



Australian Government

Civil Aviation Safety Authority

I, SHANE PATRICK CARMODY, Director of Aviation Safety, on behalf of CASA, make this instrument.

Shane Carmody
Director of Aviation Safety

[DATE] 2017

Civil Aviation Legislation Amendment and Repeal (Primary and Intermediate Category Aircraft) Instrument 2017

1 Name of instrument

This instrument is the *Civil Aviation Legislation Amendment and Repeal (Primary and Intermediate Category Aircraft) Instrument 2017*.

2 Commencement

This instrument commences on the day after registration [being on or before 30 November 2017].

3 Authority

This instrument is made under the *Civil Aviation Regulations 1988* and the *Civil Aviation Safety Regulations 1998*.

4 Schedules

Each instrument that is specified in a Schedule to this instrument is amended or repealed as set out in the applicable items in the Schedule concerned, and any other item in a Schedule to this instrument has effect according to its terms.

5 References to Civil Aviation Orders

A reference in this instrument to a Civil Aviation Order identified by a specified number is taken to include a reference to the section of the Civil Aviation Orders with that number.

Note Some legislative instruments are referred to as a Civil Aviation Order followed by a number. Other instruments are referred to as a section of the Civil Aviation Orders. For consistency, in this instrument, all such instruments are referred to as a Civil Aviation Order followed by a number. For example, a reference to Civil Aviation Order 101.55 is taken to include a reference to section 101.55 of the Civil Aviation Orders.

Schedule 1 Amendments

Part 21 Manual of Standards Instrument 2016

[1] Section 1.5

Repeal the section.

[2] Section 1.10

Insert:

BCAR Section C (Britain) means Section C of the British Civil Airworthiness Requirements published by the Civil Aviation Authority of the United Kingdom and as in force from time to time.

BCAR Section K (Britain) means Section K of the British Civil Airworthiness Requirements published by the Civil Aviation Authority of the United Kingdom and as in force from time to time.

CAS means calibrated airspeed.

FAR Part 23 (USA) means Part 23 of the FARs as in force from time to time.

FAR Part 33 (USA) means Part 33 of the FARs as in force from time to time.

FAR Part 35 (USA) means Part 35 of the FARs as in force from time to time.

ISA means the atmospheric standard as described in ICAO Doc. 7488 — Manual of the ICAO Standard Atmosphere.

representative propeller, for a test engine for an aircraft to which Division 2 of Part 8 applies, means a propeller fitted to the test engine when the engine is being tested under sections 8.16 to 8.21.

stall speed V_{S0} has the meaning given by section 1.19.

stall speed V_{S1} has the meaning given by section 1.20.

test engine, for an aircraft to which Division 2 of Part 8 applies, means an engine on which the tests mentioned in sections 8.16 to 8.21 are conducted and which is of the same kind as the engine installed in the aircraft.

testing procedures for V_{S0} and V_{S1} has the meaning given by section 1.25.

variable pitch propeller means a propeller the pitch of which can be changed by the pilot or by automatic means while the propeller is rotating.

[3] At the end of Part 1

Add:

1.19 Meaning of stall speed V_{S0}

For an aircraft to which Division 2 of Part 8 applies, **stall speed V_{S0}** means the stalling speed or minimum steady flight speed, as determined by using the testing procedures for V_{S0} and V_{S1} , at which the aircraft can be controlled with:

- (a) the aircraft's wing flaps in the landing position; and
- (b) the aircraft's landing gear extended; and
- (c) the aircraft's engine idling with the throttle closed; and
- (d) the aircraft's centre of gravity in the most forward position; and
- (e) the aircraft at its maximum take-off weight.

1.20 Meaning of *stall speed* V_{S1}

For an aircraft to which Division 2 of Part 8 applies, *stall speed* V_{S1} means the stalling speed or minimum steady flight speed, as determined by using the testing procedures for V_{S0} and V_{S1} , at which the aircraft can be controlled with:

- (a) the aircraft in the configuration associated with the performance standard in which stall speed V_{S1} is being used as a factor; and
- (b) the aircraft's engine idling with the throttle closed; and
- (c) the aircraft's centre of gravity in the most forward position; and
- (d) the aircraft at its maximum take-off weight.

1.25 Meaning of *testing procedures for* V_{S0} and V_{S1}

For an aircraft to which Division 2 of Part 8 applies, the *testing procedures for* V_{S0} and V_{S1} mean the following procedures for testing the aircraft's stalling speed:

- (a) trimmed, power off, at the greater of the following:
 - (i) if stall speed V_{S1} has been determined—1.5 x stall speed V_{S1} ;
 - (ii) if stall speed V_{S1} has not been determined—1.5 x V_{S1} , where V_{S1} is estimated by taking into account the design and flight envelope of the aircraft;
 - (iii) the minimum trim speed determined by taking into account the design and flight envelope of the aircraft;
- (b) the speed reduced at a rate not over 1 kn/s until 1 of the following occurs:
 - (i) a stall is produced as indicated by an uncontrolled downward pitching motion of the aircraft;
 - (ii) the elevator control reaches its aft limit;
- (c) positive response to control application must be available throughout the stall and recovery;
- (d) any roll that occurs between the initiation of the stall and the recovery must not be over 20°;
- (e) the nature of the stall warning must be determined by:
 - (i) determining the stall warning in any configuration of flaps and undercarriage in straight and turning flight; and
 - (ii) ensuring the stall warning occurs in enough time before the stall to allow the pilot to recover safely.

[4] Before section 8.1

Insert:

Division 1—Special certificate of airworthiness – light sport aircraft

[5] After section 8.1

Insert:

Division 2—Special certificate of airworthiness — primary category and intermediate category aircraft

[6] Section 8.5

Repeal the section, substitute:

8.5 What this Division is about

- (1) Regulation 21.184 of CASR relates to an application for a special certificate of airworthiness for an aircraft in the primary category.
- (2) Regulation 21.184A of CASR relates to an application for a special certificate of airworthiness for an aircraft in the intermediate category.
- (3) Regulations 21.184 and 21.184A of CASR prescribe the criteria that must be met for the applicant to be entitled to the special certificate of airworthiness.
- (4) Subparagraphs 21.184 (4) (a) (ii) and 21.184A (2) (a) (ii) of CASR provide for the Part 21 Manual of Standards to prescribe requirements that an aircraft must comply with if it does not conform to an approved type design.
- (5) This Division prescribes requirements for subparagraphs 21.184 (4) (a) (ii) and 21.184A (2) (a) (ii) of CASR.

8.6 Special certificate of airworthiness for aircraft in the primary category and intermediate category aircraft — prescribed requirements

- (1) The aircraft must be an aircraft mentioned in section 8.7.
- (2) The aircraft must comply with section 8.8 relating to design standards, unless CASA or the authorised person is satisfied that it would not be likely to have an adverse effect on the safety of air navigation if the aircraft does not conform to 1 of the design standards.
- (3) The aircraft's performance must have been successfully tested under sections 8.9 to 8.11.
- (4) The aircraft must have a fuel system that complies with section 8.12.
- (5) The aircraft must have an aircraft engine that complies with the requirements in section 8.13.
- (6) The aircraft must have a propeller that complies with the requirements in section 8.22.
- (7) Information about the aircraft, the aircraft engine and the propeller for the aircraft must:
 - (a) meet the requirements in section 8.27; and
 - (b) be given to CASA or an authorised person.
- (8) The aircraft must have a flight manual that:
 - (a) meets the requirements in sections 8.28 and 8.29; and
 - (b) is given to CASA or an authorised person.
- (9) The aircraft must have instructions for continued airworthiness that:
 - (a) meet the requirements in sections 8.30 and 8.31; and
 - (b) are given to CASA or an authorised person.

Note 1 Any requirement for the aircraft to have a noise certificate under the *Air Navigation (Aircraft Noise) Regulations 1984* is separate and additional to the requirements of this Division. Airservices Australia administers those regulations.

Note 2 Regulation 21.033 provides for CASA to make any inspections and flight and ground tests necessary to determine that an aircraft, aircraft engine or propeller complies with the applicable requirements of the regulations before issuing a type certificate for the aircraft,

aircraft engine or propeller. The inspections and tests may be additional to those mentioned in this Division.

8.7 Requirements for aircraft to which this Division applies

- (1) The aircraft must be a single engine propeller driven aeroplane that has the following:
 - (a) only 1 propeller;
 - (b) a maximum seating capacity of not more than 2 persons, including the pilot;
 - (c) in the cruising configuration—a stall speed V_{S1} not over 45 kn CAS;
 - (d) either:
 - (i) a maximum speed in straight and level flight not over 100 kn CAS at maximum power; or
 - (ii) a maximum speed in straight and level flight over 100 kn CAS at maximum power and CASA or the authorised person is satisfied that the maximum speed would not be likely to have an adverse effect on the safety of air navigation.
- (2) The aircraft must also meet the requirements in subsection (3) or (4).
- (3) For subsection (2), the requirements are that the aircraft has:
 - (a) a maximum take-off weight not over 450 kg; and
 - (b) in the landing configuration—a stall speed V_{S0} not over 40 kn CAS.
- (4) For subsection (2), the requirements are that the aircraft has:
 - (a) a maximum take-off weight over 450 kg and not over 480 kg; and
 - (b) in the landing configuration—a stall speed V_{S0} not over 42 kn CAS; and
 - (c) a stall energy, worked out using the following formula, not over 768 000:
$$V^2 \times W$$
where:
 V is the stall speed V_{S0} in the landing configuration in kn CAS.
 W is the maximum take-off weight in kg.

Example For an aircraft with a stall speed V_{S0} in the landing configuration of 41 kn CAS and a maximum take-off weight of 455 kg, the stall energy is: $41^2 \times 455 = 764\,855$. The aircraft meets the requirements of subsection (4).

8.8 Requirements for design standards

- (1) The aircraft must conform to 1 of the following design standards:
 - (a) the design standards set out in BCAR Section K (Britain);
 - (b) the design standards set out in Part 23 of CASR as in force from time to time;
 - (c) if the aircraft is a powered sailplane—the airworthiness standards for a powered sailplane mentioned in regulation 22.001 of CASR as in force from time to time.
- (2) If the aircraft is to be operated to carry out intentional spinning, the aircraft must comply with the requirements that apply to intentional spinning mentioned in 1 of the following:
 - (a) BCAR Section K (Britain);
 - (b) FAR Part 23 (USA);
 - (c) CS-VLA (EASA).

- (3) If CASA finds that the design standards specified in this section do not provide adequate or appropriate safeguard against particular features or characteristics of the aeroplane, CASA may issue such special conditions which add to or vary the design standards for that aeroplane as CASA finds necessary to restore a level of safety equivalent to that otherwise established in the design standards.

Note Flight control configurations such as weight shift, wing warping, spoilers, elevons, ailerons, flaperons, etc., may attract additional special conditions as CASA finds necessary.

- (4) The aircraft must conform to any special conditions issued under subsection (3).

8.9 Testing aircraft performance — general

During the testing of the aircraft for its performance:

- (a) the aircraft must be operated in accordance with procedures that can be executed in service by pilots of average ability; and
- (b) the aircraft's airspeed indicating system must be calibrated in flight to determine the system error.

8.10 Testing aircraft performance — take-off

- (1) A take-off safety speed for the aircraft must be:
 - (a) worked out for each flap setting for which take-off distance information must be included in the flight manual for the aircraft or on a placard fixed to the aircraft; and
 - (b) for each flap setting mentioned in paragraph (a)—an airspeed that is at least the greater of the following:
 - (i) $1.3 \times$ stall speed V_{S1} ;
 - (ii) stall speed $V_{S1} + 10$ kn; and
 - (c) an airspeed at which adequate control is available in the event of sudden complete engine failure during the climb following take-off.
- (2) The take-off distance for the aircraft must be worked out for a short, dry, grass surface and must be the distance required to reach a height of 50 feet above the runway from a standing start under the following conditions:
 - (a) the aircraft's landing gear extended throughout the take-off;
 - (b) the aircraft's wing flaps in the take-off position;
 - (c) the aircraft at maximum take-off weight;
 - (d) sea level ISA conditions;
 - (d) the aircraft engine operating within its maximum take-off power limitations;
 - (e) the aircraft reaching the height of 50 feet at an airspeed of at least the take-off safety speed.
- (3) The aircraft's gradient of climb after take-off must be at least 10% if the aircraft is operating under the following conditions:
 - (a) the aircraft's landing gear is extended;
 - (b) the aircraft's wing flaps are in the take-off position;
 - (c) the aircraft is at maximum take-off weight;
 - (d) sea level ISA conditions;
 - (e) the aircraft's engine is operating within its maximum take-off power limitations;

- (f) the aircraft's airspeed is equal to the take-off safety speed;
- (g) in still air and out of ground effect when there is no turbulence.

8.11 Testing aircraft performance — landing

- (1) A landing approach speed for the aircraft must be:
 - (a) worked out for each flap setting for which landing distance information must be included in the flight manual for the aircraft or on a placard fixed to the aircraft; and
 - (b) for each flap setting mentioned in paragraph (a)—at least the greater of the following:
 - (i) 1.3 x stall speed V_{S0} ;
 - (ii) stall speed $V_{S0} + 10$ kn; and
 - (c) such that the landing requires only average piloting ability and average conditions.
- (2) The landing distance for the aircraft must be worked out for a short, dry, grass surface and must be the distance required to bring the aircraft to rest from a height of 50 feet above the runway surface with the aircraft at maximum take-off weight under sea level ISA conditions.
- (3) The landing of the aircraft mentioned in subsection (2) must:
 - (a) occur after:
 - (i) a steady approach at an airspeed of at least the landing approach speed with the wing flaps in the landing position; and
 - (ii) the aircraft reaching 50 feet above the runway surface at an airspeed of at least the landing approach speed; and
 - (b) be made without excessive vertical acceleration; and
 - (c) be made without a tendency to bounce, nose over or ground loop.

8.12 Requirements for fuel system

The aircraft's fuel system must:

- (a) be designed and constructed to supply the appropriate quantity of fuel to the engine throughout the complete operating range of the engine under all starting, flight and atmospheric conditions; and
- (b) have a sediment bowl that is at least 50 ml; and
- (c) have a fuel filtering system that prevents foreign particles that would critically impair the fuel system from passing through the fuel filtering system.

8.13 Requirements for aircraft engine

The aircraft must be fitted with 1 of the following kinds of engine:

- (a) an engine of a kind that has been certified as an aircraft engine under 1 of the following:
 - (i) FAR Part 33 (USA);
 - (ii) BCAR Section C (Britain);
 - (iii) Section E of the JAR VLA (Joint Aviation Authorities);
- (b) an engine of a kind that:
 - (i) meets the requirements of section 8.14 and, if applicable, section 8.15;
 - and

- (ii) has been successfully tested under sections 8.16 to 8.21;
- (c) an engine of a kind that CASA or the authorised person is satisfied is in the interests of the safety of air navigation for use in the aircraft.

8.14 Requirements for aircraft engine tested under this Division

- (1) The aircraft's engine ratings and engine operating limitations must be determined:
 - (a) that include engine ratings and engine operating limitations relating to speeds, temperatures, pressures, fuels and oils that the applicant finds necessary for the safe operation of the engine; and
 - (b) that are based on the operating conditions demonstrated during the tests mentioned in sections 8.16 to 8.21; and
 - (c) for each rating—that are for the lowest power that all engines of the same type may be expected to produce under the conditions used to determine the rating.
- (2) The aircraft's engine must be designed and constructed so that the following requirements are met:
 - (a) the engine functions throughout its normal operating range of crankshaft rotational speeds and engine powers without inducing stresses in excess of the design stresses in any of the engine parts or airframe parts;
 - (b) the examination, adjustment or removal of each essential engine accessory is possible;
 - (c) the engine is capable of being restarted in flight;
 - (d) the probability of the occurrence and spread of fire due to structural failure of the engine, overheating or other causes is minimised;
 - (e) if there is an external line or fitting in the engine that conveys flammable fluids—the external line or fitting is at least fire resistant;
 - (f) the engine's components are shielded or located to safeguard against any leaking flammable fluid igniting;
 - (g) the engine has the necessary cooling under the conditions in which the aircraft is expected to operate;
 - (h) the induction system for the engine through which air, or fuel in combination with air, passes is designed and constructed to minimise ice accretion and vapour condensation in the passages.
- (3) The materials used in the aircraft's engine must:
 - (a) be suitable and durable for the operational uses of the aircraft; and
 - (b) minimise the probability of the occurrence and spread of fire due to structural failure, overheating or other causes.
- (4) The suitability and durability of materials used in the engine must be established on the basis of documented experience or tests and conform to approved specifications.
- (5) The attachments for mounting the engine to the aircraft and the structure of the aircraft's engine must be able to withstand the maximum allowable limit and ultimate loads specified by the applicant without failure, malfunction or permanent deformation.
- (6) An accessory drive and mounting attachment must be designed and constructed so that the engine operates properly with the accessories attached.

- (7) The induction system of the aircraft's engine must, at all attitudes at which the aircraft is to be operated, prevent and eliminate icing.
- (8) Each passage in the induction system of the aircraft's engine that conducts a mixture of fuel and air must be self-draining at all attitudes at which the aircraft is to be operated.
- (9) The engine must not show any evidence of failure or malfunction as a result of the tests mentioned in sections 8.16 to 8.21.

8.15 Requirements for lubrication system — 4 stroke engine

- (1) This section applies if the aircraft's engine is a 4 stroke engine.
- (2) The engine's lubrication system must be designed and constructed to allow a means of cooling the lubricant to be installed in the engine.
- (3) The engine's crankcase must be vented so that oil does not leak as a result of excessive pressure in the crankcase.
- (4) If the engine is not a wet sump engine, the engine's lubrication system must be designed and constructed to function at all attitudes and in all atmospheric conditions in which the aircraft is expected to operate.
- (5) If the engine is a wet-sump engine, the engine's lubrication system must be designed and constructed to function at all attitudes and in all atmospheric conditions in which the aircraft is expected to operate when the engine contains the minimum quantity, which is not more than half the maximum quantity, of oil for the engine.

8.16 Testing aircraft engine — vibration test

- (1) This section does not apply to an engine that is of a type of construction known not to be prone to hazardous vibration.
- (2) A test engine for the aircraft with a representative propeller attached must be subjected to a vibration test to work out the crankshaft torsional and bending characteristics of the engine when:
 - (a) the engine is idling; and
 - (b) the engine is rotating at the greater of:
 - (i) 110% of the engine's maximum continuous speed; and
 - (ii) 103% of the engine's maximum desired take-off speed; and
 - (c) the engine is rotating at a range of speeds between the speeds mentioned in paragraphs (a) and (b).
- (3) The test mentioned in subsection (2) must not be conducted on an engine when hazardous testing conditions are present.

8.17 Testing aircraft engine — calibration test

- (1) A test engine for the aircraft must be tested to identify the power characteristics of the engine that will be installed in the aircraft and the conditions for the endurance test to be conducted on the engine under section 8.19.
- (2) The results of the test must form the basis for identifying the characteristics of the engine over its entire operating range of crankshaft rotational speeds, manifold pressures and settings for fuel and air mixture for the engine.
- (3) The power ratings must be based on ISA conditions at sea level.

8.18 Testing aircraft engine — detonation test

If the aircraft engine has spark ignition, a test engine must be tested to establish that it can function without detonation throughout the range of intended conditions of operation.

8.19 Testing aircraft engine — endurance test

- (1) The engine must be tested for its endurance capacity (*endurance test*) by operating the engine with a representative propeller for a total of 50 hours in the cycles of 120 minutes in the following table:

Sequence	Duration (minutes)	Operating conditions
1	5	Starting idle
2	5	Take-off power
3	5	Cooling run (idle)
4	5	Take-off power
5	5	Cooling run (idle)
6	5	Take-off power
7	5	Cooling run (idle)
8	15	75% of maximum continuous power
9	5	Cooling run (idle)
10	60	Maximum continuous power
11	5	Cooling run and stop

- (2) After the endurance test has been conducted, the following actions must be performed:
- (a) the fuel and oil consumption of the engine resulting from the endurance test must be determined;
 - (b) a power check of the engine to determine any change to the aircraft's power characteristics must be conducted at sea level conditions;
 - (c) if there are any changes in the power characteristics of the engine resulting from the endurance test as shown by the power check—the changes must be determined;
 - (d) the engine must be completely disassembled and must not show rupture, cracks or excessive wear on any essential part.
- (3) If the power check mentioned in paragraph (2) (b) shows that the engine does not meet the power ratings mentioned in subsection 8.14 (1), the endurance test must be conducted using new engine power ratings.

8.20 Testing aircraft engine — operations test

The engine must be tested to identify the following characteristics of the engine:

- (a) backfire characteristics;
- (b) starting, idling, acceleration, overspeeding and any other operational characteristics.

8.21 Testing aircraft engine parts

- (1) The engine must be tested to establish whether any parts that were not tested during the endurance test of the engine can function reliably in all normally anticipated flight and atmospheric conditions.
- (2) If a part of the engine requires temperature controlling to ensure its satisfactory functioning, reliability and durability, the temperature limits for the part must be recorded.

8.22 Requirements for propeller

The aircraft must be fitted with 1 of the following kinds of propeller:

- (a) a propeller certified under 1 of the following:
 - (i) FAR Part 35 (USA);
 - (ii) BCAR Section C (Britain);
 - (iii) Section P of the JAR VLA (Joint Aviation Authorities);
- (b) a propeller that:
 - (i) meets the requirements of section 8.23; and
 - (ii) has been successfully tested under sections 8.24 to 8.26;
- (c) a propeller that CASA or an authorised person is satisfied would not be contrary to the interests of the safety of air navigation to be fitted on the aircraft.

8.23 Requirements for propeller tested under this Division

- (1) The propeller must have an instruction manual that includes information that is necessary for properly installing, servicing and maintaining the propeller.
- (2) The pitch control for the propeller must be of a kind that the failure of the pitch control will not result in the propeller rotating at a speed that is hazardous overspeeding under the intended operating conditions.
- (3) The suitability and durability of materials used in the propeller must be established on the basis of documented experience or tests and conform to approved specifications.
- (4) The propeller's operating limitations must be established on the basis of the conditions demonstrated during the tests mentioned in sections 8.24 to 8.26.
- (5) The propeller may be serviced and receive minor repairs during the conduct of the tests mentioned in sections 8.24 to 8.26.
- (6) The propeller must not show any evidence of failure or malfunction as a result of the tests mentioned in sections 8.24 to 8.26.

8.24 Testing propeller—fatigue limit and blade retention tests

- (1) The propeller for the aircraft must be tested to work out the fatigue limits for each metallic hub and blade on the propeller and each primary load carrying part of a non-metallic blade.
- (2) The fatigue limits must take account of permissible service deterioration, such as nicks, grooves, galling, bearing wear and variations in material properties.
- (3) If the propeller has a detachable blade, the hub and blade retention arrangement of the propeller must demonstrate that it can sustain a load equal to 2 times the centrifugal force occurring at the maximum rotational speed, other than transient overspeed, of the propeller.

8.25 Testing fixed pitch or ground adjustable propeller—endurance test

- (1) This section applies if the propeller for the aircraft is not a variable pitch propeller.

Note Propellers that are not variable pitch propellers include fixed pitch propellers and ground adjustable propellers.
- (2) If the propeller for the aircraft is a fixed pitch wooden propeller, an endurance bench test must be conducted on a test propeller during which the propeller is:
 - (a) fitted to a test engine for the aircraft; and
 - (b) operated for 50 hours at 90% or more of the rotational speed and power condition associated with maximum climb, including at least 5 hours at the rotational speed and power condition associated with maximum climb.
- (3) If the propeller for the aircraft is not a fixed pitch wooden propeller, 1 of the following tests must be conducted on a test propeller that has the greatest diameter for which approval is requested:
 - (a) a flight test during which the propeller is:
 - (i) fitted to the aircraft which is flown in level flight or in climb for 50 hours; and
 - (ii) operated at 90% or more of the rated rotational speed for the 50 hour period of the test, including at least 5 hours at the rated rotational speed;
 - (b) an endurance bench test during which the propeller is:
 - (i) fitted to a test engine for the aircraft; and
 - (ii) operated for 50 hours at the power and rated rotational speed for which certification is sought.
- (4) After a test mentioned in subsection (2) or (3) has been conducted, the propeller must be completely disassembled and must not show rupture, cracks or excessive wear on any essential part.

8.26 Testing variable pitch propeller—endurance and functional tests

- (1) This section applies if the propeller for the aircraft is a variable pitch propeller.
- (2) One of the following tests must be conducted on the propeller:
 - (a) operation of the propeller fitted to the test engine throughout the endurance test mentioned in section 8.19;
 - (b) the test mentioned in subsection (3).
- (3) For paragraph (2) (b), the test is a bench test with the propeller:
 - (a) fitted to an engine with the same power and rotational speed characteristics as the engine or engines with which the propeller is to be used; and
 - (b) operated:
 - (i) at the maximum continuous rotational speed and power rating of the propeller for 50 hours; and
 - (ii) if a take-off performance greater than the maximum continuous rating must be established—at the maximum power and rotational speed for the take-off rating for an additional 10 hours.
- (4) A functional test must be conducted on the same propeller used in the test mentioned in subsection (2), with the propeller:
 - (a) fitted to an engine on a test stand or on an aeroplane; and

- (b) operated for the following number of complete cycles of control throughout the pitch and rotational speed ranges, other than the feathering range:
 - (i) for a manually controllable propeller—500;
 - (ii) for an automatically controllable propeller—1 500.
- (5) After the tests mentioned in this section have been conducted, the propeller must be completely disassembled and must not show rupture, cracks or excessive wear on any essential part.

8.27 Requirements for information about aircraft - general

- (1) The following information must be given to CASA or the authorised person about the aircraft, the aircraft engine and the propeller for the aircraft:
 - (a) information identifying:
 - (i) any design standards mentioned in section 8.8 to which the aircraft conforms and how the aircraft meets the design standards; and
 - (ii) the kind of engine mentioned in subsection 8.13 installed in the aircraft;
 - (iii) the kind of propeller mentioned in subsection 8.22 fitted to the aircraft;
 - (b) if there is a type certificate, type certificate data sheet or another equivalent document issued by the national aviation authority in the state of manufacture of the aircraft—information identifying the type certificate, type certificate data sheet or equivalent document;
 - (c) a list of type design data for the aircraft;
 - (d) the following drawings of the aircraft:
 - (i) general assembly drawings;
 - (ii) station diagrams;
 - (iii) drawings of major structural elements and assemblies;
 - (iv) drawings of essential systems and services, including power plant assemblies;
 - (e) a list of the drawings mentioned in paragraph (d) and any other drawings given to CASA or the authorised person;
 - (f) if any modifications or changes have been made to the aircraft, aircraft engine or propeller—details of the modifications and changes;
 - (g) a record of the manner in which the aircraft's controls were used when testing the aircraft's performance in accordance with sections 8.9 to 8.11 in sufficient detail to enable the scheduled flight characteristics to be repeated.
- (2) The information must be legible and in English.

8.28 Requirements for information about aircraft — flight manual

A flight manual for the aircraft must be given to CASA or the authorised person that:

- (a) includes the information mentioned in section 8.29 as it relates to the aircraft and that is determined, worked out or derived from the following:
 - (i) manufacturer's specifications and procedures;
 - (ii) any tests or other activities mentioned in this Division conducted on the aircraft, aircraft engine and propeller;
 - (iii) such other data as are specified or approved by CASA; and
- (b) has a protective cover; and

- (c) has each page marked in a manner identifying the aircraft, the page of the flight manual and the day on which the page was issued; and
- (d) has each page, other than pages in Sections 6 to 8, marked or otherwise identified as being approved by CASA and the day on which the page was approved; and
- (e) has each page in Section 6 marked or otherwise identified as being approved by a weight control officer or an authorised person and the day on which the page was approved; and
- (f) is legible and in English.

8.29 Contents of flight manual

- (1) The flight manual must contain the sections mentioned in paragraphs (a) to (g) and (j) and may contain the sections mentioned in paragraphs (h) and (i) of the following paragraphs:
 - (a) Introductory Pages;
 - (b) Section 1 — General;
 - (c) Section 2 — Limitations;
 - (d) Section 3 — Emergency Procedures;
 - (e) Section 4 — Normal Procedures;
 - (f) Section 5 — Performance;
 - (g) Section 6 — Weight and Balance and Equipment List;
 - (h) Section 7 — Aircraft and Systems Descriptions;
 - (i) Section 8 — Aircraft Handling, Service and Maintenance;
 - (j) Section 9 — Supplements.
- (2) Each section of the flight manual must commence on a new page.

Introductory pages

- (3) The section of the flight manual named ‘Introductory pages’ must contain the following:
 - (a) a cover page containing the following:
 - (i) the name of the aircraft’s manufacturer;
 - (ii) the aircraft’s type and model;
 - (iii) space for the signature of the CASA delegate or the authorised person to signify approval of the manual and the date of the approval;
 - (b) an approval page containing the following:
 - (i) the name of the aircraft’s manufacturer;
 - (ii) the aircraft’s type and model;
 - (iii) the aircraft’s serial number;
 - (iv) the aircraft’s nationality and registration marks;
 - (v) the aircraft’s airworthiness certification category;
 - (vi) the number of the associated certificate of airworthiness for the aircraft;
 - (vii) space for the signature of the CASA delegate or the authorised person to signify the issue of the manual to the specified aircraft and the date of issue;
 - (c) a table of contents which clearly indicates which parts of the manual are approved;

- (d) pages for recording amendments to the flight manual and a description of the amendment system;
- (e) an introduction page specifying the applicability of the manual, the requirement for its carriage in the aircraft and the manner for issuing amendments to the flight manual;
- (f) a list of effective pages specifying the current revision or amendment status of all approved pages, with space for the signature of the CASA delegate or the authorised person to signify approval of the revision or amendment;
- (g) a definition of the following terms:
 - (i) airfield pressure altitude;
 - (ii) indicated airspeed;
 - (iii) take-off safety speed;
 - (iv) landing safety speed;
 - (v) normal operating speed;
 - (vi) manoeuvring speed;
 - (vii) any other term used in the manual that may not be readily understood.

Section 1—General

- (4) The section of the flight manual named ‘Section 1—General’ must include the following information about the aircraft:
 - (a) 3 view drawings;
 - (b) the ground turning clearance;
 - (c) approved engines;
 - (d) approved propellers;
 - (e) approved fuel types and grades;
 - (f) total and usable capacity of each fuel tank;
 - (g) approved oil grades;
 - (h) total and usable oil capacity.

Section 2—Limitations

- (5) The section of the flight manual named ‘Section 2—Limitations’ must contain the following limitations and information as applicable and any other item established as a limitation on the operation of the aircraft:
 - (a) the following indicated airspeeds, as appropriate, in knots and an explanation of any associated instrument colour markings:
 - (i) never exceed speed (V_{NE});
 - (ii) manoeuvring speed (V_A);
 - (iii) maximum wing flaps extended speed (V_{FE});
 - (iv) maximum landing gear extended speed (V_{LE});
 - (v) maximum landing gear operating speed (V_{LO});
 - (b) weights and loadings as follows:
 - (i) maximum take-off weight;
 - (ii) maximum landing weight;
 - (iii) maximum disposable loads;
 - (iv) cargo compartment maximum loads;
 - (v) any other loading limitations;

- (c) centre of gravity limits and reference datum;
- (d) powerplant information including the following:
 - (i) power, r/min and temperature limitations for each rated power condition;
 - (ii) oil pressure and temperature limitations;
 - (iii) an explanation of any instrument colour markings associated with powerplant limitations;
- (e) miscellaneous information including the following:
 - (i) a statement of the authorised manoeuvres and associated limitations appropriate to the aircraft's certification category;
 - (ii) the maximum permissible number of occupants;
 - (iii) a statement of any restriction on smoking in the aircraft;
 - (iv) the maximum air temperature at which operation of the aircraft is permitted, if applicable;
 - (v) a statement of the inscription on, and the location of, each placard that is required to be displayed;
 - (vi) an explanation of the significance of any instrument colour markings not mentioned in paragraphs (a) and (d);
 - (vii) if the structural fatigue life of the aircraft has not been evaluated to the satisfaction of CASA or the authorised person—a prominent statement to the effect that the aircraft's structural durability is unknown.

Section 3—Emergency Procedures

- (6) The section of the flight manual named 'Section 3—Emergency Procedures' must contain the operating procedures for flight and system emergency conditions that are essential for the continued safe operation of the aircraft.
- (7) The procedures mentioned in subsection (6) must include airspeeds for emergency operations and the emergency procedure check list for the following kinds of emergency:
 - (a) engine failure;
 - (b) airstart and limitations;
 - (c) fire;
 - (d) system emergencies, including load shedding for electrical failures, if applicable;
 - (e) take-off and landing emergencies.
- (8) The procedures mentioned in subsection (6) must be presented as clearly and briefly as possible.

Section 4—Normal Procedures

- (9) The section of the flight manual named 'Section 4—Normal Procedures' must contain the recommended procedures and information necessary for the safe operation of the aircraft, including:
 - (a) check lists as appropriate to the operation of the aircraft; and
 - (b) procedures and limitations in the use of all aircraft systems.

Section 5—Performance

- (10) The section of the flight manual named 'Section 5—Performance' must contain the performance information necessary for observance of the operational and

airworthiness performance requirements for the aircraft, and must include the following:

- (a) the stalling (or minimum steady flight) speeds for zero, take-off and landing flap settings for maximum take-off and landing weights;
 - (b) a statement of the nature of the stall warning;
 - (c) the distance required for take-off and landing which must be the greater of the following:
 - (i) 1.4 times the take-off distance worked out under section 8.10;
 - (ii) 1.4 times the landing distance worked out under section 8.11;
 - (d) a statement to the effect that the distance mentioned in paragraph (c) must be increased by 20% for each 1 000 feet of pressure altitude above mean sea level;
 - (e) the maximum crosswind component for take-off and landing.
- (11) The information mentioned in subsection (10) must be presented as follows:
- (a) the required information must be presented in graphical or tabular form or in the form of a statement acceptable to CASA or the authorised person;
 - (b) each graph and tabulation must contain an example to illustrate the method of use;
 - (c) the configuration, conditions and factors associated with each graph and tabulation must be stated on or adjacent to the graph or tabulation.

Section 6—Weight and Balance and Equipment List

- (12) The section of the flight manual named ‘Section 6 —Weight and Balance and Equipment List’ must contain the following:
- (a) the information necessary to ensure loading of the aircraft within the limitations specified in Section 2 of the manual including the following:
 - (i) a load data sheet;
 - (ii) an equipment list;
 - (iii) where appropriate—a loading system, including instructions required to ensure correct use of the system;
 - (b) if a loading system is not required for the aircraft—a statement that a loading system is not required for the aircraft;
 - (c) if the loading system takes the form of a cockpit placard—a statement of the inscription on, and the location of, the placard.

Section 7—Aircraft and Systems Descriptions

- (13) A section of the flight manual named ‘Section 7—Aircraft and Systems Descriptions’ may be included in the flight manual by the applicant or manufacturer and does not require approval by CASA or an authorised person.

Section 8—Aircraft Handling, Service and Maintenance

- (14) A section of the flight manual named ‘Section 8—Aircraft Handling, Service and Maintenance’ may be included in the flight manual by the applicant or manufacturer and does not require approval by CASA or an authorised person.

Section 9—Supplements

- (15) The section of the flight manual named ‘Section 9—Supplements’ must include the following:
 - (a) information, in the form of supplements, about any equipment fitted to the aircraft or operation of the aircraft that is not covered by the other sections of the flight manual;
 - (b) a list of mandatory and individually approved supplements.
- (16) Each supplement must include:
 - (a) a face page that includes a statement of the applicability of the supplement and space for the signature of the CASA delegate or the authorised person to signify approval of the supplement and the date of the approval;
 - (b) a list of effective pages specifying the current revision or amendment status of all pages and space for the signature of the CASA delegate or the authorised person to signify approval of the revision or amendment and the date of the approval;
 - (c) a description of the equipment or operation of the aircraft to which it relates;
 - (d) a list of any additions to, or revisions of, the limitations and procedures mentioned in the flight manual.

8.30 Requirements for information about aircraft—instructions for continued airworthiness

Instructions for continued airworthiness of the aircraft, aircraft engine and propeller and other parts of the aircraft must be given to CASA or the authorised person and must:

- (a) include the information mentioned in section 8.31; and
- (b) include any manufacturer’s manual detailing procedures for maintenance, overhaul and repair of the aircraft, including its airframe, engine, propeller, and other parts, systems and equipment; and
- (c) be in the form of 1 or more manuals, depending on the quantity of the information making up the instructions for continued airworthiness; and
- (d) include a process for making and distributing amendments to the instructions for continued airworthiness; and
- (e) if instructions for continued airworthiness of a part or item of equipment installed in the aircraft are not supplied by the manufacturer of the part or item—include the essential information for continued airworthiness of the part or item; and
- (f) be legible and in English.

8.31 Contents of instructions for continued airworthiness

Aircraft information and data

- (1) The instructions for continued airworthiness for the aircraft must include the following information and data about the aircraft:
 - (a) introductory information that includes an explanation of the aircraft’s features and data to the extent necessary for maintenance or preventative maintenance;

- (b) a description of the aircraft and its systems and installations including its parts and items of equipment;
- (c) basic control and operation information describing how the aircraft parts and systems operate, including any special procedures and limitations that apply;
- (d) details about the following:
 - (i) servicing points;
 - (ii) capacities of tanks;
 - (iii) reservoirs;
 - (iv) types of fluids to be used;
 - (v) pressures applicable to the various systems;
 - (vi) location of access panels for inspection and servicing;
 - (vii) locations of lubrication points;
 - (viii) lubricants to be used;
 - (ix) equipment required for servicing;
 - (x) tow instructions and limitations; and
 - (xi) mooring, jacking and levelling information;
- (e) diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided;
- (f) all data about structural fasteners such as identification, discard recommendations, and torque values;
- (g) a list of special tools needed;
- (h) details of mandatory placards, if any.

Maintenance instructions

- (2) The instructions for continued airworthiness of the aircraft must include maintenance instructions for the aircraft including the following:
 - (a) instructions for the cleaning, inspection, adjustment, testing and lubrication of the aircraft, aircraft engine, propeller, accessories, parts, instruments and equipment including the following:
 - (i) recommended periods when they should be cleaned, inspected, adjusted, tested and lubricated;
 - (ii) standards to which the cleaning, inspection, adjustment, testing and lubrication must be done;
 - (iii) their applicable wear tolerances;
 - (iv) their recommended overhaul periods;
 - (b) instructions for an inspection programme, including a periodic inspection schedule, providing for the continued airworthiness of the aircraft;
 - (c) troubleshooting information describing probable malfunctions, how to recognise the malfunctions, and the remedial action for the malfunctions;
 - (d) information describing the order and method of removing and replacing the aircraft engine, propeller, items of equipment and parts including any precautions to be taken;
 - (e) other general procedural instructions, including procedures for the following:

- (i) system testing during ground running;
 - (ii) symmetry checks;
 - (iii) weighing, lifting and shoring;
 - (iv) storage limitations;
 - (f) instructions to disassemble, transport, store and reassemble the aircraft to an airworthy condition, where major parts are designed to be removed for such purposes;
 - (g) details for the application of special inspection techniques including non-destructive inspection (NDI) methods where such processes are specified;
 - (h) information needed to apply protective treatments to the structure after inspection.
- (3) If the applicant shows that an accessory, instrument or item of equipment has an exceptionally high degree of complexity requiring specialised maintenance techniques, test equipment or expertise, the applicant may refer to the manufacturer of the accessory, instrument or item as the source of the information mentioned in subsection (2).

Airworthiness limitations

- (4) The instructions for continued airworthiness for the aircraft must contain a section that:
- (a) is named ‘Airworthiness Limitations’; and
 - (b) if the instructions for continued airworthiness are made up of more than 1 manual—is included in the principal manual; and
 - (c) is segregated and clearly distinguishable from the rest of the document; and
 - (d) states the mandatory replacement time, structural inspection interval, and related structural inspection procedure for the aircraft, aircraft engine, propeller, parts, accessories and instruments; and
 - (e) if the structural fatigue life of the aircraft was not evaluated—includes a prominent statement to the effect that the aircraft structural durability is unknown.

Schedule 2 Amendment

Civil Aviation Order 95.10 Instrument 2017

1 Subparagraph 6.4 (b)

Omit “paragraph 6.1 of *Civil Aviation Amendment Order No. R94 2004*”, substitute “subsection 8.13 of the Part 21 Manual of Standards”.

[As at 11 September 2017, it is proposed that the *Civil Aviation Order 95.10 Instrument 2017* will be repealed and remade to address an issue relating to incorporation of material by reference. This Schedule will need to be updated if the instrument is remade.]

Schedule 3 Amendment of certain Civil Aviation Orders

1 Amendment of Civil Aviation Orders

Omit “paragraph 6.1 of Civil Aviation Order 101.55” and substitute “subsection 8.13 of the Part 21 Manual of Standards as in force from time to time” in the specified provisions of the Civil Aviation Orders listed in this Schedule.

Civil Aviation Order 95.12 (as set out in Schedule 1 to the Civil Aviation Order 95.12 Instrument 2011)

2 Subparagraph 6.3 (b)

Civil Aviation Order 95.12.1 (as set out in Schedule 1 to the Civil Aviation Order 95.12.1 Instrument 2011)

3 Subparagraph 7.4 (b)

Civil Aviation Order 95.32

4 Subparagraph 7.3 (b)

Civil Aviation Order 95.55

5 Subparagraph 7.3 (b)

Schedule 4 Amendments

Civil Aviation Order 95.55

1 Subparagraphs 1.2 (b) and (c)

Repeal the subparagraphs, substitute:

- (b) an aeroplane described in subsections 8.7 (1) and (3) of the Part 21 Manual of Standards, as in force from time to time;
- (c) an aeroplane described in subsections 8.7 (1) and (4) of the Part 21 Manual of Standards, as in force from time to time, that complies with the requirements prescribed by Division 2 of Part 8 of the Part 21 Manual of Standards, as in force from time to time;

2 Sub-subparagraph 7.3 (a) (i)

Omit “Civil Aviation Order 101.55”, substitute “Division 2 of Part 8 of the Part 21 Manual of Standards, as in force from time to time”.

Schedule 5 Repeal of Civil Aviation Order 101.55

1 Civil Aviation Amendment Order (No. R94) 2004

Civil Aviation Amendment Order (No. R94) 2004, with Federal Register of Legislation unique identifier F2005B00953, is repealed.

2 Civil Aviation Order 101.55

To avoid doubt, Civil Aviation Order 101.55 is repealed.

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