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# Manual on the Prevention of Runway Incursions

Approved by the Secretary General
and published under his authority

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International Civil Aviation Organization

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# AMENDMENTS

The issue of amendments is announced regularly in the *ICAO Journal* and in the supplements to the *Catalogue of ICAO Publications and Audio-visual Training Aids*, which holders of this publication should consult. The space below is provided to keep a record of such amendments.

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# FOREWORD

In 2001, the ICAO Air Navigation Commission took action to address the problem of runway incursions. Several critical areas were identified that needed to be investigated and which had a relation to overall runway safety, including radiotelephony phraseology, language proficiency, equipment, aerodrome lighting and markings, aerodrome charts, operational aspects, situational awareness and Human Factors.

To improve the situation with respect to runway incursions and to encourage the implementation of relevant provisions, ICAO embarked on an education and awareness campaign which began with a comprehensive search for the best available educational material for inclusion in an interactive runway safety toolkit. Information on this toolkit is provided in Appendix J to this manual.

To address aerodromes, air traffic management and flight operations, among other subjects, ICAO also conducted a series of runway safety seminars in the ICAO regions, with the aim of disseminating information on the prevention of runway incursions. Between 2002 and 2005, runway safety seminars were held in the following regions as part of the ICAO education and awareness campaign: Africa-Indian Ocean, Asia and Pacific, Caribbean and South American, European, and Middle East.

Recommendations were made at the runway safety seminars held in the Asia and Pacific and Middle East Regions for ICAO to produce a manual containing runway incursion prevention guidelines. Therefore, the objective of this manual is to help States, international organizations, aerodrome operators, air traffic service (ATS) providers and aircraft operators to implement runway safety programmes taking into account best practices already implemented by some States, international organizations, aerodrome operators, ATS providers and airlines.

All of the above efforts were undertaken to address a specific problem, that of runway incursions. This focus on the so-called "tip of the arrow" was necessary; however, the inherent need to address safety in a proactive and systemic manner cannot be overstressed.

An evolution in safety thinking has led to a change in focus: from that of the individual to that of the organization as a whole. It is now acknowledged that senior management decisions are influential in shaping the operational contexts within which operational personnel perform their duties and discharge their responsibilities. It is also accepted that, regardless of the extent to which operational personnel excel in their job performance, they can never ultimately compensate for systemic deficiencies and flaws in the system that binds them. This new way of thinking is reflected in the following recent Standards and Recommended Practices (SARPs) on safety management which, for the first time, explicitly address the contribution and responsibility of senior management regarding safety.

Annex 6 — *Operation of Aircraft* requires operators to establish and maintain an accident prevention and flight safety programme.

Annex 11 — *Air Traffic Services* requires States to implement safety programmes and ATS providers, to implement safety management systems (SMS).

Annex 14 — *Aerodromes* requires aerodrome operators to implement SMS, as a part of the certification process of an aerodrome, and recommends the same for already certified aerodromes.

Such evolution in safety thinking notwithstanding, it is a fact that properly selected, trained and motivated operational personnel remain the true custodians of safety. When a system breaks down due to unanticipated deficiencies in design, training, technology, procedures or regulations, human performance is the last line of defence against latent conditions that can penetrate the aviation system defences and potentially result in compromised safety. Operational personnel are the true "gatekeepers" of the aviation safety system.

From this broad perspective, it is imperative to avoid the pitfall of focussing safety efforts on organizational issues exclusively, to the detriment of the human contribution to the success and failure of the aviation system. Active failures by operational personnel are sometimes a consequence of flaws in the system, sometimes a result of well-known and documented human limitations, but usually are a combination of the two. A true systemic approach to safety must consider latent conditions in the system as well as active failures on the front lines of operations. Such a systemic approach underlies this manual.

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# GLOSSARY

## 1. TERMS

Terms that are defined in Standards and Recommended Practices (SARPs) and the Procedures for Air Navigation Services (PANS) are used here in accordance with the meaning and usages given therein. In this manual, however, there are a number of other terms describing facilities, services, procedures, etc., related to aerodrome operations and air traffic services that have not yet been included in Annexes or PANS documents. These terms are defined below.

***Hot spot.*** A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

***Just culture.*** An atmosphere of trust in which people are encouraged (even rewarded) for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour.

***Local runway safety teams.*** A team comprised of representatives from aerodrome operations, air traffic services providers, airlines or aircraft operators, pilot and air traffic controllers associations and any other group with a direct involvement in runway operations that advise the appropriate management on the potential runway incursion issues and recommend mitigation strategies.

***Runway incursion.*** 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.

***Runway incursion severity classification (RISC) calculator.*** A computer programme that classifies the outcome of runway incursions.

***Sterile flight deck.*** Any period of time when the flight crew should not be disturbed, except for matters critical to the safe operation of the aircraft.

## 2. ABBREVIATIONS/ACRONYMS

| | |
|---|---|
| ADP | Airside driving permit |
| AIP | Aeronautical Information Publication |
| ARIA | Aerodrome runway incursion assessment |
| ATC | Air traffic control |
| ATIS | Automatic terminal information service |
| ATM | Air traffic management |
| NOTAM | Notice to airmen |
| PANS | Procedures for Air Navigation Services |
| RISC | Runway incursion severity classification |
| RTF | Radiotelephony |
| RVR | Runway visual range |

| | |
|---|---|
| RWY | Runway |
| SARPs | Standards and Recommended Practices |
| SMS | Safety management system(s) |
| SSR | Secondary surveillance radar |
| UHF | Ultra-high frequency |
| VHF | Very high frequency |