours' time-in-service;whichever happens first; or
 - (b) for equipment utilising digital technology (solid state based), every 24 calendar months.

10 Emergency exits

Application

- 10.1 This clause applies to an aircraft which has an emergency exit, except when the emergency exit:
- (a) is a service door; or
 - (b) is a normal means of entering or exiting the aircraft; or
 - (c) would be destroyed when operated, for example, a window that is to be smashed open, or a fabric panel that is to be ripped aside.

Testing

- 10.2 With the aircraft in its normal operating configuration, including all trim and interior fittings installed, the emergency exit must be operated, and operable, in accordance with the placarded instructions.
- 10.3 If the emergency exit's operating mechanism is protected by a breakable cover, the cover may be removed before testing the exit.
- 10.4 In spite of any other provision in this clause, an emergency exit must be tested when role equipment or interior configuration is changed in a way that may inhibit operation of the exit.

Intervals

- 10.5 The exit must be tested at intervals not exceeding:
- (a) for an unpressurised aircraft — every 12 months;
 - (b) for a pressurised aircraft — every 6 months.

11 Life rafts, life jackets and inflatable flotation devices

Application

- 11.1 This clause applies to each life raft, life jacket and inflatable flotation device that, for the purpose of complying with civil aviation legislation, is:
- (a) installed or carried on an aircraft; or
 - (b) to be installed or carried on an aircraft.

Testing

- 11.2 The life raft, life jacket or inflatable flotation device must be inspected and tested in accordance with the manufacturer's requirements.

Intervals

- 11.3 Commencing from the date of manufacture, the life raft, life jacket or inflatable flotation device must be inspected and tested:
- (a) at the periodicity specified by the manufacturer; or
 - (b) if the approved SOM or maintenance schedule specifies a lesser period — at that lesser period; or
 - (c) if a period is not specified by the manufacturer and not provided within the approved SOM or maintenance schedule — after 2 years, and then at intervals not exceeding 12 months.

12 Towing release systems

Application

- 12.1 This clause applies for an aircraft for the towing release system (if any).

Testing

- 12.2 Before a towing operation commences on any day:
- (a) the cockpit control for the towing release system must be tested to ensure that it has full and free movement; and
 - (b) each mechanism of the towing release system must be tested to ensure that it is clean and free from visible signs of damage or wear; and
 - (c) the towing release system must be tested to establish that the release system functions correctly.
- 12.3 The testing mentioned in subclause 12.2 may be undertaken on any day by the pilot in command of the aircraft, but if so, he or she must, for that day, certify for each test and its compliant outcome in column 2 of Part 3 of the maintenance release.
- 12.4 Before a maintenance release may be issued for the aircraft for a day:
- (a) the hook mechanism of the towing release system must be properly cleaned and lubricated; and
 - (b) all parts of the system, including levers, cables and pulleys, must be checked for wear and assessed for continuing airworthiness; and
 - (c) the system mechanism must be able to return to a safe over-centre position with a return force, measured at the activating lever of the hook, of not less than 20N (Newton) (2 kg force).

Intervals

- 12.5 The towing release assembly must be removed and overhauled in accordance with the manufacturer's data and instructions, at intervals not exceeding whichever of the following happens first:
- (a) every 1 000 hours' time-in-service;
 - (b) every 12 months.
- 12.6 For the overhaul mentioned in subclause 12.5, pilot effort must be tested to ensure that it is less than 200N (20 kg force) with a 4.5kN (450 kg force) load applied to the release anywhere in a 30 degree cone.

13 Electrical hoist assembly — earth bonding testing

Application

- 13.1 This clause applies for an aircraft with an electrical hoist assembly that does not have specific bonding testing requirements.

Testing

- 13.2 The electrical bonding between each adjacent component part of the electrical hoist assembly must be tested:
- (a) to a maximum resistance of 0.010 OHM; and
 - (b) using a bonding tester capable of resolving to 0.002 OHM.
- 13.3 For subclause 13.2, component parts of the electrical hoist assembly that must be considered adjacent to other parts include the control box, the electrical motor casing, the hoist body, the hoist arm and the attachment bracket.

Intervals

- 13.4 Testing of the electrical hoist assembly must be carried out:
- (a) before it is installed in the aircraft; and
 - (b) after it is installed in the aircraft — at intervals not exceeding every 24 months.

14 Periodic checking and testing of ATC transponders

Definition

- 14.1 In this clause:

electron tube technology or ***ETT*** means technology that uses the physical and electrical characteristics of a physical body to oscillate and amplify a signal at its resonant frequency for subsequent broadcast, including through thermionic valves, klystrons or cavity oscillators.

Note 1 As the components age, the characteristics which provide the signal stability vary which affects the output signal.

Note 2 Transponders using ETT include, for example, Honeywell (Bendix-King) KT76A, Narco AT150 and ARC RT859.

Application

- 14.2 This clause applies to all air traffic control (***ATC***) transponders.

Testing

- 14.3 Before an ATC transponder is used for the first time in an aircraft, it must be system tested in accordance with the requirements of Appendix F of FAR 43, using Mode A code 2100.
- 14.4 After the test mentioned in subclause 14.3, and within the intervals mentioned in subclause 14.7, each ATC transponder must be system tested in accordance with the requirements of Appendix F of FAR 43, using Mode A code 2100.
- Note* Consideration should be given to aligning this test with that required under clauses 3, 4 and 5 of this Appendix 1.

- 14.5 After the test mentioned in subclause 14.3, without affecting the requirements under subclause 14.4, and within the intervals mentioned in subclause 14.8, each ATC transponder using ETT must also be tested in accordance with the requirements of Appendix F of FAR 43, using Mode A code 2100, to confirm that:
- (a) the duration of all reply pulses (the pulse width) is at least 0.35, and not more than 0.55, microseconds; and
 - (b) the amplitude variation between 1 reply pulse and any other reply pulse is not more than 1 dB.
- 14.6 An ATC transponder which fails to comply with any requirement under subclause 14.3, 14.4 or 14.5, must not be used in an aircraft until it has been:
- (a) repaired or replaced in accordance with the requirements of CAR 1988 and CASR 1998; and
 - (b) system tested in accordance with subclause 14.3 or 14.4, and tested in accordance with subclause 14.5 (if applicable).

Intervals

- 14.7 For subclause 14.4, the interval is whichever of the following applies:
- (a) within 24 months after the ATC transponder was first system tested in accordance with subclause 14.3, and at intervals not exceeding every 24 months after that;
 - (b) within 24 months after the date on which the same system test was last conducted under AD/Rad/47: Periodic Testing of ATC Transponders (as in force immediately before 22 December 2015), and at intervals not exceeding every 24 months after that;
 - (c) the intervals in accordance with the approved SOM for the aircraft under regulation 42M of CAR 1988.
- 14.8 For subclause 14.5, an ATC transponder using EET must be tested at the same time as the transponder is system tested in accordance with subclause 14.7.

Note Generic guidance on the testing of transponders is available in AWB 34-013 and AWB 34-09.

15 Compressed gas cylinders

Application

- 15.1 This clause applies for an aircraft (except a hot air balloon) which is installed with a compressed gas cylinder that:
- (a) is rechargeable; and
 - (b) is not a fire extinguisher.

Testing

- 15.2 The cylinder must be emptied before inspection and testing.
- 15.3 Subject to subclause 15.4, the cylinder must:
- (a) be hydrostatically tested in accordance with subclauses 15.5 to 15.9; and
 - (b) have its markings updated by an appropriately qualified holder of a certificate of approval under regulation 30 of CAR 1988, so that the markings conform to the manufacturer's specification, the relevant Australian Standards, or the DOT specification.
- 15.4 Paragraph 15.3 (a) does not apply to the following:
- (a) a cylinder with a working pressure of less than 1 MPa;

- (b) a cylinder, manufactured in the USA, with an outside diameter of less than 51 mm and a length of less than 610 mm.
- 15.5 Testing of the cylinder must include testing by interior hydrostatic pressure in a water jacket or other apparatus suitable to determine the expansion of the cylinder.
- 15.6 For subclause 15.5, permanent volumetric expansion of the cylinder must not exceed:
 - (a) 10% of total volumetric expansion at test pressure; or
 - (b) more than 1/5000th of the cylinder's original volume.
- 15.7 If a cylinder's specifications do not adequately define damage limits, 50% of the damage tolerances stated in Australian Standard AS2030 must be applied.
- 15.8 A cylinder manufactured in the USA and marked 3HT must be inspected and tested in accordance with the USA Compressed Gas Association Pamphlet C-8.
Note See FAR 49 180.209 (k) and FAR 180.213 (c).
- 15.9 A hydrostatic proof test of a cylinder is an acceptable alternative to a hydrostatic stretch test only if the hydrostatic proof test is permitted by the cylinder's specification.
- 15.10 Inspection of a cylinder must include the following:
 - (a) visual internal inspection;
 - (b) visual external inspection.
- 15.11 Subject to subclauses 15.12 and 15.13, inspection and testing of cylinders under this clause must be carried out at intervals not exceeding every 5 years after manufacture.
- 15.12 For 3HT cylinders, inspection and testing under this clause must be carried out at intervals not exceeding every 3 years after manufacture.
- 15.13 For DOT-E type cylinders, inspection and testing under this subclause must be carried out:
 - (a) at the intervals mentioned in the latest revision of the applicable DOT Special Permit; or
 - (b) at intervals not exceeding every 3 years after manufacture.
- 15.14 For the cylinder valve and regulator, inspection and testing under this subclause must be in accordance with the following:
 - (a) the manufacturer's specifications; or
 - (b) if there are no manufacturer's specifications — in accordance with Australian Standard AS2337.1-2004, paragraph 10.2.2.

Intervals

- 15.15 Inspection and testing of the cylinder valve and regulator under this clause must be carried out:
 - (a) in accordance with the intervals specified by the manufacturer; and
 - (b) concurrently with a cylinder inspection.

Unfitness and retirement

- 15.16 A rechargeable cylinder must be retired from service not later than as follows:
 - (a) in accordance with the manufacturer's specification; or
 - (b) for a 3HT cylinder:
 - (i) after 4 380 pressurisations (cycles); or
 - (ii) 24 years after its date of manufacture; or

- (c) for a HOLASW 1** cylinder:
 - (i) after 5 000 pressurisations (cycles); or
 - (ii) 25 years after its date of manufacture;
 - (d) for a fibre-wrapped cylinder:
 - (i) at the limit specified in the applicable DOT-Exemption; or
 - (ii) 15 years after its date of manufacture.
- 15.17 Cylinders that no longer comply with inspection limits or test requirements must be rendered unfit for further use in accordance with AS 2030.

16 Combustion type cabin heaters

Application

- 16.1 This clause applies for an aircraft which is installed with a combustion type heater (the *heater*) unless the heater is one to which AD/AIRCON/12 (as in force from time to time) applies.

Note AD/AIRCON/12 applies to Kelly Aerospace Power Systems (formerly Janaero Devices) B Series combustion heaters, Models B1500, B2030, B2500, B3040, B3500, B4050 and B4500 marked as meeting the standards of FAA TSO-C20.

- 16.2 The heater must be inspected, overhauled, function-tested and disabled in accordance with this clause.

Inspection

- 16.3 The heater installation must be inspected for general condition and security, along with any airframe-mounted components necessary for the heater's operation.
- 16.4 The hot air outlet ducting adjacent to the heater must be inspected for freedom from exhaust contamination and corrosion.
- 16.5 The heater fuel filter must be cleaned, and the fuel system must be inspected for loose connections and leaks using system pressure.
- 16.6 The heater drain lines must be inspected for freedom from obstructions.
- 16.7 Spark plugs and contact breaker points for the heater must be inspected, and adjusted where necessary.
- 16.8 The inspections mentioned in subclauses 16.3 to 16.7 must be carried out at intervals after manufacture not exceeding whichever of the following happens first:
- (a) every 100 heater hours;
 - (b) every 24 months.

Functional test

- 16.9 A functional test of the heater must be carried out.
- 16.10 During the functional test, carbon monoxide (**CO**) levels in the heated air entering the aircraft cabin must be measured, using quantitative CO measurement, to confirm that the CO entering cabin is at a level less than 1 part per 20 000 parts of air.
- 16.11 If the heater fails the test mentioned in subclause 16.9, before the next flight of the aircraft, the heater must be disabled in accordance with this clause, or repaired, or replaced.
- 16.12 The functional test mentioned in subclause 16.9 must be carried out at intervals after manufacture not exceeding whichever of the following happens first:
- (a) every 100 heater hours;
 - (b) every 24 months.

Disabling heater

- 16.13 The heater may only be disabled in accordance with the following requirements:
- (a) for a heater covered by a minimum equipment list (a *MEL*) — in accordance with the MEL;
 - (b) for a heater not covered by a MEL — in accordance with both an approval for permissible unserviceabilities, and compliance with the following instructions:
 - (i) cap the fuel supply line;
 - (ii) disconnect the electrical power and ensure that the connections are properly secured to reduce the possibility of electrical spark or structural damage;
 - (iii) inspect and test the cabin heater system to ensure that the heater is disabled and that the cabin fans are operative;
 - (iv) check to ensure that no other aircraft system is affected by any of the steps taken under subparagraphs (i) to (iii);
 - (v) ensure that there are no fuel leaks as a result of any of the steps taken under subparagraphs (i) to (iii), or otherwise;
 - (vi) fabricate a placard displaying the words: “Heater System Inoperative” and install the placard at the heater control valve within clear view of the pilot.

Note Permanent deactivation of the heater requires use of approved modification data. Use of approved modification data, internal inspection and functional tests are required before return to service.

Overhaul and intervals

- 16.14 Overhaul of the heater must be carried out in accordance with the heater manufacturer’s recommendations, including as to time between overall.
- 16.15 Unless the heater manufacturer has recommended otherwise, overhaul of the heater must be carried out at intervals not exceeding whichever of the following happens first:
- (a) every 500 heater hours since last overhaul;
 - (b) every 8 years since last overhaul.

17 Fire protection in toilet areas

Application

- 17.1 This clause applies to an aeroplane:
- (a) for which the initial Australian certificate of airworthiness for the type was issued after 1 January 1958 in the Transport Category; and
 - (b) that has 1 or more toilets equipped with receptacles for paper waste or used linen (a *receptacle*).

Testing and repair of receptacles for paper waste or used linen

- 17.2 The aeroplane operator (the *operator*) must ensure that, before a receptacle is used for the first time on the aeroplane it is inspected and tested in accordance with subclause 17.3.
- 17.3 Within the intervals mentioned in subclause 17.5, the operator must ensure that the door, lid, flap or other device giving access to the inside of the receptacle (whether for depositing or removing waste or linen) is inspected and tested so that its proper operation, fit, sealing, and latching or locking will contain a possible fire within the receptacle.

- 17.4 The operator must ensure that a receptacle which fails an inspection and test under subclause 17.3 must not be used until it has been:
- (a) repaired or replaced; and
 - (b) inspected in accordance with subclause 17.3.

Intervals

- 17.5 For subclause 17.3, the inspection and testing of each receptacle must be conducted at whichever of the following intervals is least restrictive:
- (a) at intervals not exceeding every 1 000 hours after it was last inspected and tested in accordance with subclause 17.2; or
 - (b) within 100 hours of 22 December 2015, and at intervals not exceeding every 1 000 hours after that.

18 ADF systems — periodic checking

Application

- 18.1 This clause applies only for the ADF navigation systems of an Australian aircraft for which the holder of the certificate of registration has elected to use the CASA maintenance schedule.

Note The CASA maintenance schedule is set out in Schedule 5 — CASA maintenance schedule, of CAR 1988.

Checks — quadrantal errors

- 18.2 Each ADF navigation system must be checked for accuracy and correct performance in all modes of operation for quadrantal errors.
- 18.3 The following must be done:
- (a) apply corrections for any quadrantal errors detected;
 - (b) after the application of corrections for any quadrantal errors, ensure that the maximum permissible residual error mentioned in a row of column 3 of the following table, for an operational classification and check mentioned in columns 1 and 2 of the same row, are not exceeded.

| Operational classification | Checks required at (in degrees): | Maximum permissible error |
|----------------------------|-------------------------------------|---------------------------|
| V.F.R. | 0° and 180° | ±6° |
| Night V.M.C. | 0° and 180° | ±6° |
| | Maximum quadrantal error points | ±10° |
| I.F.R. | 0° and ± 15°; and 180° and ± 15° | ±5° |
| | Any other bearing | ±6° |

Note In the case of V.F.R. and night V.M.C. aircraft only, where the ADF equipment has no means of applying quadrantal error correction, or where the error exceeds the capability of the correcting mechanism, the errors may be placarded adjacent to the ADF system's indicator or display.

Checks — dual ADF systems

- 18.4 Where there are any dual ADF systems — check and ensure that each system does not interfere with the operation of the other system.

Intervals

- 18.5 The checks mentioned in this clause must be carried out each time a periodic inspection is carried out in accordance with paragraphs 2.4 and 2.5 in Part 2 of Schedule 5 of CAR 1988.

19 VOR systems — periodic checking

Application

- 19.1 This clause applies only for the following navigation systems (the *relevant systems*) of an Australian aircraft for which the holder of the certificate of registration has elected to use the CASA maintenance schedule:

- (a) all VOR systems;
- (b) all localiser systems;
- (c) all glideslope systems.

Note The CASA maintenance schedule is set out in Schedule 5 — CASA maintenance schedule, of CAR 1988.

Checks

- 19.2 Check and ensure that the level of interference between the relevant systems, and any combination of other aircraft systems normally operated in flight, is not of a level sufficient to cause either of the following:
- (a) a significant deflection of the flight path indicator when the flag is concealed;
 - (b) any degradation of the readability of the station identification.
- 19.3 For subclause 19.2, a level of interference which is merely intermittent or short-term may be ignored, but only if it does not cause the deflection or degradation mentioned in paragraphs 19.2 (a) and (b).
- 19.4 Check and ensure that the level of interference from any source, intermittent, short-term or otherwise, is not of a level sufficient to cause the flag to indicate usability in the absence of a usable signal.

Intervals

- 19.5 The checks mentioned in this clause must be carried out each time a periodic inspection is carried out in accordance with paragraphs 2.4 and 2.5 in Part 2 of Schedule 5 of CAR 1988.

20 VOR in I.F.R. — periodic checking

Application

- 20.1 This clause applies only for the following navigation system of an Australian aircraft for which the holder of the certificate of registration has elected to use the CASA maintenance schedule: a VOR system installed in an aircraft equipped for flight under the I.F.R.

Note The CASA maintenance schedule is set out in Schedule 5 — CASA maintenance schedule, of CAR 1988.

Checks

- 20.2 Check and ensure that each of the following requirements is the case:
- (a) based on tests made on a representative number of radials, the deviation indicator must centre when the omni bearing selector (*OBS*) is within 3 degrees of the selected radial;

- (b) the deflection sensitivity must be such that a 5 dot left and a 5 dot right deflection must be obtained when the OBS is varied 10 degrees \pm 2 degrees from the on-course setting, and the indications must be of the correct sense;
- (c) where installed, the radio magnetic indicator (RMI) reading must be within 4 degrees of the selected radial;
- (d) the TO-FROM indicator must continue to show TO or FROM as originally selected when the OBS is rotated by \pm 45 degrees from the selected radial;
- (e) the flag must remain concealed during each of the tests mentioned in paragraphs (a) to (d), however, when the signal input level is reduced so as to cause the deviation indicator deflection to fall by 2 dots, the flag must be at least partly visible.

Note 1 A simulator may be used for the checking mentioned in paragraphs 20.2 (a) to (e).

Note 2 The sensitivities referred to in this subclause are related to a “standard” 5 dot-0-5 dot, 150 microamperes-0-150 microamperes indicator. Proportional deflections apply to other than “standard” indicators.

Intervals

- 20.3 The checks mentioned in this clause must be carried out each time a periodic inspection is carried out in accordance with paragraphs 2.4 and 2.5 in Part 2 of Schedule 5 of CAR 1988.

21 Glidescope in I.F.R. — periodic checking

Application

- 21.1 This clause applies only for the following navigation system of an Australian aircraft for which the holder of the certificate of registration has elected to use the CASA maintenance schedule: a glidescope system installed in an I.F.R. aircraft.

Note The CASA maintenance schedule is set out in Schedule 5 — CASA maintenance schedule, of CAR 1988.

Checks

- 21.2 Check and ensure that each of the following requirements is the case:
- (a) the deviation indicator must centre within less than $\frac{1}{2}$ (\pm 12 microamperes) when the tone ratio is 0 dB (ddm = 0);
 - (b) the sensitivity must be such that the deviation indicator deflection is 4.3 dots \pm 0.7 dots (110 to 150 microamperes) for both up and down deflections when using a signal with 3.3 dB tone ratios or 2.7 dots \pm 0.3 dot (68 to 93 microamperes), when using a 2 dB tone ratio, and the deflection must be in the correct sense;
 - (c) the flag must remain concealed during each of the tests mentioned in paragraphs (a) and (b), however, when the signal input level is reduced so as to cause the deviation indicator deflection to fall by 2 dots, the flag must be at least partly visible.

Note 1 A simulator may be used for the checking mentioned in paragraphs 21.2 (a) to (c).

Note 2 The sensitivities referred to in this subclause are related to a “standard” 5 dot-0-5 dot, 150 microamperes-0-150 microamperes indicator. Proportional deflections apply to other than “standard” indicators.

Intervals

- 21.3 The checks mentioned in this clause must be carried out each time a periodic inspection is carried out in accordance with paragraphs 2.4 and 2.5 in Part 2 of Schedule 5 of CAR 1988.

[16] After Attachment 1 to Appendix 1

insert

Appendix 2

Approved single engine turbine-powered aeroplanes (ASETPA)

Note See Part 1 and Part 2 of this 2-Part Appendix.

Part 1 Compliance requirements

Note 1 See paragraph 10.1 of this CAO.

Note 2 The aeroplane must comply with each of the following requirements and **be approved by** CASA. (See subsection 10 above.) Aircraft systems and equipment mentioned within these requirements must be approved under regulation 21.305 of CASR 1998.

1 Aeroplane

The aeroplane type must have been originally certificated as a turbine-powered aeroplane under the certification requirements set under Part 23 of CASR 1998 that are equivalent to FAR 23 amendment 28 or a subsequent amendment.

Note Thus, a turbine conversion of an originally certificated piston-powered aeroplane cannot comply.

2 Engine

- 2.1 The aeroplane engine type (the *engine type*) must have documented evidence of an acceptable world fleet reliability rate (*WFRR*) in accordance with this clause.
- 2.2 The WFRR must be calculated as a 6 month rolling average, and consist of:
- (a) an in-flight shutdown (*IFSD*) rate of not more than 0.01 per 1 000 hours based on a minimum experience history of 100 000 hours' time-in-service; or
 - (b) an IFSD rate for individual engine components gained in the same engine types, or in equivalent engine types as determined by CASA, that collectively meet the standard of paragraph 2.2 (b).
- 2.3 For paragraphs 2.2 (a) and (b), where the accumulated history is less than the requirement, the history of individual components which have demonstrated time in service in similar engine types, may be taken into account.

3 Engine control system

- 3.1 The engine control system must meet the requirements of FAR 23.1141 Amendment 29 or a later amendment.
- 3.2 If use of an emergency/secondary power lever is available, the necessary procedures for its use must be documented in the Aircraft Flight Manual (*AFM*) or approved equivalent.

4 Engine ignition system

The aeroplane type must be equipped with 1 of the following engine ignition systems:

- (a) an automatic ignition system which activates in the event of a loss of an engine parameter, for example, engine speed, turbine temperature or engine torque;
- (b) an ignition system which can be selected "ON" and has a duty cycle greater than 1 hour.

5 Engine fire warning system

The aeroplane type must be equipped with an engine compartment fire detection and in-flight warning system.

6 Engine monitoring system

- 6.1 The aeroplane type must be equipped with an automatically activated electronic engine trend monitoring recording system, approved by or under Part 21 of CASR 1998, which records the following:
- (a) engine parameters referenced in the engine manufacturer's published engine trend monitoring procedures; and
 - (b) any other engine performance parameters, mentioned in the approval, that are critical to the engine's safe continuing airworthiness.
- 6.2 The engine oil consumption must be monitored in accordance with the engine manufacturer's recommendations.
- 6.3 Any anomalies detected by the monitoring mentioned in subclause 6.1 or 6.2 must be checked against the manufacturer's data to determine appropriate and timely corrective action.

7 Engine oil metal contamination detection system

The aeroplane must be equipped with an approved electronic engine oil metal contamination detection system which provides the pilot with an in-flight, visual, caution/warning indication of possible contamination of the engine oil, including as applicable the following:

- (a) engine reduction gearbox oil system;
- (b) engine accessory gearbox oil system.

8 Electrical power sources

The aeroplane must be equipped with the following:

- (a) a primary electrical generator and 1 or more primary electrical storage batteries;
- (b) an alternative source of electrical power, capable of supplying sufficient continuous power to each of the following:
 - (i) flight instruments;
 - (ii) navigation systems;
 - (iii) lighting systems;
 - (iv) icing protection systems;
- (c) any other aeroplane system required under CAO 20.18 for the endurance of the aeroplane for flight at night under the I.F.R.

9 Battery capacity

- 9.1 There must be an electrical load analysis (*ELA*) for the aeroplane.
Note The ELA is provided to CASA at the time of an application for ASETPA approval.
- 9.2 The ELA is to certify that the electrical storage capacity of the aeroplane's prime battery is capable of providing the following:
- (a) full operation of essential flight and navigation instruments, lighting and associated icing protection systems during an engine failed glide from the maximum operating altitude, or an elected limiting altitude, to sea level at best range glide speed;

- (b) sufficient capacity remaining during a glide mentioned in paragraph (a) to conduct 2 engine start attempts, and lower the flaps and undercarriage.
- 9.3 The requirement for sufficient battery capacity for the 2 engine starts mentioned in paragraph 9.2 (b) may be reduced to capacity for 1 engine start, provided:
 - (a) the aeroplane's engine fuel feed system from the aeroplane's fuel tank to the engine fuel control unit is automatic; and
 - (b) the engine compressor air intake incorporates continuous anti-icing while the engine is operating; and
 - (c) the aeroplane incorporates an automatic engine ignition system which activates in the event of a loss of an engine parameter such as engine speed, turbine temperature or engine torque.
- 9.4 Where the aircraft avionics and electrical configuration:
 - (a) differs from the approved configuration; or
 - (b) is altered after approval of the configuration;a revised ELA must be provided to CASA for approval.

10 Electrical load shedding

- 10.1 Subject to subclause 10.2, the AFM or approved equivalent must provide the pilot with a procedure for shedding non-essential electrical systems during a maximum range glide descent following an engine failure in flight.
- 10.2 In the case of an automatic shedding procedure that will commence to operate following an engine failure in flight, the AFM or an approved equivalent is not required to include a procedure in accordance with subclause 10.1 but must state, for the information of the pilot, how the automatic shedding procedure will operate.

11 Flight instrument systems

- 11.1 The aeroplane must be equipped with flight and navigation instruments and instrument power sources complying with the regulatory requirements for air transport I.F.R. operations.
- 11.2 Aeroplanes incorporating an electronic display flight instrument system must incorporate secondary attitude and gyroscopic heading instruments located on the pilot's flight instrument panel and powered independently of the primary flight display.
- 11.3 In aeroplanes approved for flight in icing conditions, the AFM or approved equivalent must provide the pilot with a procedure for ensuring essential flight instruments are protected from icing during a maximum range glide descent through icing conditions following an engine failure in flight.

12 Autopilot system

For single pilot operations, the aeroplane must be equipped with an automatic pilot providing a capability to:

- (a) operate the flight controls to maintain flight and manoeuvre the aeroplane about the roll and pitch axis; and
- (b) fly to an automatic heading; and
- (c) provide altitude hold.

13 Global Navigation Satellite System (GNSS)

The aeroplane must be equipped with GNSS in accordance with CASA's instructions issued under:

- (a) subregulation 174A (1) of CAR 1988 — for V.F.R. flights; or
- (b) subregulation 177 (1) of CAR 1988 — for I.F.R. flights.

Note Instructions are generally in CAOs.

14 Radar altimeter

The aeroplane must be equipped with a radar altimeter.

15 Weather radar

The aeroplane must be equipped with a weather radar system.

16 Passenger seats

16.1 The aeroplane must be equipped with passenger seats identified by:

- (a) the part number or model number meeting the requirements of FAR 23.562 and 23.785 to amendment 36 or later amendment; or
- (b) for Cessna 208 and 208B aircraft — the following part numbers:
 - (i) 2614028-();
 - (ii) 2614029-();
 - (iii) 2614076-();
 - (iv) 2614077-();
 - (v) 2619019-();
 - (vi) 2619020-().

Note For Cessna 208 and 208B, 2 or 3 place Rear Bench Seats (2614045-() or 2619017-(), IPC Ref 25-21-01), Stowable Seats (2614041-(), ATFS1-01, IPC Ref. 25-21-02) and non-factory seats not meeting FAR 23.562 (AMDT. 23-36), TSO-C127 or TSO-C127a, are not approved for ASETPA operations.

16.2 Each passenger seat must be equipped with a shoulder harness.

Part 2 Operator and aircraft maintenance organisation requirements

Note See paragraph 10.2 of this CAO.

1 Training

The operator or maintenance organisation must provide maintenance personnel with training on the concept and safety of ASETPA operations and the importance of conducting maintenance to the appropriate ASETPA standards.

2 Maintenance System

2.1 The aeroplane and engine must be maintained in accordance with:

- (a) a SOM, or a maintenance schedule, under regulation 39, 42A or 42C of CAR 1988; or
- (b) if Part 42 of CASR 1998 applies to the aircraft — an approved maintenance program.

2.2 The SOM or schedule must have provision for a pre-departure ASETPA check inclusive of, but not limited to, the following items:

- (a) aircraft fluid system reservoirs;
- (b) navigation databases;

- (c) battery capacity.
- 2.3 The SOM or schedule must have provision for the following:
- (a) battery capacity test every 100 days or in accordance with the SOM or schedule, whichever is the most exacting;
 - (b) following the installation of a new, leased or repaired engine — an engine validation period before the airframe/engine combination enters ASETPA operations;
 - (c) an event-based reliability program covering the engine and associated equipment relevant to night and I.F.R. operations.
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