



Operational efficiencies update

HCNF

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NATS

Heathrow
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Heathrow's operational constraints

- Heathrow operates at 98% capacity, within the upper limits of its operational boundaries for arrival and departure operations. This results in:
 - Issues affecting air traffic flow that creates delays that can escalate and build
 - Limited headroom for resilience or recovery
 - Negative impact for the passenger
 - Negative impact for the community
- In order to help build operational resilience within our existing operation, we are looking at options to reduce the impact of events that negatively impact the operation and punctuality.
- Two changes to current procedures have been identified to help with this:
 - Enhanced Time Based Separation (eTBS)
 - Re-categorisation of the ICAO Wake Turbulence Separation Minima (RECAT EU)



RECAT EU: arrivals and departures

Re-categorisation of the ICAO Wake Turbulence Separation Minima

- Wake vortex generated by aircraft on departure or approach is a significant factor in defining safe separation of two aircraft
- During recent years, knowledge about wake vortex behaviour has improved
- EUROCONTROL has updated ICAO wake turbulence separation minima for aircraft categories (referred to as “RECAT-EU”) with endorsement from European Aviation Safety Agency (EASA)
- This means that for certain categories of aircraft the separation can be safely reduced



Given Heathrow's constrained and busy operating environment, RECAT EU offers an opportunity to help reduce delays within the operation

Arrivals: Time Based Separation (TBS) (In place since May 2015)

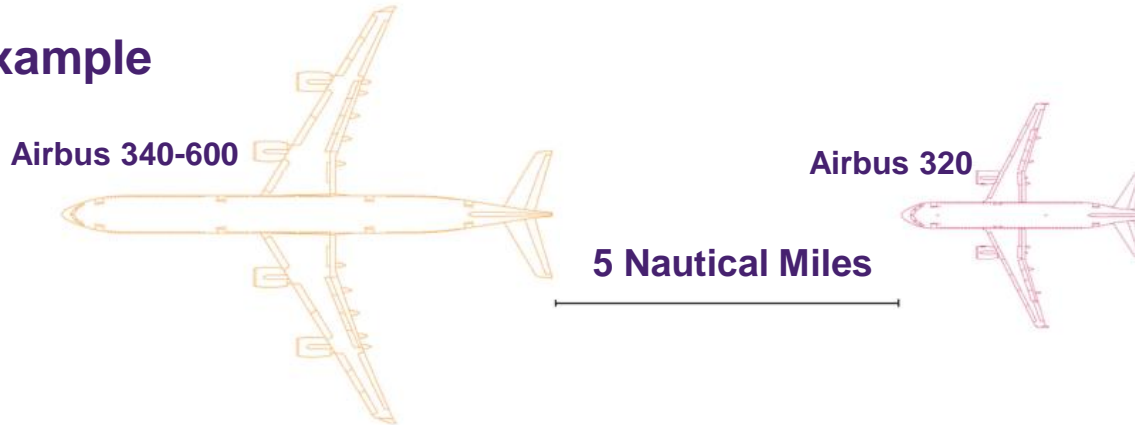
- A significant cause of delay to arrivals is strong headwinds on final approach
 - Currently approx. 60 days per year
- Strong headwinds reduce an aircraft's ground speed and it takes longer to fly required separation distance
 - This negatively impacts the landing rate
- Evidence suggests that wake vortices dissipate more quickly in strong headwind
 - This means that the *distance* between certain aircraft can be reduced and the *time* between landings kept similar to normal conditions (hence Time Based Separation)
- TBS in place at Heathrow since May 2015
 - Allows us to dynamically manage separation between arriving aircraft based on prevailing wind conditions
 - Helps minimise impact of strong headwinds reducing delays and cancellations



Arrivals: Enhanced Time Based Separation (eTBS)

(The re-categorisation of wake turbulence categories (RECAT EU) will enable an enhancement to TBS)

Example



- Current ICAO separations safe but over conservative for A320



- eTBS will use RECAT EU separations
- It is safe and more efficient

Departures: Application of RECAT EU separations

- European Wake Vortex Re-categorisation (RECAT-EU) is a new, much more precise categorisation of aircraft compared to ICAO
- It aims at safely helping to reduce delays by redefining wake turbulence categories and their associated separation minima

RECAT EU		NATS	Designator
CAT A	Super Heavy	Super	J
CAT B	Upper Heavy	Heavy	H
CAT C	Lower Heavy	Upper	U
CAT D	Upper Medium	Medium	M
CAT E	Lower Medium	Small	S
CAT F	Light	Light	L

UK 6 CAT	J	H	UM	LM	S	L
			Currently considered one group on departure			
RECAT EU	J	H	U	M	S	L
				Now all separate groups		

RECAT categories more evenly distributed

- RECAT Departures will only be used where wake vortex is the primary constraint between two aircraft
- The departure routing will continue to be the largest constraint for separating aircraft on departure as per today's operation

What are the benefits?

eTBS for arrivals and RECAT Departures will help Heathrow and NATS to:

- Help to build additional resilience capability throughout a day in order to:
 - help enable more rapid recovery from adverse conditions
 - help reduce the overall delay for arrival and departure operations
 - improve passenger experience
 - help meet punctuality goals
 - help reduce the impact on the local community

When will we start using eTBS and RECAT EU?

- Heathrow, in conjunction with NATS, is currently assessing the feasibility of implementing eTBS and RECAT
- The implementation target period is winter 2017/18

Note:

- *There will be no change to Heathrow's 480k Air Traffic Movements (ATM) cap*
- *It will not change Heathrow's flight paths*

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