AIRPORT OPERATIONAL INSTRUCTION (AOI)

AOI-07

Issue 8

Subject:	**Aircraft Engine Ground Running and Use of Auxiliary Power Units and Ground Power Units**
Date of issue:	**20 March 2023**
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It is the responsibility of all employers to ensure that relevant Airport Operational Instructions (AOIs) and Operational Safety Notices (OSNs) are brought to the attention of their staff. However, individuals remain responsible for their own actions and those who are in doubt should consult their supervisor or manager within their own organisation.

1. Introduction

Belfast City Airport (BCA) is responsible for taking adequate measures to ensure the safety of aircraft, vehicles and persons using the airside environment.

Environmental Policy:
"Through its programme of sustainable development, GBBCA is committed to achieving a balance between the social and economic benefits of the airport's growth and its environmental impacts. We will work with all airport 'stakeholders', including statutory authorities, airlines, business partners and local residents to minimise the impact of our operations on the environment".

2. Distribution and Control

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3. Acronyms

AOI	Airport Operational Instruction
APU	Auxiliary Power Unit
ATC	Air Traffic Control
BCA	Belfast City Airport
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
FEGP	Fixed Electrical Ground Power
FOD	Foreign Object Debris
GPU	Ground Power Unit
OPS	Airfield Operations
OSN	Operational Safety Notice
SMS	Safety Management System

4. Requirements

Aircraft Engine Ground Running

Aircraft engine ground runs are required under certain conditions to enable engineers to certify that an aircraft is “fit for service”.

However, engine ground runs cause both significant adverse impact on the environment and create hazards on the apron. They are therefore strictly controlled within the terms of the BCA Environmental Policy, and CAP 642 guidelines.

CAP 642 (Airside Safety Management) advises:
“Engine runs and check starts should be controlled and only carried out with prior approval of the aerodrome operator who should specify the conditions to be applied.” This AOI outlines these conditions.

5. Definitions

Engine Ground Run

An engine ground run is defined in **CAP 642 (Airside Safety Management)** as:

“Any engine start-up not followed immediately by the departure of the aircraft concerned.”

Person in Charge

The Person in Charge is that ground engineer in contact with the flight deck (usually via headset). This person has full view of the surrounding area and can indicate to the flight deck immediately to cut the engine power in the event of an incident or potential hazard.

Auxiliary Power Units (APU)

Small gas turbines normally mounted in the rear fuselage of most aircraft. They are used to power electrical systems on board, to run air circulation and conditioning systems and to supply bleed air for starting main engines before or during push back.

Mobile Ground Power Units (GPU)

A vehicle capable of supplying power to aircraft parked on the ground usually powered by diesel fuel.

Fixed Electrical Ground Power (FEGP)

Ground based power system which uses grid electricity. An electrical supply cable is plugged into the underside of the aircraft and draws its power from the airport’s electricity supply.

6. Hazards

Engine ground runs present an extremely dangerous and complex operation. They carry a high risk of engine ingestion and pose a hazard to ramp personnel and vehicular traffic.

7. General Rules

It must always be ensured that:

- The 'Person in Charge' is in communication with the flight deck (ideally via a headset).
- All the aircraft wheels are chocked (aprons only).
- If on the main apron, the rear of stand roadway has been closed off.

Use of aircraft Auxiliary Power Units (APUs)

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

BCA has provided Fixed Electrical Ground Power (FEGP) on Stands 1–10 for the purpose of minimising levels of ambient noise and emissions.

On stands where FEGP is available, it must be used in preference to APUs, where possible.

Airlines and handlers are to ensure that APUs are used for the absolute minimum time necessary to meet operational needs.

APUs are not to be used as a substitute for either FEGP or GPUs.

Use of mobile Ground Power Units (GPUs)

Constantly running mobile GPUs can cause high noise levels on the apron, are an additional obstruction to free movement around a parked aircraft and, if poorly maintained, may deposit oil spillage on the stand.

BCA has provided FEGP on Stands 1–10 for the purpose of minimising levels of ambient noise and emissions.

On stands where FEGP is available, it must be used in preference to GPUs, where possible.

Where there is no alternative to the use of GPUs they should be parked outside the stand (when aircraft parked nose in) and promptly shut down when power is no longer required. The GPU should never be parked over a drain.

When purchasing new GPUs airlines and handling agents are urged to make low working noise levels a prime requirement in the selection process.

8. Approval

Aircraft Engine Ground Running

8.1 Aircraft Parked on Apron Areas (Main Apron & General Aviation Apron)

All engine ground runs shall be subject to the prior approval of Airfield Operations (extension **5027**). Airfield Operations (OPS) will record details electronically for audit purposes.

Requests to carry out engine ground runs must be made no later than 2130 hours' local time.

All engine ground runs are strictly prohibited between 2230 – 0600 hours.

Engine ground runs are permitted on apron areas at "engine idle" setting for short periods of time only. **All other engine runs including high powered runs** require the aircraft to be positioned to the north side of the airfield at "**Sierra"**.

A map illustrating the location of "Sierra" on the north side of the airfield is contained at **Annex A**.

Prior to making a request for permission to carry out an engine ground run the 'Person in Charge' must assess the surrounding area for potential hazards.

The 'Person in Charge' should then seek prior permission to conduct the engine ground run by contacting OPS (extension **5027**) or alternatively by contacting Flight Dispatch on the ground handling frequency. Flight Dispatch staff shall in turn contact OPS.

OPS will advise if the engine ground run is approved.

Once approval has been obtained pilots/engineers must seek permission to start engines from Air Traffic Control (ATC) – Radio contact must be maintained with ATC at all times.

8.2 Aircraft parked on "Sierra" (Airfield north side)

Engine ground runs in this area may be of a higher power.

Engine ground runs in this area are permitted between 0630 – 2130 hours. Pilots/engineers who wish to carry out engine grounds runs on the north side of the airfield between these hours should seek prior permission from OPS (extension **5027**).

Annex B sets out the 'Follow-me' procedure for engineers taxiing aircraft between the apron and Sierra.

8.3 Use of Auxiliary Power Units (APUs)

Use of APUs for aircraft maintenance purposes is strictly prohibited between 2230 – 0600 hours unless there is no alternative power source available (FEGP or GPU).

Should APU use be required outside of permitted hours (0600 hours – 2230 hours), prior approval must be sought from OPS (extension **5027**).

9. Safety

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

The 'Person in Charge' of the engine ground run is responsible for ensuring the safety of personnel and equipment in the vicinity of the aircraft.

The use of aircraft strobe lighting is strictly prohibited during engine ground runs.

Consistent with CAA guidance, aircraft strobe lighting should not be displayed for any reason when an aircraft is on the apron or taxiway areas.

Any essential engineering work requiring a strobe light test shall only be carried out when the airport has closed.

9.1 Aircraft Parked on Apron Areas (Main Apron & General Aviation Apron)

The 'Person in Charge' of the engine ground run must ensure that all apron equipment is placed at a safe distance from the aircraft.

The aircraft must be positioned correctly on the stand in such a way that the engine running will not harm persons or cause damage to aircraft, buildings, installations, vehicles or equipment in the vicinity.

On the main apron, the rear of stand road must be closed to safeguard vehicular traffic, before the engine ground run is commenced. This must be undertaken by the airline engineering department or handling agent.

In the event that the closure of the rear of stand road will cause severe disruption to the timely dispatch of other aircraft, OPS may deny approval or request ATC to stop the engine ground run.

If aircraft are parked in a non-standard fashion (e.g. not nose in due to high winds) then all engine ground runs are prohibited on the main apron at this time.

The engine anti-collision beacons must be switched on for the duration of the engine ground run.

The 'Person in Charge' of the engine ground running activities must ensure that all the aircraft wheels are chocked and that the aircraft cannot move under any circumstances.

Engine ground running must not take place and must be ceased when passengers are being embarked/disembarked on any adjacent stands.

The 'Person in Charge' must be in communication with the flight deck at all times during engine ground runs. This will ensure that the engine(s) can be shut down if persons or vehicles move into a dangerous position in front of, behind or in the vicinity of a live engine.

In all instances where aircraft are unserviceable, they should be relocated to a non-contact stand or to the north side of the airfield. Airfield OPS will advise a suitable location.

9.2 Aircraft parked on "Sierra" (Airfield north side)

The aircraft must be positioned in such a way that the engine running will not harm persons or cause damage to aircraft, buildings, installations, vehicles or equipment in the vicinity. The aircraft must also be positioned within the white circle provided.

The "Person in Charge" must ensure that the ground area behind the aircraft is free from loose tarmac, stones and other materials.

The engine anti-collision beacon(s) must be switched on for the duration of the ground run.

The "Person in Charge" must be in communication with the flight deck at all times during engine ground runs. This will ensure that the engine(s) can be shut down if persons or vehicles move into a dangerous position in front of, behind or in the vicinity of a live engine.

NOTE: Where OPS find that the procedures outlined here are not being complied with, or where it is necessary in the interests of safety, they will request ATC, or directly to the 'Person in Charge', to have the engine ground run halted.

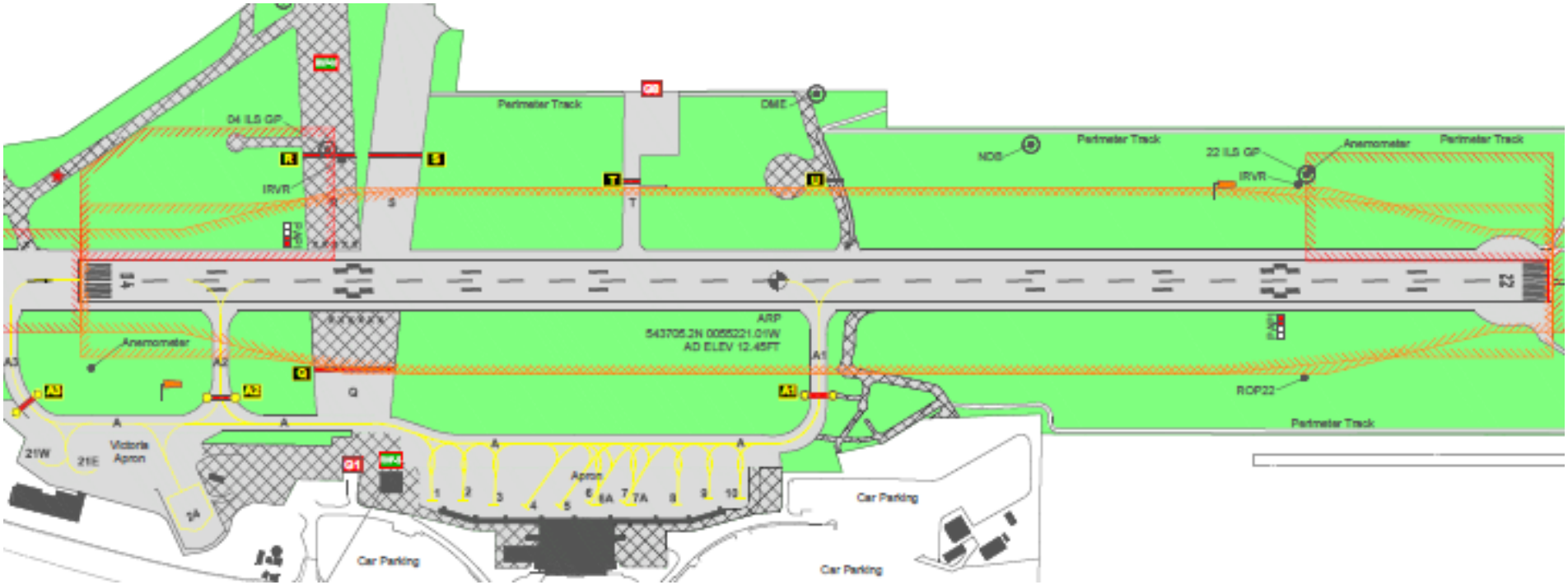
10. Monitoring of Standards

BCA, as the Airport Authority, operates a cautioning mechanism in airside areas.

Where individuals are found to be in breach of regulations, they may be subject to a Written Caution, which shall be formally recorded. This may also involve the issuing of penalty points

Airside Penalty Points will be issued in accordance with **AOI 05 – Airside Safety Regulation Scheme** which contains a sample Caution Slip.

ANNEX A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NDB
22 ILS GP
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ARP
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Car Parking
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Car Parking

ANNEX B

‘Follow-me’ Procedures	
1.	OPS contact ATC and pass the following information: Aircraft registration, type, current stand, and destination e.g. Sierra.
2.	When pushback clearance is received, OPS pass this on to pushback crew (verbally). OPS then move to the ROSR (to halt vehicle movements) and when in place give ‘thumbs-up’ for the pushback to commence.
3.	When the pushback is complete and all equipment and personnel are clear of the aircraft, the pushback team signal to engineers and OPS. OPS now position their ops vehicle in front of the aircraft (so the vehicle is visible from the cockpit).
4.	When the engineers are ready to taxi they should signal to the ops vehicle with their taxi light.
5.	OPS will now request permission to escort aircraft to destination.
6.	On receiving positive clearance, OPS will illuminate the ‘Follow-me’ sign on top of the Ops vehicle and move off slowly. The aircraft will follow. The engineers must keep a listening watch on the frequency so they are aware of clearance i.e. holding point only, or full clearance to Sierra.
7.	Once both ops vehicle and aircraft are clear of the holding point the ops vehicle will call runway vacated. The airline engineers will self-position the aircraft in the circle provided.
8.	Engineers must follow the safety instructions detailed in AOI-07.
9.	OPS are not required to remain with the engineers during the engine runs.
10.	Engineers should contact OPS by telephone when the engine run is complete.
11.	OPS will position the ops vehicle in front of the aircraft and contact ATC for clearance to cross the runway to the allocated stand.
12.	Once positive clearance has been received the ‘follow-me’ sign will be switched on.
13.	The allocated stand should be checked for FOD and stand guidance activated where appropriate.
14.	Once aircraft is on stand OPS will report taxiway and runway vacated.
Exceptions	
15.	If this procedure is from stand 21 then the aircraft engineer will contact ATC and ask for start-up. Then follow points 4 – 14.
16.	If LVPs are in force, then ATC will refer to AOI-12 and MATS part 2.
17.	Overspeed checks may be carried out on the taxiway at the discretion of ATC.