

12th December 2023

ASEnv_OSI_055

Version 2.0

Operational Safety Instruction

Pre-conditioned Air Rules and Procedures

It is the responsibility of all employers to ensure that relevant OSIs are brought to the attention of their staff. However, individuals remain responsible for their own actions and those who are in any doubt should consult their Supervisor or Manager.

1. Introduction

- 1.1 This Operational Safety Instruction (OSI) provides details of the rules and procedures for using the Pre-Conditioned Air (PCA) systems that are provided by Heathrow Airport Limited (HAL). The use of PCA is a preferred alternative to running an aircraft Auxiliary Power Unit (APU) to reduce Nitrogen Oxide (NOx) and noise emissions. The PCA system can provide either cooled, heated or ventilated air or support cabin internal temperature maintenance, depending on the ambient conditions or the user's requirements.
- 1.2 This OSI should be read in conjunction with the reference documents as stipulated therein.
- 1.3 This OSI has been fully reviewed. Therefore, no red bar is added at the side of the document to indicate where changes are made.
- 1.4 For use of fixed electrical ground power at Heathrow Airport, please read ASDRVE_OSI_018 Aircraft Fixed Electrical Ground Power Operating Procedures and Conditions of Use for details.
- 1.5 ASEnv_OSI_055 v1.0 is hereby cancelled.



2. Definitions

Abbreviation	Description
APU	Auxiliary Power Unit
AOT	Airside Occurrence Ticket
AOP	Airport Operations Plan
Db	Decibel
FEGP	Fixed Electrical Ground Power
GOL	Ground Operations License
HAL	Heathrow Airport Limited
OSI	Operational Safety Instruction
PBB	Passenger Boarding Bridge
PCA	Pre-Conditioned Air
VAP	Vehicle Apron Pass

3. PCA Equipment provided by HAL

- 3.1** All narrow and wide-bodied aircraft types served by Heathrow Airport can be supplied with sufficient conditioned air from one PCA unit, except for the Airbus A380 which requires two PCA units.
- 3.2** There are three PCA unit configurations installed across Heathrow Airport. These are either underslung on PBB, ground-mounted or mobile.
- 3.3** All PCA systems installed across Heathrow Airport aim to provide desirable pre-conditioned air output at the point where it enters the aircraft receptacle. HAL is not responsible for the resultant internal cabin air temperature fluctuations contributed by other external factors, such as aircraft ventilation system efficiency.
- 3.4** Each PCA unit has its own control panel to deliver PCA to one or two aircraft connection points, using a combination of fixed and flexible hose delivery systems.
- 3.5** Once the PCA is connected to the aircraft, a probe mounted in the connecting PBB can be used to transmit the resultant cabin temperature back to the PCA control panel. The PCA must be set to “automatic cooling” or “automatic heating” for closed-loop control.



4. General Safety Precautions

- 4.1 The airline or its handling agent must ensure that colleagues appointed to operate HAL's PCA systems are suitably trained and qualified. The training requirements are detailed in Section 10 of this OSI.
- 4.2 Prior to using HAL's PCA systems, the operator shall assess the environmental conditions and conduct pre-use checks to ensure the PCA system is fully operable. Relevant weather warnings will be promulgated via AOP and the Airport Community Application:
- 4.2.1 High External Temperature - If the ambient cabin temperature is too high, the PCA may take longer to achieve and maintain the desired internal cabin temperature. If the PCA is ineffective after an extended period of use, the fault reporting procedures as detailed in Section 7 of this OSI must be followed.
- 4.2.2 High Wind Speed - The PCA equipment **must not** be used when the wind speed is above 25 knots.
- 4.2.3 PCA Control Panel - The PCA control panel shall be checked for the presence of any alarms or warning signals indicating equipment malfunction.
- 4.2.4 PCA Equipment - The condition of the PCA equipment shall be checked for any damage or non-conformance.
- 4.3 If the ambient cabin temperature exceeds the above-mentioned thresholds, the PCA system shall be considered unavailable, and aircraft APU may be used as an alternative. Reference should be made to ASEnv_OSI_078 Use of Aircraft Auxiliary Power Units for details.
- 4.4 If any irregularity is found on the PCA control panel or equipment, it shall be reported according to the fault reporting procedures as laid down in Section 7 of this OSI. If in doubt **DO NOT** attempt to connect or use any part of the PCA system to prevent damage to the aircraft.
- 4.5 When an aircraft is parked on a stand fitted with a serviceable HAL's PCA system, it must be used as a primary source (i.e. for cabin cooling, heating, maintaining internal cabin temperature or ventilation) and can be used independently with the FEGP. The APU or any other externally supplied PCA unit shall not be used as a substitute where HAL's PCA system is operationally viable.



5. Mobile PCA System provided by External Supplier

- 5.1** Should an airline or its handling agent wish to bring an external mobile PCA system airside, they must first have the authorisation to do so and obtain a VAP for that equipment if applicable. For the VAP application procedures, please refer to ASDRVE_OSI_008 Vehicles and Equipment Airside – Requirements for details.
- 5.2** External mobile PCA systems must conform to HAL's Pre-Conditioned Air Asset Standard document number 10000-XX-AM-154-000001. Should a copy of the standard be required, contact should be made to the HAL Aerodrome Procedures team by email at aerodrome.procedures@heathrow.com.
- 5.3** All safety and regulation requirements as detailed in the GOL and ASDRVE_OSI_005 Vehicles and Equipment Airside Operation must be observed and adhered to.
- 5.4** A PCA unit operating noise limit set down in the International Air Transport Association Airport Handling Manual as 85dB at 4.6m from the perimeter of the equipment, at a height of 1.5m above the ground shall be met.
- 5.5** External mobile PCA systems must be removed from the stand after use. Reference shall be made to ASDRVE_OSI_005 Vehicles and Equipment Airside – Operation for details.

6. Common Unsafe and Prohibited Practices

To ensure HAL's PCA system is kept in good operational order and is operated in a safe manner to prevent aircraft damage as well as personnel injury, the following must be strictly adhered to.

- 6.1** The PCA system shall not be operated unless fully assembled, in good working order without hose leaks and securely connected to an aircraft.
- 6.2** All PCA equipment must be properly stowed after use. The operator must ensure that the PCA equipment is not causing obstructions to any other ramp facility operations, such as the airbridge.
- 6.3** The PCA hoses shall not cross pedestrian access routes or be stepped over when deployed, to prevent slips, trips and falls.
- 6.4** There shall always be alignment between the PCA control panel aircraft setting and the aircraft type being serviced before the PCA unit is started up.
- 6.5** The PCA hoses are not to be kinked in any way during operation as this may restrict or impede the effectiveness of the PCA system.



7. Fault Reporting Procedures

If a fault is identified on a HAL's PCA system, it must be immediately reported to the HAL Aircraft Operations Unit, using phone number 0208 745 6033 or extension phone number 656033.

- 7.1 The HAL Airside Engineering team will not attempt to rectify any faults where any part of the PCA system is connected to the aircraft, due to the risk of damage to aircraft systems.
- 7.2 If the HAL Airside Engineering team has attended to the fault and is unable to bring the PCA system back into service, they will isolate the unit from all sources of power supply, fit a caution sign and lock it off as a safety measure.

8. Monitoring

- 8.1 HAL will conduct routine PCA operations monitoring to ensure that the contents of this OSI are complied with in full.
- 8.2 Any occurrence in relation to breaching this OSI will be conveyed to the company concerned in line with the date, time, location and aircraft registration number. The company will be required to investigate the matter and provide a full report back to the HAL Airside Operations team within 7 days upon receiving the request. Depending on the outcome of the investigation, an AOT may be issued as a result.

9. Conditions of Use

- 9.1 Attention is drawn to the liability and insurance provisions of the Condition of Use and Airside Operations Licence/Ground Operations Licence, whichever is applicable.
- 9.2 Use of the HAL PCA by an airline, aircraft operator, aircraft owner or handling agent shall constitute their prior acceptance of the conditions set out in this OSI.
- 9.3 Neither HAL, its servants nor its agents shall be liable for any loss or damage arising directly or indirectly from the unavailability of PCA other than loss or damage which is solely attributable to wilful misconduct or negligence on the part of HAL, its servants or agents.
- 9.4 Neither HAL, its servants or its agents shall be liable for any loss or damage arising directly or indirectly from the provision or use of PCA, other than loss or damage which is solely attributable to wilful misconduct or negligence on the part of HAL, its servants or agents.



- 9.5** The airline, aircraft operator, aircraft owner or handling agent shall indemnify HAL, and shall keep indemnified, HAL, its servants or agents against all actions, claims, proceedings and demands (including those of servants of HAL or of the airline, aircraft operator, aircraft owner or handling agent) in respect of any loss of or damage to property or for personal injury (including injury resulting in death) which may be made against HAL, its servants or agents, arising out of or in connection with the provision or use of the PCA other than loss, damage or injury which is solely attributable to wilful misconduct or negligence on the part of HAL.

10. Training Requirements

- 10.1** The airline or its handling agent must appoint a manager or supervisor who is competent to provide training in the safe use of the PCA system to its staff, including the mobile PCA systems provided by external suppliers.
- 10.2** The airline or its handling agent shall provide their own training materials in relation to PCA operations. For technical support on PCA operations at Heathrow Airport, enquiries shall be directed to airside_safety@heathrow.com who will coordinate with the HAL Airside Engineering team for publication of the information package.
- 10.3** Operators of HAL's PCA system must comply with all HAL's safety and regulation requirements as detailed within the GOL.
- 10.4** In addition to classroom training, an on-site practical demonstration and assessment shall be conducted to ensure the staff are competent.
- 10.5** The validity of the operator's qualification shall only be valid for a maximum of three years. Before the operator is allowed to continue using the HAL's PCA system, appropriate refresher training and assessment of the operator's competency must be completed and recorded.
- 10.6** Airlines or its handling agents must keep updated records of all PCA training and refresher training for all colleagues appointed to operate PCA systems.
- 10.7** HAL reserves the right to conduct audits of PCA training, refresher training and colleague certification at any time.

11. Enquiries

Any enquiries regarding this OSI should be addressed to the HAL Airside Standards & Assurance team by email to airside_safety@heathrow.com.



12. References

- 12.1 ASDRVE_OSI_005 Vehicles and Equipment Airside – Operations.
- 12.2 ASDRVE_OSI_008 Vehicles and Equipment Airside – Requirements.
- 12.3 ASDRVE_OSI_018 Aircraft Fixed Electrical Ground Power Operating Procedures and Conditions of Use.
- 12.4 ASEnv_OSI_078 Use of Aircraft Auxiliary Power Units.
- 12.5 Operational Advice Notice – Pre-Conditioned Air Summer Operating Principles.
- 12.6 Ground Operations Licence.



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Document History

Revision	Description of Changes	Date
V1.0	Initial Version	28 th September 2016
V2.0	Full review of the document, including added contents of general safety precautions, PCA system provided by HAL, mobile PCA system provided by external supplier and common unsafe and prohibited practices, updates on equipment, training requirements and fault reporting procedures	12 th December 2023

