

## CHAPTER 19 FUEL REQUIREMENTS

### 19.01 Purpose

For subregulation 91.455 (1), this Chapter prescribes requirements relating to fuel for aircraft.

### 19.02 Definitions of *final reserve fuel and contingency fuel*

The final reserve fuel and contingency fuel that must be carried on board an aircraft for a flight must conform to the requirements set out in Table 19.02 (2) so that, for an aircraft mentioned in an item of column 1 of the Table, in the kind of flight mentioned for the aircraft in column 2, the final reserve fuel flight time, and the contingency fuel amount, must be as mentioned in columns 3 and 4 respectively for the item.

**Table 19.02 (2) — Final reserve fuel and contingency fuel requirements**

	<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>	<b>Column 4</b>
<b>Item</b>	<b>Aircraft (by aircraft category)</b>	<b>Kind of flight (by flight rules)</b>	<b>Final reserve fuel flight time</b>	<b>Contingency fuel amount</b>
1	Aeroplane with MTOW ≤ 5 700 kg (piston engine or turboprop)	VFR	30 minutes	N/A
2	Aeroplane with MTOW ≤ 5 700 kg (piston engine or turboprop)	Night VFR	45 minutes	N/A
3	Aeroplane with MTOW ≤ 5 700 kg (piston engine or turboprop)	IFR	45 minutes	N/A
4	Turbojet engine aeroplane, or aeroplane with MTOW > 5 700 kg (turboprop engine)	IFR or VFR	30 minutes	5% of trip fuel
5	Aeroplane with MTOW > 5 700 kg (piston engine)	IFR or VFR	45 minutes	5% of trip fuel
6	Rotorcraft	VFR	20 minutes	N/A
7	Rotorcraft	IFR	30 minutes	N/A

*Note* Table 19.02 (2) describes the required final reserve fuel and contingency fuel by aircraft type and flight rules.

### 19.03 General requirements

#### *Fuel consumption data*

- (1) When determining the amount of usable fuel required under this Chapter for a flight of an aircraft, the pilot in command must use 1 of the following fuel consumption data sources:
  - (a) the most recent aircraft specific fuel consumption data derived from the fuel consumption monitoring system used by the operator of the aircraft (if available);
  - (b) the aircraft manufacturer's data for the aircraft.

*Note* The aircraft manufacturer's data includes electronic flight planning data. The manufacturer's data may be in the AFM, cruise performance manuals or other publications.

*Operational requirements etc.*

- (2) In determining the amount of usable fuel required under this Chapter, the pilot in command must take into account the effect of the following matters:
  - (a) the operating conditions for the proposed flight, including the following:
    - (i) the actual weight (if known or available), or the anticipated weight, of the aircraft;
    - (ii) relevant NOTAMs;
    - (iii) relevant authorised weather forecasts and authorised weather reports;
    - (iv) relevant air traffic service procedures, restrictions and anticipated delays;
    - (v) the effects of deferred maintenance items and configuration deviations;
  - (b) the potential for deviations from the planned flight because of unforeseen factors.

#### **19.04 Amount of fuel that must be carried for a flight**

- (1) The pilot in command of an aircraft must ensure that, when a flight of the aircraft commences, the aircraft is carrying on board at least the following amounts of usable fuel:
  - (a) taxi fuel;
  - (b) trip fuel;
  - (c) destination alternate fuel (if required);
  - (d) holding fuel (if required);
  - (e) contingency fuel (if applicable);
  - (f) final reserve fuel;
  - (g) additional fuel (if applicable).
- (2) The pilot in command must ensure that, at any point of in-flight replanning, the aircraft is carrying on board at least the following amounts of usable fuel:
  - (a) trip fuel from that point;
  - (b) destination alternate fuel (if required);
  - (c) holding fuel (if required);
  - (d) contingency fuel (if applicable);
  - (e) final reserve fuel;
  - (f) additional fuel (if applicable).
- (3) The pilot in command must ensure that the aircraft is carrying on board at least the following amounts of usable fuel, required at any time to safely continue the flight:
  - (a) trip fuel from that time;
  - (b) destination alternate fuel (if required);
  - (c) holding fuel (if required);
  - (d) final reserve fuel;
  - (e) additional fuel (if applicable).
- (4) If, after commencement of the flight, fuel is used for a purpose other than that originally intended during pre-flight planning, the pilot in command must reanalyse the planned use of fuel for the remainder of the flight, and adjust the parameters of the

flight in so far as is necessary to remain in compliance with the requirements of this Chapter.

- (5) Subsection (6) applies if an aircraft for a flight:
  - (a) is unable to land at the planned destination aerodrome; and
  - (b) diverts to the planned destination alternate aerodrome that was required for the flight.
- (6) Despite subsection (3), the pilot in command must ensure that the aircraft is carrying at least the following amounts of usable fuel:
  - (a) destination alternate fuel from the time of commencing the diversion;
  - (b) holding fuel (if required);
  - (c) final reserve fuel.

### **19.05 Procedures for determining fuel before flight and fuel monitoring during a flight**

- (1) The pilot in command of an aircraft for a flight must ensure that the amount of usable fuel on board the aircraft is determined before the flight commences.
- (2) The pilot in command must ensure that the amount of fuel is checked at regular intervals throughout the flight, and that the usable fuel remaining is evaluated to:
  - (a) compare planned fuel consumption with actual fuel consumption; and
  - (b) determine the amount of usable fuel remaining; and
  - (c) determine whether the remaining usable fuel is sufficient to satisfy:
    - (i) if a point of in-flight replanning has been specified by the pilot in command for the flight and the flight has not proceeded past the point — the requirements of subsection 19.04 (2); and
    - (ii) otherwise — the requirements of subsection 19.04 (3); and
  - (d) determine the amount of usable fuel expected to be remaining when the aircraft lands at the destination aerodrome.

### **19.06 Procedures if fuel reaches specified amounts**

- (1) If, at any time during a flight, the amount of usable fuel remaining in the aircraft on landing at the destination aerodrome will be, or is likely to be, less than the fuel required under subsection 19.04 (3), then the pilot in command must:
  - (a) take into account the likely air traffic and operational conditions on arrival at:
    - (i) the destination aerodrome; and
    - (ii) if a destination alternate aerodrome is required for the flight — the destination alternate aerodrome; and
    - (iii) any en route alternate aerodrome; and
  - (b) proceed to an aerodrome mentioned in paragraph (a) that enables the pilot in command to continue to meet the requirements in section 19.04.
- (2) The pilot in command must request from ATS the duration of any likely delay in landing if unforeseen factors could result in the aircraft landing at the destination aerodrome with less than the following amounts of fuel remaining:
  - (a) the final reserve fuel;
  - (b) the destination alternate fuel (if required).

- (3) The pilot in command must declare to ATS a “minimum fuel” state if:
  - (a) the pilot in command is committed to land the aircraft at an aerodrome in accordance with this section; and
  - (b) the pilot in command determines that, if there is any change to the existing ATC clearance issued to the aircraft in relation to that aerodrome, the aircraft will land with less than the final reserve fuel remaining.

*Note 1* The declaration of “minimum fuel” informs ATS that all planned aerodrome options have been reduced to a specific aerodrome of intended landing, and any change to the existing clearance may result in landing with less than final reserve fuel. This is not an emergency situation, but an indication that an emergency situation is possible should any additional delay occur.

*Note 2* A pilot in command should not expect any form of priority handling because of a “minimum fuel” declaration. ATS will, however, advise the flight crew member of any additional expected delays, and coordinate when transferring control of the aircraft to ensure other ATS units are aware of the aircraft’s fuel state.

- (4) If, at any time during a flight, the amount of usable fuel remaining in the aircraft on landing at the nearest aerodrome where a safe landing can be made, will be, or is likely to be, less than the final reserve fuel, then the pilot in command must declare a situation of “emergency fuel” by broadcasting “MAYDAY, MAYDAY, MAYDAY FUEL”.

*Note* The emergency fuel declaration is a distress message.

## 19.07 Operational variations — procedures and requirements

- (1) This section applies only to the following operators (a *relevant operator*):
  - (a) a Part 141 operator or a Part 142 operator;
  - (b) an aerial application operator;
  - (c) an aerial work operator.

*Note* These operators are defined in section 1.07, Definitions.
- (2) Despite sections 19.03 and 19.04, a relevant operator may use an operational variation, specified in the operator’s operations manual or exposition (as applicable) for the purpose of this section, that relates to the calculation of any of the following, if the requirements in subsections (5) and (7) are met:
  - (a) taxi fuel;
  - (b) trip fuel;
  - (c) contingency fuel (if any);
  - (d) destination alternate fuel;
  - (e) additional fuel.
- (3) The operations manual or exposition (as applicable) of a relevant operator must not include an operational variation relating to the calculation of holding fuel.
- (4) The operations manual of an aerial application operator or an aerial work operator may include an operational variation relating to the calculation of final reserve fuel for an aerial application operation or an aerial work operation, as the case requires, provided that only flight crew members are carried for the operation.
- (5) At least 28 days before using an operational variation, a relevant operator must submit to CASA:
  - (a) evidence of at least 1 of the following, that demonstrates how the operational variation will maintain or improve aviation safety:
    - (i) documented in-service experience;

- (ii) the results of a specific safety risk assessment conducted by the relevant operator that meets the requirements of subsection (6); and
- (b) a copy of the relevant operator's procedures proposed for inclusion in the operations manual or exposition (as applicable), in relation to using the operational variation.

*Note* Under regulations 137.080, 137.085, 137.090, 138.068, 141.100 and 142.155 of CASR (as applicable), CASA may direct the relevant operator to remove or revise the operational variation, if CASA were to find there was insufficient evidence that it would maintain or improve aviation safety.

- (6) For subparagraph (5) (a) (ii), a specific safety risk assessment must include at least the following:
  - (a) flight fuel calculations;
  - (b) the capabilities of the relevant operator, including:
    - (i) a data-driven method that includes a fuel consumption monitoring program; and
    - (ii) the use of sophisticated techniques for determining the suitability of alternate aerodromes; and
    - (iii) specific risk mitigating measures.
- (7) For the purposes of subsection (2), the relevant operator's operations manual or exposition (as applicable) must include procedures in relation to the use of the operational variation.