

31st January 2024

ASEnv_OSI_078

Version 2.0

Operational Safety Instruction

Use of Aircraft Auxiliary Power Units

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) aims to inform the airport community, specifically the airlines and their ground handlers, of the aircraft auxiliary power hierarchy and conditions/restrictions of Auxiliary Power Units (APUs) usage at Heathrow Airport.
- 1.2** The purpose of APU usage restriction at Heathrow Airport is to reduce the carbon footprint of aircraft movements, such as exhaust emissions, noise exposure and excessive fuel used in relation to APU operations. Therefore, airlines and their ground handlers must minimise these environmental impacts through greener and quieter alternatives, such as Fixed Electrical Ground Power (FEGP) and Pre-Conditioned Air units (PCA) wherever provided.
- 1.3** To encourage and support airlines and their ground handlers to adopt carbon reduction alternatives and thus not rely on the use of APU, Heathrow Airport Limited (HAL) has provided sufficient units of FEGP for aircraft power sources and PCA for cabin cooling, heating and ventilation purposes across the vast majority of stands at Heathrow Airport. HAL will continue to review and update these infrastructures from time to time to ensure that they are fit for purpose.
- 1.4** This OSI must be read in conjunction with the following documents:
- 1.4.1** ASDRVE_OSI_018 Aircraft Fixed Electrical Ground Power Operating Procedures and Conditions of Use.
 - 1.4.2** ASEnv_OSI_055 Pre-conditioned Air Rules and Procedures.
 - 1.4.3** ASEnv_OSI_061 Ground Noise at Heathrow - Approval Control Process and Safety of Engine Ground Running
 - 1.4.4** ASGrOps_OSI_093 Aircraft Arrival, Turnaround and Departure on Stand
- 1.5** Red bars have been added to the left-hand side of this document to draw the reader's attention to where changes or clarifications have been incorporated.
- 1.6** ASEnv_OSI_078 Use of Aircraft Auxiliary Units_v1.0 is hereby cancelled.



2. Definitions

Abbreviation	Description
AfDM	Airfield Duty Manager
AOP	Airport Operations Plan
AOU	Aircraft Operations Unit
APU	Auxiliary Power Unit
ATA	Actual Time of Arrival
ATIS	Automatic Terminal Information Service
ETD	Estimated Time of Departure
FEGP	Fixed Electrical Ground Power
GPU	Ground Power Unit
HAL	Heathrow Airport Limited
PBB	Passenger Boarding Bridge
PCA	Pre-Conditioned Air

2.1 For this OSI, the terms have the following meaning:

- 2.1.1 “Narrow-bodied Aircraft” means aircraft with a single aisle in the passenger cabin. This includes but is not limited to, aircraft such as Airbus A320, Boeing B757 and B737 families and the Bombardier Dash 8 Q400.
- 2.1.2 “Wide-bodied Aircraft” means aircraft with two aisles in the passenger cabin. This includes but is not limited to, aircraft such as the Airbus A330, A340 and A350 families and the Boeing B767, B777, and B787 families.

3. Aircraft Auxiliary Power Hierarchy





3.1 At Heathrow Airport, all airlines and their ground handlers must strictly comply with the aircraft auxiliary power hierarchy described in the table below:

	Aircraft Power Source	Cabin Cooling, Heating and Air Ventilation
Primary Source	FEGP	PCA
Secondary Source	Mobile GPU	Mobile PCA
Contingency Source	APU	



3.2 Primary Source: Fixed Electrical Ground Power (FEGP) and Pre-conditioned Air (PCA)

3.2.1 HAL provides the following types of FEGP and PCA across the vast majority of terminals at Heathrow Airport. They must be used as a primary source for external power and cabin cooling, heating and air ventilation purposes wherever supplied and serviceable.

	
<p>Fixed Cubicle Cable Carriers</p>	<p>PBB-mounted Cable Coils</p>
	
<p>28V Voltage Direct Current (VDC) Adaptors *Compatible with certain aircraft types only</p>	<p>PCA <i>*PCA format across Heathrow Airport may vary.</i></p>

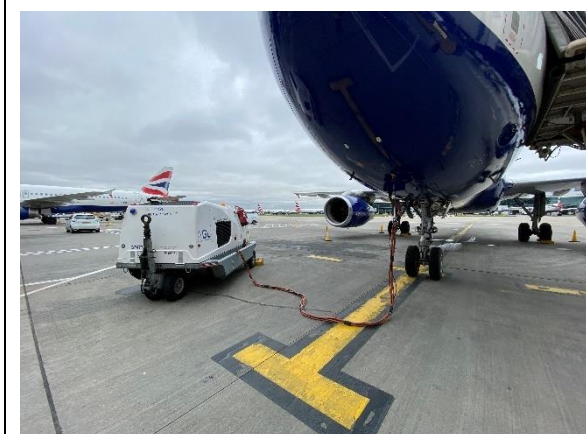
3.2.2 For more information on the FEGP and PCA operating procedures, including fault reporting, please refer to the following documents:

3.2.2.1 ASDRVE_OSI_018 Aircraft Fixed Electrical Ground Power Operating Procedures and Conditions of Use; and

3.2.2.2 ASEnv_OSI_055 Pre-conditioned Air Rules and Procedures.



3.3 Secondary Source: Mobile Ground Power Unit (GPU) and Pre-conditioned Air (PCA)



Mobile GPU

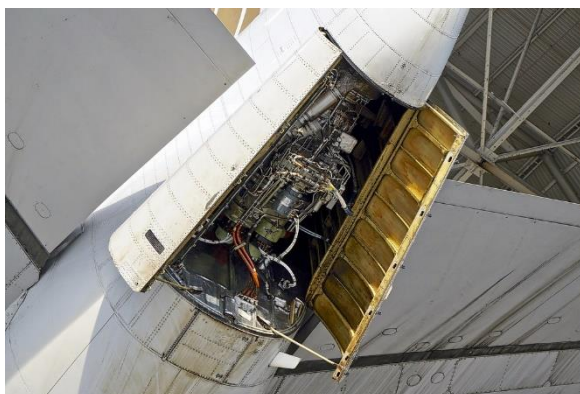


Mobile PCA

3.3.1 Mobile GPUs and PCA can only be used when the FEGP/PCA equipment is not available.

3.3.2 For more information on the operation rules of GPUs at Heathrow Airport, please refer to ASEnv_OSI_061 Ground Noise at Heathrow - Approval Control Process and Safety of Engine Ground Running.

3.4 Contingency Source: Auxillary Power Unit (APU)



An APU with open maintenance panels

3.4.1 For providing power source for aircraft, APU is only to be used when neither FEGP nor a GPU is supplied and unserviceable.

3.4.2 For cabin cooling, heating and air ventilation purposes, APU is only to be used when neither PCA nor mobile PCA is supplied and unserviceable.

3.4.3 APUs must not be used unless a person qualified to operate an APU is in attendance or the APU has both an auto-shutdown and auto-extinguishing function.



4. Permissible APU Usage on Arrival

- 4.1 For both Narrow- and Wide-bodied Aircraft (except A380), the APU must be shut down **no later than 10 minutes** after the Actual Time of Arrival (ATA).
- 4.2 For A380, the APU must be shut down **no later than 15 minutes** after the Actual Time of Arrival (ATA).

5. Permissible APU Usage on Departure

- 5.1 For narrow-bodied aircraft, the APU is not to be started **in excess of 15 minutes** before the Estimated Time of Departure (ETD).
- 5.2 For wide-bodied aircraft (except A380), the APU is not to be started **in excess of 30 minutes** before the Estimated Time of Departure (ETD).
- 5.3 For the A380, the APU is not to be started **in excess of 60 minutes** before the Estimated Time of Departure (ETD).

6. Extreme Weather Exemptions

- 6.1 If the ambient cabin temperature is too high and the PCA is unable to bring the temperature to a desired value after an extended period of use, or the PCA cannot be used/not available, such as during a high wind warning is in force (as promulgated through AOP and the Airport Community Apps), APU may be used for departing aircraft within the following timeframes:
- 6.1.1 30 minutes before ETD for Narrow-bodied Aircraft.
 - 6.1.2 55 minutes before ETD for Wide-bodied Aircraft (Except for A380).
 - 6.1.3 90 minutes before ETD for A380.
- 6.2 When the desired internal cabin temperature has been achieved by using the APU, the PCA must then be used to maintain the temperature instead of the APU.
- 6.3 For more information regarding PCA rules and operations at Heathrow Airport, reference should be made to ASEnv_OSI_055 PCA Rules and Procedures.

7. Further Temporary Exemptions

Should any aircraft system testing require the use of APU, a temporary exemption can be granted by contacting the HAL Airfield Operations team at 020 8745 6024. The operator must then adhere to any safety instructions that the Airfield Operations team or the Airfield Duty Manager (AfDM) issues.



8. Towing Operations

- 8.1 Throughout the aircraft towing process, any external power sources (e.g., an integrated aircraft tug power source) must be used over the APU if available.
- 8.2 When the aircraft is scheduled to be towed, the APU may be started if no other external power source is available but not **in excess of 10 minutes** prior to the planned movement. If the towing movement is delayed due to ATC, the APU may be left running.

9. Night Period Restrictions

- 9.1 The use of APU **is not permitted between 23:30 - 06:00** in the following areas. Therefore, all permissible APU usage as detailed in Sections 4 and 5 of this OSI is not applicable.

- Cargo stands 601-609 and 611-616.
- Stands 401-403 and 429-432.

- 9.2 Approved departure flight movement after 23:30 must use APUs for the minimum period before pushback per Section 5 of this OSI and start engines at the appropriate location as instructed by ATC once clear of the restricted areas.

10. Monitoring and Compliance

- 10.1 HAL Airside Operations conducts regular turnaround audits and patrols of all airside areas to ensure APU usage complies with this OSI.

- 10.2 Should a breach of any rules and procedures as stipulated in this OSI be found, HAL will approach the company involved for an explanation.

11. Enquiries

Any enquiries concerning this OSI should be addressed to the HAL Airside Operations team at airside@heathrow.com.

12. References

- 12.1 ASDRVE_OSI_018 Aircraft Fixed Electrical Ground Power Operating Procedures and Conditions of Use.

- 12.2 ASGrOps_OSI_026 Aircraft Towing Operations.

- 12.3 ASEnv_OSI_055 PCA Rules and Procedures.

- 12.4 ASEnv_OSI_061 Ground Noise at Heathrow - Approval Control Process and Safety of Engine Ground Running.

- 12.5 ASGrOps_OSI_093 Aircraft Arrival, Turnaround and Departure on Stand.



Document Data

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Document History

Revision	Description of Change	Date
V1.0	Initial version	18 th June 2018
V2.0	Full document review, including the hierarchy of external ground power/PCA usage, types of FEGP provided by HAL, extreme weather exemptions, the timeframe for permissible APU usage and use of APU as a contingency source of power supply.	31 st January 2024

