ALPA 52nd Annual Air Safety Forum

Getting Some Traction on Runway Friction

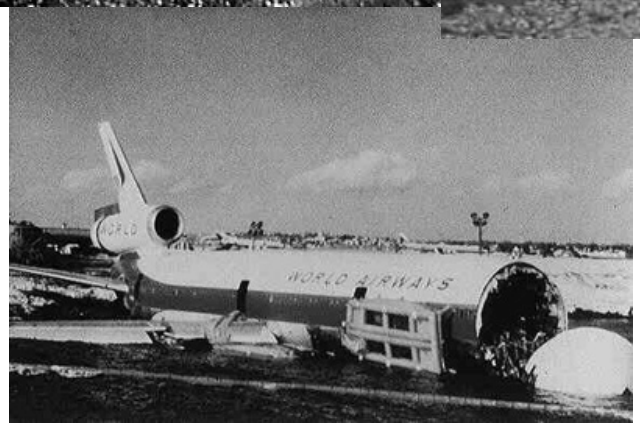
Moderators:

Captain Dave Hayes,

ADO Group Chair

Captain Mitchell Serber

AGE Group Chair



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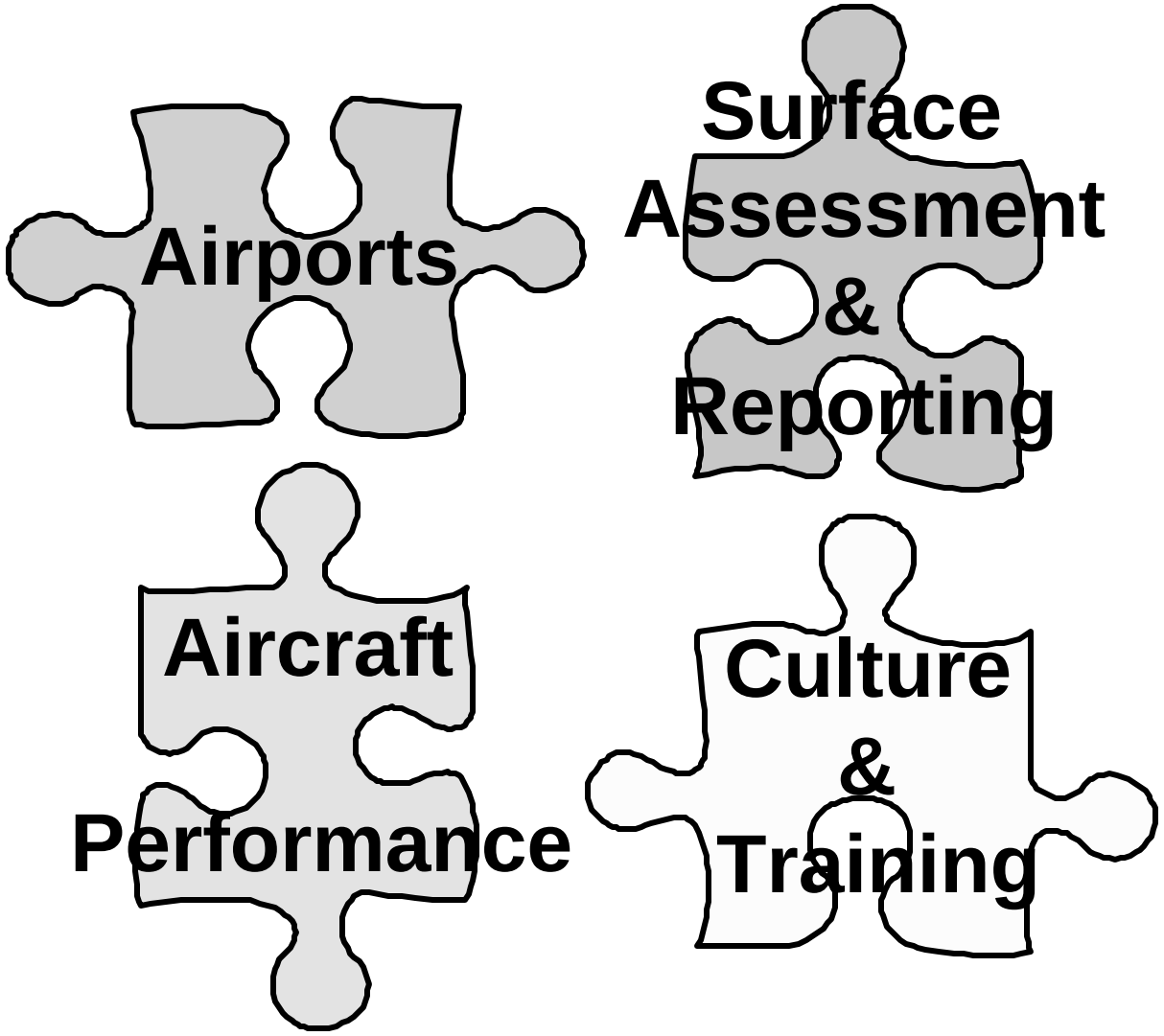
The Puzzle Pieces



What is Contaminated?

- Slippery, contaminated, cluttered, etc.
- Contaminated Runways
  - Surface material that adversely affects tire-to-ground friction
    - Water (<3mm), ice, compacted snow, rubber deposits
  - These may impede deceleration on landing and acceleration for takeoff
    - Impingement & displacement drag
    - Water (>3mm), loose snow, slush

Surface Assessment

- Braking action advisories
  - GOOD, FAIR, POOR, NIL (FAA)
  - GOOD, MEDIUM to GOOD, MEDIUM, MEDIUM to POOR, POOR (ICAO)
  - Varies from pilot to pilot and aircraft to aircraft
  - Lack of defined criteria to assist pilots in choosing the most appropriate term
  - Requires a flightcrew to make the assessment
    - Sometimes of adverse conditions (NIL)

Surface Assessment

- Friction Index
  - Many pilots unaware of the limitations of friction measurement devices
  - Pilots assume these values are accurate
  - Crews are not given performance information as a function of these numbers
  - Therefore, many pilots have no direct use for Friction Index

Reporting

- Sources of runway surface conditions (RSC)
  - ATIS
  - Air Traffic Control
  - Dispatch or FSS
  - Other pilots
- NOTAM system not well suited for rapidly changing conditions
  - Tells pilots what it was, not what it is

Reporting

- Runway Surface Condition (RSC) reports must be standardized, accurate, and timely
- Problem areas
  - Reports over an hour old
  - Reports that don’t reflect actual conditions
  - Poor communication between airport and ATC
  - RSC reports for non-tower airports

Airports

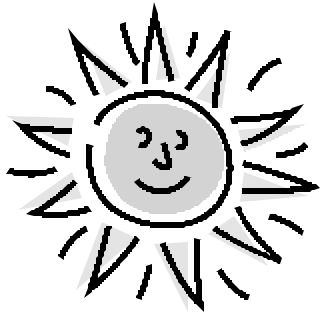
- Runway clearing impacted by the tempo of the operations
- Contaminants can obscure touchdown zone markings
- Conditions will vary along runway length
- Runway clearing is critical
  - No data for other than dry
  - Wet data calculated

Performance Information

- Certification rules
  - In U.S. under FAR Part 25
  - Outside U.S. under EASA CS-25
- Operational rules
  - In U.S. under FAR Part 121 and 135
  - Outside U.S. under JAR-OPS
- Demonstrated landing distance based on:
  - Dry, level, smooth, hard-surfaced runway
  - Maximum manual braking with fully worn brakes
  - No thrust reverse credit

Performance Information

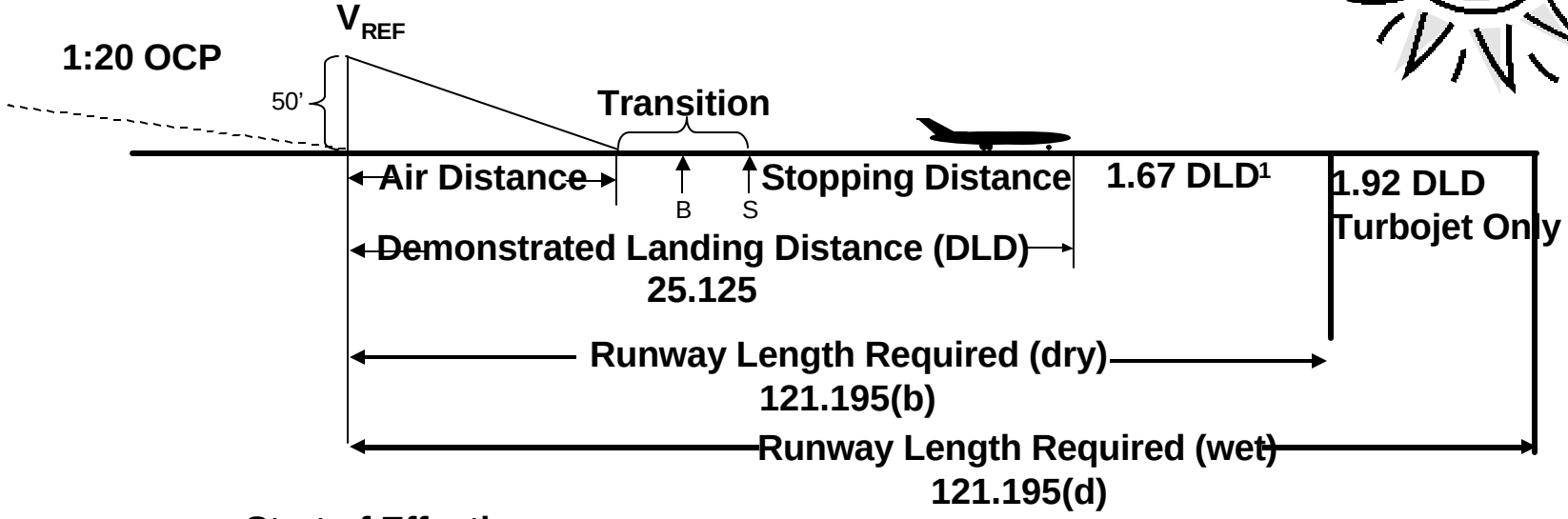
This is how the manufacturers do it



Stabilized Approach

Landing Configuration

Part 25 demonstrated landing distance regulations essentially unchanged since 1965.



Performance Information

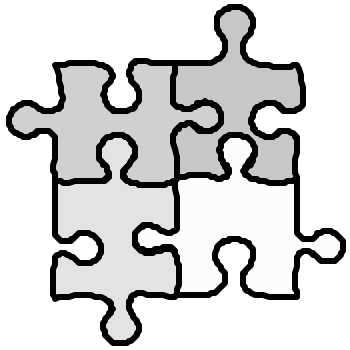
- Many pilots have little or no information for:
  - Weight penalties
  - Speed corrections
  - Distance corrections for contaminated runway operations
- Those who do, have two sources
  - “Paper” data
  - Electronic data

Final Thoughts

- This is not a new issue
- Some progress has been made
- Excursions continue to occur on wet/contaminated runways
- Sound decision making requires timely and accurate information

That Being Said…

All the puzzle pieces have to fit together to mitigate the risks of runway overruns in winter conditions – winter season is only 4 months away.



The members of this panel are representatives from those portions of the industry working these puzzle pieces.