



**PURSUANT** to Sections 28, 29 and 30 of the Civil Aviation Act 1990

**I, Hon TIM MACINDOE, Associate Minister of Transport,**

**HEREBY MAKE** the following ordinary rules.

SIGNED AT *Hamilton*  
This *18th* day of *September* 2017

A handwritten signature in black ink, appearing to read 'Tim Macindoe', written in a cursive style.

by **Hon TIM MACINDOE**

Associate Minister of Transport

**Civil Aviation Rules**  
**Part 121, Amendment 29**  
**Air Operations - Large Aeroplanes**  
*Docket 16/CAR/10*

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**Rule objective**

The objective of amendment 29 to Part 121 is twofold:

- (a) to bring Part 121 Subpart N into full alignment with ICAO requirements in Annex 6 Part 1 of the Convention; and
- (b) to enable a performance-based set of options for determining landing distance calculation procedures (TALPA procedures or another acceptable method).

**Extent of consultation**

A Notice of Proposed Rulemaking, NPRM 17-02, containing the proposed Small Issues rule amendments was issued for public consultation under Docket 16/CAR/10 on 20 February 2017.

The NPRM was published on the CAA web site and emailed to identified stakeholders including representative organisations who were considered likely to have an interest in the proposal.

A period of 29 days was allowed for comment on the proposed rule.

**Summary of submissions**

Forty five written submissions and no oral comments were received on the NPRM. A summary of submissions for this NPRM is available on the CAA website. These submissions and comments have been considered and as a result of the consultation:

- the phrase ‘dispatch of’ is deleted from paragraphs (a) and (c) of Appendix D.1 as the inclusion of the phrase has fundamentally changed the base requirement to apply only to dispatch of an aircraft and excludes landing requirements; and
- the phrase ‘appropriate aerodrome data including, but not limited to, surface conditions and ambient weather’ is inserted before ‘data’, in paragraph (a)(2) of Appendix D.3, to clarify what ‘data’ refers to.

**Examination of submissions**

Submissions may be examined by application to the Docket Clerk at the Civil Aviation Authority between 8:30 am and 4:30 pm on weekdays, except statutory holidays.

**Insertion of amendments**

The amendments to the rules in this Part are reflected by:

- revoking and replacing rule 121.221;
- revoking rule 121.223;
- revoking and replacing rules in Part 121, Subpart N (rules 121.951, 121.953, 121.975); and
- inserting a new Appendix D relating to performance-based options for landing distance calculation procedures.

**Effective date of rule**

Amendment 29 to Part 121 comes into force on 30 October 2017.

**Availability of rules**

Civil Aviation Rules are available from–

CAA web site: <http://www.caa.govt.nz/>  
Freephone: 0800 GET RULES (0800 438 785)

## Part 121 Air Operations – Large Aeroplanes

*Rule 121.221 is revoked and replaced with the following rule:*

### **121.221 Landing distance - runways**

(a) A holder of an air operator certificate must ensure that, for each aeroplane it operates, the landing weight for the estimated time of landing will not exceed the landing weight specified in the aeroplane flight manual.

(b) A holder of an air operator certificate must use the following procedures for calculating the landing distance for an aeroplane on a runway:

- (1) that have been approved under paragraph (c); or
- (2) as provided in Appendix D.

(c) The Director may, after taking account of the following matters, approve an application by a holder of an air operator certificate for procedures if satisfied—

- (1) whether or not the aeroplane proposed has performance data issued by the manufacturer supporting the procedures that is available for use by the pilot or flight crew; and
- (2) whether the operator has reliable access to either –
  - (i) accurate, real-time reporting on runway conditions that is appropriate for the procedures to be used; or
  - (ii) data that enables the operator to identify equivalent conditions; and
- (3) the margin of error that should be applied when calculating landing distance using the procedures which must take into account:
  - (i) the implications of pilot technique on landing distance:

- (ii) the implications of unexpected environmental conditions at the destination aerodrome:
  - (iii) whether the calculation is being undertaken at the dispatch stage or en-route:
  - (iv) whether the margin of error is supported by the reporting of the runway conditions; and
- (4) whether all personnel involved in the reporting of runway conditions, calculation of data and operation of the flight have had appropriate training in the use of the procedures.

*Revoke rule 121.223:*

**121.223 Landing distance – wet and contaminated runways  
[Revoked]**

*Rule 121.951 is revoked and replaced with the following rule:*

**121.951 General**

- (a) Except as provided in rule 121.165(d), a holder of an air operator certificate must not operate an aeroplane on an EDTO unless—
- (1) the certificate holder is authorised under this Subpart to conduct an EDTO; and
  - (2) the certificate holder's operations specifications required by rule 119.15—
    - (i) permits the intended EDTO; and
    - (ii) authorises the use of the airframe and engine combination for the EDTO; and
  - (3) procedures for meeting the requirements of this Subpart for EDTO are detailed in the certificate holder's exposition required by rule 119.81.

(b) The Director may, on application in writing for an EDTO by a holder of an air operator certificate, authorise air operations beyond the time limits of the most time-limited system for an aeroplane as specified in the flight manual if satisfied on the evidence of a safety risk assessment provided by the operator covering the following:

- (1) the capabilities of the operator in conducting EDTOs; and
- (2) the overall reliability of the aeroplane to be operated under the EDTO; and
- (3) the reliability of each time-limited system of the aeroplane to be operated under the EDTO; and
- (4) information from the aeroplane manufacturer relevant to an EDTO; and
- (5) any specific mitigation measures to be taken by the certificate holder.

*Rule 121.953 is revoked and replaced with the following rule:*

**121.953 Requirements for EDTO up to 180 minutes maximum diversion time — twin-engine aeroplanes**

(a) A holder of an air operator certificate may apply in writing to the Director for an EDTO authorisation to operate an aeroplane with 2 turbine powered engines on an EDTO up to 180 minutes maximum diversion time.

(b) A holder of an air operator certificate applying for an EDTO authorisation under paragraph (a) must provide the Director with the following information at least 90 days, or a lesser period acceptable to the Director, before the proposed commencement of the EDTO:

- (1) details of the particular airframe and engine combination of each aeroplane to be operated under the EDTO authorisation;
- (2) details, and evidence of the type design approval and the operating limitation of the airframe and engine combination,

proposed under paragraph (1), for operating the aeroplane on an EDTO of more than 60 minutes flight time from an adequate aerodrome:

- (3) details of the CMP for the airframe and engine combination proposed under paragraph (1):
- (4) the maximum diversion time proposed for the EDTO which must be not more than 180 minutes:
- (5) the minimum altitudes applicable to the routes to be flown on the EDTO including any diversionary routes:
- (6) details of the fuel policy required to meet the requirements of rule 121.975:
- (7) details of the maintenance programme required to meet the requirements of rule 121.407:
- (8) details of the training programme required under Subpart I and applicable to the EDTO and the maximum diversion time proposed under paragraph (4):
- (9) details of the MEL relevant to the maximum diversion time proposed under paragraph (4):
- (10) evidence that the aeroplane conforms to the fire detection and suppression limitations for cargo and baggage compartments prescribed in paragraph D.5(a)(2) of Appendix D to Part 26, or an equivalent standard acceptable to the Director:
- (11) evidence that time limited system capability for the aeroplane plus a 15 minute allowance for holding, approach, and landing is not less than the maximum diversion time proposed under paragraph (4):
- (12) details of every EDTO alternate aerodrome that is required for the routes to be flown and the maximum diversion time proposed under paragraph (4):
- (13) details—



- (i) to confirm that every EDTO alternate aerodrome that is detailed under paragraph (12) has facilities to ensure the safety of a full complement of passengers and crew members:
  - (ii) of the recovery plan for diversion to an EDTO alternate aerodrome that ensures the safety of a full complement of passengers and crew members at the aerodrome or in the immediate area until they are transported to another place that can provide for their safety:
- (14) details of the point of no return for the aeroplane (if known).

***Rule 121.975 is revoked and replaced with the following rule:***

### **121.975 EDTO fuel requirements**

(a) A holder of an air operator certificate who is authorised under this Subpart to conduct an EDTO must not allow an aeroplane to be dispatched on an EDTO unless, in addition to the requirements of the certificate holder's fuel policy required by rule 121.75, the following requirements are met:

- (1) the aeroplane must carry the greater of the following—
  - (i) sufficient fuel to fly to an en-route EDTO alternate aerodrome listed in the dispatch release assuming a rapid decompression at the most critical point followed by a descent to a safe altitude in compliance with rule 91.423, and rule 91.209 relating to the use of oxygen equipment, or
  - (ii) sufficient fuel to fly to an en-route EDTO alternate aerodrome listed in the dispatch release at the approved one engine inoperative cruise speed assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by a descent to a safe altitude in compliance with rule 91.423 and the oxygen requirements of rule 91.209; or

- (iii) sufficient fuel to fly to an en-route EDTO alternate aerodrome listed in the dispatch release at the approved one engine inoperative cruise speed assuming an engine failure at the most critical point followed by a descent to the one engine inoperative cruise altitude; or
  - (iv) EDTO critical fuel for the aeroplane;
- (2) the aeroplane, upon reaching the en-route EDTO alternate aerodrome must have sufficient fuel to hold for 15 minutes at 1,500 feet above the aerodrome elevation and then to conduct an instrument approach procedure and land.
- (b) For the purposes of calculating the fuel required by paragraph (a), the certificate holder must take the following matters into account:
- (1) if the certificate holder is using a wind forecast model acceptable to the Director, a 5% wind speed factor (i.e. as an increment to a headwind or as a decrement to a tailwind) must be added onto the actual or forecast wind used to calculate the fuel required by paragraph (a)(1) to account for errors in wind forecasting:
  - (2) if the certificate holder is not using a wind forecast model acceptable to the Director, the aeroplane must carry an additional 5% of the fuel required by paragraph (a)(1) to allow for errors in wind forecasting:
  - (3) if icing conditions are forecast for the planned EDTO, the fuel required by paragraph (a)(1) must compensate for the greater of—
    - (i) the effect of airframe icing during 10% of the time during which icing is forecast taking into account the fuel that would be used by the use of engine and wing anti-ice during the same period; or
    - (ii) the fuel used by use of engine anti-ice systems, and if appropriate the use of wing anti-ice systems for the entire time during which icing is forecast:

- (4) the fuel required by paragraph (a)(1) must include—
  - (i) additional fuel, calculated in accordance with the certificate holder's performance deterioration allowance monitoring programme to compensate for any increase in the aeroplane's fuel consumption; or
  - (ii) if a performance deterioration allowance monitoring programme is not used for the aeroplane's fuel consumption, an additional 5% of the fuel required by paragraph (a)(1) to account for the deterioration in cruise fuel burn performance:
- (5) if an APU is a required power source for operating the aeroplane on an EDTO, the fuel required by paragraph (a)(1) must include the APU fuel consumption during every phase of flight when the APU may be used:
- (6) the fuel required by paragraph (a)(1) must include any additional fuel consumption caused by the use of an MEL or configuration deviation list item for any applicable phases of flight.

*Insert Appendix D after Appendix C:*

## **Appendix D — Landing Distance Assessments for Runways**

### **D.1 Permitted landing distance assessments – Dry runway**

The following procedure must be carried out by a holder of an air operator certificate under rule 121.221(b)(2) for calculating the landing distance where a runway is dry:

- (a) A holder of an air operator certificate must ensure that, for each aeroplane it operates, the landing weight for the estimated time of landing allows a full stop landing on a dry runway from a point 50 feet above the threshold within—

- (1) 60% of the landing distance available for a turbojet or turbofan powered aeroplane; and
  - (2) 70% of the landing distance available for a propeller-powered aeroplane.
- (b) When calculating the landing weight under paragraph (a), the certificate holder must take account of—
- (1) aerodrome elevation; and
  - (2) ambient temperature at the aerodrome; and
  - (3) the type of runway surface and the runway surface condition; and
  - (4) the runway slope in the direction of landing; and
  - (5) not more than 50% of the reported headwind component or not less than 150% of the reported tailwind component.
- (c) The certificate holder must, for an aeroplane to land as specified in paragraphs (a) and (b), assume that the aeroplane will land on the most favourable runway taking into account—
- (1) the forecast meteorological conditions; and
  - (2) surrounding terrain; and
  - (3) approach and landing aids; and
  - (4) obstacles within the missed approach flight path.
- (d) If the certificate holder is unable to comply with paragraph (c) for the destination aerodrome, the certificate holder may dispatch an aeroplane if an alternate aerodrome is designated that permits compliance with paragraphs (a), (b), and (c).

## **D.2 Permitted landing distance assessments – Wet or contaminated runway**

A holder of an air operator certificate must carry out the following procedure under rule 121.221(b)(2) for calculating the landing distance where a runway is wet or contaminated:

(a) A holder of an air operator certificate must ensure that, for each aeroplane it operates—

- (1) when the appropriate weather reports or forecasts or a combination of them, indicate that the runway at the estimated time of arrival may be wet, the landing distance available is at least 115% of the landing distance required by paragraph D.1; and
- (2) when the appropriate weather reports or forecasts or a combination of them, indicate that the runway at the estimated time of arrival may be contaminated, the landing distance available is at least—
  - (i) 115% of the landing distance required by paragraph D.1; or
  - (ii) the landing distance determined in accordance with contaminated-landing-distance data.

(b) A landing distance on a wet runway shorter than that required by paragraph (a), but not less than that required by paragraph D.1, may be used if performance data allows a shorter landing distance on wet runways.

## **D.3 TALPA procedures**

A holder of an air operator certificate must carry out the following alternate procedure under rule 121.221(b)(2) that provides for calculation of the landing distance for a runway:

- (1) utilising TALPA performance data provided by the aircraft manufacturer to enable inflight calculation of landing performance by the flight crew in accordance with the manufacturer's recommendations; and

- (2) utilising appropriate aerodrome data including, but not limited to, surface conditions and ambient weather, on runway conditions.