

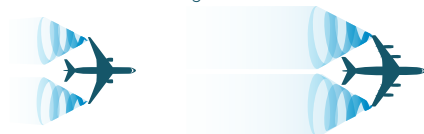
## Goal: Improve Landing Rates in Adverse Headwinds

### The Comparison

Distance wake vortex categories



TBS wake vortex categories



\*Separation distance reduces only in moderate to strong headwinds



eTBS Phase 1: RECAT-EU + Optimised Runway Delivery



Time Based Separation has been in use at London Heathrow since March 2015. The next phase of the TBS evolution is to enhance the current Heathrow TBS system so it provides controllers with tool support to deliver more efficient wake separations, based on RECAT EU to runway threshold.

The benefits for eTBS for arrivals and RECAT Departures will help Heathrow and NATS to enable more rapid recovery from adverse conditions, help reduce the overall delay for arrival and departure operations, mitigate the increasing use of heavier aircraft types and help meet punctuality goals.

RECAT EU has been assured as safe for wake turbulence encounter risk and endorsed by EASA for use in member states.

### What's New?

RECAT EU is being introduced at Heathrow Airport during winter 2017/18. This change alters the arrivals spacing between certain aircraft pairs using an enhancement of TBS called ETBS, and ATC will provide wake separation to runway threshold rather than the 4dme point. This RECAT EU change also alters the wake turbulence separation applied on departure.

Some aircraft types, based on weight, are changing wake turbulence categories, most notably the B757 & B767 families & A300/A310s.

#### Prevalent Heathrow Types

Super	Heavy	Upper*	Medium	Small
A380	A330	B767	A319	RJ1H/85
	A340	B757	A320/1	E135-195
	A350	A300	B736-9	B732-5*
	B747	A310	MD80	CRJ1-9
	B777		BCS1/3	DH8D
	B787			

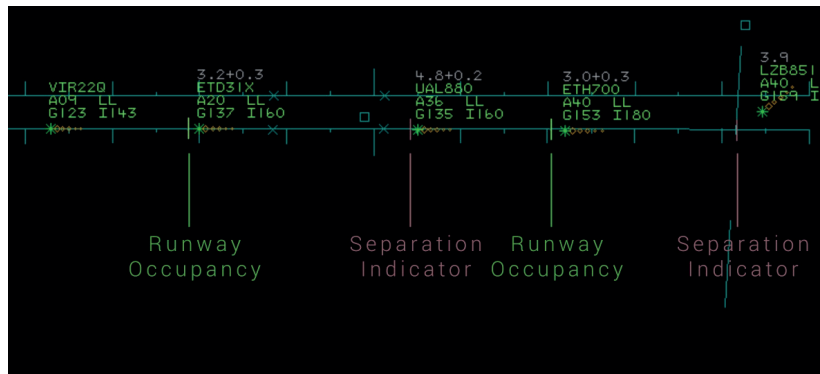
\*The new Upper category includes the B757, B767, A300 & A310

ETBS Separations using RECAT EU will be used in place of current UK 6 CAT. This will see some aircraft moved to a new category. It is important that both the aircraft type and variant is passed on first contact with Heathrow Director. For example B773 rather than B777. The air crew procedures and RT does not change with the introduction of ETBS.

European Wake Vortex Re-categorisation (RECAT-EU) is a new, more precise categorisation of wake vortex separation.



This new categorisation is particularly beneficial at major international airports such as Heathrow, as it refines the categorisation of Medium and Heavy aircraft, the main aircraft types using such airports.



Enhanced TBS is in line with the original TBS by keeping the time constant between arrivals, the actual distance between arrivals will alter depending on the strength of the wind.

ETBS will not affect runway occupancy times, but as always it is important to promptly vacate the runway to reduce the risk of go-arounds.

ATC speed instructions are mandatory and should be followed accurately. Adherence to speed control instructions is key to achieving the benefits of ETBS. Speed control allows ATC to operate close to minimum separation standards meaning fewer go-arounds and improving airport efficiency.

Controllers will have tools to enable them to accurately apply the time based separations. From a pilots perspective there is no change to current procedures. You will still be radar vectored on to final approach as per today.

## RECAT-EU Departures

		Follower (seconds)											
		Super		Heavy		Upper		Medium		Small		Light	
		Current	RECAT	Current	RECAT	Current	RECAT	Current	RECAT	Current	RECAT	Current	RECAT
Leader	Super			120	100	120 or 180	120	180	140	180	160	180	180
	Heavy					0 or 120		120	100	120	120	120	140
	Upper								80		100	120	120
	Medium											120	120
	Small											120	100
	Light												80

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 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.

Links to the briefing sheet, presentation and AICs can be found at: [www.nats.aero/tbs](http://www.nats.aero/tbs)