Anatomy of a Deep Dive into Airport Taxiway Incidents

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EU-HAIKU Project https://haikuproject.eu

Taxiway Collision

Two Delta planes collide on an Atlanta taxiway, knocking the tail off one

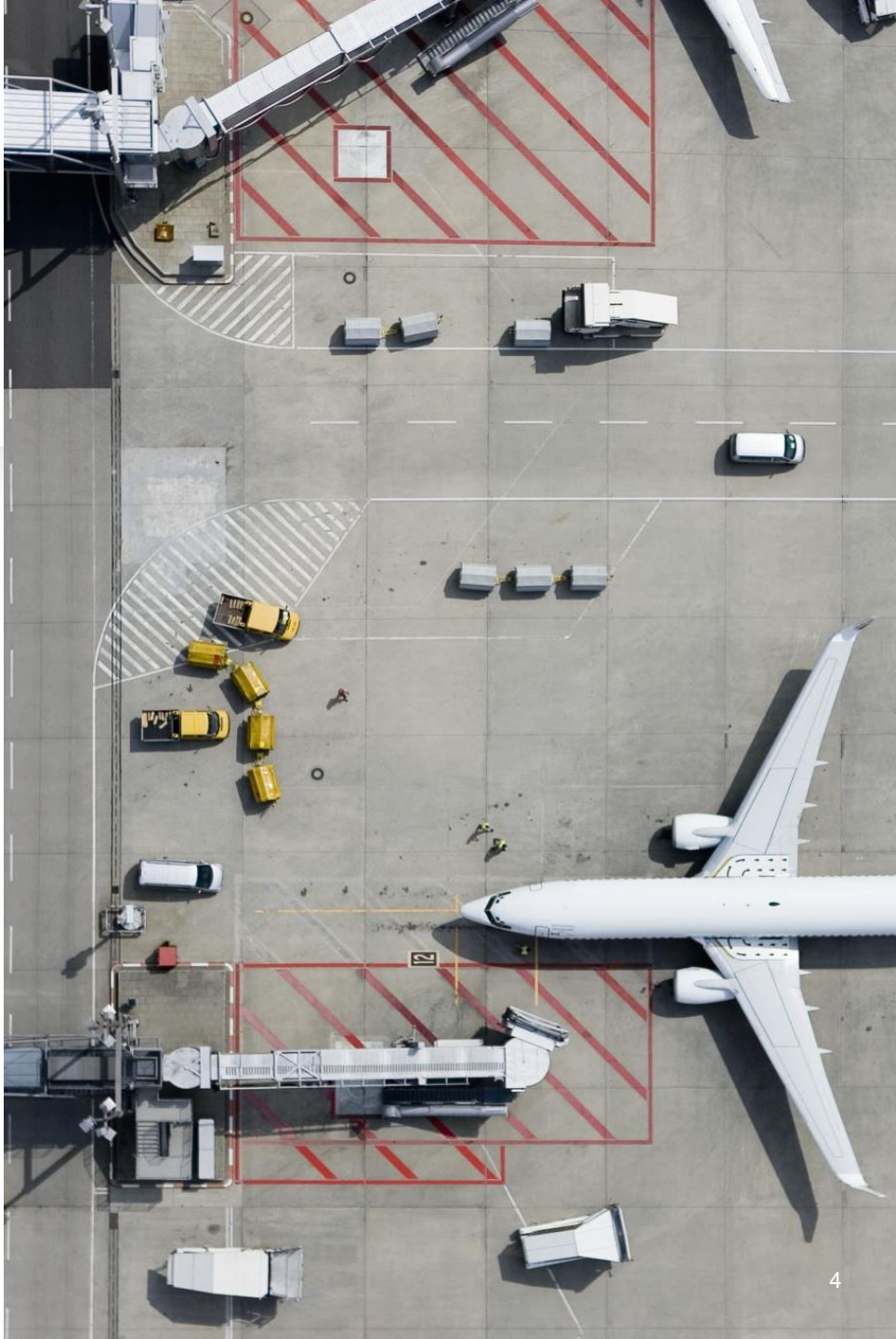
Two planes have collided on a taxiway at Atlanta's airport, with a larger plane knocking over the tail of a smaller regional jet

10 September 2024
19:17


Wigmore Park
Central Terminal

Airport Taxiway Errors

- Failed to follow instruction
- Misunderstood instruction
- Conditional instruction
- Expectation / Habit
- Unfamiliar with airport layout

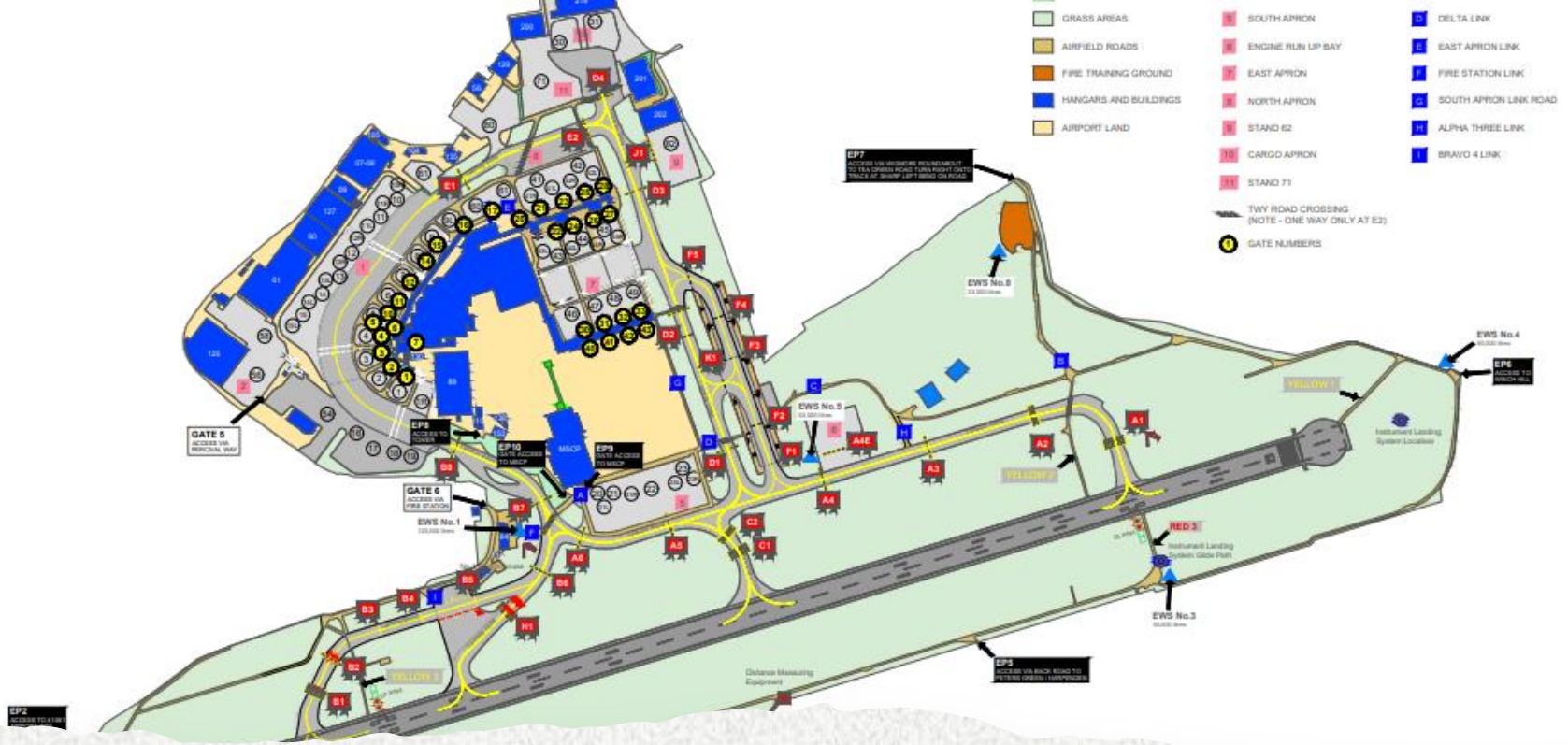



&
EXIT


easyJet
jet2holidays


London Luton Airport
wizzair.com
Pick Up / Drop Off


B7



Aims of the exercise

- London Luton Airport (LTN) has an excellent safety record
- However, there are certain ‘stubborn’ incident patterns, such as **incorrect taxiway selection**.
- **Aims**: analyse 10 such incidents, looking for **common factors or factor combinations**, and **potential remedial actions** to bring the incident rate down.

What is a Deep Dive?

Explore a specific accident or incident trend

Examine the basis for safety

Which barriers are working?

Which barriers are no longer working?

What are the key Human Factors involved (both positive and negative?)

Have any external factors changed?

Have internal factors changed (staffing, training, etc.)?

Are the procedures still fit for purpose?

What are the deeper systemic factors?

Where are the hotspots?

Where are there best practices?

What can be shared across airlines & the Stack?

Why a deep dive?

- The ‘Usual Suspects’ not pinpointing the problem – no actionable insights
- Combinations of ‘weak signals’
- The devil is in the detail
- Extracted features in the AI-powered Dashboard insufficient

Who was involved?

Captains from 4 airlines

ATC Tower Supervisor

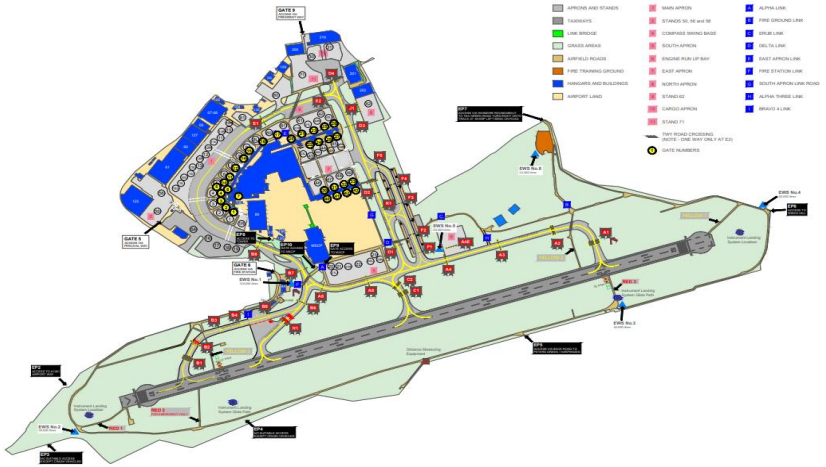
ATC Chief Investigator

Airside Safety Officers (2)

Human Factors Specialist

Airport Incident Specialist

Inputs



NATIONAL AIR TRAFFIC SERVICES LTD
Management System

NATS UNIT INVESTIGATION REPORT

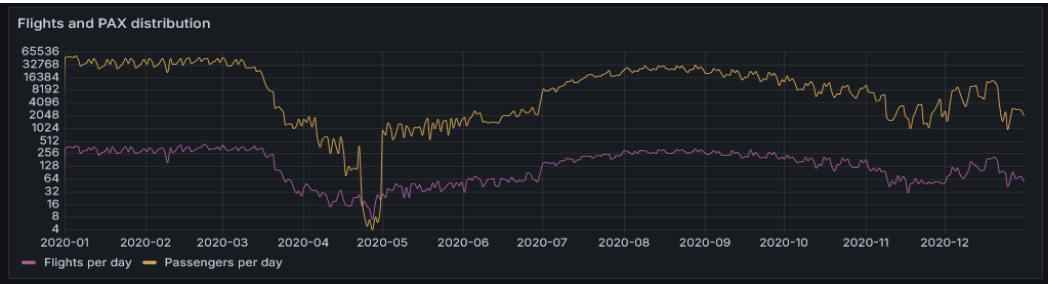
UNIT	EVENT TYPE	DATE OF EVENT	NATS REF:
Luton	OCCURRENCE	03/06/2020 09:58:00	153043

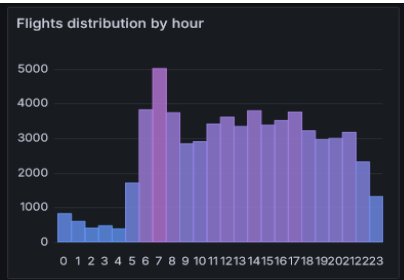
SSE Assessment	Overload Assessment	Engineering Category
<Not Defined>	<Not Defined>	<Not Defined>

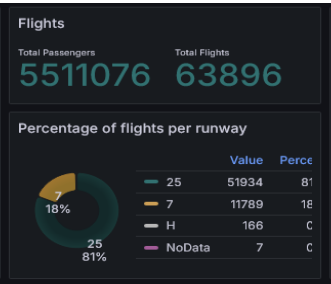
Report Title or Aircraft Concerned
TWG221 Failed to Giveway at A/B Intersection

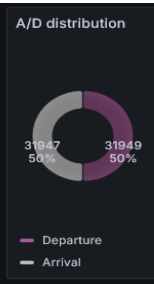
SECTION ONE – INVESTIGATOR'S REPORT

1. Executive summary *(Mandatory field)*
(Brief statement sufficient for inclusion in NATS reports, describing the event, cause and culpability)
TWG221 was given conditional taxi clearance against an outbound Gulfstream, but failed to follow the instruction.

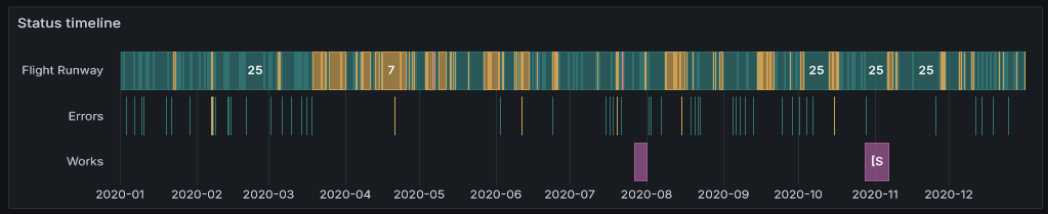


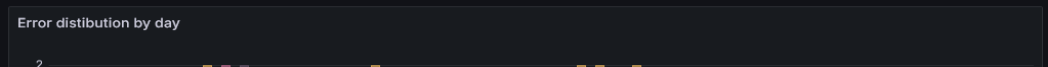


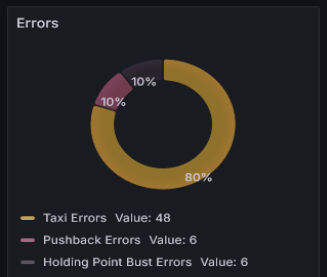




Errors







Deep Dive process

- Introductions
- Review Deep Dive Scope
- Consider first incident causes and contributory factors, barriers, etc.
- Review Safety Dashboard if applicable
- Consider next incident (10 incidents)
- Review factors and identify mitigations
- Vote to prioritise factors and mitigations
- Report findings back to Airport Safety Stack community
- Implement recommendations



What does a deep dive look like?

Top Factors

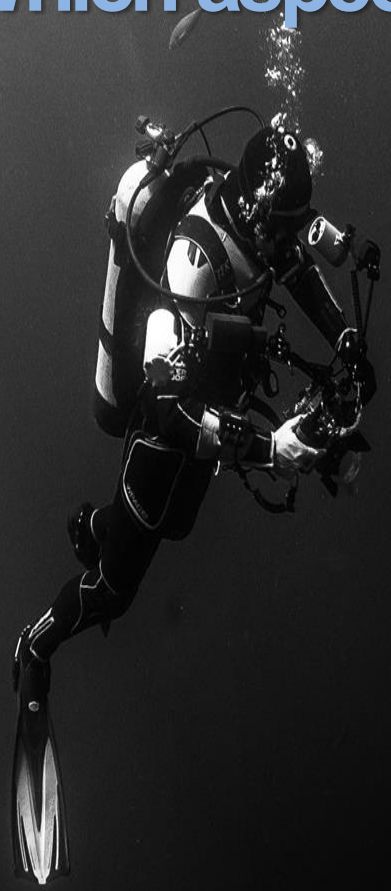
- Don’t assume, ask
- Distractions
- Expectation
- Situation awareness
- ATCOs need to understand pilot’s perspective
- Conditional clearances
- Cultural bias – wants to go first; differences in risk understanding
- Language
- Construction
- Can’t expect pilots to identify business jets
- Drivers on mobile phones

Mitigations

- Mechanism for saying ‘I don’t understand’
- Emphasise if non-usual routing (e.g. turn LEFT) to Stand
- Enhance demarcation markings on 71L/R
- If they don’t stop, bring up a Stop Bar
- Markings on the ground (e.g. Foxtrot)
- Survey on Taxi Phraseology
- Take ATCOs in jump seat
- Invite pilots to TWR
- Type taxi-route into scratchpad before brakes-off (both on same page)

Countermeasure	Progress
Mechanism for saying 'I don't understand'	Certain airlines have briefed their pilots about this (some already do it). One Base Captain commented that if any of their pilots do not understand, they stop the aircraft until the action is clarified and understood.
ATCO emphasise if non-usual routing (e.g. turn LEFT) to Stand	This practice is being trialled in the TWR by some of the ATCOs.
Enhance markings on 71L/R	Done.
If the aircraft doesn't stop when instructed to do so, bring up a Stop Bar	Stop Bars are not always useful in such situations, as by the time the controller detects the issue the aircraft may have passed the Stop Bars. This is still under review.
Markings on the ground (e.g. as has been done for Foxtrot)	Done.
Survey on Taxi Phraseology to see if it can be made clearer	Ongoing.
Take ATCOs in jump seat	This has begun and will be further taken up.
Invite pilots to TWR	This has been happening with a number of pilots and will continue.
Type taxi-route into scratchpad before brakes-off (both on same page)	This best practice is already in place by one or two airlines and being considered by others (one Base Captain stated that this should be the top recommendation).

Which aspects of the Deep Dive worked?



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Conclusions

- The Deep Dive worked well. The experts said they now had a broader/deeper understanding of the factors and their combinations, seeing the problem ‘from all sides’.

- There was surprise that the ‘usual suspects’ were not more prevalent. The over-riding factor was Situation Awareness, eroded by distraction, expectation bias and unfamiliarity

- The mitigations were seen as targeted and practical. It will take some months to see their impact on incident rates.