EUROCONTROL Runway Incursion Risk Review

NTSB Safety Forum

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Runway Incursion Operational Risk

One of EUROCONTROL Network Manager two main operational safety areas - together with mid-air collision and two of our Top 5 priorities

Top 5: ATC Identification of Occupied Runway

Top 5: Sudden High-Energy Runway Conflict (SHERC)
From 2016 Top 5 Study

Where do you think we are better protected – in the air or on the ground?

Losses of separation

- PROVIDENCE: 3
- PILOT COLLISION AVOIDANCE - VISUAL: 1
- PILOT COLLISION AVOIDANCE - ACAS: 49
- ATC COLLISION AVOIDANCE: 41
- ATC SEPARATION ASSURANCE: 2
- PREVENTING TACTICAL CONFLICT: 92

Runway Incursion

- PROVIDENCE: 3
- PILOT / DRIVER RUNWAY COLLISION AVOIDANCE: 9
- ATC RUNWAY COLLISION AVOIDANCE: 14
- ATC PREVENTING RUNWAY CONFLICT: 16
- PREVENTING RUNWAY INCursion: 2

WORKED OR NOT NEEDED

FAILED
Two dedicated studies in 2017

As part of European Action Plan for The Prevention of Runway Incursion (EAPPRI) Review – v3.0 to be launched at ICAO GRSS in November

- European incidents - 2013, 2014 and 2015
- Global events from 2006 to 2016
Safety Functions Map (SAFMAP) Process

Barrier model and analysis of what failed (Safety I) and the resilient barriers that stopped the event (Safety II). More than 100 barriers.
European Incidents Study

126 runway incursion incidents data sample for 2013, 2014 and 2015 - 47% from all 270 A and B severity runway incursion incidents that occurred in the period
“Taxiing mobile incorrect entry” – the most frequent initiator
European Incidents Study

Two more key findings

- Out of 55 runway incursions there are 29 events where stop bars could have prevented the incidents.
- The share of events involving use of conditional clearance is relatively low (8%) but the potential for a high severity outcome is considerable – 40% of the events were stopped by the last two barriers.
Global Events Study

71 accidents & serious incidents for 2006 - 2016

Barriers’ resilience per initiator

Global events
Investigated by national AIBs
Public reports
Global Events Study

- Confirmed the Study 1 finding for stop bars – 27 where stop bars could have prevented the incidents

- Two of Top 5 reconfirmed as a global concern:
  - “ATC not identifying occupied runway” – 28 events (39%) and two ‘saved’ by ‘Providence’.
  - “Sudden high-energy runway conflict” – 20 events (28%) and predominantly ‘saved’ by the last barriers.
Global Events Study

Could have been prevented by stop bars - 27

3 PROVIDENCE

24 CONFLICT PARTICIPANT RUNWAY COLLISION AVOIDANCE

6 No need for participant RWY collision avoidance

13 ATC RUNWAY COLLISION AVOIDANCE

2 No need for ATC collision avoidance

11 RUNWAY CONFLICT PREVENTION

5 No need for runway conflict prevention

1 RUNWAY INCURSION PREVENTION

ATC causing an incorrect entry of a taxing mobile

Taxing mobile incorrect entry

Incorrect presence of a vacating mobile

Incorrect presence of a departing aircraft

Incorrect presence of landing aircraft

Landing without clearance
Global Events Study

ATC not identifying occupied runway - 28

3 PROVIDENCE
6 CONFLICT PARTICIPANT RUNWAY COLLISION AVOIDANCE
No need for participant RWY collision avoidance
24 ATC RUNWAY COLLISION AVOIDANCE
No need for ATC collision avoidance
13 RUNWAY CONFLICT PREVENTION
No need for runway conflict prevention
11
5
1
1
2
3
8
3
5
1
5
0
1

ATC causing an incorrect entry of a taxiing mobile
Taxing mobile incorrect entry
Incorrect presence of a vacating mobile
Incorrect presence of a departing aircraft
Incorrect presence of landing aircraft
Landing without clearance
Global Events Study

28% of the events during night time and 68% of them passed all barriers up to ‘Conflict participant collision avoidance’
More safety knowledge?

The single point of reference in the network of aviation safety knowledge

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