



International Civil Aviation Organization

**FIRST MEETING OF THE ASIA PACIFIC REGIONAL AVIATION
SAFETY TEAM (APRAST/1)**

(Bangkok, Thailand, 20-24 February 2012)

Agenda Item 17: Runway Safety

RUNWAY SAFETY- AIR TRAFFIC CONTROL CLEARANCE PROCEDURE REVIEW

RUNWAY INCURSIONS-WRONG RUNWAY DEPARTURES-SE 182

(Presented by COSCAP-SA)

SUMMARY

Asia Regional Aviation Safety Team (ARAST) in its 4th meeting reviewed the study conducted by the Aviation Safety Information Analysis and Sharing (ASIAS) Centre on Wrong Runway Departures (WRD) in United States. The meeting also considered the contributing factors to WRD occurrences and CAST safety enhancement SE 182 for adoption by ARAST. The decision by ARAST as to whether adopt SE 182 for its implementation in member States as a safety initiative or otherwise was deferred till next ARAST meeting and the matter was referred to COSCAP-SA to determine if there is an ICAO standard regarding the provision of a takeoff clearance to an aircraft that must taxi across other runways prior to take off. This Working Paper presents a brief overview on the pertinent aerodrome control phraseologies as recommended by ICAO and FAA and its usage in situations with respect to aircraft/vehicle movement involving multiple runways crossing for consideration and advice.

1. INTRODUCTION

1.1 Asia Regional Aviation Safety Team (ARAST) in its 4th meeting reviewed the study conducted by the Aviation Safety Information Analysis and Sharing (ASIAS) Centre, Federal Aviation Administration (FAA) on Wrong Runway Departures (WRD) in United States. The study focuses on contributing factors that could be attributed to occurrences and potential threats relating to WRD. It included risk mitigation strategies and recommendations proposed in coordination with Joint Implementation Measurement Data Analysis Team (JIMDAT) working for the Commercial Aviation Safety Team (CAST).

1.2 The safety enhancements subsequently recommended were initiated by FAA in year 2007 for action under Detail Implementation Plans (DIPs). The implementation of procedural safety enhancement SE-182 -“Review of Air Traffic Control (ATC) Clearance Procedures” was estimated by JIMDAT to eliminate 32% risk. The statement of work developed for SE 182 was:

- i) to review the ATC clearances that specify all runways to be crossed before reaching the departure runway and restrict early takeoff clearances when flight crews must cross multiple runways before reaching the departure runway.

- ii) To review the FAA Taxi into Position and Hold (TIPH) policy for appropriate limits or prohibition depending on airport characteristics.

1.3 On completion of DIP with respect to SE 182, FAA has revised ATC instructions/phraseology to aerodrome traffic as follows:

- i) Aircraft/vehicles must receive a clearance for each runway their route crosses. **An aircraft/vehicle must have crossed a previous runway before another runway crossing clearance may be issued.**
- ii) **At those airports where the taxi distance between runway centerlines is less than 1,000 feet, multiple runway crossings may be issued with single clearance.**
- iii) Effective 30 Sept' 2010 Phrase **"Taxi Into Position and Hold"** is replaced by phrase **"Line Up and Wait"**. This is in line with the ICAO standard phraseology applicable 07 June 84.

1.4 The decision by ARAST as to whether adopt SE 182 for its implementation in member States as a safety initiative or otherwise was deferred till next ARAST meeting and the matter was referred to COSCAP-SA **to determine if there is an ICAO standard regarding the provision of a take-off clearance to an aircraft that must taxi across other runways prior to take off.**

2. DISCUSSION

2.1 As per standards set vide Annex 10 to the convention on International Civil Aviation for Aeronautical Telecommunications, ICAO standardized phraseology shall be used in all situations for which it has been specified. Only when standardized phraseology cannot serve an intended transmission, plain language shall be used.

2.2 ICAO Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) Doc 4444 lay down the standard phraseologies. These phraseologies are grouped according to types of air traffic services for convenience of reference. The pertinent groups falling under aerodrome control phraseologies are:

- i) TAXI PROCEDURES
- ii) HOLDING INSTRUCTIONS FROM ATC
- iii) TO CROSS A RUNWAY
- iv) PREPARATION FOR TAKE-OFF

a) TAXI PROCEDURES

For departure

ATC (call sign) TAXI TO HOLDING POINT [number] [RUNWAY (number)]

Or where detailed taxi instructions are required

ATC (call sign) TAXI TO HOLDING POINT [(number)] [RUNWAY (number)] VIA (specific route to be followed) [TIME (time)] [HOLD SHORT OF RUNWAY (number)];

ATC (call sign) TAXI VIA RUNWAY (number);

PILOT (call sign) REQUEST BACKTRACK

ATC (call sign) BACKTRACK APPROVED

ATC (call sign) BACKTRACK RUNWAY (number);

Other general instructions

ATC (call sign) FOLLOW (description of other aircraft or vehicle)

ATC (call sign) VACATE RUNWAY

PILOT/DRIVER (call sign) RUNWAY VACATED

b) HOLDING INSTRUCTIONS FROM ATC

(call sign) HOLD (direction) OF (position, runway number, etc.);

(call sign) HOLD POSITION;

(call sign) HOLD (distance) FROM (position)

... to hold not closer to a runway than specified in Doc. 4444; Chapter 7, 7.6.3.1.3.1

(call sign) HOLD SHORT OF (position);

READBACK FROM PILOTS/DRIVERS

(call sign) HOLDING;

(call sign) HOLDING SHORT.

It should be noted that aircraft should not hold closer to a runway than specified in Doc. 4444; Chapter 7, 7.6.3.1.3.1.

The procedures words ROGER and WILCO are insufficient acknowledgement of the instructions HOLD, HOLD POSITION and HOLD SHORT OF (position). In each case the acknowledgement shall be by the phraseology HOLDING or HOLDING SHORT, as appropriate.

c) TO CROSS A RUNWAY

PILOT/DRIVER (call sign) REQUEST CROSS RUNWAY (number..)

Note — If the control tower is unable to see the crossing aircraft or vehicle (night, low visibility, etc.), the instruction should always be accompanied by a request to report when the aircraft or vehicle has vacated the runway.

ATC (call sign) CROSS RUNWAY (number) [REPORT VACATED]

ATC (call sign) TAXI TO HOLDING POINT [number] [RUNWAY (number)] VIA (specific route to be followed), [HOLD SHORT OF RUNWAY (number)] or [CROSS RUNWAY (number)]

Note — The pilot will, when requested, report “RUNWAY VACATED” when the aircraft is well clear of the runway.

d) PREPARATION FOR TAKE-OFF -clearance to enter runway and await take-off clearance.

ATC (call sign) LINE UP [AND WAIT];

ATC (call sign) LINE UP RUNWAY (number - in multiple runway / intersection departures);

ATC (call sign) LINE UP. BE READY FOR IMMEDIATE DEPARTURE;

2.3 ICAO Manual on the prevention on runway incursions (Doc 9870) provides guidance and best practices pertinent to aerodrome control phraseology with respect to ATC instructions to **Cross a runway** as under:

- i) Taxi instructions issued by a controller must always contain a clearance limit, which is the point at which the aircraft must stop until an instruction to proceed is given. **For departing aircraft, the clearance limit will normally be the runway-holding point of the runway in use, but it may be any other position on the aerodrome, including runway intersections, depending on prevailing traffic circumstances.** When intersection departures are used, the appropriate runway-holding points shall be clearly identified by ATC.
- ii) **When a taxi clearance contains a taxi limit beyond a runway, it must contain an explicit clearance to cross that runway, even if the runway is not in use.** Where an expected or anticipated runway crossing is required, a means of communicating this to the pilots, at the gate or prior to descent, should be established.

2.4 The aerodrome control phraseologies as recommended for use by ICAO and that revised in recent past by FAA is highlighted in the foregoing paragraphs. It is generally said that they are consistent and ICAO procedures applicable to aerodrome control phraseologies requires that when a taxi clearance contains a taxi limit beyond a runway, it must contain an explicit clearance to cross that runway, even if the runway is not in use. However it is not mandatory to cross previous runway before clearance for next runway crossing is issued.

2.5 On the other hand FAA aerodrome control Phraseologies involving crossing of multiple runways requires progressive ATC clearance wherein an aircraft/vehicle must have crossed a previous runway before another runway crossing clearance may be issued. It implies that the ICAO phraseology on crossing of multiple runways may fall short and do not fully mitigate the risk with respect to WRD. It will be appropriate that this aspect may be looked into by the panel of experts, as conducted in the past, to review the existing ICAO aerodrome control Phraseologies.

3. ACTION BY THE MEETING

3.1 The meeting is invited for consideration and advice.

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