Heathrow Aircraft De-icing Plan **(HADIP)**

Winter Season **2024/25**

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1	INTRODUCTION TO HADIP
!	Within this document, the term "de-icing" refers to both the anti-icing and de-icing of aircraft. *Airfield de-icing, such as treating runways, taxiways, and aprons, falls outside the scope of the HADIP. When winter weather necessitates airfield anti-icing, de-icing, or snow clearance, the Heathrow Snow Plan Airside (HSPA) is activated, with dedicated resources assigned to these tasks.*
	The Aircraft De-icing Plan (HADIP) provides an overview of Heathrow Airport's approach to aircraft de-icing operations, approved by the Director of Operational Delivery and Airline Co-ordination. The plan aims to minimise and mitigate the disruptive effects of frost, ice, snow, or any other adverse winter weather on aircraft operations by ensuring a coordinated and consistent response. A critical aspect of the plan for managing low temperatures and icing conditions is ensuring effective collaboration among Aircraft Operators, De-icing Service Providers, NATS, and Heathrow. As demand for de-icing services increases across Heathrow, it can become challenging to meet the scheduled runway throughput. The dynamic nature of de-icing operations may cause aircraft to repeatedly miss their allocated runway slots, which can quickly reduce departure runway demand even if there is available runway capacity. The HADIP focuses on optimising the response to aircraft icing conditions considering equipment, personnel, materials, and infrastructure. Successful de-icing operations and the efficient sequencing of aircraft to the departure runway rely on close alignment among key stakeholders. Timely and accurate information allows Heathrow to maintain a clear understanding of its ability to adhere to the published flight schedule. The HADIP is reviewed annually and is effective for the period from October 29, 2024, to March 30, 2025 (IATA Northern Winter Season 2024). It is issued in consultation with NATS, aircraft operators, ground handlers, and De-icing Service Providers. *Any enquiries concerning the Winter 2024/25 HADIP should be addressed to Thomas Powell, Aircraft Operations Manager at Thomas.Powell1@heathrow.com.*

2	ROLES & RESPONSIBILITIES
2.1	**Heathrow Aircraft Operations Duty Manager**
	The Aircraft Operations Duty Manager (AODM) oversees the Aircraft Operations Unit (AOU), which operates from the APOC. The AODM's key responsibilities include managing aircraft flow and punctuality, safeguarding Heathrow's Night Quota Period by limiting Night Jet Movements, optimizing slot usage, and balancing demand with capacity. They also ensure the efficient operational performance of the runways and airfield. The AOU is responsible for managing parking and stand allocation for arriving and departing aircraft. This includes ensuring stands are available and suitable for each aircraft type, maximising pier service and airbridge use when possible, and handling issues such as cancellations, delays, aircraft returns, diversions, and unserviceable aircraft. *During snow events, they coordinate snow clearance efforts.*
2.2	**Heathrow Airfield Duty Manager**
	The Heathrow Airfield Duty Manager (AfDM) is accountable for the safety and integrity of the airfield.
2.3	**Heathrow Airside Standards & Assurance Manager**

	The Heathrow Airside Standards & Assurance Manager is accountable for Safety & Standards assurance across the airfield.
2.4	**Aircraft Operator**
	The Aircraft Operator (AO) is responsible for requesting aircraft de-icing services, submitting and maintaining accurate flight plans and updating the Estimated Off-Block Time (EOBT) and/or Target Off-Block Time (TOBT). *(Further information on Airport Collaborative Decision Making ACDM within Section 6).* Depending on the operating model and commercial agreements in place, these responsibilities may be delegated to the Ground Handler.
2.5	**Ground Handler**
	Ground Handlers (GHs) are responsible for managing the turnaround of visiting aircraft according to the agreed schedule. They ensure that the progress of each turnaround is accurately reflected by promptly updating the Target Off-Block Time (TOBT) in the AOP system. While some airlines handle ground operations internally, most at Heathrow outsource this function to third-party service providers, of which there are several. *(Further information on Airport Collaborative Decision Making ACDM within Section 6).* When working on behalf of the Aircraft Operator, Ground Handlers are tasked with identifying aircraft that require de-icing and submitting de-icing requests via the AOP system. Although Ground Handlers manage de-icing requests in the AOP, the De-icing Service Provider is responsible for allocating rigs, resources, and materials. In some cases, Ground Handling Service Providers at Heathrow also offer de-icing services, enabling a more integrated approach.
2.6	**De-icing Service Provider**
	The De-Icing Service Provider (DSP) is responsible for physically de-icing aircraft while monitoring key details such as the actual start and finish times, the amount of fluid used, vehicle status, and remaining fluid supplies. For off-stand de-icing, British Airways acts as the sole DSP for the operation of the JEDI and VADER remote de-icing pad facilities. British Airways will operate these facilities, and their use will be limited to British Airways and its affiliates (Iberia, Iberia Express). For on-stand de-icing, the DSP is responsible for acknowledging de-icing requests from Aircraft Operators or Ground Handlers via the AOP system and allocating de-icing rigs to aircraft promptly. They must also provide an estimated rig arrival time, update the status once de-icing begins, and plan mitigations for any rig unavailability during fluid replenishment.
2.7	**NATS**
	NATS is the designated Air Navigation Service Provider at Heathrow. They work closely with the airport to maintain optimum runway throughput. The Heathrow Operational Efficiency Cell (HOEC) is situated in the APOC at the Heathrow Compass Centre and provides updates on air traffic management performance by managing the pre-departure sequence by arranging departing aircraft according to each flight's Target Start Up Approval Time (TSAT). *(Further information on Airport Collaborative Decision Making ACDM within Section 6).*
2.8	**Airline Operators' Committee**
	The Airline Operators' Committee (AOC) is a body representing the airline community at Heathrow. Its principal objective is to provide an effective interface between the airline community and HAL, Government departments and agencies and other authorities and to represent the interests of the travelling public.
2.9	**Met Office**

	Meteorological forecasts for predicting ice, snow, and related weather phenomena are provided by the UK Met Office from a dedicated position at the Heathrow Compass Centre's APOC. The Met Office desk is staffed 24/7 by a Senior Operational Meteorologist (SOM). During the winter season, the SOM issues a range of forecast products, some of which are available year-round, regardless of conditions. Each forecast product is distributed according to its specific operational use, with some available exclusively to internal Heathrow Airport Limited (HAL) stakeholders. *(Further information on Met Office issued forecasts within Section 3)*.

3	WEATHER FORECASTING
	Meteorological forecasts for the prediction of ice, snow and associated phenomena are provided by the UK Met Office, from a working position located in the APOC at the Heathrow Compass Centre. The Met Office desk is staffed H24 by a Senior Operational Meteorologist (SOM). The SOM issues a variety of forecast products during the winter season which are described below. *Some of these are issued throughout the year regardless of conditions. Some of these products are available to internal HAL stakeholders only.* • **Temperature Curve** – this is issued daily during the winter season to aid de-icing decision making, i.e. when to de-ice or anti-ice and what level of response is likely to be needed. *This is also used by airlines and DSPs to pre-order the correct levels of de-icing fluids, and by landside teams to make decisions on whether to grit road surfaces, pavements and footways.* • **HOCC Brief** – the SOM attends both the 0900 HOCC and 1330 HOCC and provides participating stakeholders with an up-to-date status of current conditions and those to be expected in the coming hours. The forecast pack used in the HOCC is issued twice per day shortly prior to the HOCC itself. The pack includes a weather risk assessment matrix for the next 24 hours indicating any phenomena that may impact the operation, using a simple RAG status. These briefings take place every day of the year. *(Further information on the Heathrow Operational Cell Call within Item 12.1)*. • **OpenRunway® 5-Day Forecast** – this forecast is generated daily and is usually produced by the night shift SOM, issued at or around 0400L. It is sent by email to a defined distribution list but it is also available via the Met Office's online OpenRunway® portal at any time. • **15-Day Forecast** – this is produced and sent to stakeholders at around 1100L when a risk exists in the five to fifteen-day timeframe for snow and low temperature. It consists of a simple risk matrix with a RAG status provided for both types of meteorological phenomena. It allows snow or ice events to be detected up to 15 days ahead to facilitate planning and decision making. The likelihood of the event occurring gains greater granularity and confidence as it moves into the OpenRunway® 5-Day forecast period. • **HSRF** – the Heathrow Snow Response Forecast is issued whenever there is a 30% or greater risk of snow or sleet. It is issued 48 hours ahead, at 36, 24, 12 hours and then every 4 hours to onset. It may sometimes be reissued outside of these timeframes if there is a significant change in the forecast that may drive a change to HAL's operational response. *If there is a risk of snow <30% this is illustrated on other products such as Open Runway 5 day forecast and the HOCC briefs and 15 day outlook so that risk is captured*. • **Heathrow Snow Response Nowcast** - This is a slimdown version of the HSRF but same format and serves the purpose of updating teams of the latest on a snow event during the event itself – every 3 hours. • **HSRF Closedown** – the closedown is issued when the risk of snow no longer exists, and the actual amount of snowfall is recorded in this report alongside the original forecast for comparison. The distribution is the same as for the HSRF.

The Met Office also publish a number of CAA regulated warnings for snow and frost. “May” warnings are triggered with 30% or more and “likely” when it is more than 40%. There are different warnings for snow accumulating and nil accumulations.

- Air Frost: **AN AIR FROST MAY OCCUR. FROZEN DEPOSITS MAY FORM ON PARKED AIRCRAFT.** To be issued when there is up to 40% chance of an air frost (air temperature of 0oC or lower) at the airfield.

- Air Frost: **AN AIR FROST IS LIKELY TO OCCUR. FROZEN DEPOSITS MAY FORM ON PARKED AIRCRAFT.** To be issued when there is over 40% chance of an air frost (air temperature of 0oC or lower) at the airfield.

- Ground Frost: **A GROUND FROST MAY OCCUR. FROZEN DEPOSITS MAY FORM ON PARKED AIRCRAFT, RUNWAYS AND TAXIWAYS.** To be issued when there is up to 40% chance of a ground frost (a surface temperature of 0oC or lower) at the airfield. It is expected that air temperatures would be normally above zero for this warning to be issued.

- Ground Frost: **A GROUND FROST IS LIKELY TO OCCUR. FROZEN DEPOSITS MAY FORM ON PARKED AIRCRAFT, RUNWAYS AND TAXIWAYS.** To be issued when there is over 40% chance of a ground frost (a surface temperature of 0oC or lower) at the airfield. It is expected that air temperatures would be normally above zero for this warning to be issued.

- Ground and Air Frost: **A GROUND AND AIR FROST MAY OCCUR. FROZEN DEPOSITS MAY FORM ON PARKED AIRCRAFT, RUNWAYS AND TAXIWAYS.** To be issued when there is up to 40% chance of a ground and air frost (a surface and air temperature of 0oC or lower) at the airfield.

- Ground and Air Frost: **A GROUND AND AIR FROST IS LIKELY TO OCCUR. FROZEN DEPOSITS MAY FORM ON PARKED AIRCRAFT, RUNWAYS AND TAXIWAYS.** To be issued when there is over 40% chance of a ground and air frost (a surface and air temperature of 0oC or lower) at the airfield.

- Snow: **SNOW (OR RAIN AND SNOW MIXED) MAY OCCUR AT THE AIRFIELD. SLIGHT/MODERATE/HEAVY SNOWFALL IS FORECAST, WITH ACCUMULATIONS OF XXCM. SNOW TYPE WET/DRY. VISIBILITY IS/IS NOT EXPECTED TO FALL BELOW 600M IN THE SNOWFALL, WITH A MINIMUM VISIBILITY OF XXXXM. WINDS ARE EXPECTED TO BE >15KT WITH THE POSSIBILITY OF DRIFTING.** To be issued when there is up to 40% chance of snow expected as advised below. Accumulations in cm will be added in the place of the XX in the standard text, the minimum visibility (in M) will be added in the place of the XXXX, and other references not relevant for the specific warning will be deleted. The whole sentence regarding drifting will be deleted if not relevant.

- Snow: SNOW **(OR RAIN AND SNOW MIXED) IS LIKELY TO OCCUR AT THE AIRFIELD. SLIGHT/MODERATE/HEAVY SNOWFALL IS FORECAST, WITH ACCUMULATIONS OF XXCM. SNOW TYPE WET/DRY. VISIBILITY IS/IS NOT EXPECTED TO FALL BELOW 600M IN THE SNOWFALL, WITH A MINIMUM VISIBILITY OF XXXXM. WINDS ARE EXPECTED TO BE >15KT WITH THE POSSIBILITY OF DRIFTING.** To be issued when there is over 40% chance of snow expected as advised below. Accumulations in cm will be added in the place of the XX in the standard text, the minimum visibility (in M) will be added in the place of the XXXX, and other references not relevant for the specific warning will be deleted. The whole sentence regarding drifting will be deleted if not relevant.

- Snow (nil accumulations**): SLIGHT SNOW MAY OCCUR AT THE AIRFIELD BUT NO SIGNIFICANT ACCUMULATIONS ARE EXPECTED.** To be issued when there is up to 40% chance of snow expected as advised below. This warning will be issued where snow is forecast, but only insignificant amounts are expected. No changes to the standard text will be made.

  Snow (nil accumulations): **SLIGHT SNOW IS LIKELY TO OCCUR AT THE AIRFIELD BUT NO SIGNIFICANT ACCUMULATIONS ARE EXPECTED.** To be issued when there is over 40% chance of snow expected as advised below. This warning will be issued where snow is forecast, but only insignificant amounts are expected. No changes to the standard text will be made.

4	PRE - RESOURCING, TRAINING & EQUIPMENT
4.1	**Aircraft Operations Unit Resourcing**
	There are two levels of activation in response to predicted wintry conditions: 1. **Business as Usual – Business as usual (BAU) de-icing is activated when ambient atmospheric conditions require airframes to be treated (e.g. sub-zero temperatures) but meteorological conditions remain otherwise benign.** In this case there is no requirement to increase resource levels, however AODMs may tactically adjust their roster coverage to provide resilience. This scenario is the focus of this HADIP document. 2. **Snow team response – As per the HSPA in the event of significant snowfall impacting airport operations.** When a snow event is declared, the AODM team will amend its existing BAU roster pattern to provide additional resilience for the duration of the snow event activation. Additional Operations Controllers will be called in to act as Terminal Coordinators also in accordance with the HSPA.
!	There have been instances in the past where prolonged periods of BAU de-icing activity over several days were immediately followed by a snow event, resulting in severe resource pressures for DSPs including manpower levels and fatigue. There won't always be a stark choice between the two scenarios above and it is important that all parties maintain a good level of situational awareness and collaborative information sharing to deal with such occurrences.
4.2	**Training**
	All organisations involved in the delivery or management of this plan must ensure their employees, third party contractors and teams are trained and competent in their roles to undertake their described responsibilities. Relevant training records must be held by the respective companies and are subject to review by the Heathrow Airside Safety & Compliance team.
4.3	**DSP Media & Equipment**
	Heathrow has tools to monitor critical information regarding stock levels and rig availability, however, should there be a material change to declared figures the DSP should inform the AODM. This is critical in the lead up to and during a de-icing event, as the timely awareness of any operational de-icing issues will assist Heathrow and the wider airport community when considering the need for any schedule intervention. To assist this process further, when the 5-day OpenRunway® weather forecast issued by the UK Met Office indicates that de-icing operations are likely, the AODM will request an update on current capabilities and readiness for all DSPs. For consistency and ease of use this information will be requested by phone or email. As the lead up to the event progresses, stakeholders can expect repeated requests for updates as necessary, however DSPs only need respond if there is a change to their previous declarations. *(Further information on Met Office issued forecasts within Section 3)*.
!	At D-5 the HAL Ground Operations team will determine the fluid levels held by each DSP and report this to the AODM. The Heathrow Airside Standards & Assurance Manager will decide at D-2 whether it is necessary to activate the process for providing access to the Forward Holding Tanks. *(Further information on Forward Holding Tank Process within Section 14).*
!	If mass deliveries are required, this will be coordinated by the DSP through the Colnbrook Logistics Centre in line with the process described in *Section 15 – Fluid Delivery Process*. This can be managed by Campus Security out of hours and by exception, through the AfDM on request.

5 AIRCRAFT DE-ICING EVENT PREPERATION

There are two levels of activation in response to predicted wintry conditions:

1. **Business as Usual – Business as usual (BAU) de-icing is activated when ambient atmospheric conditions require airframes to be treated (e.g. sub-zero temperatures) but meteorological conditions remain otherwise benign.**

2. **Snow team response – As per the HSPA in the event of significant snowfall impacting airport operations.**

All actions in the pre-tactical phase from D-4 to D-1 are the same for both de-icing scenarios.

Day	Action
D-4	Has the Met Office Senior Operational Meteorologist (SOM) based in the APOC issued a weather forecast that identifies a risk of icing conditions likely to trigger the need for de-icing operations? **Yes →** 1. AODM to contact De-icing Service Providers and request that they provide an update on their operational readiness. 2. AODM to assess whether any DSP is at risk of not being able to deliver de-icing services to its customers for the envisaged conditions. 3. AODM to update Airport Operations Manager. **→ Continue to D-3.** **No → Continue to D-3.**
!	The forecast may also indicate a risk of snow, which implies that de-icing operations will still take place and the snow plan (HSPA) might additionally be activated to stand up snow clearance and incident response teams.
D-3	Has the Met Office Senior Operational Meteorologist (SOM) based in the APOC issued a weather forecast that identifies a risk of icing conditions likely to trigger the need for de-icing operations? **Yes →** 1. AODM to contact De-icing Service Providers and request that they provide an update on their operational readiness. 2. AODM to assess whether any DSP is at risk of not being able to deliver de-icing services to its customers for the envisaged conditions. 3. AODM to update Airport Operations Manager. **→ Continue to D-2.** **No → Continue to D-2.**

	D-2	Has the Met Office Senior Operational Meteorologist (SOM) based in the APOC issued a weather forecast that identifies a risk of icing conditions likely to trigger the need for de-icing operations? **Yes →** 1. AODM to contact De-icing Service Providers and request that they provide an update on their operational readiness. 2. AODM to assess whether any DSP is at risk of not being able to deliver de-icing services to its customers for the envisaged conditions. 3. AODM to update Airport Operations Manager. 4. AODM to update the AOC. **→ Continue to D-1.** **No → Continue to D-1.**
	D-1	Has the Met Office Senior Operational Meteorologist (SOM) based in the APOC issued a weather forecast that identifies a risk of icing conditions likely to trigger the need for de-icing operations? **Yes →** 1. AODM to contact De-icing Service Providers and request that they provide an update on their operational readiness. 2. AODM to assess whether any DSP is at risk of not being able to deliver de-icing services to its customers for the envisaged conditions. 3. AODM to update Airport Operations Manager. 4. Airport Operations Manager to determine an action plan for D0. 5. DSPs to inform the AODM if they wish to open a remote pad to provide off-stand de-icing services. 6. AODM to instruct the DSP on the preferred mode of pad operation (location and aircraft flow direction. 7. AODM to advise the Airside Safety Department (ASD) of the pad's intended activation. 8. AODM to update the AOC. **→ AODM to continue to monitor weather forecast.** **No → AODM to continue to monitor weather forecast.**
	!	Separate dedicated procedures are now followed to arrange the pad's activation, operation and deactivation. *(Further information on the operation of Off-Stand De-Icing Pads JEDI and VADER within Sections 7,8 and 9).*
	!	The AODM to review the requirement for tactical schedule intervention. *(Further information on aircraft operation capacity intervention during disruption within Section 10).*

6	**AIRPORT COLLABORATIVE DECISION MAKING (ACDM) DURING DE-ICING OPERATIONS**
6.1	**Airport Operations Plan (AOP)**
	The Airport Operations Plan (AOP) is a next generation concept building on the foundation of Airport Collaborative Decision Making (A-CDM). *(Further information can be found on A-CDM Principles within item 6.4).* Like A-CDM, it is intended to provide stakeholders with a common set of performance targets, common situational awareness access through a single data source; and the ability to collaborate on managing overall airport performance when deviations from the agreed plan occur. AOP builds on A-CDM's milestones and timestamps concerning the visit of an aircraft to an airport, including its arrival, turn-round and departure phases.

Prior to the commencement of the winter season, the AODM will request a report from ITOC of all active internal and external AOP account holders and review them for recent activity. Contact is made with all external users to ensure that they still need the accounts and to confirm any winter process training requirements.

6.2 AOP SNOW Module

The AOP SNOW Module is designed to deal with the relevant conditions by adding system functionality for the planning, scheduling and tracking of de-icing operations and resources for departing flights. The SNOW Module is activated by the AODM when airfield conditions require aircraft de-icing. De-icing Service Providers need the module to be turned on to allow them to receive de-icing requests and to allocate rigs to aircraft.

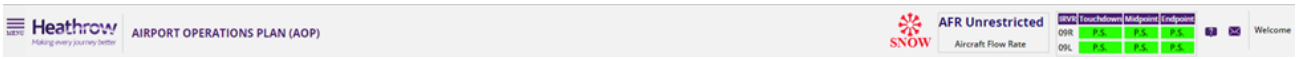


Figure 01: SNOW Module set to ON in AOP

AOP responds to this change in system state by displaying new columns related to de-icing timestamps in the flight departures screen, and customised information screens to handle requests and for rig allocation and tracking.

Aircraft Operators and/or their Ground Handlers request de-icing through this portal. The DSP allocates rigs through AOP and provides the times for estimated commencement (ECZT) and estimated end (EEZT) of de-icing. The EEZT is used to generate the TSAT, which in SNOW mode is displayed at 30 minutes prior to TOBT.

When conditions improve and de-icing is no longer required, the airfield status is set to 'Regular Operations' and the system reverts to its previous state.

! The AODM will review the type and depth of any wintry precipitation together with frost and ice warnings, then use AOP to promulgate the most appropriate de-icing conditions. *The AODM can indicate the expected severity of de-icing conditions to airport stakeholders through AOP by using the criteria set out in Table 01 below.*

Weather	Light De-icing	Medium De-icing	Severe De-icing
Temperature	Above -3°C	Between -3°C and -6°C	Between -6°C and -10°C
Hoar Frost	Ice saturated air at temperatures below 0°C form ice crystals on ground & exposed objects		
Active Frost	Frost forming when aircraft surface temperatures below 0°C or below dew point (cold soak effect, radiation cooling)		
Freezing Fog/Sleet		Suspension of numerous minute water droplets which freeze	
Rain	Non-freezing precipitation		
Freezing Drizzle, Light Freezing Rain			Precipitation that freezes on impact, max of 0.25mm in 6 minutes
Moderate or Heavy Freezing Rain			Precipitation that freezes on impact, more than 0.25mm in 6 minutes
Snow	None	More than 2cm for 2 hours, but doesn't settle	More than 2cm or more than 2 hours and settles

Table 01: Assessing Meteorological Conditions for AOP SNOW Module

Criteria is provided for aircraft categories A to J and once the AODM has selected the correct MET condition, setting the de-icing condition in AOP will determine the Estimated De-icing Duration Time (EDIT) for the relevant aircraft types. *The categories are consistent with winter operations at European airports.*

During an anti-icing event the DSP and/or Ground Handler are responsible for updating AOP to reflect de-icing requests, Estimated Commencement of De-icing (ECZT), Estimated Ready for De-icing Time (ERZT), Estimated End of De-icing Time (EEZT), Actual Commencement of De-Icing Time (ACZT) and Actual End of De-Icing Time (AEZT).

When the SNOW module is activated by the AODM, the additional performance alerts shown in Table 02 may be triggered:

CDM40 **Aircraft not ready for de-icing**	This alert highlights any flight that has not recorded ARZT by the ERZT, with a 5-minute tolerance.	Flight crew need to call ready for de-icing within the period ERZT +5 minutes or request a TOBT update if there is a delay.
CDM41 **De-icing not confirmed**	This alert highlights any flight that has requested de-icing but, by X minutes before TOBT, has not been allocated a de-icing rig.	The DSP should allocate one or more de-icing rigs as soon as possible to prevent departure delay.
CDM42 **Hold Over Time will be exceeded**	This alert highlights any flight where HOT may not be sufficient to meet TSAT.	De-icing activity will need to be re-planned to meet TSAT within the HOT. NOTE: this alert is for guidance only.
CDM43 **De-icing scheduled before aircraft is ready**	This alert highlights any flights where the ECZT is prior to TOBT.	The DSP should check whether the TOBT has been changed (e.g. due to a turn-round issue) and re-plan de-icing accordingly.
CDM44 **De-icing not compliant with TSAT**	This alert highlights any flight where a TSAT improvement results in the TSAT being prior to EEZT.	This may occur where de-icing was planned to TSAT due to ground delay that subsequently reduced or cleared. The DSP should re-plan or request the AO/GH to submit a TOBT in line with the original TSAT.

Table 02: AOP SNOW Module Performance Alerts

! All requests for de-icing must be made through AOP.

6.3 Aircraft De-Icing with AOP

There are differences in system processes depending on whether the SNOW Module is activated in AOP.

SNOW Module = ON

The Target Off-Block Time (TOBT) is updated by the Aircraft Operator or Ground Handler to indicate the time the aircraft will be ready for de-icing (ERZT). The EEZT is then provided by the DSP and this is used to generate the TSAT.

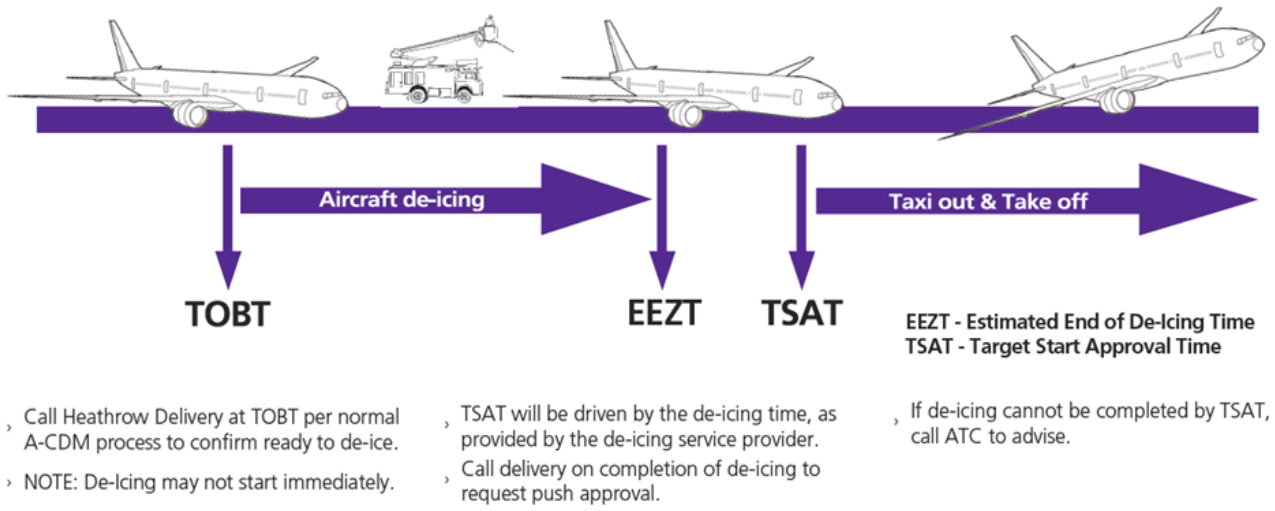


Figure 02: On Stand De-icing Milestone Sequence

SNOW Module = OFF

This method is simply presented as a workaround for rare occasions when de-icing operations have commenced but the SNOW Module has not yet been switched on, for whatever reason. *To avoid confusion and standardise processes as much as possible, this is an exception rather than a feasible option for operations. The AODM will aim to ensure that the SNOW Module is switched on at the earliest moment that the de-icing risk presents itself.*

In this case, TOBT is updated to include Estimated De-icing Time (EDIT) by the Aircraft Operator or Ground Handler and this is instead used to generate a TSAT. The DSP arrives on stand at ERZT (or the original TOBT) as agreed with the AO/GH. The flight crew will call ATC to confirm it is ready to de-ice, at which point the TSAT will be confirmed. At the end of de-icing, the crew calls for start approval

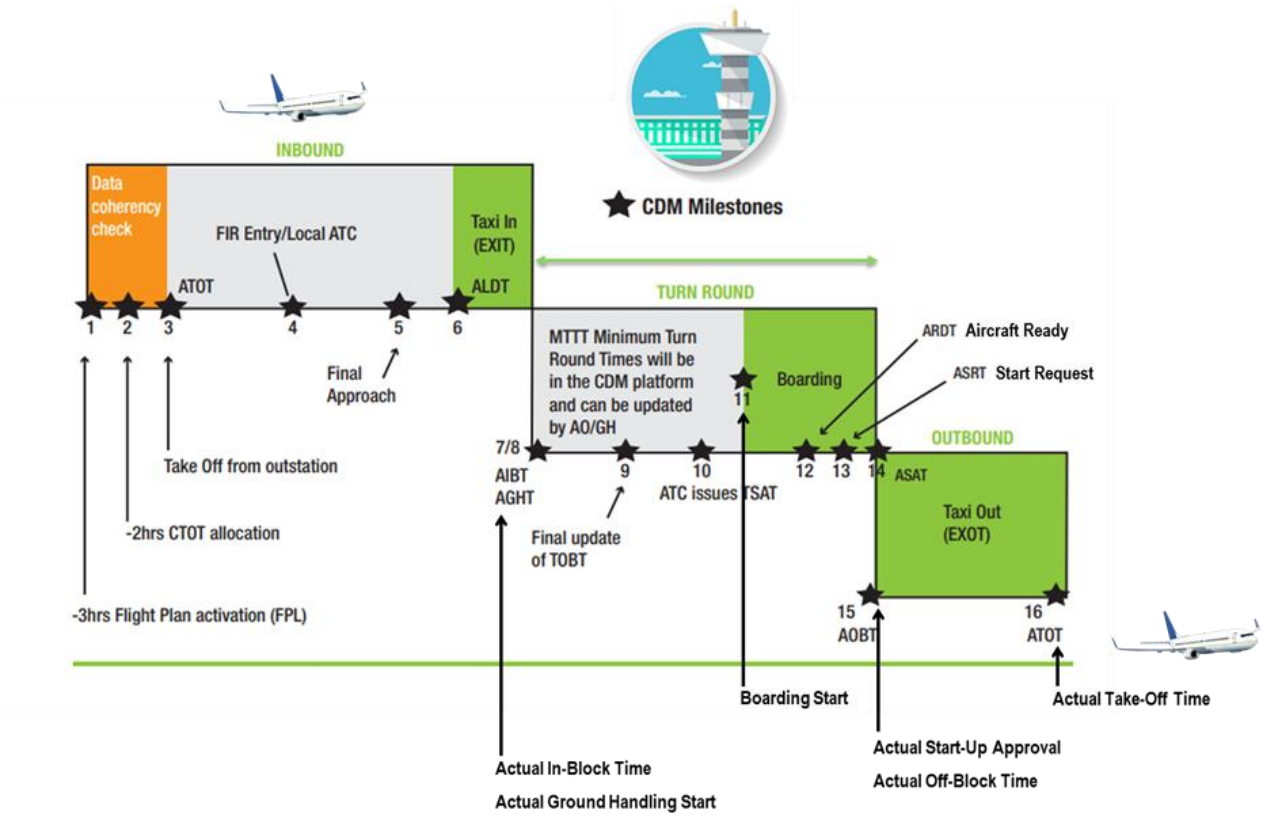
6.4 A-CDM Principles

Airport Collaborative Decision Making (A-CDM) is a pan-European concept which aims to improve the efficiency and resilience of airport operations by optimising the use of resources and improving the predictability of air traffic. Airport stakeholder partners (airport operators, aircraft operators, ground handlers and ATC) and the EUROCONTROL Network Manager work transparently and collaboratively, exchanging relevant accurate and timely data.

It allows the exchange of more accurate departure information, particularly target take-off times, with the European ATFCM network, leading to better en-route and sectoral planning.

Timestamps are recorded when these milestones 'actually' happen (AIBT, AOBT, ATOT), but before they happen all airport stakeholders work to a plan that indicates when they are expecting things to happen.

- **TOBT** is the time at which the aircraft operator or ground handler is expecting the aircraft doors to be closed, tug attached and ready to push back. *When de-icing is in progress, this is the time at which de-icing activity may commence.*
- **TSAT** is the time at which ATC is expecting to give a start clearance to flight crew, to release aircraft from the stand and taxi to the departure runway. *When de-icing is in progress, TSAT reflects the time at which de-icing is expected to finish.*
- **TTOT** is the time at which ATC expects the flight to become airborne. If there is any en route delay then this is passed on to the flight as a restriction on the time at which the flight is permitted to take off, known as a CTOT (Calculated Take-Off Time).

	De-icing activities must be accommodated during the turn-round phase and sequenced according to these milestones, to ensure a smooth departure sequence to optimise runway throughput and therefore best use of capacity.  Figure 03: A-CDM Milestones
6.5	**Regulated (CTOT) Flights**
	Where an airspace regulation is applied, a CTOT may be given to a flight in order to manage capacity imbalances in the wider European network. The normal CTOT tolerance is -5/+10 minutes, i.e. the flight must become airborne in that window. ATC will endeavour to ensure that regulated flights are able to meet their allocated CTOTs through the application of appropriate TSATs. It is important that all parties work towards meeting these TSATs with minimal delay. The AODM will collaborate with the HOEC to find improvements for particularly penalising regulations on a case-by-case basis. If extensions to all CTOTs are needed due to widespread disruption, the HOEC requests this by talking to the EUROCONTROL Network Manager Operations Centre (NMOC) in Brussels. In severe disruption this extension may allow for a +30-minute tolerance. Due to the impact this inevitably has on European airspace, this will be constantly monitored by the HOEC and other operational units in NATS and adjusted as necessary.
6.6	**ACDM For On-Stand De-icing**
	At Heathrow, most de-icing activity takes place while the aircraft is still parked on the stand, before pushing back for departure. Milestones are timestamped around de-icing and are aligned with these planning targets. The estimated commencement of de-icing time should align with TOBT (ECZT). The most important is the time at which the de-icing service provider (DSP) expects to finish de-icing (EEZT). It is important because TSAT is adjusted to accommodate this activity and build the pre-departure sequence accordingly. Departing flights are normally planned to align with the Target Start-Up Approval Time (TSAT) to generate a smooth and stable departure sequence.

!	Flight crews should call Heathrow Delivery at TOBT as per the normal AOP process to confirm ready to de-ice. Note that de-icing may not start immediately. TSAT will be driven by the required de-icing time, as advised by the De-icing Service Provider (DSP). Call Heathrow Delivery on completion of de-icing to request start and push approval. *If de-icing cannot be completed by TSAT, call ATC to advise.*

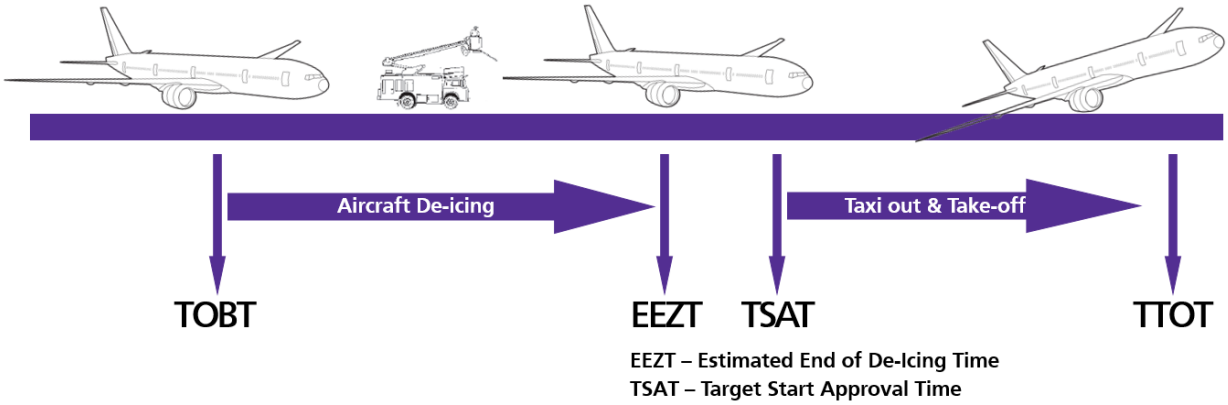


Figure 04: On-Stand De-Icing Activity & Pre-Departure Sequence

Figure 04 shows de-icing in optimal conditions when there is no ground delay. However, delays to the expected start approval time (i.e. TSAT delay) can be present for several reasons that may or may not be due to de-icing itself. Provided the DSP can satisfy its customers in a timely manner, TSAT delay can still be driven by other unrelated causes such as airfield congestion, inefficient use of stand capacity and high demand on certain departure routes.

In these cases, the TSAT generator uses EEZT to generate the sequence, but it will also take more penalising constraints into account such as those mentioned above which can subsequently create further delay – TSAT will 'move to the right' accordingly. Compare Figure 05 with Figure 05 below – it shows that when further ground delay exists, TSAT can be expected at a time later than when de-icing was originally due to finish.

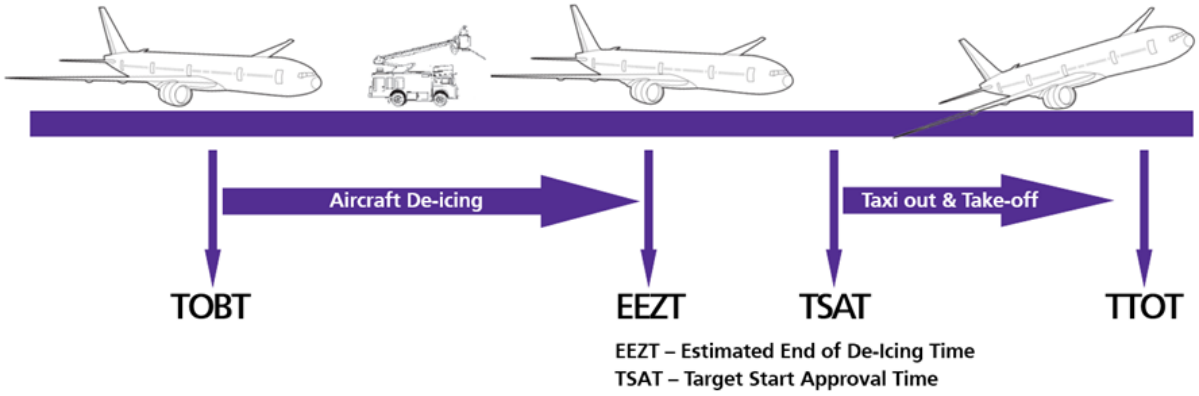


Figure 05: On-Stand De-icing Activity with TSAT Delay

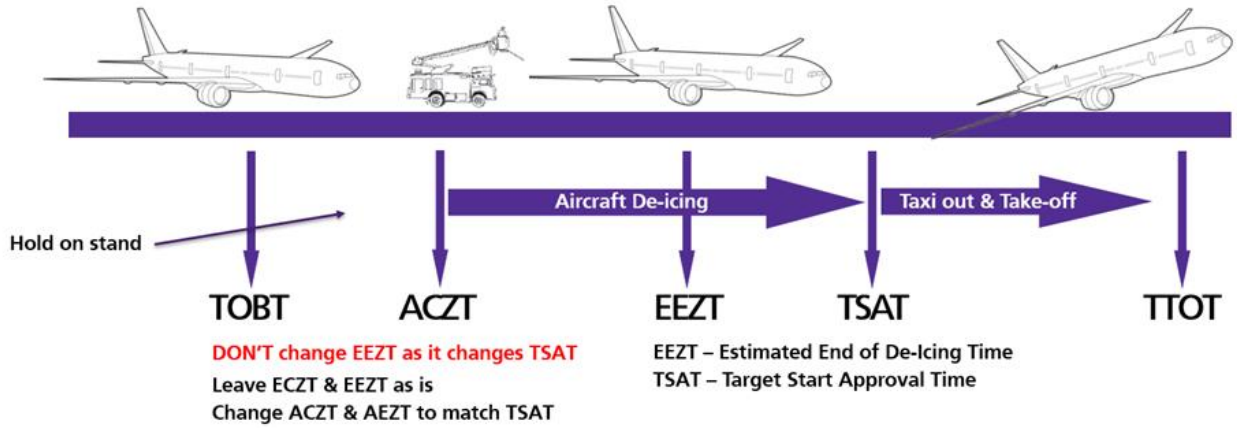


Figure 06: On-Stand De-icing Response to Ground Delay

Figure 06 shows the correct response. No updates are required to TOBT (ready to de-ice) or especially EEZT (estimated completed de-icing) as this will drive further TSAT delay. The TSAT generator sees EEZT moving right and it will itself move further right in response (due to the TSAT algorithm). This creates a feedback loop where no aircraft ever departs the stand. Instead, the DSP should plan to delay the actual commencement of de-icing (ACZT) so that the actual end of de-icing (AEZT) will coincide with the new TSAT.

Another type of delay affecting Heathrow is inherited from the wider European air traffic management network, which results in an en route airspace restriction or congestion at the destination airport. This is known as a Calculated Take-Off Time (CTOT). When a CTOT is calculated to resolve an airspace capacity restriction, it means the affected flight must become airborne within 15 minutes (minus 5, plus 10) of the calculated time. When CTOTs are applied to departing flights at Heathrow, the TSAT generator will now take this into account and generate a start-up sequence that aims to deliver an airborne time within that window, see Figure 07 below.

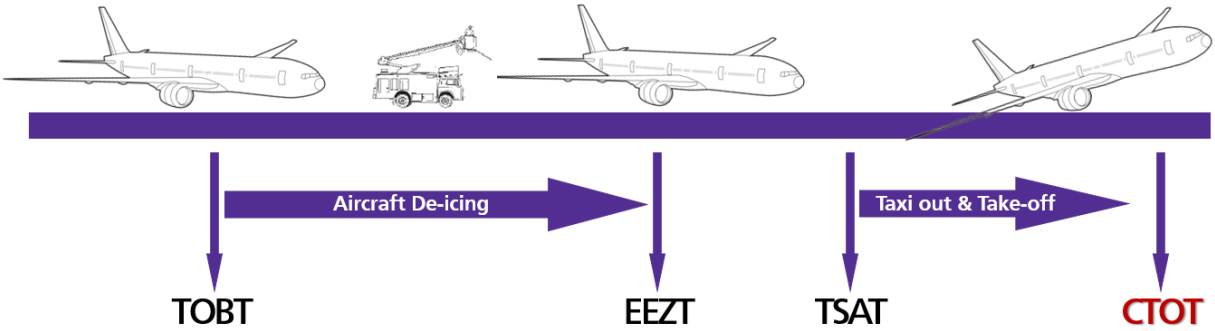


Figure 07: On-Stand De-icing Activity with Network Delay

In this case it is acceptable to adjust estimated start and finish times for de-icing, as the TSAT generator will respect the CTOT as the most penalising constraint and aim to release the flight from the stand at the correct time for the CTOT window.

To manage the airfield situation and achieve as orderly a flow as possible under these conditions, NATS prefers a good buffer of approximately 60 minutes between the end of de-icing and the CTOT to manage congestion more effectively. DSPs should therefore be aware of the possible knock-on impact to Hold Over Times (HOT) and look to complete de-icing activities as close to TSAT as possible.

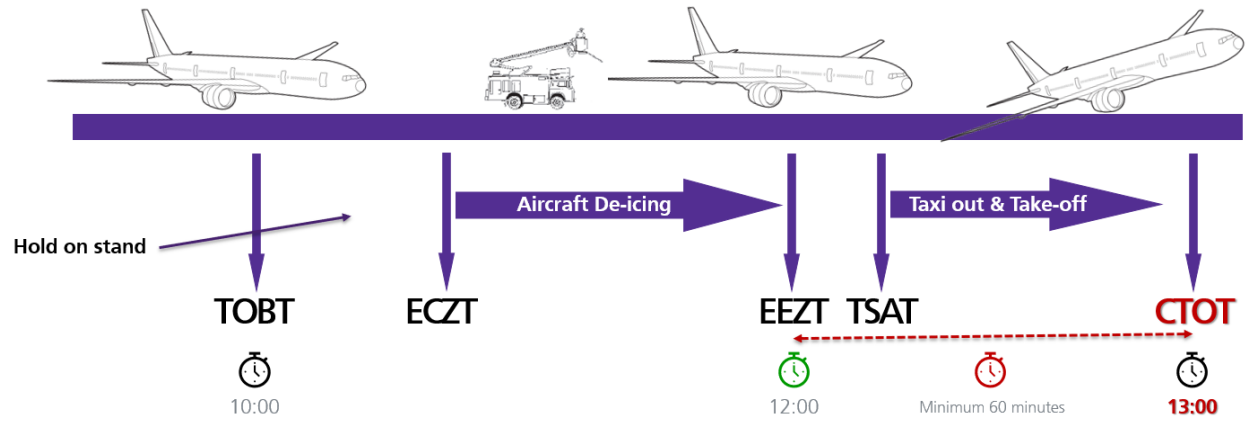


Figure 08: On-Stand De-icing Response to Network Delay

In the example given above in Figure 08, the flight originally had a TOBT (ready to de-ice) at 10:00 but is now faced with a three-hour slot delay (i.e. the CTOT is set at 13:00 by air traffic control). TSAT is now locked to the CTOT to ensure the flight leaves the stand at the correct time to taxi to the runway and depart.

Therefore, EEZT could go forward by two hours and not affect the CTOT as TSAT is locked, avoiding the earlier example for ground (TSAT) delay described in Figure 5. However, de-icing should still be completed within 60 minutes of the CTOT to ensure the slot window of –5 to +10 minutes can be respected and the aircraft becomes airborne at the correct time to avoid the en route restrictions.

6.7 ACDM For Off-Stand De-icing

While most de-icing activity stakes place on the parking stand, Heathrow has two sets of remote de-icing pads on the airfield that allow aircraft to instead undertake de-icing while taxiing to the runway. The main benefit to remote de-icing is to free up stand capacity for arriving flights, rather than keeping aircraft on-stand for longer while they de-ice.

The de-icing pads to the west of the airfield are named 'JEDI', with a second set to the east named 'VADER'. *(Further information on the operation of Off-Stand De-Icing Pads JEDI and VADER within Sections 7,8 and 9).*

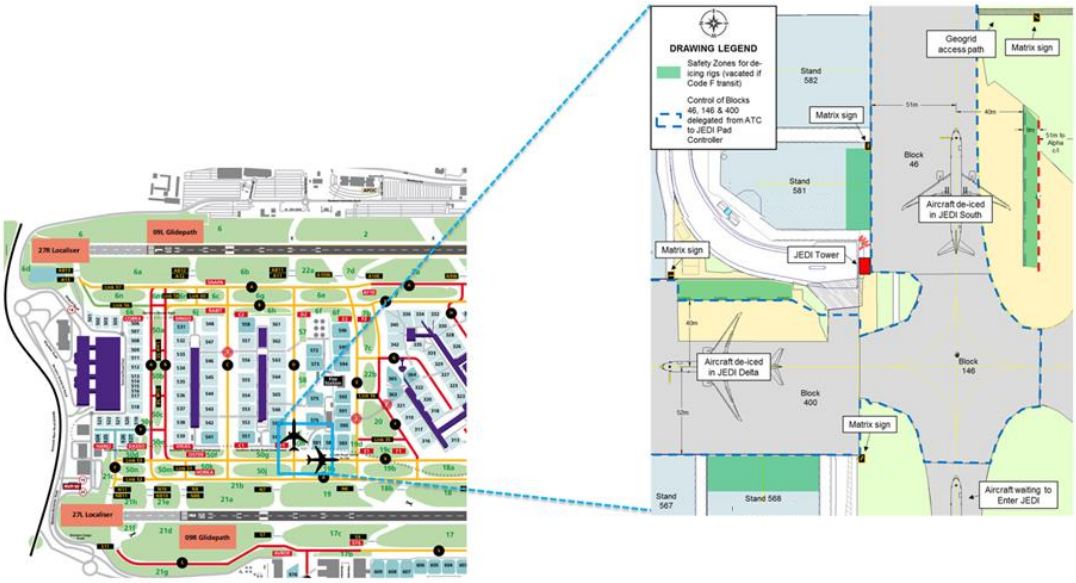


Figure 09: JEDI Off-Stand De-Icing Location

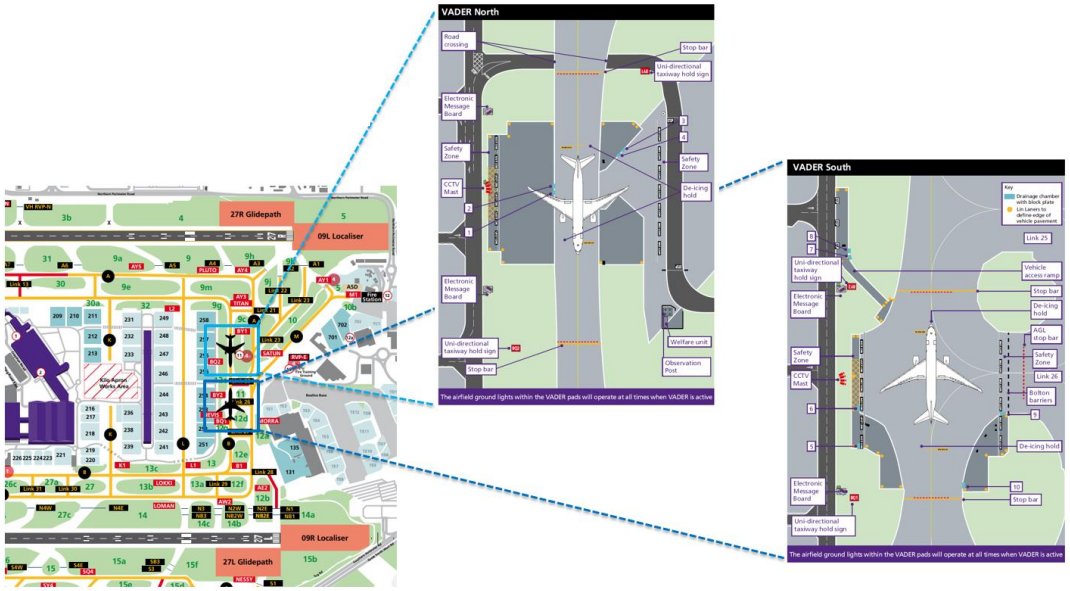


Figure 10: VADER Off-Stand De-Icing Location

In terms of their operation, de-icing activity on the remote pads must also be coordinated within the A-CDM pre-departure sequence, although the procedure is different compared to on-stand de-icing.

!

TSAT is normally issued automatically at 30 minutes prior to TOBT. Once the de-icing location is set to 'PAD' in AOP by the De-icing Service Provider, no TSAT is displayed.

Flight crews are to call for start at TOBT and ATC will release the flight from the stand to taxi to the pad.

The order in which aircraft are released from stand and sent to the pad is coordinated directly between the Pad Operator (known as the 'ICEMAN') who is physically located in the 'Ice Tower' and the VCR Supervisor in the control tower. The DSP sets the ECZT and EEZT values at the respective times it expects the aircraft to enter and exit the pad (with engines running). Upon completion of de-icing the aircraft proceeds to the runway for departure.

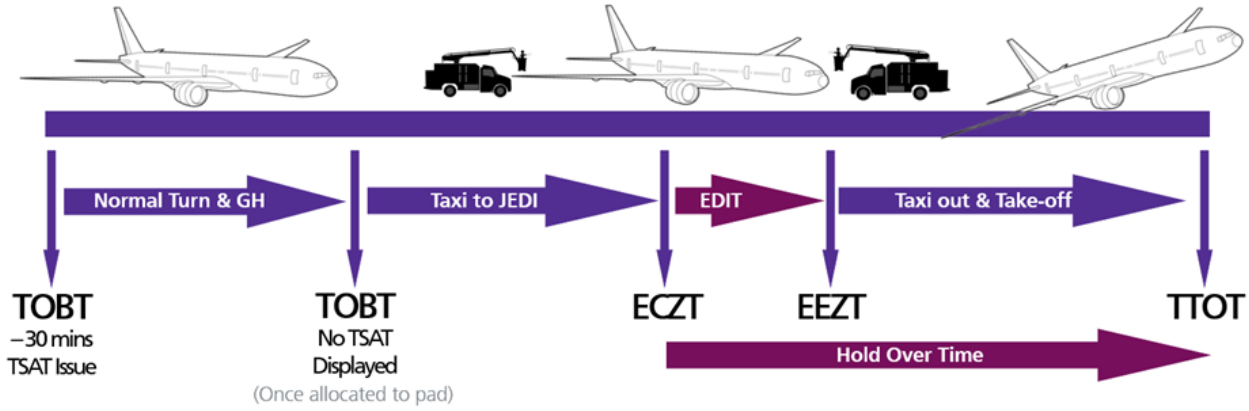


Figure 11: Off-Stand De-icing Activity & Pre-Departure Sequence

Figure 11 considers operation of the remote pad in optimal conditions when no delay is experienced. However, when delay exists, the situation becomes more complicated and coordination of affected flights through the pad can be difficult. In the case of TSAT delay there is no difficulty, because once the flight is allocated to the pad the TSAT is deleted anyway, and coordination takes place directly between ICEMAN and ATC. Figure 12 below considers what happens when a flight is instead impacted by a CTOT.

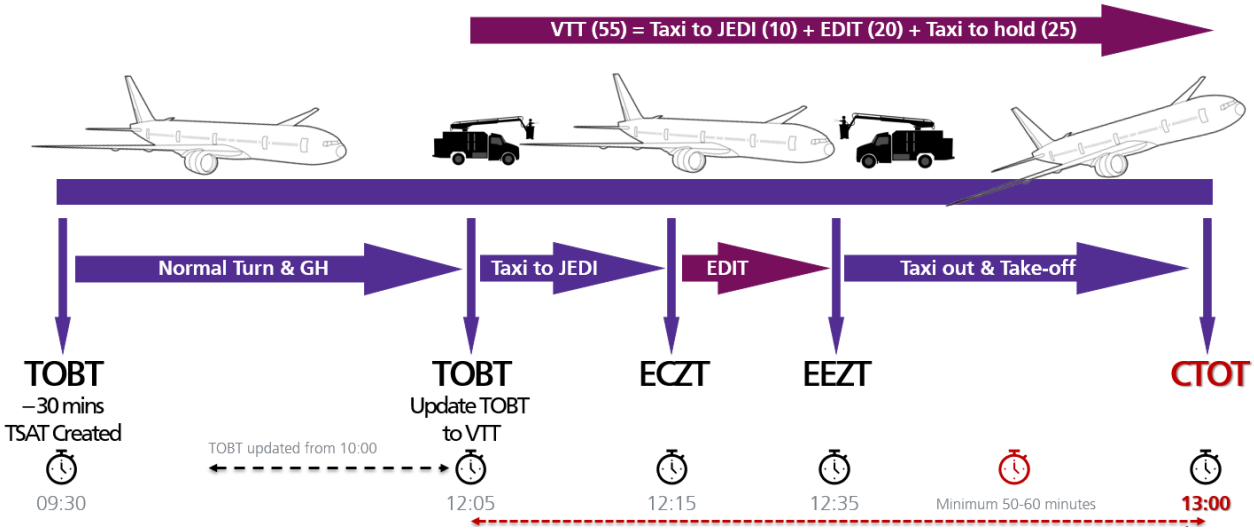


Figure 12: On-Stand De-icing Response to Network Delay

This is the same example as given above in Figure 08. The flight originally had a TOBT of 10:00 but now faces a three-hour slot delay due to network restrictions (CTOT is set at 13:00). Before being assigned to the pad, the TSAT will be generated at 30 minutes prior to TOBT (i.e. at 09:30), but this will disappear once the pad is selected in AOP.

All relevant milestones must now be worked out backwards from the CTOT. As with on-stand de-icing when CTOTs apply, NATS prefers a buffer of approximately 50-60 minutes between pushing back from stand and the required take-off time, but an absolute minimum of 40 minutes for off-stand de-icing. This is to manage airfield congestion.

The DSP must consider how long it will take to taxi from the stand to the pad, de-ice on the pad (EDIT), then continue taxiing to the runway. This complete timespan is the Variable Taxi Time (VTT).

Therefore, the airline or Ground Handler (in coordination with the DSP) must change the TOBT from 10:00 to a new time of 12:05. This is because the Calculated Take-Off Time (CTOT) is 13:00 and the aircraft must take off within the tolerance window (minus 5, plus 10). If the complete taxi phase plus de-icing activity on the pad is 55 minutes, then it needs to leave the stand at 12:05. The TOBT now signals the time at which the aircraft has its doors closed, tug attached and is ready to push back.

!	When a flight using Off-Stand De-Icing, those responsible for updating the TOBT must change the TOBT to CTOT minus VTT.

6.8 AOP Reversion

'AOP Reversion' means that the AOP is no longer functional, for example due to a technical failure or IT service outage, so it cannot be used for the usual milestone sequencing that aids air traffic control planning. It is therefore no longer possible to transmit Departure Planning Information (DPI) messages to ANSP actors in the ATM value chain and in particular to the NMOC in Brussels which balances traffic demand and capacity in the overall European network.

In this case the airfield must 'revert' to a contingency method that was once the norm prior to the introduction of the A-CDM concept in Europe. Essentially the control tower is now required to sequence aircraft according to flight plan data received in ETFMS, which is a system providing tactical data to all operational stakeholders regardless of national boundaries, language, or equipment.

Reversion Decision & Communication – the AODM will review, in conjunction with NATS, the case for AOP reversion and will decide whether the service should be halted to allow time for a resolution to be implemented.

	If reversion is required, the AOP tickertape will be updated and SMS messages and/or Airport Community app alerts will be issued to airport stakeholders to advise the planned end of DPI messaging. Updates will be given by the AODM on subsequent HOCCs, if appropriate. AOP Reconnection – when the issue causing reversion has been resolved the AODM, NATS and other key parties will decide when to resume DPI messaging with NMOC. The date and time of reconnection will be communicated via the AOP tickertape and SMS messages and/or Airport Community app alerts. It may also be discussed by the AODM during subsequent HOCCs, if appropriate. After any reversion event, a full investigation will be conducted.

7	OFF-STAND DE-ICING OPERATION
7.1	**Remote De-icing Pads**
!	VADER is not currently operational at the start of the Winter 2024/25 season. This HADIP will be reviewed with the primary intended operator - British Airways and NATS before the area enters a period of operational trials and beneficial use in 2025 Q1/2.
	There are two sets of remote de-icing pads provided at Heathrow, known as JEDI and VADER respectively. **JEDI** features two pads designated JEDI South and JEDI Delta. JEDI South is located on Bravo South taxiway between Delta and Echo. JEDI Delta is located on Taxiway Delta adjacent to stand 568. The majority of requests to operate JEDI will be for 'JEDI South' only – however on occasion both pads may be required. 'JEDI Delta' cannot be operated without 'JEDI South' being in operation too.

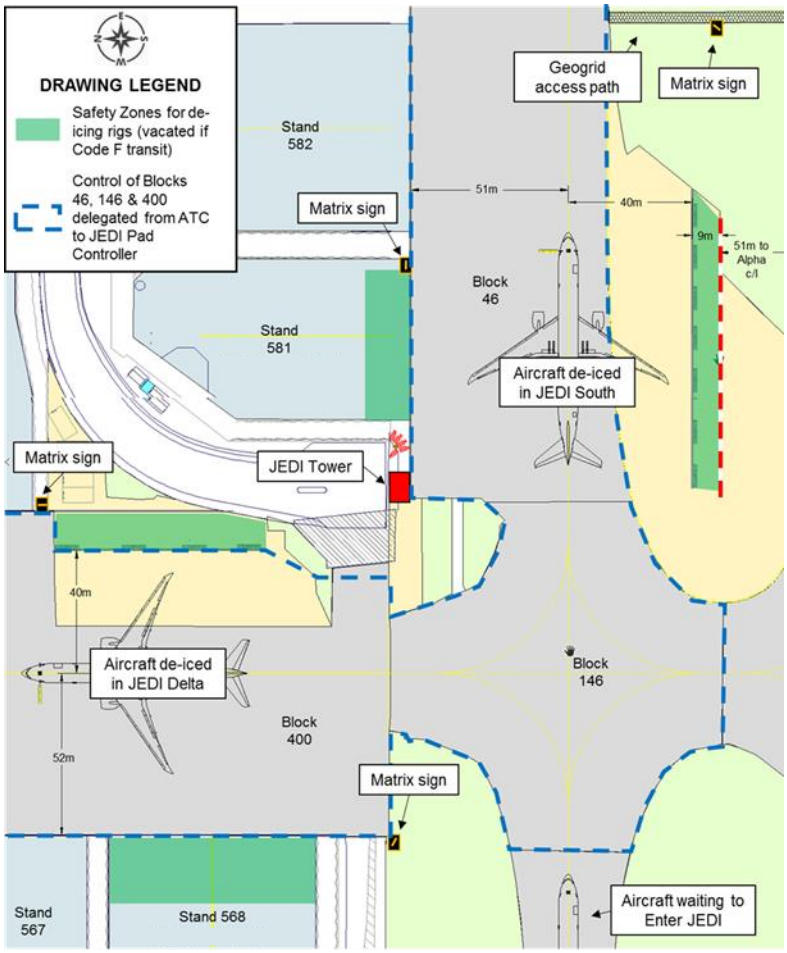


Figure 13: Location & Layout of JEDI Remote De-icing Pads

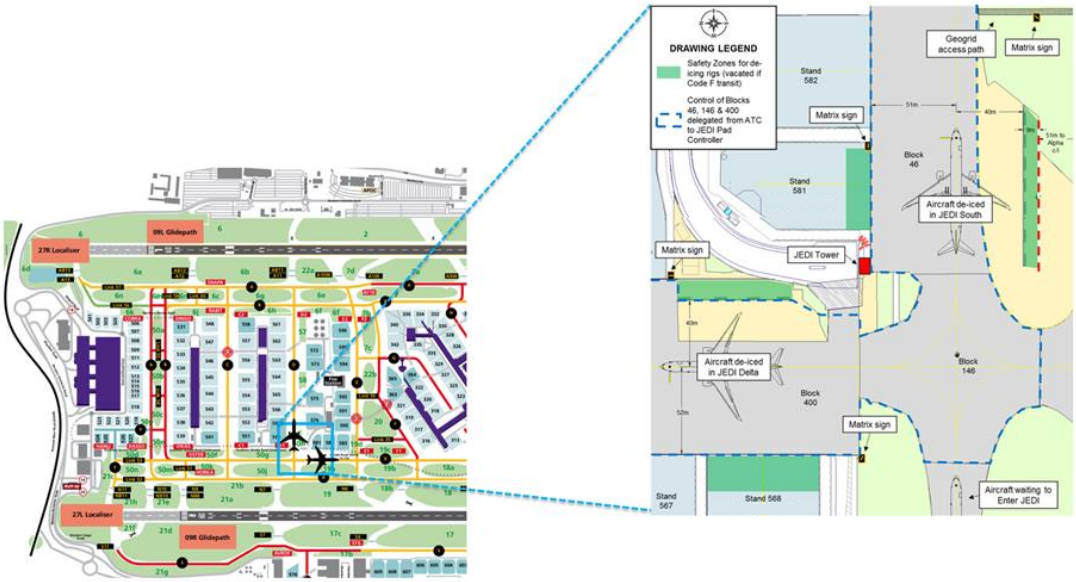


Figure 09: JEDI Off-Stand De-Icing Location

VADER de-icing pad is situated on the east side of the airfield within the BRAVO taxiway. VADER consists of two aircraft de-icing positions, VADER North and VADER South. Each position can be operated independently or together. Both are designed to facilitate a flow of traffic in a north-to-south or south-to-north direction. *It is worth noting that VADER is unlikely to be used on easterly operations given the Hold Over Times and taxiing times involved*.

VADER North is located on the Bravo (East) Taxiway between Link 21 and Link 25 (Block 707); VADER South is on the Bravo (East) Taxiway between Link 25 and Link 27 (Block 709).

The primary pad for VADER activations will be VADER South due to the ease of road management, airfield flow and reduction of impact to the Runway 27R holding area, however both pads may be used simultaneously at the discretion of the Pad Operator.

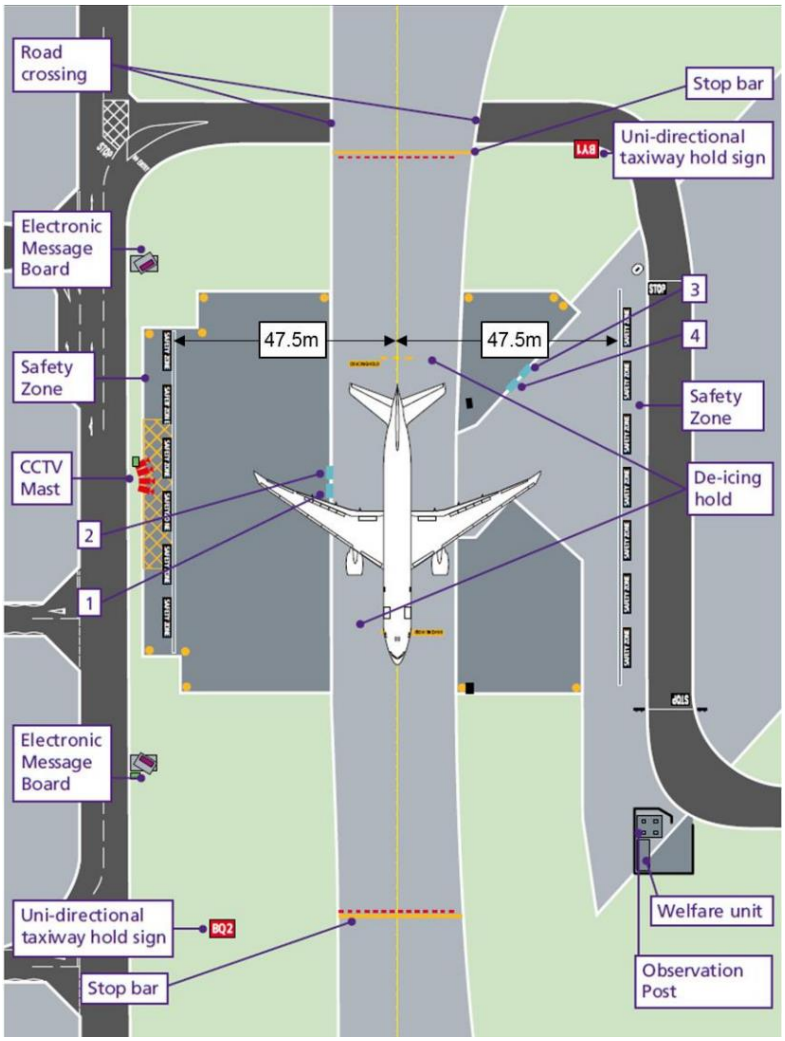


Figure 14: Location & Layout of VADER North Remote De-icing Pad

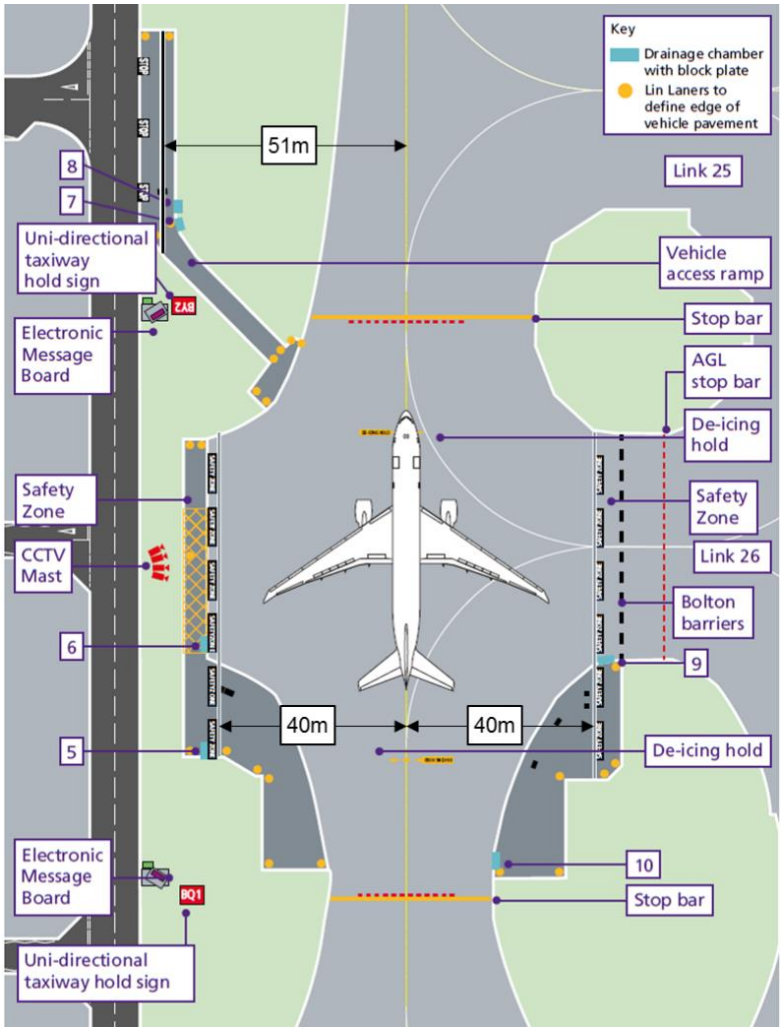


Figure 15: Location & Layout of VADER South Remote De-icing Pad

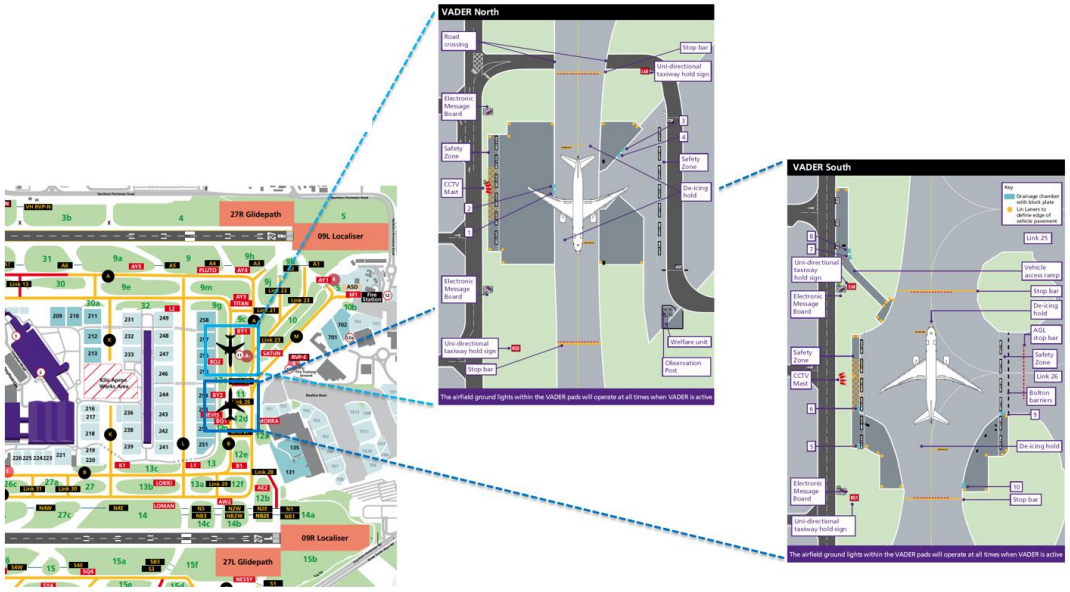


Figure 10: VADER Off-Stand De-Icing Location

7.2	**Activation Requests**

!	As the sole operator of both JEDI and VADER Off-Stand De-Icing Pads, British Airways usually makes the recommendation on whether to activate them. Whilst best endeavours will be made to accommodate this request, the final decision to activate Off-Stand De-Icing operations sits with the AfDM, AODM or ATC in consultation with each party. *The AfDM will inform the AODM (and the Airside Tactical Team if the HSPA has been activated) of any activation.*
!	VADER is not currently operational at the start of the Winter 2024/25 season. This HADIP will be reviewed with the primary intended operator - British Airways and NATS before the area enters a period of operational trials and beneficial use in 2025 Q1/2.
	As part of the D-5 to D-2 activities prior to an anticipated de-icing event, the AODM will review the requirement for the remote pads to be activated and discuss this with the AfDM. Part of this review should involve a discussion with the relevant DSPs who operate the pads to assess their intentions and confirm their plans. British Airways should confirm the potential requirement for JEDI and/or VADER at the 2030L HOCC conference call at D-1. British Airways should reconfirm the need at the 0400L HOCC for first wave departures giving an expected time for activation (first aircraft). Further information can be discussed at subsequent HOCCs at 0900L, 1330L and 2030L as required. *(Further information on the Heathrow Operational Cell Call within Item 12.1). At any time as the need arises, British Airways operational contacts in its Winter Operations team or the OCC (BA Heathrow Delivery Managers) can call the HAL Aircraft Operations Duty Manager (AODM) or vice versa to ensure good levels of information sharing.* The AODM will notify the Airfield Duty Manager (AfDM) that JEDI and/or VADER have been requested. The AfDM will then confirm that JEDI and/or VADER can be activated once an on-site inspection has been made. The AODM will also assess the operational impacts or restrictions.

8	JEDI – OFF-STAND DE-ICING OPERATION
8.1	**Set-up, Opening & Operation of JEDI**

Step	Action
!	The AODM will liaise with an OC to clear and close Stand 581 which is used by BA to stage all resources and equipment to operate JEDI South. If JEDI Delta is in use, stand 568 will additionally be used to stage resources and equipment. The AODM will liaise with an OC to clear and close Stand 568 which is used by BA to stage all resources and equipment to operate JEDI Delta.
!	As per business-as-usual operations, BA will be responsible for managing stand allocation in Taxiway Delta.
1	The BA JEDI will notify the AfDM that JEDI is being set up, including the positioning of signs prior to the area being handed over to BA's control. 1. Hold sign – positioned in the Delta South Taxiway abeam the stop sign for Taxiway Bravo holding short of Delta; 2. Hold sign - positioned in the Delta South Taxiway positioned at the southern edge of stand 575. 3. JEDI South sign – positioned in the clearway between Stand 581/582; and 4. JEDI Delta sign – positioned in the southern clearway of Stand 576. BA may request assistance from the AfDM for a leader vehicle to position the variable message signs, if they require support, such as in low visibility conditions.
2	The BA De-icing Coordination Manager (DCM) will liaise with the BA VADER ICEMAN to agree when JEDI is correctly set up and confirm when JEDI needs to be open.

	3	After completing the set up and confirming requirements with the DCM → the VADER ICEMAN (located in the ICE TOWER) will call the AfDM to advise JEDI is ready for operation → the AfDM will speak to ATC to confirm activation → if approved the AfDM will advise the VADER ICEMAN → the VADER ICEMAN will then notify the BA DCM in the BA Operations Control Centre (OCC) that they are ready to accept the first aircraft.
	4	The AfDM will notify the AODM that JEDI is now active.
	5	The JEDI ICEMAN will activate the glycol recovery process for the pads by making a request directly to the AfCR, which will dispatch a Glycol Recovery Vehicle (GRV). JEDI's de-icing operation will be suspended whilst the GRV is in operation.
	6	The delegation of taxiways varies depending on whether only JEDI South, or both JEDI South and Delta are in use.
	!	JEDI Delta cannot operate in isolation, for it to be open both pads must be used.
		• During the operation of JEDI South only, aircraft movements on Taxiway Bravo (South) between Taxiway Delta and Taxiway Echo, and Taxiway Delta at the junction with Taxiway Bravo (South) are delegated to the JEDI ICEMAN. • During the operation of JEDI South and Delta, in addition to the restrictions above, Taxiway Delta between D1 and the JEDI holding point, located at the southern edge of stand 575, is also delegated to the JEDI ICEMAN.
	!	If both JEDI South and JEDI Delta have been requested, both pads will operate in the same status, i.e. it is not permissible to have one pad open for use while the other is in standby.
	!	BA will be responsible for the de-icing operating procedures of either JEDI pads. BA will establish a pad control facility (JEDI ICE TOWER) which manages all aspects of the operation.
8.2	**Operating Restrictions**	
!	The decision to deactivate or suspend operations can be made by British Airways, the AfDM, AODM or ATC in consultation with each party. *The AfDM will inform the AODM (and the Airside Tactical Team if the HSPA has been activated) of any suspension. The JEDI ICE TOWER must always be manned when the JEDI is activated.*	
!	When the JEDI South Safety Zones are occupied, Taxiway Bravo (South) between Taxiway Delta and Taxiway Echo is restricted to Code E. When the JEDI Delta Safety Zones are occupied, Taxiway Delta between Stand 566 and Taxiway Bravo (South) is restricted to Code E.	
!	When an aircraft is moving to or from Stand 582 or 583 ATC will call ICE TOWER to request suspension of JEDI. Access for aircraft to/from Stands 582 and 583 must be from the east. Pushbacks from stands 565-567 and 575-576 must be coordinated with the JEDI Pad Controller. Pushbacks from stand 561-567 and 572-573, facing north, must not be instructed to push beyond stand 564. Inbounds to stands 566-567 and 576 must be coordinated with the JEDI Pad Controller. Aircraft transiting through JEDI must be coordinated with the JEDI Pad Controller.	
	Aircraft allocation to JEDI should be suspended when snow clearance or de-icing/anti-icing of the relevant taxiway blocks is taking place. Enough notice should be provided to ensure the associated areas are clear of aircraft and equipment when the vehicles arrive, ensuring BA can re-plan its de-icing strategy effectively. *At the commencement*	

of any snow clearance activity the AODM should contact the BA DCM and BA Heathrow Delivery Manager to advise the estimated period during which aircraft cannot be allocated to JEDI.

Operation of the pads is permitted during Low Visibility Procedures (LVPs) and Low Visibility Safeguarding, subject to there being adequate visibility of aircraft both on the pad and approaching the pad at all times. The JEDI ICEMAN must be able to see aircraft in the staging areas of any pad in use, as well as the position of all de-icing rigs when in the safety zones. Any twin-engine aircraft can be de-iced with engines running, all other aircraft are to be shut down.

8.3 De-Activation of JEDI

Step	Action
1	The BA DCM will advise JEDI ICE TOWER that there are no more aircraft planned for JEDI. The BA Heathrow Delivery Manager will also be notified.
2	The JEDI ICE TOWER will call the AfDM to confirm that the area is ready to be handed back.
3	ASD will follow a standard hand-back procedure which includes opening Stands 568 and 581 with AOU and will ensure the mobile lights and LED signs have been returned to their appropriate storage area before making the areas available to ATC.
4	The VCR supervisor will ensure that JEDI mode and maps are de-selected in Tower HMI systems.
5	ASD will positively confirm with ICE TOWER that the area has been handed back to ATC → The JEDI ICE TOWER will advise the BA DCM.

9 VADER – OFF-STAND DE-ICING OPERATION

! VADER is not currently operational at the start of the Winter 2024/25 season. This HADIP will be reviewed with the primary intended operator - British Airways and NATS before the area enters a period of operational trials and beneficial use in 2025 Q1/2.

10 AIRCRAFT OPERATION CAPACITY INTERVENTION DURING DISRUPTION

10.1 Demand & Capacity Balancing (DCB) during Aircraft De-icing Events

The DCB tool is a proprietary application bespoke to Heathrow and developed in partnership with NATS. It is used by the HOEC and AODM to drive the predictability of airspace, runway and airfield flow performance based on, amongst other inputs:

- Continually refreshed schedule information to reflect known delays and cancellations;
- Up-gauged aircraft on scheduled services;
- Historical global weather data including jet stream;
- Local and global weather forecasts including wind strength and direction; and
- Any agreed operational modes, runway configurations and schedule interventions including additional pre-0602(L) arrivals and Night Jet Movements.

The DCB tool is used to determine numerous predictions of performance including KPI measures for:

- Arrival and departure punctuality;
- Airborne delay (arrival holding);
- Start-up delay;
- Runway holding area delay;
- Expected cancellations;

	• Arrivals per terminal per hour (utilisation); and • The risk of flights operating into the Night Quota Period (NQP), i.e. predicted Night Jet Movements.
!	It should be noted that both DvC and HADACAB are only used when the potential for substantial disruption exists. In most cases it is expected that de-icing operations take place in Business-as-Usual conditions.
10.2	**DvC Activation**
	In the event of any short-term event (including weather) that may impact Heathrow's ability to provide its usual capacity levels, the Aircraft Operations Duty Manager (AODM) may instigate the Capacity Constraints Policy Level 2 'Demand versus Capacity' (DvC). The AODM will review whether one or more of the following criteria have been met: • Summer arrival flow rate = 36/60 or Winter arrival flow rate 34/60 (for 4 or more consecutive hours within the operating day). • High or medium high risk of fog for 3 or more hours. AND whether both of the following criteria have been met: • D-1 to the disruption day. • Disruption expected to last less than 24 hours. The aim of a DvC intervention is to allow airlines to pre-tactically cancel flights, to provide a stable schedule for the following day when disruption is expected and to minimise the risk of Night Jet Movements. DvC member airlines are usually the top 20+ airlines in terms of traffic volume. They are invited to a conference call on the day prior to the anticipated event where they receive a weather brief and a breakdown of the anticipated impact of the event in terms of airport capacity. The AODM then puts forward a numerical proposal aimed at providing a stable operation. Should a schedule intervention be required then a NOTAM is issued to support the requirement. Ad hoc slots will be suspended. During the event the AODM is responsible for keeping the Airport Operations Manager (AOM) and the wider APOC team up to date with how the airfield and airlines are performing against the schedule. A full wash-up is actioned by the AODM after every DvC event to determine any areas for improvement and opportunities for enhancement.
10.3	**HADACAB Activation**
	HADACAB (Heathrow Airport Demand and Capacity Balancing) is a Level 3 intervention outlined in Heathrow's Capacity Constraint Policy which is implemented to deal with adverse conditions and events which lead to a decrease in capacity. It is typically triggered in response to an operationally disruptive event, deemed to last longer than 24 hours, requiring a capacity reduction of greater than 10%. Heathrow Airport can recommend the activation of HADACAB. This must be escalated through the Heathrow AOM. A full wash-up is actioned by the AODM after every HADACAB event to determine any areas for improvement and opportunities for enhancement.

11	**HEATHROW COMMAND & CONTROL IN DISRUPTIVE EVENTS & EMERGENCIES**
	It is anticipated that de-icing operations will predominantly take place in 'Business as Usual' conditions. However, operationally disruptive events of any nature may require the activation of Heathrow's crisis response which utilises a standard Bronze, Silver and Gold structure for command and control as set out below.

	• Gold Command provides strategic direction and support. The main objective of Gold Command is to maintain a strategic overview of the incident and, where necessary, engage with airport stakeholders at a senior level. This team is based in the Executive boardroom at the Heathrow Compass Centre. • Silver Command The purpose of Silver Command is to support and enhance the operational response to an incident, make tactical decisions and steer the recovery strategy. • Bronze Command provides operational direction, reporting to Silver Command and providing the link to APOC. This team is based in the Bronze Command room at the Compass Centre and is led by the Airport Operations Manager (AOM). It is made up of several functional groups including Passenger, Airside and Baggage cells, as well as Bronze cells present on the scene when a focal point for incident response is needed on the ground. Heathrow Command & Control will be activated based on the decision of the AOM.

12	COMMUNICATIONS
12.1	**Heathrow Operation Cell Call (HOCC)**
	The Heathrow Operational Conference Call takes place on intervals throughout the day: 0400L, 0900L, 1330L & 2030L. The purpose of the Heathrow Operational Conference Call is to align key external and internal stakeholders on the current operation, highlight key performance issues and potential operational performance risks. The Heathrow Operational Conference Call is chaired by the Aircraft Operations Duty Manager (AODM). The primary audience are airline customers and ground handling agents. When certain triggers are met there may be a requirement to convert to an Enhanced Heathrow Operational Conference Call. Additional information shared on the call includes but is not limited to, AOP SNOW Module switch on/off times and settings (de-icing conditions & MET conditions), anticipated runway opening/closure times, updated weather forecasts, remote de-icing pad activation status.
12.2	**Heathrow Airport Community Conference Calls**
	During a significant winter event (either icing conditions or snow), Heathrow may hold an airport community conference call. Participants from the wider airport community will be invited to join the call through existing communication channels (email, SMS, Airport Community app). The call examines the operation of the airport as a whole and the agenda covers (but is not limited to): • The latest weather forecast from the Met Office. • A high-level assessment of any impact on aircraft movements as a result, including planned runway de-icing and snow clearance. • An invitation for airlines to provide an update on their de-icing capabilities and other schedule or passenger flow risks. • What preparations are in place for the airport including the airfield, landside infrastructure, terminals, security, check-in zones, passenger welfare and baggage.

13	REPORTING
13.1	**Current Operations Reporting**
	AOP users with appropriate access permissions can see live reports of de-icing activities and rig utilisation for each DSP via the 'My Reports' section of the navigation pane and then clicking on the 'Snow Data' tab.

	Further information is available for historic data under the 'Flight Search' section of the navigation pane by selecting 'Historic Search' for De-icing and Rig Data. Users can select the data type from the drop-down menu marked 'Search Category'.
13.2	**Post Operations Reporting**
	It is possible to export data from AOP which enables a detailed analysis of relevant metrics included on the Ground Handler's performance scorecard. The key measures for this season are: • The percentage of rigs allocated prior to TOBT. • The average variance of Expected vs. Actual Commencement of De-icing Times (ECZT vs. ACZT) Other metrics are available to help airport stakeholder partners review their overall performance and to implement subsequent improvements, such as: • Rig utilisation • Expected vs. Actual De-icing Duration Times (EDIT vs. ADIT) • Expected vs. Actual Ready for De-icing times (ERZT vs. ARZT) • Expected End of De-icing Time vs. Target Start-up Approval Time (EEZT vs. TSAT)

14	**Forward Holding Tank Process**
	The Forward Holding Tank process is required if one or more DSPs have insufficient fluid stocks and delivery cannot be received in time. The Heathrow Airside Standards & Assurance Manager will decide when this process needs to be activated.

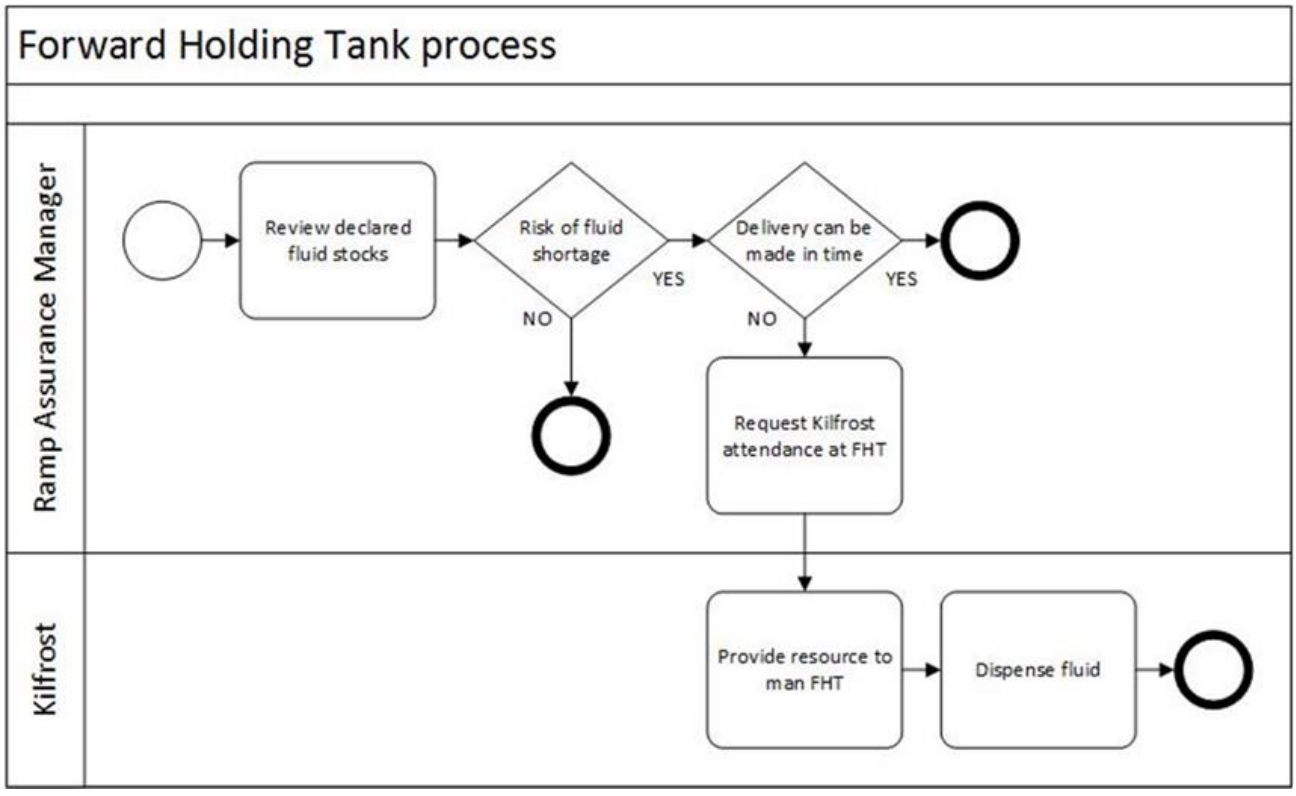


Figure 16: Simplified Forward Tank Holding Process

15	Fluid Delivery Process

Heathrow is required to meet DfT standards for screening all personnel and goods entering airside areas and the CPSRA. In line with these requirements, please note the following:

- All goods must be screened through the Colnbrook Logistics Centre (CLC);
- A Fulcrum reference number is needed for access to the CLC;
- The details required for a Fulcrum reference number are:
- Driver's name;
- Vehicle registration, make, model, colour and livery (if applicable); and
- Delivery location and contact number on site.

These details should be entered on Fulcrum when making the booking (www.wj-fulcrum.co.uk) as soon as the requirement is known. Any issues encountered when making a booking should be directed to 020 8757 4110 or email fulcrum@wilsonjames.co.uk.

On arrival at the CLC vehicles will be provided with a required ID, given the facility to store prohibited items within kit lockers, screened and then will await a Wilson James escort through the Control Post to their destination.

Wilson James will then hand over to a responsible party who will take over escorting duties and escort back to landside. If deliveries are scheduled to arrive at the weekend or outside of CLC working hours (0800–1700) please contact the HAL Licence Managers 2-5 working days in advance to be issued with Vehicle Apron Passes. If this is not possible, contact Campus Security to arrange clearance as per the out-of-hours procedure.

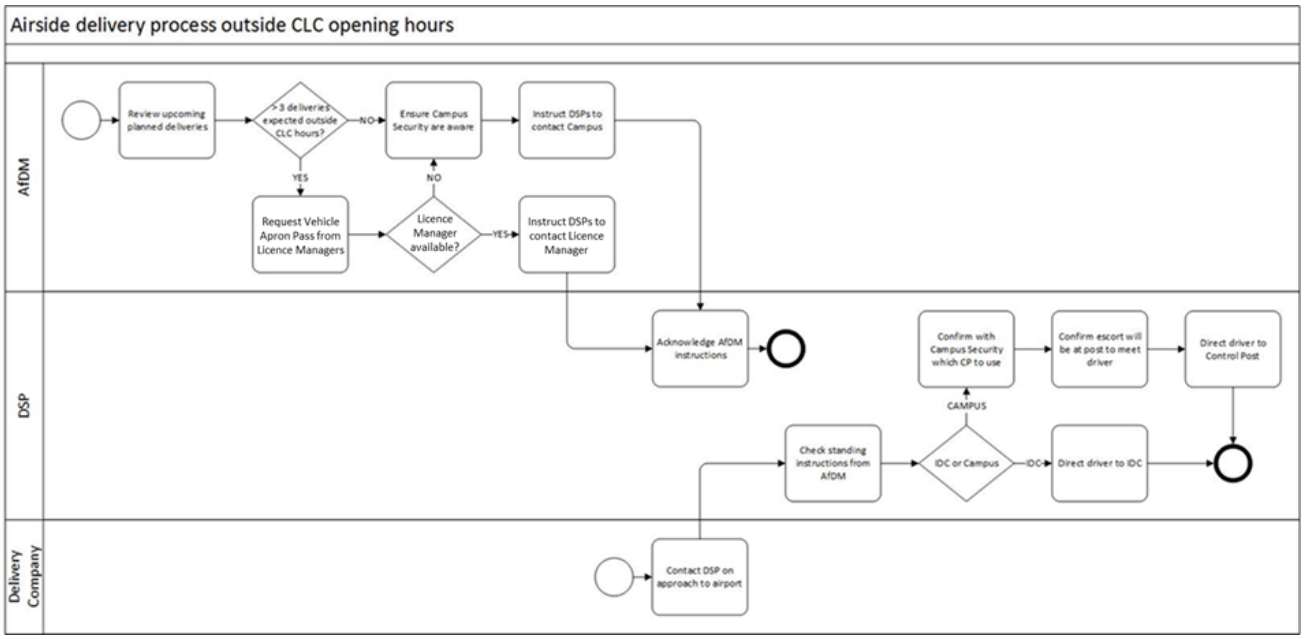


Figure 17: Fluid Delivery Process

Appendix

De-icing Conditions based on Meteorological Conditions

De-Icing Condition	A	B	C	D	E	F	G	H	I	J
MET Condition	Light			Medium				Severe		
A388	15	17	19	21	23	25	30	35	45	50
B741										
B742										
B743										
B744										
B748										
B74F										
B74N										
B74R										
B74S										
B74Y										
AB6	12	14	16	18	20	22	25	28	30	35
ABY										
A306										
A30B										
A310										
A330										
A332										
A333										
A340										
A342										
A343										
A345										
A346										
B762										

B763										
B764										
B767										
B76W										
B772										
B773										
B777										
B77F										
B77L										
B77W										
B77X										
B783										
B788										
B789										
DC10										
MD11										
B75F	11	13	15	16	17	19	21	22	23	25
B75W										
B752										
B753										
B721	11	13	15	16	17	19	21	22	23	25
B722										
B461	10	11	12	13	14	15	16	17	18	19
B462										
B463										
B712										
CRJ7										
CRJ9										
DC91										
DC92										
DC93										
DC94										
DC95										
F100										
F70										
MD81										
MD82										
MD83										

MD87										
MD88										
MD90										
RJ1H										
RJ70										
RJ85										
RX1H										
RX85										
A318	6	7	8	9	10	11	12	13	15	17
A319										
A31Y										
A320										
A321										
A32B										
A32S										
AT43										
AT45										
AT72										
AT73										
AT75										
AT76										
B731										
B732										
B733										
B734										
B735										
B736										
B737										
B738										
B739										
B73G										
B73H										
B73J										
B73W										
DH8A										
DH8B										
DH8C										
DH8D										

DHC7										
E90										
E95										
E170										
E190										
F50										
CRJ1	6	7	7	8	9	10	11	13	14	16
CRJ2										
E135										
E145										

Table 03: De-icing Conditions based on MET Conditions

List of Abbreviations

Acronym	Definition
A-CDM	Airport Collaborative Decision Making
ACL	Airline Coordination Limited
ACZT	Actual Commencement of De-icing Time
ADIT	Actual De-icing Duration Time
AEZT	Actual End of De-icing Time
AfCR	Airfield Control Room
AfDM	Airfield Duty Manager
AFR	Arrivals Flow Rate
AGLCS	Aerodrome Ground Lighting Control System
IRT	Incident Response Team
ANAT	Airspace, Noise and ATM Team
AO	Aircraft Operator
AOC	Airline Operators' Committee
AOM	Airfield Operations Manager
AOM	Airport Operations Manager
AODM	Aircraft Operations Duty Manager
AOP	Airport Operations Plan
AOU	Aircraft Operations Unit
APOC	Airport Operations Centre
ARZT	Actual Request for De-icing Time
ASD	Airside Safety Department
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATFCM	Air Traffic Flow Control Management

ATM	Air Traffic Management
ATT	Airside Tactical Team
BA	British Airways
BAU	Business as Usual
CPSRA	Critical Part of the Security Restricted Area
CRS	Customer Relations & Service
CTOT	Calculated Take Off Time
DCB	Demand & Capacity Balancing Tool
DCM	De-icing Coordination Manager
DfT	United Kingdom Department for Transport
DMO	Dynamic Modelling of Operations
DPI	Departure Planning Information (Message)
DSP	De-icing Service Provider
ECMT	Executive Crisis Management Team
ECZT	Estimated Commencement of De-icing Time
EDIT	Estimated De-icing Duration Time
EEZT	Estimated End of De-icing Time
EMB	Electronic Message Board
ERZT	Estimated Request for De-icing Time
ETFMS	Enhanced Tactical Flow Management System
FCO	United Kingdom Foreign and Commonwealth Office
GH	Ground Handler
GRV	Glycol Recovery Vehicle
H24	24 hours per day
HADACAB	Heathrow Airport Demand and Capacity Balancing Group
HADIP	Heathrow Aircraft De-icing Plan
HAL	Heathrow Airport Limited
HOCC	Heathrow Operational Conference Call
HOEC	NATS Heathrow Operational Efficiency Cell
HOT	De-icing Hold Over Time
HSPA	Heathrow Snow Plan Airside
HSRF	Heathrow Snow Response Forecast
HTC	NATS Heathrow Traffic Coordinator
IATA	International Air Transport Association
IT	Information Technology
ITOC	Information Technology Operations Control
MET	Weather data (meteorology)
NATS	NATS Holdings

NMOC	EUROCONTROL Network Manager Operations Centre (Brussels)
NOP	Network Operations Plan
OC	AOU Operations Controller
OCC	(British Airways) Operations Control Centre
OLT	HAL Operational Leadership Team
PDR	APOC Plan, Do, Review Conference Call
PSC	Performance Status Check
RAG	Red, Amber, Green
SMS	Short Message Service (text message)
SOM	Senior Operational Meteorologist
TC	NATS London Terminal Control Centre, Swanwick
TSCC	Terminal Snow Clearance Coordinator
TOBT	Target Off Block Time
Tower HMI	Tower Human Machine Interface
TRM	Turn-round Manager (Flight Dispatcher)
TSAT	Target Start Up Approval Time
VCR Supervisor	Visual Control Room (Tower) Supervisor

END OF DOCUMENT