



Runway Incursion



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**PRESENTED
BY
ANS SAFETY OVERSIGHT
<ANSSO>
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Outline



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- **Runway Incursions;**
 - Definitions, and
 - Categories
- **Performance Breakdown**
 - Contributing Factors and Causes
 - Common errors
 - Human Factor
- **Threat and Error Management Strategies**
 - Avoidance Strategies
 - Trapping Strategies
 - Mitigating Strategies
- **Q&A**





What is a Runway Incursion?



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**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.**

(SOURCE: ICAO DOC 4444 - PANS-ATM)



Runway Incursion Categories

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Increasing Severity

Category D

Little or no chance of collision but meets the definition of a runway incursion

Category C

Separation decreases but there is ample time and distance to avoid a potential collision

Category B

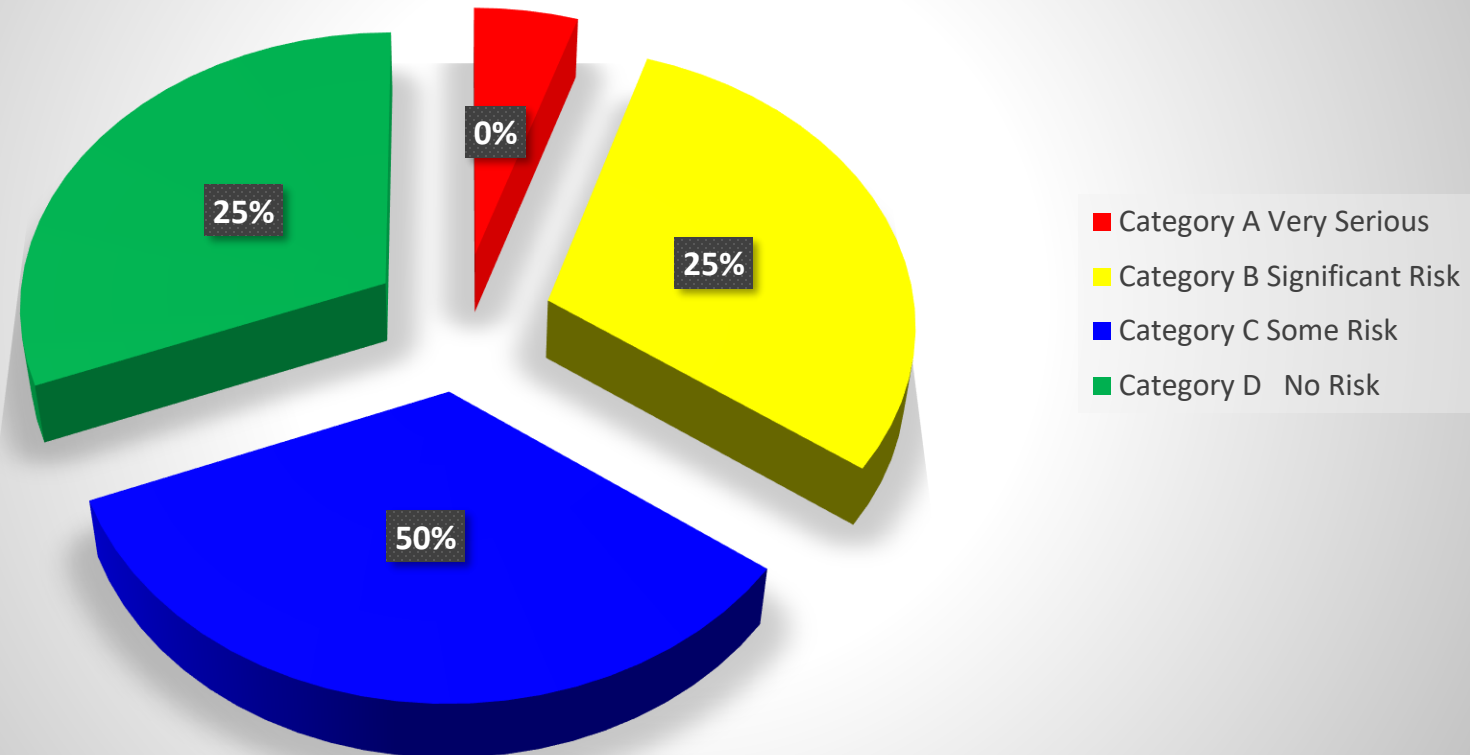
Separation decreases and there is a significant potential for collision

Category A

Separation decreases and participants take extreme action to narrowly avoid a collision, or the event results in a collision

Typical Distribution by Category Type

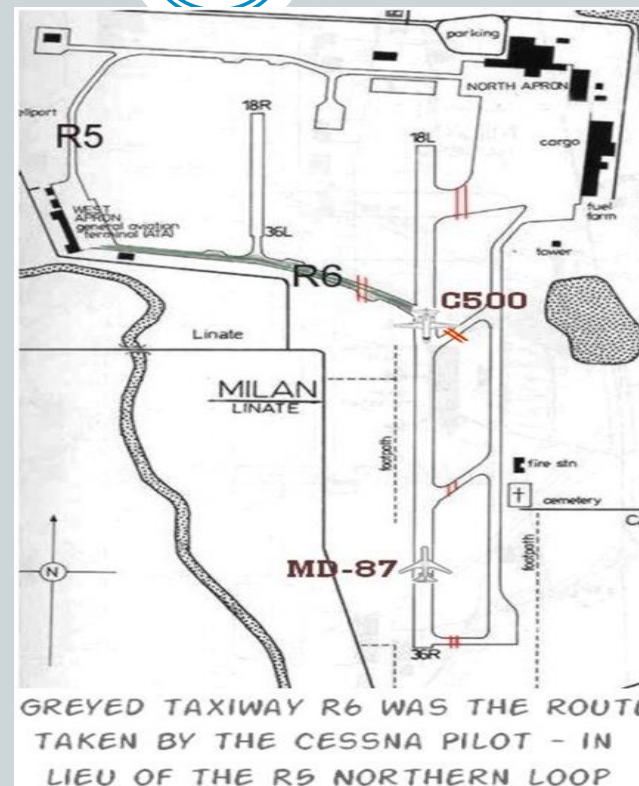
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Performance Breakdown

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Contributing Factors to Runway Incursions

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- Traffic volume
- Ramp and Runway Technologies
- Capacity Enhancing Procedures
- Airport Layouts
- System Complexity
- Human Factors





Causes of Runway Incursions

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1. Air Traffic Control
2. Aircrew (Pilots)
3. Maintenance (Ground Crew)
4. Other (Objects or Wildlife)





Common ATC Errors (Operational)

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- Forgetfulness (attention)
- Communication (R/B, H/B)
- Coordination (ATC Positions)
- Judgement (ATC SA)





Common Pilot Errors

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- Failure to comply with ATC instructions
- Failure to “hold short” when instructed
- Accepting someone else’s clearance
- Distraction
- Hold Short and Restriction Read back ok but continues anyway





Common Ground Crew Errors



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- Vehicles/pedestrians on the airfield without authorization
- Failure to “hold short” when instructed.
- Reluctant to ask for clarification





Human Factor -Top Active Cause Factors

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1. Attention/Memory errors
2. Decision errors
3. Technique Based errors
4. Knowledge of Information errors

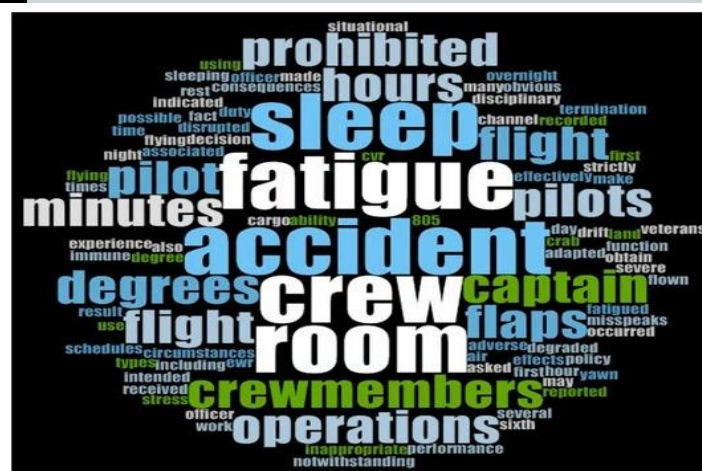
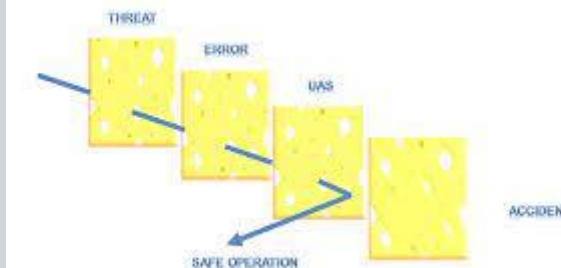
Threat and Error Management Strategies

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AIRCRAFT RULES

Somewhere in the top 10... "When landing, it's wheel side down."





WHEN TO AVOID, TRAP, AND MITIGATE?

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AFTER

DURING

BEFORE



Avoidance Strategies - (Pilots)

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- Planning and Briefings;
- Maintain Airport SA;
 - Have airport diagram available
 - Use compass heading, and
 - Request progressive taxi if necessary
- Detailed taxi SOP's;
 - Log taxi instructions,
 - State Position on initial contact with ATC,
 - "Sterile cockpit" while taxiing

ANTICIPATE & AVOID



Trapping Strategies - (Pilots)

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- Read back clearances as per regulations;
- Visually clear runway before entering;
- Verbalize all actions within crew;
- Resolve discrepancies;
- Exercise extra vigilance when instructed to "taxi to position and wait"; and
- Monitor all other traffic for conflict.

DETECT & TRAP



Trapping Strategies (ATC)

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- Listen out on read backs;
- Beware of hear back errors.
- Increased redundancy (extra set of eyes in tower); and
- Stay ahead of the curve.

DETECT & TRAP



Trapping Strategies (Ground Crew)

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- Read back procedures;
- When in doubt STOP and ask for clarification
- Maintain a good lookout (SA); and
- Be wary when crossing or entering any runway
- Listen out for aircraft

DETECT & TRAP



Mitigating Strategies - (Pilots)

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- Expand Time
- Awareness
- Implications
- Plan
- Act
- Communicate

MITIGATE



Mitigating Strategies (ATC)



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- Expand Time;
- Awareness
- Implications
- Plan
- Act; and
- Communicate.

MITIGATE



Mitigating Strategies (Ground Crew)

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- Expand Time;
- Awareness
- Implications
- Plan
- Act; and
- Communicate

A large red triangle pointing upwards, located on the right side of the slide. The word "MITIGATE" is written in white capital letters across the middle of the triangle.

MITIGATE

In Conclusion ...

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- Runway Incursions are on the rise in our increasingly complex, sometimes overstretched aviation system;
 - They are caused by Human Error;
 - The results have been catastrophic;
-
- **We are the last line of defence!**



THE END