

Number: 01/2013

Issued: 12 March 2013

RUNWAY SAFETY – PREVENTING RUNWAY EXCURSIONS

1 Purpose

- 1.1 This circular provides air traffic controllers with information on runway excursions (including definitions, causal factors), and measures to prevent its occurrence.

2 Scope

- 2.1 This ATSIC is addressed to Director (Air Traffic Services), CAAS and is intended for dissemination to all air traffic controllers.

3 Introduction

- 3.1 There are at least 2 runway excursions each week worldwide, and as noted by ICAO, the rate of such incidents has not decreased in over 20 years. Aircraft accidents continue to take place on and around runways. It is therefore not surprising that globally, key stakeholders such as safety regulators, aircraft operators, aerodrome operators and air navigation service providers have been working to enhance runway safety by developing and implementing recommendations to prevent runway excursions.

4 Examples of Runway Excursions

- 4.1 According to ICAO Accident / Incident Data Reporting (ADREP) Taxonomy, a runway excursion is defined as “an event in which an aircraft veers off or overruns the runway surface during take-off or landing”. Examples of runway excursions are:
 - a) A departing aircraft overrunning the runway during take-off or rejected take-off;
 - b) A landing aircraft not being able to stop before the end of the runway;

c) An aircraft departing from / landing on the side of the runway.

4.2 Beside the above-mentioned examples, there are also occurrences which do not fit the ICAO ADREP definition, but can also be considered as runway excursions. These are:

a) A landing aircraft touches down before the touch-down zone of the intended landing runway within the aerodrome perimeter;

b) An aircraft departing or landing on a runway or taxiway other than the designated one used for take-off or landing.

5 Causal factors

5.1 Runway excursions are typically the result of one or more operational factors and circumstances. These include:

Aircraft Operations

a) Rejected take-off initiated at speed greater than V_1 ;

b) Landing long and / or late or ineffective deployment of braking devices;

Air Traffic Management

c) Lack of awareness of the importance of stabilised approaches and its criteria;

d) Failure to descend aircraft appropriately for the approach;

e) Failure to provide timely or accurate wind / weather and runway condition information to the flight crew;

f) Late runway changes (e.g. after final approach fix);

Aerodrome

g) Runways not constructed and maintained to maximize effective friction and drainage;

h) Late or inaccurate runway condition reports

5.2 It should be noted that the risk of a runway excursion increases when more than one risk factor is present – multiple risk factors create a synergistic effect (i.e. two risk factors more than double the

risk). Applying proper mitigation strategies through a proper Safety Management System methodology could reduce the risk of a runway excursion.

6 Recommendations

6.1 The following are some prevention strategies that should be implemented to address the risk factors contributing to runway excursions:

- a) Ensure the importance of a stabilised approach and compliance with final approach procedures is included in training and briefing for air traffic control staff;
- b) Provide accurate and timely report of weather conditions, especially wind strength, direction and variation, and runway surface condition and braking action to pilots.

Note: Significant wind changes are:

- (i) mean headwind component: 19 Km/h (10 kt)
 - (ii) mean tailwind component: 4 Km/h (2 Kt)
 - (iii) mean crosswind component: 9 Km/h (5 Kt)
- c) Provide appropriate applications and considerations for a stabilised approach e.g. apply appropriate speed control and issuing accurate distance from touchdown information.
 - d) Avoid close-in, last second runway changes, even to a parallel runway. For instance, the European Action Plan for the Prevention of Runway Excursions recommends that runway changes should ideally not be accepted below 10,000 feet.
 - e) Be prepared to instruct a go-around if spacing or any other operational safety consideration appears to demand this.
 - f) Using precise radiotelephony e.g.
 - (i) **“GO AROUND”** instead of “Execute Missed Approach” which may lead to misunderstanding.
 - (ii) **“HOLD POSITION, CANCEL TAKE-OFF, I SAY AGAIN CANCEL TAKEOFF (reason)”**.

(iii) **“STOP IMMEDIATELY (repeat aircraft callsign) STOP IMMEDIATELY”**.

g) Situational awareness, especially positional awareness, of an aircraft ending up on the wrong runway or taxiway.

h) Ensure that flight crews are informed of the Take-off Run Available (TORA) or the Landing Distance Available (LDA) if these differ from the published data.

7 Conclusion

7.1 Air traffic controllers play an important role in reducing the risk of runway excursions. By helping flight crews fly stabilised approaches, and by providing them with timely and accurate information, air traffic controllers can help ensure safe take-offs and landings.

8 Queries

8.1 If there are any queries with regard to this ATSIC, please address them to:

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Issued by Aerodrome and ANS Regulation Division
for and on behalf of Director-General of Civil Aviation