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Presented by Dick van Eck

Up Hill and Down Dale Continued

Preventing Runway Incursions at Schiphol Amsterdam Airport

Content of Presentation

- *Initiatives and Backgrounds*
- *Progress at Schiphol*

- *Recent Incidents*
- *Lessons Learned*


Managing Human Error


RUE
BUTTE AUX CAILLE

Recall

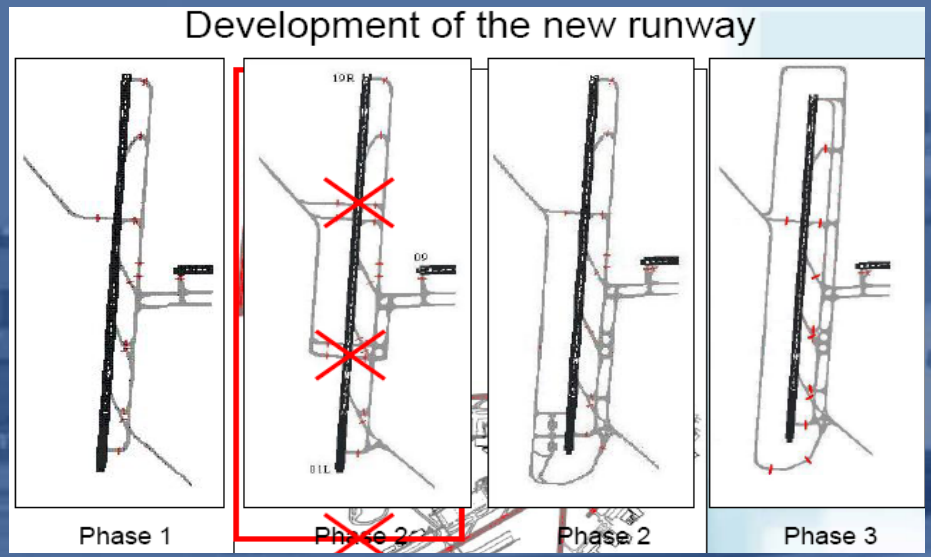
- 1977 Tenerife KLM Pan Am
- 2000 Paris MD-83 SH33
- 2000 Taipei Singapore Airlines
- 2001 Milan SAS Citation
- 2006 Lexington Comair

Actions on Preventing Runway Incursions at Schiphol Airport

- Coördination between regulator, airport authorities, ATC, KLM and other airlines
- Local Runway Safety Team
- Adapted layout on airfield design
- Runway protection by stop bars
- Low visibility procedures
- Hot spot detection and campaigns
- Surface movement radar and multilateration
- Runway incursion alert system Schiphol
- Discussion on conditional clearances

Local Runway Safety Team

- “Things should be made as simple as possible, but not any simpler”
  Albert Einstein



Risk Management

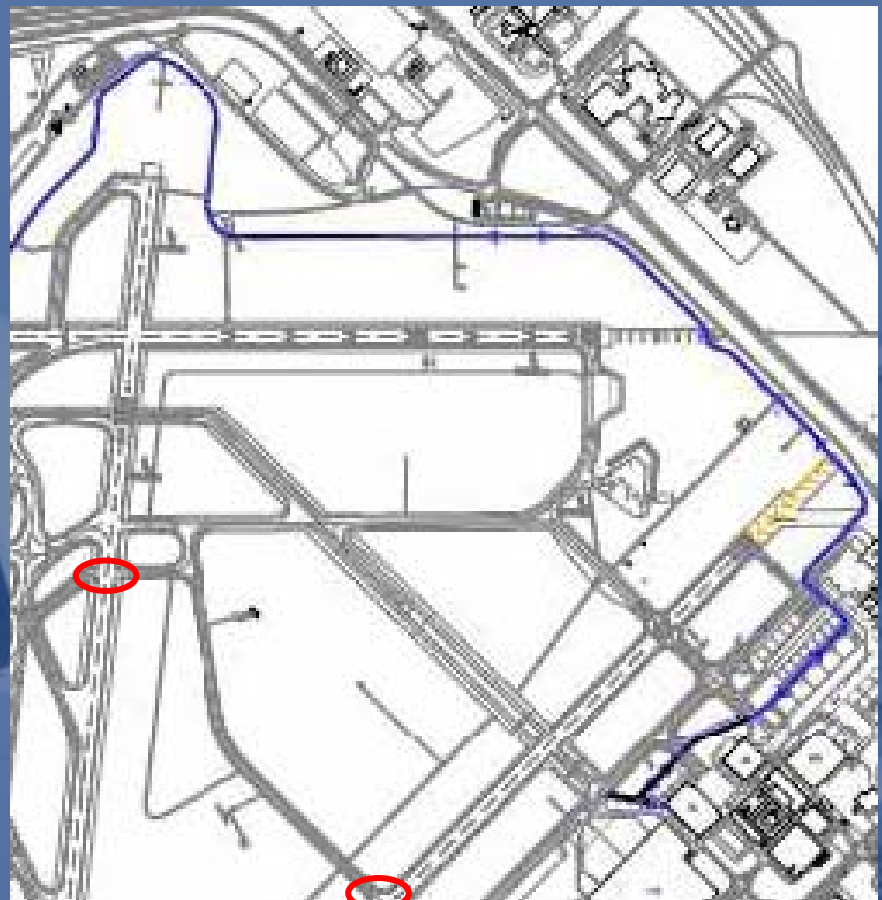
- RISK = Probability x Severity

(EXPOSURE) x (CHANCE)

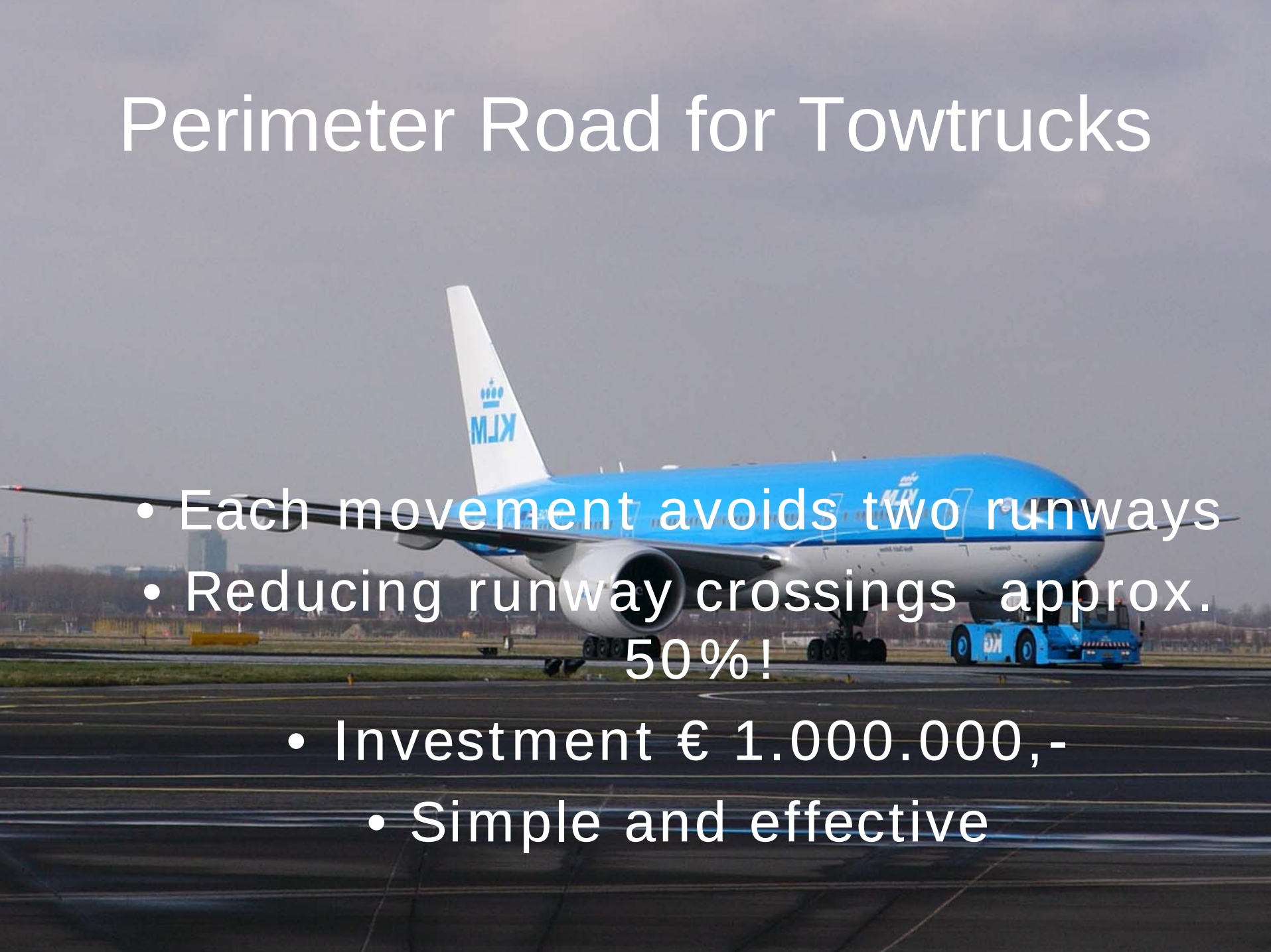
- Reducing Exposure = Reducing Risk!

Reducing Runway Crossings by Towtrucks

- Per day: 140 aircraft tow movements
- Per day: 60–80 towtruck movements
- Per day: 50 towtruck movements crossing live runways

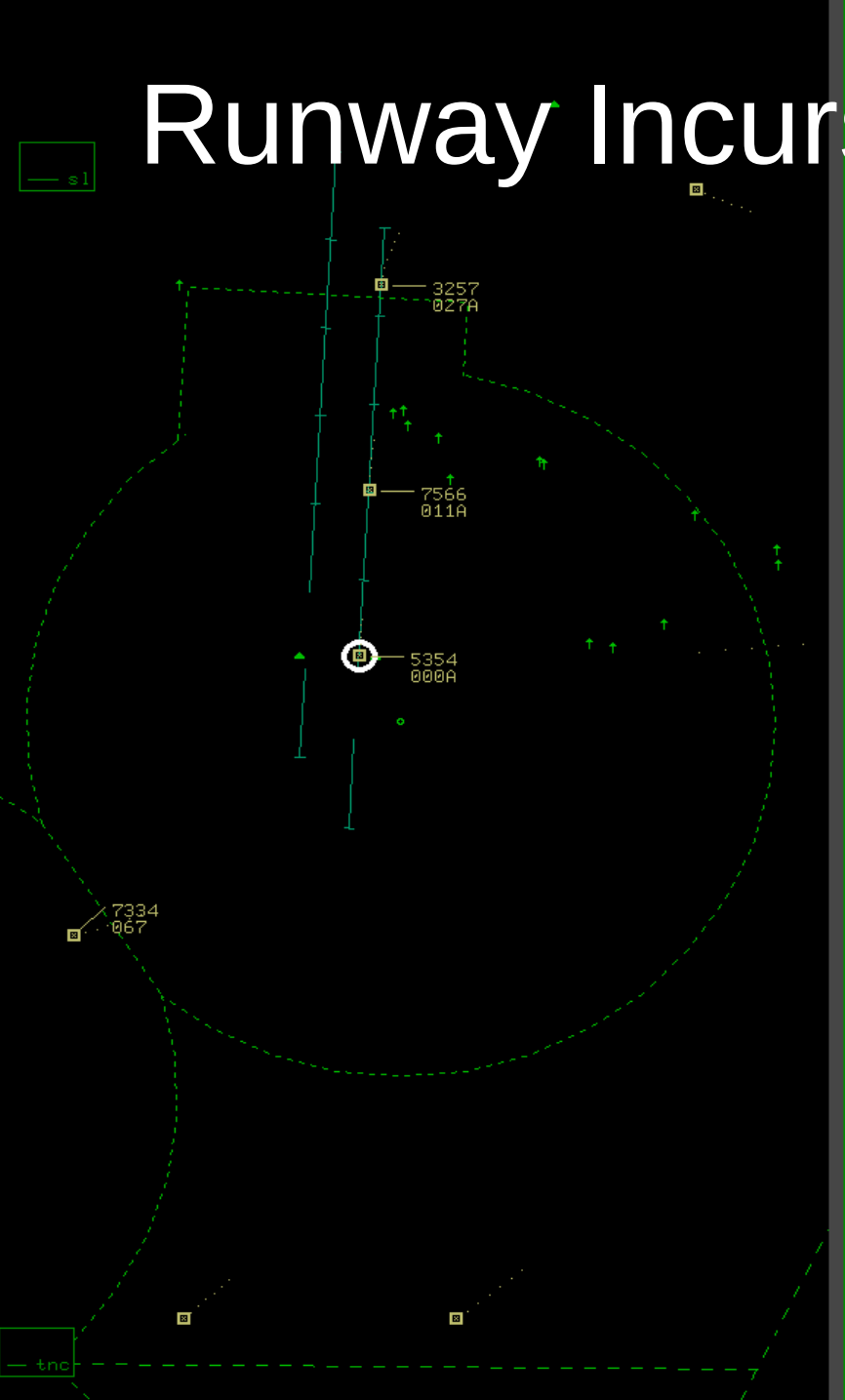


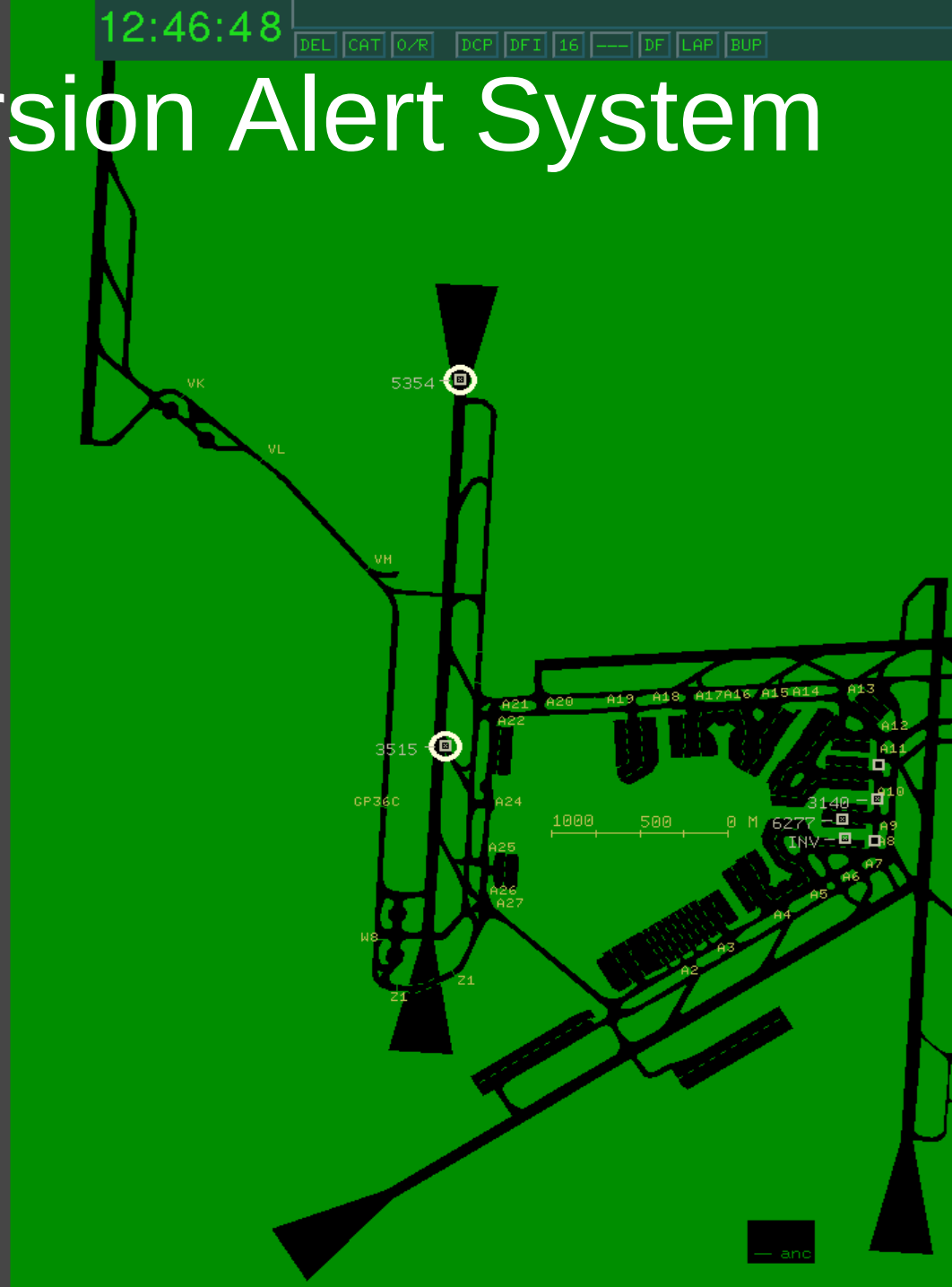
Perimeter Road for Towtrucks



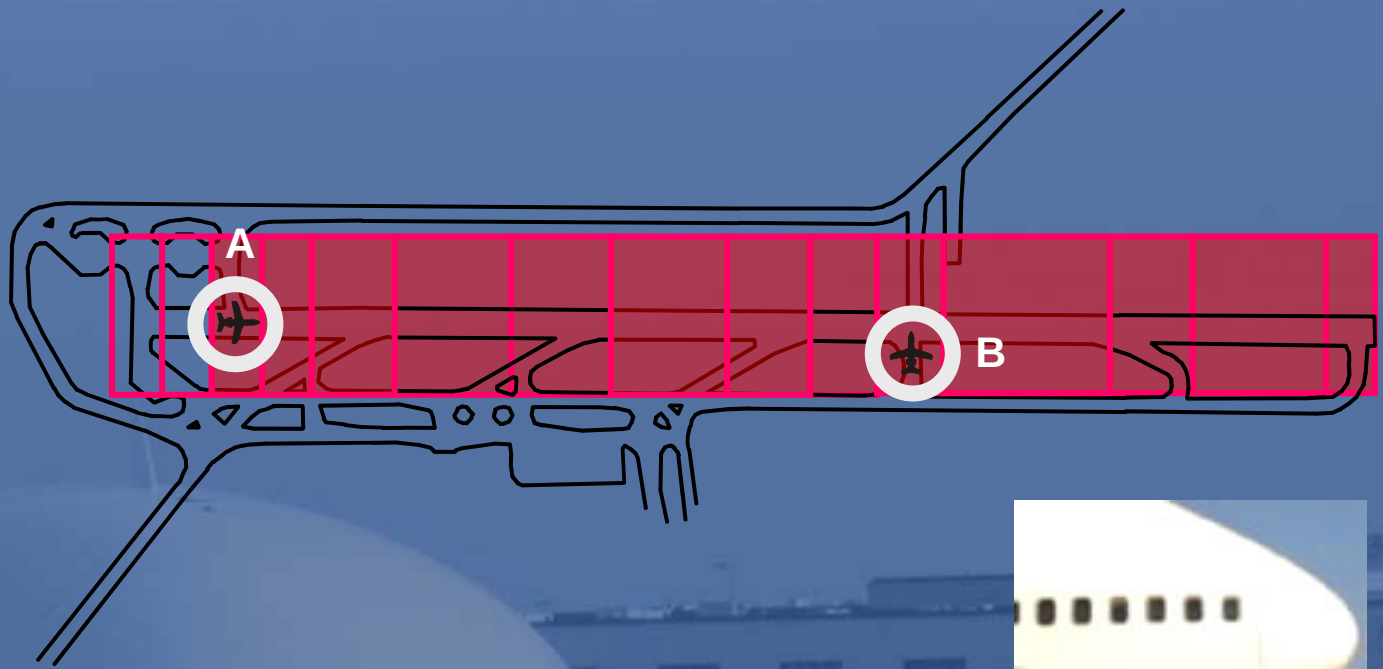
- Each movement avoids two runways
- Reducing runway crossings approx. 50%!
- Investment € 1.000.000,-
- Simple and effective

Runway Incursion Alert System

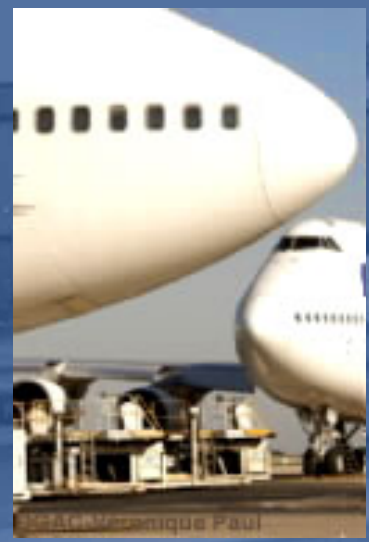




Runway Incursion Alerting System Schiphol



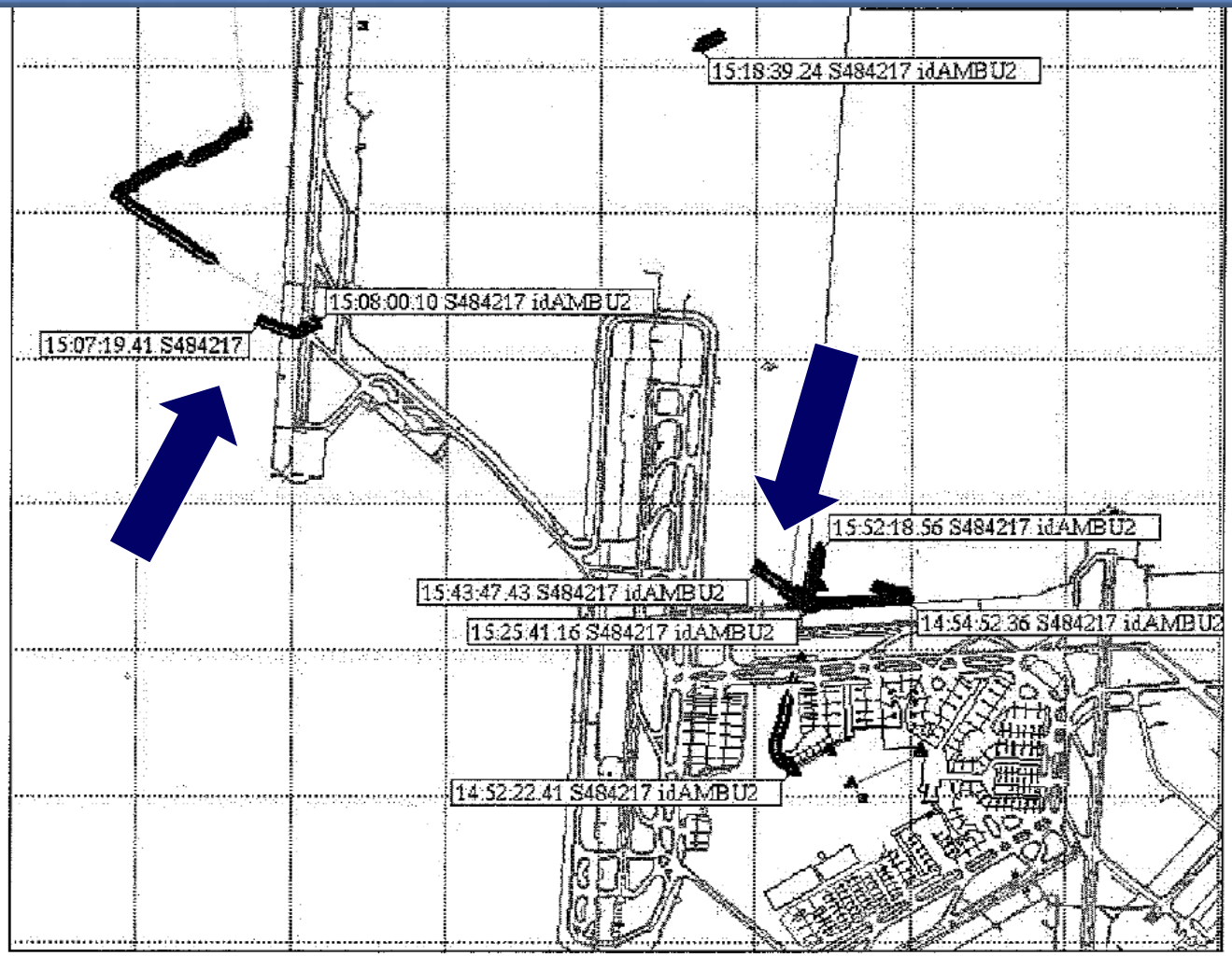
Aural Alerts



Study All-Weather Implementation

- Impact on daily operations (multiple runways, intersections, runway capacity)
- Time of alert is critical aspect
- Impact on flight deck
- Conflict with airborne systems
- Management of ground movements including vehicles
- Avoiding false alerts

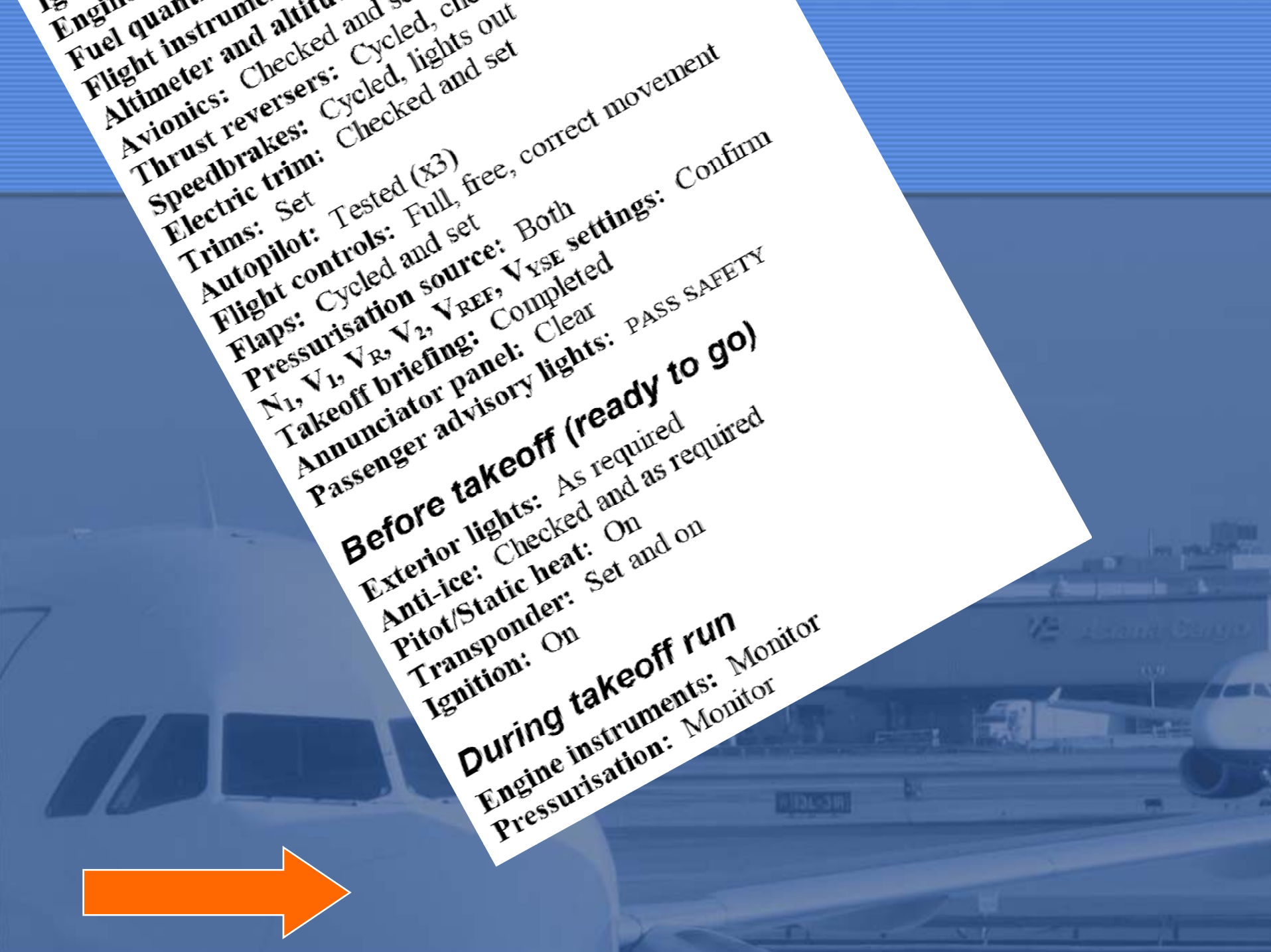
Effects of Bad Transponder on Ambulance Vehicle (not moving)



27 false alerts within 48 Hours!

Industrial Challenges on RIAS

- Development airborne and ground systems seems isolated
- Training comes behind implementation
- What about transponders?



Engine
Fuel quantity:
Flight instruments:
Altimeter and altitude:
Avionics: Checked and
Thrust reversers: Cycled,
Speedbrakes: Cycled, lights out
Electric trim: Checked and set
Trims: Set
Autopilot: Tested (x3)
Flight controls: Full, free, correct movement
Flaps: Cycled and set
Pressurisation source: Both
N_1, V_1, V_R, V_2, V_{REF}, V_{YSE} settings: Confirm
Takeoff briefing: Completed
Annunciator panel: Clear
Passenger advisory lights: PASS SAFETY

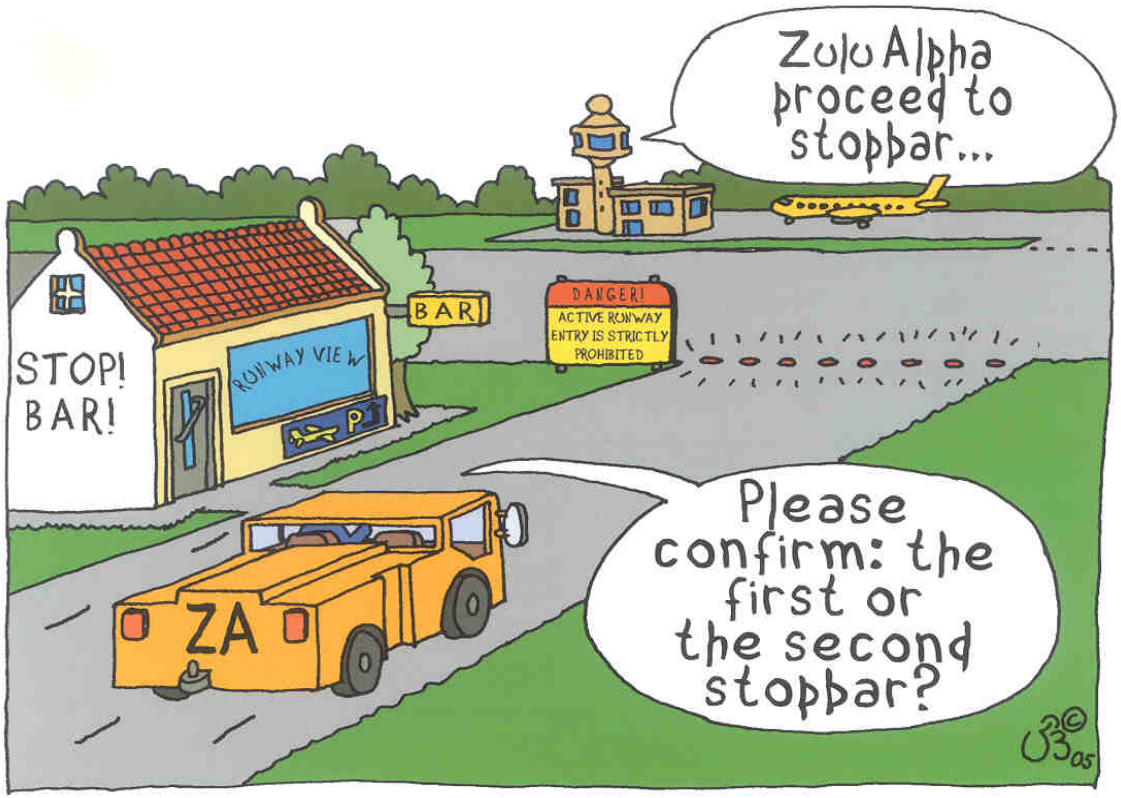
Before takeoff (ready to go)

Exterior lights: As required
Anti-ice: Checked and as required
Pitot/Static heat: On
Transponder: Set and on
Ignition: On

During takeoff run

Engine instruments: Monitor
Pressurisation: Monitor

Can We Do More?



Crossing a red stopbar is prohibited.

Runway safety: your first priority.


Managing Human Error

Incident #1

Boeing 737

Airbus 330

Boeing 747

Findings Incident #1

- Call sign confusion (64 and 34)
- Anticipation and hearing
- Passive intervention of crew A330
- Workload ATC tower
- Shift handover
- Nonadherence to runway crossing procedures
- Good visibility prevented worse outcome

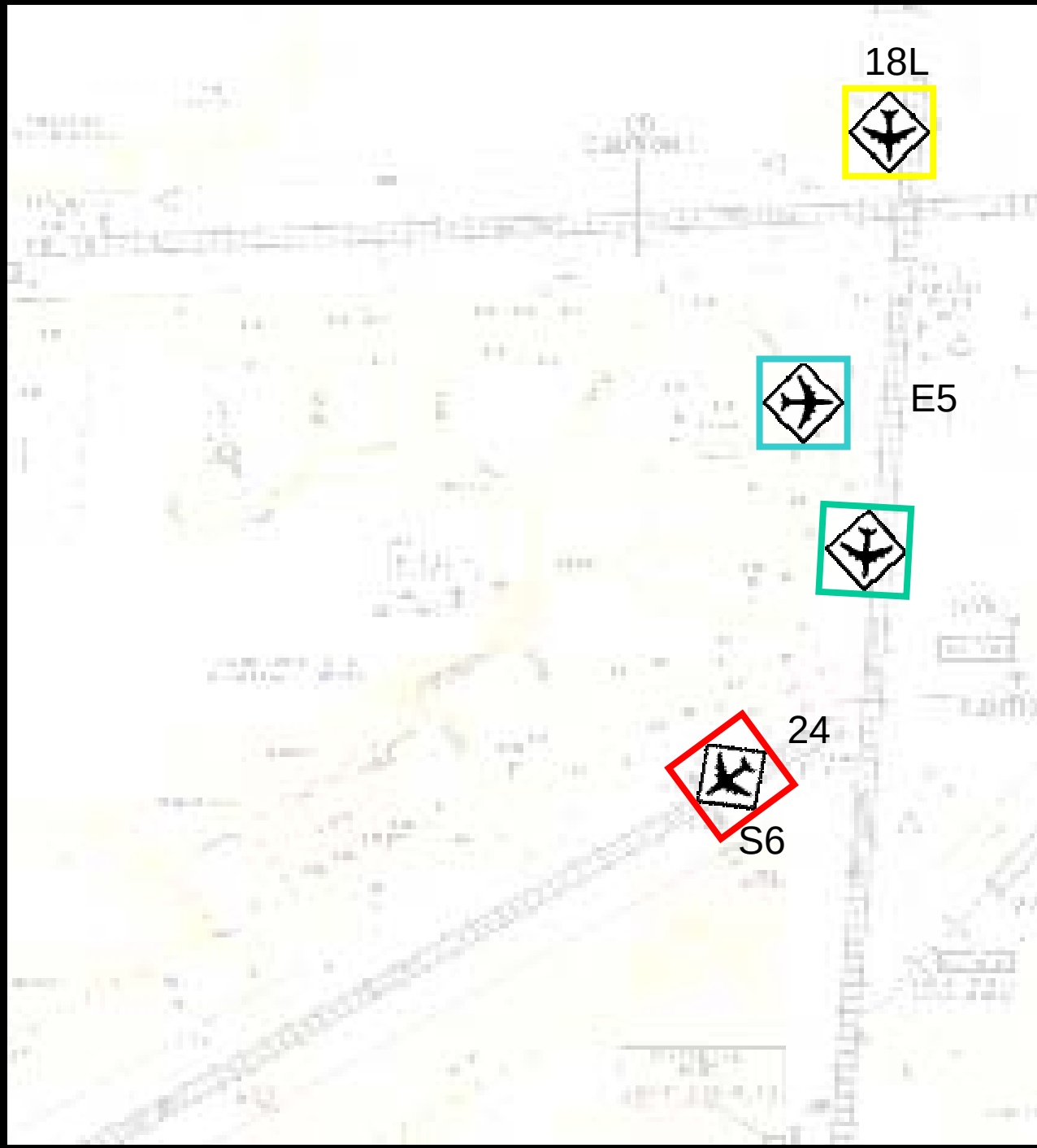
Incident #2

FLT37H

FLT77M

FLT1775

FLT07M



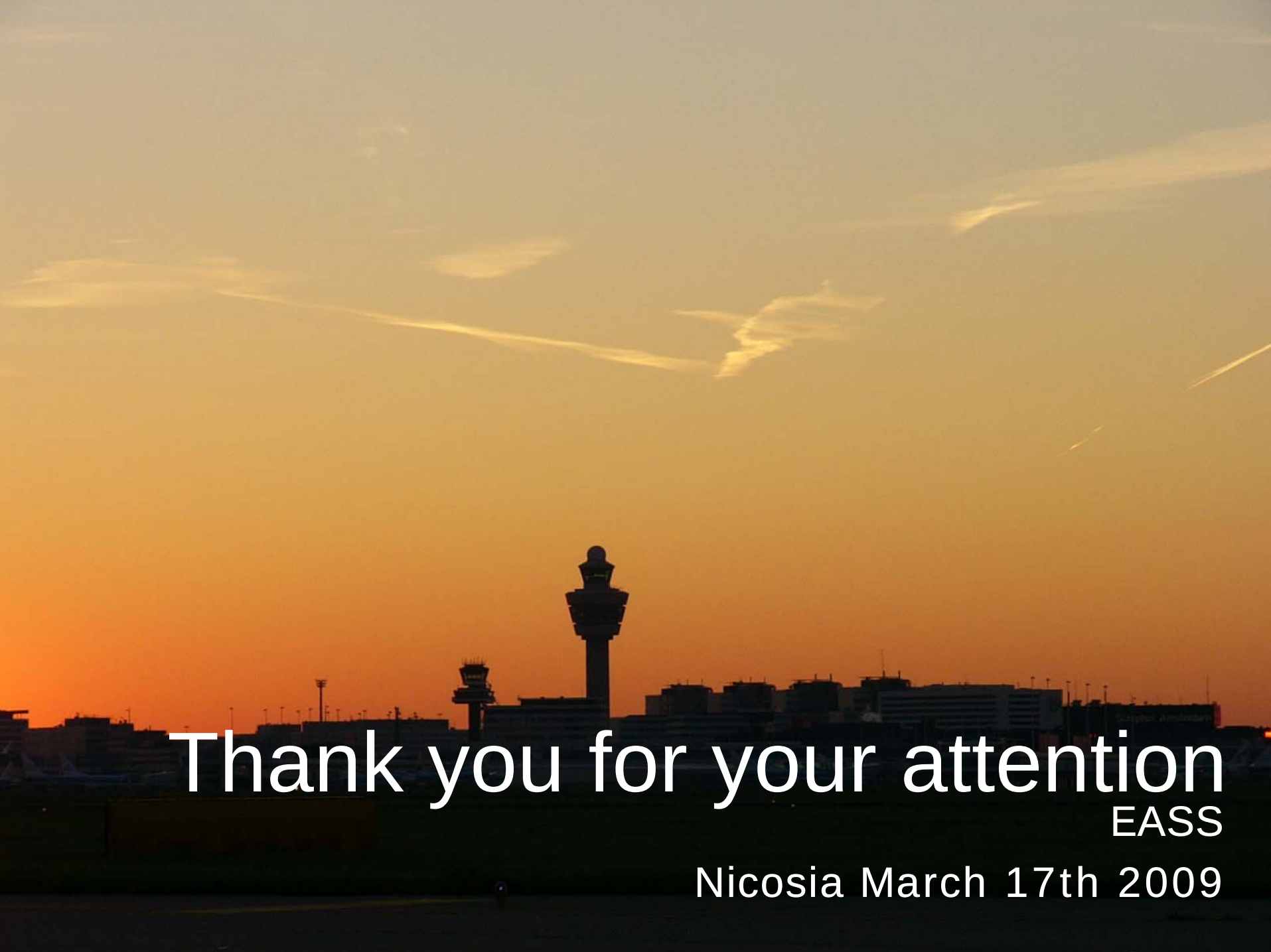
Findings Incident #2

- Call sign confusion despite alphanumeric system
- Active intervention by crew FLT07M
- RTF congestion
- Anticipation and hearing
- Good visibility prevented worse outcome


Managing Human Error

Summary

- Simple and effective solutions can be found at your airfield
- Encourage industry to focus on integration on airborne and ATC runway alert systems
- Share lessons learned: Connect to training


Thank you for your attention
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