Paris, Issy Les Moulineaux, 29 Novembre
Symposium 2007 sur les Incursions sur Piste

Eric MIART, EUROCONTROL APR Manager
Runway Safety - Not a New Problem
"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"

Applicable 25 November 2004
Runways are hazardous

300 tons
130 mph

System needs to be perfect

... Nearly will not do
Preventing Runway Incursions

Runway Incursions happen ...

- When situational awareness is lost
- Errors are not caught in time
- Communications breakdown
- The Team doesn’t work
European Runway Incursion Data 2006

Runway Incursion Reports

- ECAC

- Class A

- Class B

Runway Incursion Severity

- 2003: 25
- 2005: 11
- 2006: 9

- 2003: 52
- 2005: 51
- 2006: 32
Preventing Runway Incursions
Contributory and causal factors

Controller factors
- Crew not familiar with the airport
- Deficient markings, signage and lighting
- Loss of situational awareness
- Misapplied conditional clearance
- Inadequate driver training

Communication

50% of Pilots and Drivers believe they have permission to be on the runway.
Two Main Thrusts:

- **Systemic Mitigations**
  - Background/justification – EAPPRI

- **Technology Mitigations**
  - A-SMGCS – Surface Movement management

Both important elements of APR
European Action Plan for the Prevention of Runway Incursions
- European Action Plan for the Prevention of Runway Incursions
- Input to ICAO Runway Safety Manual
- Runway Safety Awareness CD
- Aerodrome Resource Management
- Local Runway Safety Team Seminar
Reports from Tower Managers, ACI and IATA from more than 120 airports across ECAC concur

- 92% Local Runway Safety Teams
- 92% Awareness campaigns
- 73% Formal driver training
- 80% IATA member airlines globally, promote best practices for pilots’ planning of ground operations (sterile cockpit)
Example of best practice
Hot Spot Map - Brussels

Amsterdam
Copenhagen
Bologna
Venice
Naples......
• Use of stop bars - e.g. Amsterdam, Gatwick, Geneva, Manchester, Stansted, Stockholm

<table>
<thead>
<tr>
<th>STANSTED AIRPORT</th>
<th>Alpha, Golf Bravo, Hotel, Kilo, Lima, Lima Romeo, November Romeo, Papa Romeo, Papa, Quebec Romeo, Quebec, Romeo and Sierra holding points. Green lead-on/off lighting is suppressed when red hold bars are illuminated. Guard lights at all runway entry points. At all CAT I/III runway holding points. Hotel and Juliet have stopbars along their length and within the Alpha Cul-de-Sac. No stopbars on Taxiway Foxtrot.</th>
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<tbody>
<tr>
<td>3 Stop bars:</td>
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• Training - e.g. ARM courses at IANS or at airports on request
Who really needs to drive on the manoeuvring area?

Cost effective driver training including:

- ICAO compliant phraseology +
- Aviation English +
- Use of RT

= Use of a single frequency on the runway
  Improved situational awareness for
  Pilots and Drivers and Air Traffic Controllers
- Visit Local Runway Safety Teams – share best practices
- Provide LRST with support, information, methods
- Run a local Aerodrome Resource Management training
- Review current technologies and facilitate the development of what’s needed
A GLOBAL WORLD / ICAO ISSUE

- One runway incursion definition
- Use of standard ICAO phraseology
- ICAO Runway Safety Manual
- Runway Safety part of the Universal Safety Oversight programme
- IFALPA, IFATCA and ACI working together

FAA, Air Services Australia, EUROCONTROL
FURTHER ENHANCEMENTS

Airport Operations Programme
Follow On
- Improved surveillance
- Has already saved some serious incidents
- Safety net detects conflict
- Passed to controller
- Understood by Controller
- Decide on recovery actions
- Pass to Pilot(s)
- Need to understand and react ...
Positional information and proximity warnings given in the cockpit

- Honeywell system
- Potential for the future
- Not yet fully mature
- No pilot consensus yet
FAA “Status Lights” initiative

The Problem

Potential Solution: Part 1

Aircraft taking off or taxiing across while runway is in use

Aircraft stopped at hold line because of red lights

Potential Solution: Part 2

Aircraft continues to hold for takeoff because of red lights

Takeoff-Hold Lights
- Low cost compared to an SMR
  - Not yet an A-SMGCS
- Synchronized Millimeter Wave Sensors
- Controls taxiway centre lights, stop bars, signs, runway guard lights and other ground lights
FURTHER ENHANCEMENTS

MEDIUM TO LONG TERM
What is needed 1/2

• Simultaneous positional information
• Simultaneous proximity warning for Pilots, Controllers and Drivers
- Airport Surface Management and Safety
- Development of technology based safety nets
- Contribute to ground training for Pilots
- Global Lights On policy (IFALPA)
- Best Practice documentation
- Stop bars 24 hours
What airport operational staff want

**Blame free reporting**
- High situational awareness
- Never to be asked to cross a red stop bar

- Optimal training in RT, phraseologies & procedures
- Adequate equipment

- Clear ICAO signs, marking and lighting
- Unambiguous ICAO RT phraseology
- Only one aviation language
- Input into airport developments
- Use of ICAO procedures

**All staff**
**Drivers & Pilots**
**Drivers**
**Pilots**
What airport operational staff want

- Good vision from the visual control room
- Adequate equipment
- Human factors issues to be considered
- No excessive peaks of traffic

Tools and assistance to support identifying local issues
- Airport level safety occurrence monitoring and analysis
- Joint training for operational staff
- ICAO compliant solutions whenever practicable
- Blame free reporting
The most serious safety issue facing Airport Operations are Runway Incursions.

Thank you for your attention.