

**ICAO NAM/CAR/SAM Runway Safety/Incursion Conference
Mexico City
22 to 25 October 2002**

ICAO developments on runway incursions

**Presented by Vince Galotti
Chief/Air Traffic Management
ICAO**

Objectives

- P Review a few reports and recommendations*
- P Review ICAO safety-related work*
- P Review ICAO provisions and work currently underway on runway safety*
- P System safety approach*
- P ICAO's role in improving runway safety*

Transport Canada study

Basis for the increase in runway incursions

P Traffic volume

P Capacity-enhancing procedures

P Airport layouts

P Complexity

P Human performance

Transport Canada study

P The potential for a runway incursion increases more rapidly than traffic volume. For example, a 20% increase in volume represents a 140% increase in runway incursion potential

P In keeping with the laws of probability, and in the absence of significantly improved safeguards, an increase in the potential for runway incursions can be expected to be associated with an increase in actual runway incursion events

Transport Canada study

Capacity-enhancing procedures

P Two conclusions

- < As traffic volume increases, runway incursion potential increases more rapidly when capacity-enhancing procedures are in effect than when they are not
- < If traffic remains the same, the potential for runway incursions increases when capacity-enhancing procedures are put into operation

National Transportation Safety Board (NTSB)

June 2000 Recommendations to FAA

*P*That:

- < ATC procedures require specific clearances for aircraft to cross runways
- < FAA require controllers to wait to issue landing clearance until preceding aircraft has crossed landing threshold
- < FAA require use of ICAO standard phraseology for airport surface operations

ICAO safety-related work

Radiotelephony phraseology Problem areas

*P*MAPCOG

*P*ICAO

< TAXI TO HOLDING POSITION

< LINE UP AND WAIT

*P*FAA

< HOLD SHORT OF

< TAXI INTO POSITION AND HOLD

*P*HOLD SHORT

National Transportation Safety Board (NTSB)

June 2000 Recommendations to FAA

***P** A review of intersecting runway operations at all airports served by scheduled carriers*

***P** Extending the spacing standard used to separate converging arrivals and departures to a distance of greater than 2 mi.*

Definition of Runway Incursion

Common taxonomies

P Runway incursion-other

- < Collision with, risk of collision, or evasive action taken by an aircraft to avoid a person or animal on a runway in use

P Runway incursion-vehicle or aircraft

- < Collision with, risk of collision, or evasive action taken by an aircraft to avoid a vehicle or other aircraft on a runway in use

ICAO safety-related work

- P Standards, Recommended Practices*
- P Procedures for Air Navigation Services*
- P Other provisions and documents*
- P Air Navigation Commission*
 - < SARPS, Panels, GASP
- P Regional framework*
- P Safety oversight*
- P 11th Air Navigation Conference*

ICAO safety-related work

Standards and Recommended Practices

P Standard:

- < Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation.

ICAO safety-related work

Procedures for Air Navigation Services

***P** The PANS contain material which is prepared as an amplification of the basic principles in the corresponding SARPS and are designed particularly to assist the user in the application of those SARPS*

ICAO safety-related work

Air Navigation Commission

*P*GASP

- < For ICAO to provide necessary leadership and to gain a commitment from Contracting States and the aviation industry for a collaborative effort to enhance aviation safety in order to achieve a significant improvement in the world-wide accident rate

ICAO safety-related work

Regional framework

P Air Navigation Plans

P Regional planning groups and sub-groups

P Seminars/workshops

ICAO provisions and documents

P Advanced-Surface Movement Guidance and Control Systems (A-SMGCS) manual

< Published as global manual in 2003

P Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR)

< Published as a global manual in 2003

ICAO safety-related work

Safety oversight

P Objectives:

- < Audit all Contracting States, on an ongoing basis, to determine States' capability to provide safety oversight over their aviation systems through the implementation of ICAO SARPS, associated procedures, guidance material and relevant safety-related practices

ICAO safety-related work

Eleventh Air Navigation Conference

P September 22 to 3 October 2003

P Agenda Item 2: Safety and Security in Air Traffic management

- < Safety management systems and programmes
- < Safety certification of ATM systems
- < Safety regulation
- < Global Aviation Safety Plan (GASP)
- < Safety and security of the ATM infrastructure

ICAO safety-related work

Eleventh Air Navigation Conference

P September 22 to 3 October 2003

P Agenda Item 4: Capacity-Enhancement Measures

- < Global measures
- < Regional measures

ICAO safety-related work

Runway incursion work

P June 2001

- < New ANC Task developed on runway incursions
- < ANC formed ad hoc working group and identified study areas as:
 - ATC procedures
 - Aerodrome charts
 - Radiotelephony phraseology
 - Situational awareness
 - Language proficiency
 - Aerodrome lighting and markings
 - Performance requirements for equipment
 - Operational aspects
 - Human factors

ICAO safety-related work

ATC procedures

P Annex 2: Rules of the Air

- < Aircraft must stop and hold at all runway holding positions
- < Aircraft shall not taxi onto manoeuvring area without clearance

P Annex 11: Air Traffic Services

- < Movement of persons and vehicles must be controlled by the control tower

ICAO safety-related work

Aerodrome charts

P Annex 4: Aeronautical Charts

- < Aerodrome/Heliport Charts
- < Taxiway charts
- < Aerodrome ground movement chart
- < Aircraft parking/Docking Chart

ICAO safety-related work

Radiotelephony phraseology

P Amendment to Annex 11 (App Nov 2001)

- < ATS safety management
- < Read-back of clearances

P PANS-ATM (App Nov 2001)

- < the requirement for an explicit clearance to "cross" or an instruction to "hold short" of a runway to be included when a taxi clearance contains a taxi limit beyond that runway

ICAO safety-related work

Situational awareness and human performance

P Procedures for Aircraft Operations (PANS-OPS)

- < New part: Aerodrome Surface operations aimed at addressing vulnerabilities in human performance and maintenance of situational awareness during surface operations
- < Provisions require that operators ensure flight personnel are aware of risk factors in the aerodrome surface operations

ICAO safety-related work

Language proficiency

P Secretariat and PRICESG developed proposals for amendment of ICAO Annexes:

P 1: Personnel Licensing

P 6: Operation of Aircraft

P 10: Aeronautical Telecommunications

P 11: Air Traffic Services

P PANS-ATM

ICAO safety-related work

Aerodrome lighting and markings standardization

P Annex 14: Aerodromes

- < Enlarged version of runway holding position markings
- < Upgraded specifications on stopbars and runway guardlights
- < Use of retro-reflective materials for markings

P Visual Aids Panel (VAP)

- < Development of specifications for on visual aids for A-SMGCS

ICAO safety-related work

Standards and performance requirements for equipment

P Annex 11: Air Traffic Services

< Use of surface movement radar

P Manual on SOIR

P Manual on A-SMGCS

System Safety Approach

Safety Management Systems

P Amendment to Annex 11

P Amendment to PANS-ATM

P Safety management systems manual

- < Identify actual and potential hazards
- < Ensure remedial action
- < Provide for continuous monitoring and regular assessment

ICAO's role in improving runway safety

Education and awareness campaign

- P Regional level*
- P Global dissemination of available material from States and organizations*
- P Workshops/Seminars*
- P Assembly Resolutions*
- P Review and update provisions*
- P Encourage implementation of provisions*
- P Publicity*

Runway Incursion - Project

Education and Awareness

- P Collation of best available operational and technological material*
- P Presentation in audio, graphic, textual format*
- P Thematic narrative and various subsets*
- P Interactive CD-ROM, VHS*
- P Distribution as a toolkit in compelling form*

Conclusions

P ICAO involved in all aspects of safety

P Runway incursion work

< Radiotelephony phraseology, Language proficiency, ATC procedures, Performance requirements for equipment, Aerodrome lighting and markings, Aerodrome charts, Operational aspects, Situational awareness, Human factors

P Safety management approach

P ICAO's present and future role