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London Luton Airport Expansion

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8.46 Outline Ground Noise Management Plan

Infrastructure Planning (Examination Procedure) Rules 2010

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The Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

**London Luton Airport Expansion Development Consent
Order 202x**

8.46 Outline Ground Noise Management Plan

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1 INTRODUCTION

- 1.1.1 This document has been prepared by Luton Rising (a trading name for London Luton Airport Limited ('the Applicant')) in support of the application for development consent for the expansion of London Luton Airport (the airport) from 19 million passengers per annum (mppa) to accommodate 32 mppa (herein referred to as the 'Proposed Development').
- 1.1.2 This document contains the Outline Ground Noise Management Plan which describes the process to reduce and control ground noise arising from the operation of the Proposed Development.
- 1.1.3 A Requirement in Schedule 2 to the **Development Consent Order (DCO) [TR020001/APP/2.01]** requires a final Ground Noise Management Plan to be submitted and approved in writing, which must be substantially in accordance with this Outline Ground Noise Management Plan. It is intended that, once adopted, the Ground Noise Management Plan can be revised in the future, for example in response to new monitoring technology or guidance.
- 1.1.4 For the purpose of this management plan, 'ground noise' covers the following sources of noise associated with the Proposed Development:
- a. aircraft taxiing between stand and runway;
 - b. engine testing; and
 - c. use of Auxiliary Power Units (APUs) and Ground Power Units (GPUs).
- 1.1.5 There are also measures in the **Outline Operational Air Quality Plan [TR020001/APP/5.02]** and the **Outline Greenhouse Gas Action Plan [TR020001/APP/5.02]** which would control ground noise, including:
- a. Develop a strategy/operational guide to reduce emissions from aircraft during the Landing Take Off (LTO) cycle by 2037 which may include reducing APU running time allowance; engine shut down following arrival and during delays; single/reduced engine taxiing and reducing hold times (see Section 2.2 of the **Outline Operational Air Quality Plan [TR020001/APP/5.02]**).
 - b. Retrofit all existing stands with Fixed Electrical Ground Power (FEGP) or non-diesel GPUs (see Table 3 of the **Outline Greenhouse Gas Action Plan [TR020001/APP/5.02]**).
- 1.1.6 These are secured via Requirements in Schedule 2 to the **DCO [TR020001/APP/2.01]**, which require detailed operational air quality and greenhouse gas plans to be prepared which are substantially in accordance with the outline plans described above.

2 OUTLINE GROUND NOISE MANAGEMENT PLAN

2.1 Scope

2.1.1 Controls in the Outline Ground Noise Management Plan (OGNMP) are separated into the following key elements:

- a. ground running of aircraft propulsion engines;
- b. preferential use of stands and taxiways;
- c. use of Auxiliary Power Units and Ground Power Units; and
- d. ground run tests at night and locations for ground run test during the day period.

2.2 Ground running of aircraft propulsion engines

2.2.1 Restrictions on the ground running of aircraft propulsion engines are contained within the following Operations Safety Instructions (OSI)¹:

- a. OSI 19-23 Aircraft Power Back Procedures;
- b. OSI 22-23 Jet Blast;
- c. OSI 46-23 Aircraft Engine Ground Runs and Use of the Engine Run-Up Bay (ERUB).

2.2.2 These controls (and updates to these controls as necessary) should be followed to use the minimum engine power whilst on the aprons. Engine ground runs on the aprons are limited to check-starts that do not exceed ground idle power. Engine runs on stand are limited to one engine at a time for a maximum duration of 10 minutes.

2.2.3 Engine ground runs will not normally be permitted during the night-time hours of 23:00- 06:00 on weekdays and 23:00-07:00 over the weekends and on Public Holidays. The details of the management and control of engine ground runs and movements to and from the ERUB have to be given in advance to the Airport Operations Control Centre, and approval sought.

2.2.4 The ERUB is currently located adjacent to Taxiway A and is distant from the main residential areas of Luton. With the Proposed Development, the ERUB will move up to approximately 550m to the east and 50m to the north of the current location and the screening provided will be improved with a height of 12m compared to the current approximate 5m height of screening provided by the earth bund. The current and future locations of the ERUB are illustrated in the **Scheme Layout Plans [TR020001/APP/4.02]**.

2.2.5 For all engine runs by jet aircraft, other than runs at ground idle power setting, the ERUB facility must be used. It is required to keep noise disturbance to a minimum.

¹ OSIs are periodically updated and the latest version of each listed OSI should be followed

2.3 Preferential use of stands and taxiways

2.3.1 The airport operator will seek to operate aircraft from the contact stands that abut the terminal building rather than those non-contact stands on the northern edge of the airport. The preference cannot apply to the cargo apron, as aircraft carrying out cargo operations will need to use that apron. The airport operator will seek to operate taxiway use in order to minimise the time taken for departing aircraft to reach the runway, and so reduce ground noise. The airport operator will also work with airlines to minimise noise from aircraft whilst taxiing.

2.4 Use of Auxiliary Power Units and Ground Power Units

2.4.1 The airport operator will follow OSI 048-23 which sets out the rules and procedures for the use of APUs at the airport. This requires that APUs are used for the absolute minimum time, and whenever possible to ensure APUs are used for no more than 5 minutes after arrival on stand, and no more than 30 minutes before planned departure. APUs are not to be used as a substitute for GPUs. The airport operator will follow OSI 047-23, which requires new GPUs to make low working noise levels a prime requirement in the selection process.

2.5 Ground noise acoustic barrier

2.5.1 As part of the Proposed Development, an acoustic barrier would be built to provide screening for receptors to the north and east of proposed new apron areas against ground noise. The location of the barrier will move for each assessment phase in line with the changes in infrastructure for the Proposed Development as illustrated in the **General Arrangement Plans Part 2 of 3 [TR020001/APP/4.09]** and:

- a. Figure 16.31 **[TR020001/APP/5.03]** for assessment phase 1;
- b. Figure 16.55 **[TR020001/APP/5.03]** for assessment phase 2a; and
- c. Figure 16.79 **[TR020001/APP/5.03]** for assessment phase 2b.

2.5.2 The barrier will be in place according to the following programme:

- a. The airport will not be operated above 19 mppa before construction of the assessment phase 1 barrier is complete;
- b. The airport will not be operated above 21.5 mppa before construction of the assessment phase 2a barrier is complete; and
- c. The airport will not be operated above 27 mppa before construction of the assessment phase 2b barrier is complete.

2.5.3 Acoustic barriers can be constructed from a range of materials, including, timber, metal and concrete. The choice will depend on a range of factors including visual impact, acoustic performance and cost. The final design will be in accordance with the **Design Principles [TR020001/APP/7.08]**, as required by Schedule 2 of the **DCO [TR020001/APP/2.01]**.

- 2.5.4 To ensure good acoustic performance, the barrier needs to have sufficient mass to provide the required level of acoustic insulation. The acoustic barrier will be designed to have a minimum surface density of 20 kg/m².
- 2.5.5 To avoid severely compromising the performance, the acoustic barrier will be designed and constructed to avoid or minimise holes or discontinuities. Acoustic barriers will also be designed with sufficient structural integrity to cope with the prevailing ground conditions, wind loading and resist the effects of weathering and corrosion.

GLOSSARY AND ABBREVIATIONS

Term	Definition
APU	Auxiliary Power Unit
DCO	Development Consent Order
ERUB	Engine Run Up Bay
FEGP	Fixed Electrical Ground Power
GPU	Ground Power Unit
LTO	Landing and Take off cycle
OGNMP	Outline Ground Noise Management Plan
OSI	Operations Safety Instructions

APPENDIX – OPERATING SAFETY INSTRUCTIONS

Operations Safety Instruction OSI 019-23

Aircraft Power Back Procedures

Effective: February 2023

Introduction

Aircraft power back procedures are not approved for any aircraft in any parking location without the prior and specific approval of LLA.

FOD, blast damage to persons, buildings and equipment the weather conditions, particularly rain, snow and ice shall be considered as part of a risk assessment process.

Instruction

The LLA Airport Manager must be contacted, via the Airport Operations Control Centre, for all power back requests. Such requests may or may not be approved.

LLA must be satisfied that any power back manoeuvres carried out are conducted safely, in accordance with an agreed procedure and with minimum disturbance to other apron users.

The aircraft captain or pilot in command must confirm that the aircraft is capable and permitted to perform a power back manoeuvre and that the crew is trained.

Where a power back is permitted, the LLA Operations Duty Manager (ODM) must attend prior to and during any power back manoeuvre until it is complete.

Before a power back operation commences ground crews must ensure that the area into which any aircraft blast or propeller wash is going to be directed is clear of staff, passengers, vehicles and equipment and that there is no risk to property.

Without exception, tail guide must be employed to safeguard the rearward movement of the aircraft, ensure safe wing tip clearances and to avoid collisions.

The minimum engine power settings should be used, sufficient to get/keep the aircraft moving.

Authority

Airport Manager

It is a condition of use of London Luton Airport Operations Ltd (LLAOL) that all operators comply with Notices raised by LLAOL. All employers are responsible for bringing the contents of this Notice to the attention of their employees.



Operations Safety Instruction OSI 022-23

Jet Blast

Effective: February 2023

Introduction

Jet engine efflux and propeller or rotor wash is a potential hazard from the blast created by all aircraft engines. It is common when applying breakaway power to get the aircraft moving that temporarily a high or medium power setting is required.

There may be an increase of thrust when an arriving aircraft is turning on to the stand centreline. The risk is further increased if for any reason the aircraft stops, then applies the additional thrust required to breakaway and continue the manoeuvre. Ideally, the aircraft should be kept moving to ensure that breakaway power is not required.

An aircraft positioning onto stand using one engine may make higher thrust inputs to enable the aircraft to manoeuvre. There is the increased potential for the jet blast to be higher than normal.

Instruction

All employers shall induct staff, visitors and contractors, operating on the aprons, concerning the risks associated with aircraft engines, rotors and propellers.

Ground crews must ensure that the area immediately behind an aircraft, plus the zone immediately in front of the engine intakes, is clear before giving clearance for engine start.

In the event that an aircraft comes to a halt before entering a stand, consideration should be given to the effect of jet blast on adjacent roadways and stands.

Ground crews must notify pilots of any potential hazard that could be created by the starting of engines.

As a matter of routine, aircraft are permitted to make a turn on some selected stands or parking areas where dimensions permit. In this event, aircraft shall be marshalled into position.

Consideration shall be given to other parked aircraft when positioning an aircraft for nose out and self manoeuvre departure.

Aircraft are to keep all engines running (notwithstanding any fuel economy measures) in order to limit the need for high thrust levels. Ideally, the aircraft should be kept moving to ensure that break-away power is not required. If this cannot be achieved within the confines of the aprons, an aircraft may be asked to shut down engines and a push or tow initiated to manoeuvre the aircraft.



Engines must not be run for test reasons when the aircraft is on stand, except as an approved ground idle engine run. Engines should be shut down as soon as operationally practicable once the aircraft is parked. Aircraft anti-collision beacon(s) must remain on until the engines have run down.

Pilots must use the minimum power necessary to get/keep the aircraft moving, particularly when in the Apron Area.

Authority

Airport Manager

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Operations Safety Instruction OSI 046-23

Aircraft Engine Ground Runs and Use of the ERUB

Effective: February 2023

Introduction

Due to the environmental impact of engine running, particularly at night, it must be strictly controlled and the number of ground running operations kept to an absolute minimum.

This instruction sets out the rules and procedures for Aircraft Engine ground runs and using the Engine Run up Bay (ERUB).

The use of the term 'Engine Run' within the context of this instruction is a generic term that applies to any combination of the following:

Aircraft Engine Ground Run:

Any engines start up not followed immediately by the departure of the aircraft concerned (including engine dry running and cross bleed starts).

Auxiliary Power Unit Run:

Any APU start up that is not immediately concerned with the pre-flight or post flights sequence for an aircraft.

Ground Power Unit Run:

Any GPU start up that is not immediately concerned with the pre-flight sequence or post flights sequence, this includes GPU maintenance runs of greater than 2 hours.

Instruction

Engine ground runs WILL normally be permitted within the following periods	
Weekdays	Between 0600-2300 hours local
Saturdays, Sundays and Public Holidays	Between 0700-2300 hours local
Engine ground runs will NOT normally be permitted within the following periods	
Weekdays	Between 2300-0600 hours local

Saturdays, Sundays and Public Holidays	Between 2300-0700 hours local
Armistice Day and Remembrance Sunday	No engine running permitted between 1055 – 1105 hours local.

Any engine running outside the normally permitted hours will only be allowed with prior approval from the Airport Manager via the airport Operations Control Centre (OCC). Engine ground runs will not be approved within these times unless the aircraft concerned is required for a service departing LLAOL during the first wave of flights of the day. Flight details will need to be provided in addition to the details listed above. Positioning flights are excluded from this proviso.

Responsibilities

Prior notification is essential for the management and control of engine ground runs and movements to and from the ERUB. Applications for engine runs are to be submitted in ADVANCE with a minimum of 1 hours' notice to the OCC who can be contacted on 01582 395525.

Application for an engine run does not necessarily mean that approval will be given. The following information MUST be provided when seeking approval to carry out any engine run. If the information is incomplete, approval will not be issued.

Company
Aircraft type
Reg
Level % power to be used
Engineers/contact name
Location of aircraft
Planned start time
Expected duration
Order number

OCC will pass the information detailed above in advance to Air Traffic Control (ATC) by creating an electronic flight strip.

Aircraft and GSE must be positioned behind double white lines before informing ATC the area is deemed safe and ready for use.

Any changes to the details given must be subject to a further application and approval.

On the aprons, engine ground runs will not exceed ground idle power. For runs requiring the use of higher power settings, a move to ERUB will be required.

Engine idle runs on stand are limited to one engine at a time for a maximum duration of 10 minutes each engine.

Permission to start engine(s) must be obtained from ATC (Luton Ground). Aircraft must remain in 2-way contact with ATC throughout the duration of the ground run.

Approved ground running operations will be monitored by ATC and Airfield Operations. If the parameters contained within the approval detail are not adhered to, the operation will be terminated.

All personnel concerned with engine ground running must be fully conversant with this instruction, which must be complied with at all times.

Engineers in command of the engine run must have a means of protecting the aircraft and other apron users during the engine run, and are able to shut down if persons or vehicles move into the danger area in front of, behind or in the vicinity of a live engine. A qualified person shall control vehicle movements on service roads at the rear of stand when an idle run is being performed.

The Airfield Operations Department are also required to conduct a visual inspection of the ERUB surfaces and blast screen panels prior to and after each engine run period.

The person in charge of the ground run must ensure that the aircraft is adequately restrained so that it cannot move under any circumstances.

Due to the proximity of the ERUB to Taxiway Alpha and the runway, the aircraft must be positioned so that the jet blast is directed either, due East, North or West. The jet blast must not impact the operation of Taxiway Alpha.

In the event that an engine run is requested when the prevailing wind speed and direction makes it impossible for the above requirements to be met, OCC will then liaise with ATC to identify a suitable time for an engine run to take place, however this will not be made available at the expense of scheduled aircraft movements on either the parallel taxiway or runway.

In the event that an engine run can only be carried out with jet blast directed towards Alpha Taxiway or the runway the aircraft operator will be asked to reduce engine power to idle thrust for each runway movement or taxiway movement on Taxiway Alpha in the vicinity of the ERUB.

Propeller aircraft that require pre-take off engine power checks must pay particular attention to the location of adjacent aircraft, equipment, buildings and persons prior to commencing the power check. Blast effects produced by such power checks must be minimised.

Authority

Airport Manager

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Operations Safety Instruction OSI 048-23

Auxiliary Power Unit (APU) Use

Effective: February 2023

Introduction

This instruction sets out the rules and procedures for the use of Auxiliary Power Units (APUs)

Aircraft APUs generate high levels of noise and significant fumes, which can cause disturbance to nearby apron areas, buildings and residential areas.

Instruction

APUs are not to be used as a substitute for ground power. Airlines and their Ground Handlers are to ensure that APUs are used for the absolute minimum time necessary to meet operational needs. Wherever possible, airlines / operators and handlers are to ensure that APUs are used for no more than 5 minutes after arrival on stand and no more than 30 minutes before planned departure. Also, wherever possible, APUs are not to be used whilst passengers are embarking/disembarking.

Authority

Airport Manager

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Operations Safety Instruction OSI 047-23

Ground Power Unit (GPU) Use

Effective: February 2023

Introduction

This instruction sets out the rules and procedures for the use of aircraft Ground Power Units (GPUs).

Instruction

Constantly running GPUs can cause high noise levels on the apron and are an additional obstruction to free movement around a parked aircraft.

Operators are to ensure that when GPUs are in use, the connection cable between the GPU and aircraft is routed so that, as far as is reasonably practicable, it does not present a trip hazard to persons. The connection cable should be disconnected from the aircraft and stored safely when the GPU is not in use.

Operators are to ensure that the GPUs are maintained so that they do not present a safety or environmental hazard (i.e. emissions or damaged connections) and all associated cabling is adequately shielded.

When purchasing Ground Power Units, Airlines, Engineering companies and Ground Handling Agents are encouraged to make noise and Co2 emissions a prime requirement in the selection process.

Authority

Airport Manager

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