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**AC 03/09**  
01 October 2009

## **Advisory Circular to Air Operators**

### **PREVENTION OF RUNWAY INCURSION IN AB-INITIO PILOT TRAINING**

**1. PURPOSE.** This Advisory Circular (AC) provides guidelines for the development and implementation of procedures into ab-initio training for the prevention of runway incursion. COSCAP-SEA recommends that these procedures become an integral part of ab-initio training. Introducing these procedures early in ab-initio training will provide the best opportunity to instill them in pilots as a standard practice. Persons operating aircraft during taxi operations must be aware and be cognizant of situational awareness, communication skills, teamwork, task allocation, and decision-making.

**2. RELATED MATERIAL INCLUDING TRAINING MATERIAL.** The following material which has been developed by ICAO and States is highlighted. Flying training organizations may wish to review the training information contained on these CDs and adapt the material as required for use as part of their training programme.

- a. ICAO Runway Safety Tool Kit
- b. European Runway Safety Awareness Material
- c. FAA Taxi 101
- d. FAA Runway Safety – Head UP, Hold Short, Fly Right

**3. BACKGROUND.** A runway incursion is “Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take off of aircraft”. The process of getting to and from a runway has become increasingly complex. This is mainly due to the increase in number of aircraft, take-off times being held more closely to a set schedule, and all the various combinations of weather, time of day, aircraft type, and language usage, to name a few. While pilot experience is gained during actual ground operation, a more defined and determined approach to training pilots is seen as beneficial to both safety and efficiency regarding operations to and from the runway. Training procedures for aerodrome surface operations should be an integral part of ab-initio training in both the ground and flight training programs. This Advisory Bulletin develops practical guidance toward the goal of increasing safety and efficiency of aircraft movement on the aerodrome surface through training and certification.

**4. FOCUS.** Increased traffic and expansion of many aerodromes creates complex runway and taxiway layouts. This additional complexity makes aerodrome surface operations more difficult and potentially more hazardous than in the past. To increase safety and efficiency, the development of formalized training in three areas can reduce and almost eliminate runway incursions. These three areas are;

- Communications
- Aerodrome knowledge
- Cockpit procedures for maintaining orientation

#### **Communications:**

Keep communications clear and concise. Effective communications are the key to safe surface operations. Clear understanding of instructions should never be compromised, especially during busy times when the frequency is congested. Keys to good communication are;

- Listen before you transmit. If able, monitor radio communications to establish a “mental picture” of aerodrome activity.

- Think before keying the transmitter. Keep communications with the controller clear and concise.
- Never assume. Ensure you understand all instructions.
- Read back runway hold short instructions verbatim.

### **Aerodrome Knowledge:**

Be familiar with the aerodrome. It sounds simple, that is know where you are and where you are going. In reality, ground operations can be the most demanding and complex phase of flight. Detailed aerodrome diagrams are helpful. Although these diagrams are normally used by instrument rated pilots, VFR pilots will also find them useful when performing surface operations. Keys to this aerodrome familiarity are;

- Preview aerodrome diagrams before taxiing or landing.
- Keep aerodrome/taxi diagrams readily available during taxi.
- Be alert to aerodrome vehicles and pedestrian activity.

### **Cockpit Procedures for Maintaining Orientation:**

Pilots can use proven and effective procedures in the cockpit to help conduct safe operations on the ground and during take-off and landing. Keys to good procedures are;

- Maintain a sterile cockpit environment. Avoid unnecessary conversation, during surface operations, take-off, and landing.
- Constantly scan outside the cockpit, especially when on the runways.
- If in doubt of your position, notify Air Traffic Control immediately.
- Make your aircraft visible by proper use of aircraft lights.
- If you are unfamiliar with the aerodrome do not hesitate to request progressive taxi instructions.
- Ensure proper radio operation and check audio panel, volume control, and squelch settings.
- Know and follow lost communication procedures and use good judgment should radio failure occur.
- Never stop on an active runway after landing to ask for direction. Clear the runway first, once you have passed the holding position markings (hold lines) stop and ask ground control for directions.

## **5. PROCEDURES.**

There is no doubt that develop course material, conduct training, and continue to increase the emphasis during ab-initio training ground surface operations, then we can enhance and improve the world's standard for runway safety. Therefore a Civil Aviation Authority (CAA) needs to implement in the applicable practical test standards and pilot written tests more material regarding the taxi phase of flight. This emphasis should be focused in the three areas discussed above, communications, aerodrome knowledge, and cockpit procedures. Consequently, since these areas will be a focus during the training of pilots, they must then be incorporated into every phase, both ground school and aircraft training of the ab-initio pilot.

Ab-initio Training – during all of the phases of training, whether it is in the classroom, the briefing room, or in-flight, training with regard to preventing runway incursion, should be included. Because of the impact of an instructor's teaching activities in developing safe, proficient pilots, it is the instructor's responsibility to emphasize the performance of effective visual scanning and collision avoidance procedures, both in-flight and on the ground. For example, when teaching in the area of "Taxiing" there must be instruction (ground and flight) given to the student on aerodrome/taxiway markings, signals, ATC clearances and instructions. Incorporated into that instruction should be communications, aerodrome knowledge, and cockpit procedures. Finally, taxing is a part of every flight and therefore an opportunity to instill the attributes of communication, aerodrome knowledge, and cockpit procedures into the ab-initio pilot in every lesson.

During the examination phase of the pilot at the conclusion of ab-initio training, the examiner is responsible for determining that the applicant meets the acceptable standards of knowledge and skill on each task. Since there is no formal division between the "oral" and "skill" portions of the practical test, then this is an ongoing process. This means the avoidance of runway incursion occurs throughout the

examination, not just prior to the first take-off. Every examination shall place special emphasis upon areas of aircraft operations considered critical to flight safety. One of these special emphasis areas in every flight test shall be examining the applicants' ability related to runway incursion avoidance. For example, during the task of "Before take-off Check" the applicant must demonstrate their ability to avoid runway incursion and/or ensure no conflict with any traffic prior to taxiing into take-off position.

## **6. SUMMARY.**

Taxi operations require constant vigilance on the part of pilots. Pilots need to be continually aware of the movement and location of other aircraft and ground vehicles. Taxi operations require the same planning, coordination, and proper execution as other phases of flight operations. Sterile cockpit discipline is always appropriate while taxiing, even under normal weather conditions.

Pilots must pay particular close attention to instructions from ATC and must insist on correct read back and hear back. Additionally, pilots should pay close attention to read back and hear back between ATC and other aircraft. Any ambiguity or uncertainty should be promptly resolved by clarification with ATC. When clear of an active runway, pilots should be prepared to stop in position to resolve any questions about their position on the aerodrome or clearance from ATC.

Safe aircraft operations can be accomplished and incidents eliminated if pilots are properly trained and correctly accomplish standard taxi operating procedures and practices. This can all be ascertained and imbedded into the ab-initio pilot by making the demonstration of the three areas of runway incursion avoidance an integral part of every flight check.

## **7. ACTION BY STATES.**

States should review the standards for ab-initio training and ensure aspects related to prevention of runway incursion are adequately reviewed during the provision of ab-initio training.

**Director General  
Department of Civil Aviation**