



Australian Government
Civil Aviation Safety Authority

I, JOHN FRANCIS McCORMICK, Director of Aviation Safety, on behalf of CASA, make this instrument under paragraph 28BA (1) (b) and subsection 98 (4A) of the *Civil Aviation Act 1988*.

[Signed John F. McCormick]

John F. McCormick
Director of Aviation Safety

14 November 2012

Civil Aviation Order 82.0 Amendment Instrument 2012 (No. 2)

1 Name of instrument

This instrument is the *Civil Aviation Order 82.0 Amendment Instrument 2012 (No. 2)*.

2 Commencement

This instrument commences on the day after registration.

3 Amendment of Civil Aviation Order 82.0

Schedule 1 amends Civil Aviation Order 82.0.

Schedule 1 Amendment

[1] After subsection 10

insert

11 Use of electronic flight bags (EFB)

- 11.1 If the pilot in command of an aircraft operated under an AOC uses an EFB as a means of complying, or partially complying, with paragraph 233 (1) (h) of CAR 1988, each certificate authorising operations under the AOC is subject to the condition that the AOC holder must comply with, and ensure flight crew compliance with, the applicable requirements in Appendix 9.
- 11.2 For this subsection, **EFB** has the meaning given to it in Appendix 9.

Appendix 9

Requirements to be met for the use of an EFB

1 Definitions

1.1 In this Appendix:

AFM means the aircraft flight manual for the aircraft to which the abbreviation refers.

aircraft means an aircraft operated under the AOC of the AOC holder mentioned in paragraph 11.1 of this CAO.

Note Paragraph 11.1 of this CAO is above, in the main body of the CAO, under the heading **Use of electronic flight bags (EFB)**.

aircraft-installed, for an EFB, means fitted to an aircraft:

- (a) by the aircraft manufacturer in accordance with the type certificate, or supplemental type certificate, for the aircraft issued by the NAA of a recognised foreign country; or
- (b) in accordance with a supplemental type certificate under Subpart 21E of CASR 1998; or
- (c) in accordance with Subpart 21M of CASR 1998.

approved mount means a mount, approved in writing by CASA, which:

- (a) does not require the use of tools for mounting the EFB or dismounting it; and
- (b) whether or not the mount is holding the EFB, and whether or not a screen-protector is used, does not:
 - (i) obstruct the flight crew when entering or leaving the flight deck; or
 - (ii) affect the flight crew's physical or visual access to the operational controls and displays on the flight deck; or
 - (iii) affect the flight crew's external vision from the flight deck; or
 - (iv) if the EFB is connected to aircraft power or an external antenna — affect the operation of the aircraft or the safety of the flight crew; or
 - (v) present, including through cabling or other connectivity, a safety hazard to the flight crew at any time, including in an emergency.

authorised EFB custodian means a person who is authorised in writing by the HFO to have custody of an AOC holder's EFB.

backup EFB means an EFB that is:

- (a) of at least the same class and functionality level as the permitted EFB of the most senior flight crew member to whom an EFB was issued (*designated EFB member*); and
- (b) available to be used in the event of the failure or malfunction of the EFB of the designated EFB member.

Note The EFB issued to flight crew member, other than the designated EFB member, may be used as the backup EFB. Under subclause 3.7 of this Appendix, any requirements of this Appendix that apply to, or in relation to, a flight crew EFB, also apply to the backup EFB.

class means a Class 1 EFB or a Class 2 EFB.

Class 1 EFB means an EFB that is portable but not mounted.

Class 2 EFB means an EFB that is portable and mounted.

Note A Class 3 EFB means an EFB that is aircraft-installed. This Order does not deal with Class 3 EFB.

CAR 1988 means the *Civil Aviation Regulations 1988*.

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

data means digital data primarily used for the operation of an aircraft, including aeronautical maps, charts, and any other written, numerical, diagrammatic or cartographic information or instructions.

EFB system means the hardware, the operating system, the loaded software and any antennae, connections and power sources, used for the operation of an EFB.

electronic flight bag, or EFB, means the portable electronic device of an EFB system that satisfies all of the following requirements:

- (a) it is not an instrument, equipment or navigation computer to which any of the following apply:
 - (i) regulation 207 of CAR 1988;
 - (ii) regulation 232A of CAR 1988;
 - (iii) Civil Aviation Order 20.18;
- (b) it provides, as a minimum, data storage, search, computational and display capabilities;
- (c) it uses a screen which displays data in a size and form that is at least as easily read and used as it would be in a paper document for which the EFB would be a substitute;
- (d) it is used primarily on the flight deck of an aircraft by the flight crew of the aircraft for the purpose of accessing and using data relevant to the operation of the aircraft.

flight crew EFB means the permitted EFB which the AOC holder must ensure each operating flight crew member has the exclusive use of on the flight deck of an aircraft.

Note See subclause 3.5 of this Appendix.

functionality level means 1 of the following functionality levels mentioned in subclause 1.3:

- (a) functionality level 1;
- (b) functionality level 2;
- (c) functionality level 3;
- (d) functionality level 4.

HFO, for an AOC holder, means the head of flying operations (however described).

mounted has the meaning given in paragraph (b) of the definition of **portable**, and includes a mount that is:

- (a) attached to the aircraft; or
- (b) not attached to the aircraft but secured to a flight crew member, for example, a kneepad.

Note The mount for an EFB that is mounted to the aircraft structure requires airworthiness approval under Subpart 21.M of the CASR 1998.

operating flight crew member means a member of the minimum flight crew required for operation of an aircraft under its AFM.

portable, for an EFB, means designed by its manufacturer to be carried by hand, and carried by hand onto the flight deck of an aircraft by a flight crew member or an authorised EFB custodian, for use:

- (a) without a mount; or
- (b) when mounted in the flight deck by a flight crew member on an approved mount.

recognised foreign country has the same meaning as in regulation 21.012 of CASR 1998.

1.2 In this Appendix:

- (a) a reference to **training** is taken to include a reference to the contemporaneous assessment, by the trainer, of the person who has been trained; and
- (b) a reference to carrying a portable EFB **onto the flight deck of an aircraft** includes carrying the EFB off the flight deck after use.

1.3 For the definition of **functionality level**:

- (a) **functionality level 1** means that the EFB:
 - (i) is used to view the aeronautical maps, charts, and other aeronautical information and instructions mentioned in paragraph 233 (1) (h) of CAR 1988, but without the functionality to change any of that data; and
 - (ii) may have a flight planning tool to facilitate the use of the data mentioned in subparagraph (i); and
 - (iii) may be 1 or more of the following:
 - (A) subject to subparagraph (iv) — held in the hand;
 - (B) mounted on an approved mount;
 - (C) attached to a stand-alone kneeboard secured to a flight crew member;
 - (D) connected to aircraft power for battery re-charging;
 - (E) connected to an installed antenna intended for use with the EFB for situational awareness but not navigation; and
 - (iv) unless secured in accordance with sub-subparagraph (iii) (B) or (C) — must be stowed:
 - (A) during take-off and landing; and

- (B) during an instrument approach; and
 - (C) when the aircraft is flying at a height less than 1 000 feet above the terrain; and
 - (D) in turbulent conditions; and
 - (v) has no data connectivity with the avionics systems of the aircraft; and
 - (vi) may have wireless or other connectivity to receive or transmit information for EFB administrative control processes only; and
- (b) **functionality level 2** means that the EFB:
- (i) must have the functionality of functionality level 1; and
 - (ii) subject to subclause 1.4, has 1 or more software applications that use algorithms requiring manual input to satisfy operational requirements; and
 - (iii) has no data connectivity with the avionics systems of the aircraft; and
 - (iv) may have wireless or other connectivity to receive or transmit information for EFB administrative control processes only; and

Note Examples of “software applications that use algorithms requiring manual input to satisfy operational requirements” include weight and balance calculations, or performance calculations required by the aircraft’s approved flight manual.

- (c) **functionality level 3** means that the EFB has:
- (i) the functionality of functionality levels 1 and 2; and
 - (ii) 1 or more software applications that permit one-way only acceptance of data directly from the aircraft systems for use by the flight crew to satisfy operational requirements; and
 - (iii) data connectivity with the avionics systems of the aircraft:
 - (A) on a one-way, read-only basis; or
 - (B) to receive or transmit information for aircraft administrative control processes only; and

Note For example, the link may be via Wi-Fi and as a data link must have system security.

- (d) **functionality level 4** means that the EFB has:
- (i) the functionality of functionality levels 1, 2 and 3; and
 - (ii) 1 or more software applications that permit acceptance of data directly from the aircraft systems for direct input to the aircraft’s flight management system to satisfy operational requirements; and
 - (iii) data connectivity with the avionics systems of the aircraft that:
 - (A) is secure; and
 - (B) does not have adverse effects on the avionic systems of the aircraft; and
 - (C) has High Intensity Radiated Fields and lightning protection; and
 - (D) is capable of being overridden by manual input in the event of an EFB malfunction or failure; and

- (E) may receive or transmit information for aircraft administrative control processes.

Note This bi-directional link may be via wireless connectivity, for example, Wi-Fi, and system security must prevent external interference.

2 Software application validation

- 2.1 This clause applies for a software application (*SA*) of the kind mentioned in sub-subparagraph (b) (ii) of the definition of **functionality level 2** in subclause 1.3 (including when functionality level 2 is adopted for functionality level 3 or functionality level 4).
- 2.2 Before first use of the *SA*, or after any updating of the *SA*, the AOC holder must:
 - (a) validate the output from the *SA* for the aircraft to ensure that it complies with the performance limitations set out in the AFM; and
 - (b) retain written evidence of the completion of this validation for the duration of the validation; and
 - (c) make the written evidence mentioned in paragraph (b) available to CASA on request.
- 2.3 If the *SA* is for use in weight and balance calculations for an aircraft, the suitability of the *SA* must be validated in writing by a weight control officer (within the meaning of *Civil Aviation Order 100.7*).

3 Permitted EFB

- 3.1 The AOC holder's operations manual (the **operations manual**) must clearly identify the EFB which the holder permits a flight crew member to use (a **permitted EFB**).
- 3.2 The identification of a permitted EFB in the operations manual must indicate its class and functionality level.
- 3.3 An AOC holder may make an EFB a permitted EFB for an aircraft only if he or she has first demonstrated and documented that the EFB is suitable for:
 - (a) use in the aircraft for operational purposes, taking into account, for example, radiation, electromagnetic interference, and other electronic devices, instruments and equipment carried on, or installed in, the aircraft; and
 - (b) the operating conditions in which the EFB is to be used, including, for example, the expected ranges of temperature, humidity, lighting, turbulence and altitude.
- 3.4 The AOC holder must ensure that a flight crew member of an aircraft must not use an EFB other than a permitted EFB.
- 3.5 The AOC holder must issue each operating flight crew member with a permitted EFB for his or her exclusive use on the flight deck of an aircraft.
- 3.6 The AOC holder must ensure that, at the point of aircraft despatch, there is available on the flight deck and accessible to the pilot in command:
 - (a) a backup EFB capable of substituting, in all respects, for the EFB of the most senior flight crew member to whom an EFB was issued; or

Note See Definitions in subclause 1.1.

- (b) paper versions of the latest editions of the documents mentioned in paragraph 233 (1) (h) of CAR 1988 for which the EFB of the pilot in command was intended to be a substitute.
- 3.7 Any requirements of this Appendix that apply to, or in relation to, flight crew EFB, also apply to a backup EFB.

Note To avoid doubt, a backup EFB does not require a further backup EFB.

4 EFB Administrator

- 4.1 The AOC holder must designate a person to be his or her EFB Administrator.
- 4.2 The EFB Administrator must be a person who has undergone training in the use, management and administration of a permitted EFB, as specified in the operations manual.
- 4.3 The AOC holder must ensure that the EFB Administrator has the authority and responsibility to manage and administer, on behalf of the AOC holder and in accordance with any requirements set out in the operations manual, the obligations imposed on the AOC holder under this Appendix, including in relation to:
- (a) the continuing accuracy of the identification, class and functionality level of the permitted EFB; and
 - (b) the currency, reliability and security of the permitted EFB and EFB system; and
 - (c) the validations required under clause 2 for a software application of the kind mentioned in sub-subparagraph (b) (ii) of the definition of **functionality level 2** in subclause 1.3 (including when functionality level 2 is adopted for functionality level 3 or functionality level 4); and
 - (d) flight crew training for, and use of, a permitted EFB; and
 - (e) permitted EFB user obligations imposed on members of the flight crew by the operations manual; and
 - (f) human factors and flight deck resource management in relation to the use of a permitted EFB; and
 - (g) backup EFB; and
 - (h) the validity of authorisations and certifications required for data link security for the permitted EFB system.
- 4.4 The EFB Administrator must be accountable to the AOC holder's HFO for:
- (a) managing and administering flight crew use of a permitted EFB; and
 - (b) ensuring that the detailed operational procedures for the use of a permitted EFB are complied with.
- 4.5 To avoid doubt, the operations manual must set out relevant requirements for each of the matters mentioned in subclause 4.3.

5 EFB Administrator training

- 5.1 The AOC holder must establish, and set out in the operations manual:
 - (a) the nature, content and duration of the training that an EFB Administrator must have successfully completed before exercising responsibilities as the EFB Administrator; and
 - (b) the recurrent training that the EFB Administrator must complete while exercising those responsibilities.
- 5.2 The training and recurrent training must be:
 - (a) provided by a person approved in writing by the AOC holder; and
 - (b) specific for the functionality level and class of the permitted EFB.
- 5.3 The training and recurrent training must provide competency in the use, management and administration of a permitted EFB, including in the requirements and operational procedures set out in the operations manual and this Appendix.
- 5.4 Before approving a person to provide EFB Administrator training in permitted EFB, the AOC holder must establish that the training and recurrent training to be offered by the person complies with the recommendations set out for training in CAAP 233-1 (0) and later versions as in force from time to time.

6 Flight crew training

- 6.1 The AOC holder must establish, and set out in the operations manual, the nature, content and duration of the training that each flight crew member of an aircraft must have successfully completed before using a permitted EFB.
- 6.2 The training must be completed before a person may use the permitted EFB, and must include training in:
 - (a) the instructions and recommendations of the manufacturer of the permitted EFB as hardware; and
 - (b) the instructions and recommendations of the developer and installer of the permitted EFB's software; and
 - (c) the procedures to be followed if the permitted EFB carried on an aircraft fails or malfunctions during the operation of the aircraft.
- 6.3 If the pilot in command of an aircraft uses a permitted EFB as a means of only partially complying with paragraph 233 (1) (h) of CAR 1988, the training in the use of the EFB must ensure continuing flight crew proficiency in the non-EFB documents used to complement EFB use.
- 6.4 The training must be provided by a person approved by the HFO, and be specific for the functionality level and class of the permitted EFB.
- 6.5 In deciding to approve a person to provide flight crew training in permitted EFB, the HFO must be satisfied that the training to be offered by the person will meet the recommendations set out for training in CAAP 233-1 (0) and later versions as in force from time to time.

7 Certification of completion of EFB training

For clauses 5 and 6, the operations manual must require the AOC holder's HFO to certify in writing to the AOC holder that, for the following persons:

- (a) the EFB Administrator;
- (b) each flight crew member of an aircraft under the AOC who may use the permitted EFB;

the HFO is satisfied that the person:

- (c) has been trained and assessed in accordance with the operations manual; and
- (d) is competent:
 - (i) for the EFB Administrator — to manage and administer, in accordance with the requirements set out in the operations manual and this Appendix, flight crew use of the permitted EFB; and
 - (ii) for a flight crew member — to use a permitted EFB, in accordance with the requirements set out in the operations manual and this Appendix.

8 Hardware integrity for aircraft-installed EFB

The AOC holder must establish, and set out in the operations manual, procedures which make it clear that the EFB Administrator is not responsible for the management and administration of the hardware of, and that is associated with, an aircraft-installed EFB.

9 Hardware integrity for EFBs

9.1 Without affecting clause 8, the AOC holder must establish, and set out in the operations manual, procedures to safely manage the hardware of, and accessories for, a permitted EFB, including:

- (a) its removal, repair, replacement, re-installation and maintenance; and
- (b) its storage when off the aircraft, and its stowage when on the aircraft and not mounted.

9.2 For subclause 9.1, *hardware* and *accessories* include the following:

- (a) the electronic device constituting the hardware of the permitted EFB;
- (b) any mount for the EFB;
- (c) cables and antennae for the EFB;
- (d) screen protectors for the EFB;
- (e) batteries and other portable power sources for the EFB.

10 Data integrity for permitted EFBs

The AOC holder must establish, and set out in the operations manual, procedures for the following for a permitted EFB:

- (a) the loading of software on to the EFB (including who may do this and how it is to be done);
- (b) the entry of data into, and the verification of data in, the EFB (including who may do this and how it is to be done);

- (c) ensuring that any data loaded on to the EFB is current and up-to-date for any time that it is used in an aircraft operation;
- (d) protection of the EFB system, including protection of data in the EFB, and data links, from unauthorised use, electronic interference, corruption or viruses;
- (e) ensuring the tracking of the EFB database expiry dates, and ensuring the accurate and reliable updating of data bases;
- (f) flight crew error and defect reporting for the EFB;
- (g) procedures to be followed if a permitted EFB wholly or partially fails or malfunctions during an aircraft operation;
- (h) testing of the EFB following:
 - (i) the loading or unloading of software; or
 - (ii) EFB hardware maintenance; or
 - (iii) the occurrence of a circumstance mentioned in paragraph (g).

11 Flight crew procedures

The AOC holder must establish for a permitted EFB, and set out in the operations manual, flight crew procedures for the following:

- (a) who may use the EFB;
- (b) when the EFB may be used and the purposes for which it may be used;
- (c) how the EFB is to be used;

Note As defined above, EFB means both the hardware and the software of the device.

- (d) if there are 2 or more sources on board the aircraft for the same operational data, one of which is the permitted EFB of the flight crew — establishing the order of precedence for the use of the sources;
- (e) the cross-checks to be carried out by each flight crew member to verify EFB data before it is relied upon, in particular safety-critical EFB data;
- (f) how the following are to be avoided or minimised in the use of the EFB:
 - (i) flight crew member error;
 - (ii) flight crew member overload;
- (g) the power sources to be used for the EFB;
- (h) the backup data, data sources and power sources to be carried on board an aircraft for the contingency of an EFB or EFB power-source failure.

12 Maintenance control for EFB

- 12.1 The AOC holder must ensure that the hardware of a permitted EFB and an EFB system is maintained in accordance with this clause.
- 12.2 The AOC holder must establish, and set out in an appropriate document (for example, a maintenance control manual), detailed operational procedures for the maintenance control of a permitted EFB and EFB system.

- 12.3 The procedures must ensure that only the original manufacturer of the permitted EFB, or a person approved in writing by the original manufacturer, may maintain the hardware of a permitted EFB.
- 12.4 The procedures must ensure that only the original manufacturer of the permitted EFB, or a person approved in writing by the original manufacturer, may modify the operating system of the permitted EFB.
- 12.5 The procedures must ensure that only the original producer of a software application loaded on to a permitted EFB, or a person approved in writing by the original producer, may modify that software application for use on the EFB.

13 Safety paramount

- 13.1 The procedures to be included in the operations manual, and the appropriate document mentioned in subclause 12.2, in relation to EFBs must be designed to achieve the highest practicable level of safety in the use of the permitted EFB.
 - 13.2 The AOC holder must ensure that each member of the holder's personnel who has obligations under the operations manual in relation to the permitted EFB or EFB system complies with those obligations.
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