

## CHAPTER 14 IFR FLIGHTS

### 14.01 Purpose and definition

- (1) For subregulation 91.287 (1), this Chapter prescribes requirements relating to the operation of an aircraft for an IFR flight.
- (2) In this Chapter, an aircraft is approved for operation under a particular navigation specification if it is approved for the specification by at least 1 of the following:
  - (a) the AFM;
  - (b) a document approved under Part 21 of CASR as part of, or based on, an airworthiness assessment;
  - (c) for a foreign-registered aircraft — a document approved in writing by the NAA of the State of registration or State of the operator of the aircraft.

### 14.02 IFR flight navigation requirements

- (1) The pilot in command must navigate the aircraft by:
  - (a) use of an area navigation system that meets the performance requirements of the intended airspace or route; or
  - (b) use of a ground-based navigation aid, but only if:
    - (i) the route is one where, after making allowance for possible tracking errors of  $\pm 9^\circ$  from the last positive fix, the aircraft will come within the rated coverage of a ground-based navigation aid which can be used to fix the position of the aircraft; and
    - (ii) the maximum time interval between positive fixes is not more than 2 hours; or
  - (c) visual reference to the ground or water, but only:
    - (i) when unable to operate in accordance with paragraph (a) or (b); and
    - (ii) by day; and
    - (iii) if weather conditions permit flight in VMC; and
    - (iv) if the VFR position-fixing requirements mentioned in subsections 13.02 (1) and (2) are complied with.
- (2) The pilot in command of an aircraft may:
  - (a) operate in an airspace or on a route designated as requiring use of a particular navigation specification; or
  - (b) conduct a terminal instrument flight procedure designated as requiring use of a particular navigation specification;  
only if the aircraft is approved for operation under the particular navigation specification.
- (3) If the pilot in command is:
  - (a) operating in an airspace or on a route that requires the use of GNSS; or
  - (b) conducting a terminal instrument flight procedure that requires the use of GNSS;  
then the operation must be conducted using an approved GNSS.
- (4) If the navigation system being used becomes inaccurate, unreliable or inoperative, the pilot in command must do the following:
  - (a) monitor the aircraft's track by reference to the other navigation aids with which the aircraft is equipped;

*Note* GNSS cannot be used to substitute for the VOR or NDB: see subsection 14.05 (1A).

- (b) carry out appropriate procedures designed to maintain aviation safety in the event of loss of navigation equipment;
  - (c) notify ATS.
- (5) The pilot in command of an aircraft must ensure that data entered into an area navigation system has:
- (a) for a multi-crew operation — been crosschecked for accuracy by at least 2 flight crew members; or
  - (b) for a single-pilot operation — been checked for accuracy by the pilot in command.
- (6) The pilot in command of an aircraft must ensure that position and tracking information is checked:
- (a) at, or before, each waypoint specified as a reporting point for the flight and published in the authorised aeronautical information or designated by ATS; and
  - (b) as far as practicable, at, or before, each en route waypoint published in the authorised aeronautical information; and
  - (c) at regular intervals (as far as practicable) during navigation via waypoints not published in the authorised aeronautical information.
- (7) The pilot in command of an aircraft must ensure that, for a terminal instrument flight procedure in which GNSS will be used as the sole means of navigation:
- (a) the intended procedure is loaded from the navigation database by name; and
  - (b) waypoints are not added to, or deleted from, the procedure as so loaded; and
  - (c) the navigation system will fly the procedure as published in authorised aeronautical information.

*Note* During the conduct of an IAP that is based on a ground-based navigation aid but where GNSS will be used for navigation, pilots should be aware that not all aircraft are capable of conducting reversal or holding procedures, or of navigating DME arcs. The pilot in command should confirm the aircraft navigation system is capable of conducting such operations.

### **14.03 Instrument approaches — QNH sources**

- (1) Before passing the IAF, the pilot in command must set 1 of the following:
- (a) the actual aerodrome QNH from 1 of the following (an *approved source*):
    - (i) AAIS;
    - (ii) ATC;
    - (iii) ATIS;
    - (iv) AWIS;
    - (v) CA/GRS;
    - (vi) WATIR;
  - (b) the forecast aerodrome QNH;
  - (c) the forecast area QNH.
- (2) The pilot in command must not use an actual aerodrome QNH for an instrument approach more than 15 minutes after receiving it.
- (3) If the forecast area QNH is used, the pilot in command must increase the minima for the instrument approach by 50 ft.

#### 14.04 GNSS arrivals, and DME or GNSS arrivals

- (1) During a GNSS arrival, or a DME or GNSS arrival, the pilot in command must:
  - (a) use the destination VOR or NDB to provide the primary track guidance; and  
*Note* GNSS cannot be used to substitute for the VOR or NDB: see subsection 14.05 (1A).
  - (b) if there is a significant disparity between the track guidance provided by the destination VOR or NDB and the GNSS track indication — discontinue the arrival procedure.
- (2) For the purposes of paragraph (1) (b), a significant disparity is:
  - (a) for an NDB — a divergence of more than 6.9°; and
  - (b) for a VOR — a divergence of more than 5.2°.

#### 14.05 Use of GNSS as substitute or alternative to ground-based navigation aids

- (1) This section applies to a ground-based navigation aid that is 1 of the following:
  - (a) VOR;
  - (b) DME;
  - (c) NDB;
  - (d) Outer Marker;
  - (e) Middle Marker.
- (1A) However, this section does not apply to the use of a VOR or NDB for a GNSS arrival, or a DME or GNSS arrival.

*Note* Section 14.04 specifies requirements for the conduct of GNSS arrivals, and DME or GNSS arrivals. The relevant VOR or NDB must be used for azimuth guidance during the conduct of these arrival procedures.

- (2) GNSS may be used as a substitute or alternative to a ground-based navigation aid for the procedure or phase of flight mentioned in an item of column 1 of Table 14.05 (2) only if the aircraft is approved for operation under the particular navigation specification shown in the corresponding item in column 2 of the Table.

**Table 14.05 (2) — Use of GNSS instead of a ground-based navigation aid**

	<b>Column 1</b>	<b>Column 2</b>
<b>Item</b>	<b>Procedure or phase of flight</b>	<b>Navigation specification</b>
1	En route phase	RNP 2
2	SID or STAR	RNP 1
3	Initial, intermediate or missed approach segment	RNP 1
4	Final approach segment	RNP APCH

- (3) Before using GNSS as a substitute for or alternative to a ground-based navigation aid during an en route phase of flight, the pilot in command must ensure that:
  - (a) when a waypoint of the route of the flight that is the ground-based navigation aid is entered into the GNSS — the waypoint is loaded from the navigation database by name; and
  - (b) latitude and longitude coordinates for the ground-based navigation aid are not manually entered into the GNSS.

- (4) GNSS must not be used as a substitute or alternative to a ground-based navigation aid that has been decommissioned.

#### 14.06 Availability of GNSS integrity for instrument approaches

- (1) Before the departure of a flight that is planned to conduct an IAP that requires the use of GNSS at the planned destination aerodrome or at the destination alternate aerodrome, the pilot in command must obtain a prediction for GNSS integrity availability.

- (2) For subsection (1), if a continuous loss of GNSS integrity for more than 5 minutes is predicted for any part of the IAP, the pilot in command must revise the flight plan.

*Note* Some examples of flight plan revisions include delaying the departure time, planning a different route or providing for an alternate.

- (3) The pilot in command of a flight that is navigating with SBAS-capable receivers must regularly check for the availability of GNSS integrity indication in areas where the SBAS is not available.
- (4) The pilot in command of an aircraft whose approved GNSS can achieve LNAV accuracy of less than 0.3 NM using requisite GNSS satellites may disregard subsections (1) and (2).

*Note* **Requisite GNSS satellites** is defined in section 1.07.

#### 14.07 Navigation database requirements

- (1) In this section:

**current**, for a navigation database, means that the database is up-to-date in accordance with the AIRAC cycle.

**valid**, for a navigation database, means that the database must be provided by an approved provider.

- (2) The data in the navigation database must be:
  - (a) valid; and
  - (b) subject to subsection (7) — current; and
  - (c) in a form that cannot be changed by the operator or a flight crew member.
- (3) Updating of the navigation database must be carried out in accordance with the instructions issued by the manufacturer of the navigation system.
- (4) The aircraft operator must ensure that any person updating the navigation database is appropriately qualified and competent to properly perform that task.
- (5) The operator of an aircraft must:
  - (a) regularly check the navigation database for integrity; and
  - (b) if any discrepancy in the data is discovered:
    - (i) report the discrepancy as soon as practicable to the approved provider; and
    - (ii) deal with the discrepancy before further operational use by:
      - (A) resolving it through the reissue of the database; or
      - (B) prohibiting use of the route; or
      - (C) ensuring that each flight crew member has instructions on how to preserve the safety of the operation despite the discrepancy.

*Note* The *Transport Safety Investigation Regulations 2003* have the effect that any discrepancy in the navigation database must be reported if it is likely to cause a hazardous condition from loss of separation between the aircraft and terrain or obstacles, or between the aircraft and other aircraft.

- (6) If the navigation database changes to the next AIRAC cycle during a flight, the pilot in command must complete the flight using the unchanged database unless to do so will, or is likely to, jeopardise the safety of the flight.
- (7) Despite paragraph (2) (b), and without affecting subsections (5) and (6), a navigation database:
  - (a) that is not current at the start of a flight; or
  - (b) that ceases to be current during a flight;
 may be used for navigation only if:
  - (c) data used for navigation of a flight is verified before use by reference to authorised aeronautical information; and
  - (d) the database is not used for updating of a navigation system.
- (8) Despite anything else in this section, an aircraft operated without an MEL must not operate under PBN for more than 72 hours after the navigation database has ceased to be current.

*Note* An aircraft that is operated with an MEL must operate in accordance with the instructions in the MEL.

#### **14.08 PRM instrument approach operations**

The pilot in command of an aircraft must not carry out a PRM approach unless all of the pilots required by the AFM for the conduct of such an approach have received training from an appropriate source that ensures familiarisation with the following:

- (a) the guidance on PRM approaches provided in the AIP;
- (b) the PRM user instructions for the aerodrome of intended operation;
- (c) the relevant instrument approach charts for the aerodrome of intended operation;
- (d) relevant training material available on the websites of Airservices Australia and CASA.

#### **14.09 Instrument approach operational requirements**

*Note* This section effectively prescribes the requirements for the operation of an aircraft in a specified aircraft performance category at an aerodrome: see regulation 91.320 and section 2.02.

- (1) When conducting an authorised IAP in IMC, the pilot in command of an aircraft must ensure that the aircraft is operated within the range of, or at not more than the maximum, IAS provided for in subsection (2).
- (2) For any of the following:
  - (a) the specified aircraft performance category for the aircraft that is mentioned in an item of column 1 of Table 14.09 (2);
  - (b) a higher specified aircraft performance category than the specified aircraft performance category for the aircraft;
  - (c) subject to subsection (3), a lower specified aircraft performance category than the specified aircraft performance category for the aircraft;

the aircraft must be operated within the range of speeds, and at not more than the maximum speed (as the case requires), specified in columns 2, 3, 4 and 5 of the same item.

*Note* Lower and higher aircraft performance categories are specified in section 2.02. The aircraft performance categories are, **from lowest to highest**, H, A, B, C, D and E, and in items 1, 2, 3, 4 and 5.

- (3) For paragraph (2) (c,) the aircraft must not be operated at a lower specified aircraft performance category unless the operator of the aircraft:
- (a) holds an approval under regulation 91.045 for regulation 91.320 to operate in the lower specified aircraft performance category; and
  - (b) has complied with subregulation 91.320 (3).

*Note 1* For example, an aircraft whose specified aircraft performance category is B, may conform to the requirements of aircraft performance category C. But an aircraft whose specified aircraft performance category is C must not attempt to conform to the requirements of aircraft performance category B without CASA approval and operator compliance with subregulation 91.320 (3).

*Note 2* Subregulation 91.320 (3) requires an operator holding the relevant approval to give details of the approval, and the conditions (if any) imposed by CASA on the approval, to the flight crew of an aircraft conducting a flight that uses the approval.

**Table 14.09 (2) — IAP segment speeds**

		<b>Indicated airspeed (IAS)</b>			
	<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>	<b>Column 4</b>	<b>Column 5</b>
<b>Item</b>	<b>Specified aircraft performance category</b>	<b>Range of speeds for initial and intermediate approach (kts)</b>	<b>Range of speeds for final approach (kts)</b>	<b>Max. speed for visual manoeuvring (circling) (kts)</b>	<b>Max. speed for missed approach (kts)</b>
1	H	70-120	60-90	None specified	90
2	A	90-150	70-100	100	110
3	B	120-180	85-130	135	150
4	C	160-240	115-160	180	240
5	D	185-250	130-185	205	265
6	E	185-250	155-230	240	275