



Advisory Circular (AC)
LYCAA-FSD-AC-OPS 005-I

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DEMONSTRATION FLIGHT AIR OPERATOR CERTIFICATION

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Demonstration Flights

1.0 Demonstartion Flights

1.1 Introduction

Demonstration Flights are normally the last part of an assessment to occur before a recommendation is made to a delegate to issue a new AOC or add an aircraft to an existing AOC. LYCAA's approach to demonstration flights varies depending on the size and complexity of both the organisation and the aircraft. In the case of the wide body jet aircraft, the assessment is conducted by a multidisciplinary team whereas the assessment of the demonstration flight for a multi-engine charter aircraft could be conducted by one LYCAA Inspector. In any case, the purpose of the demonstration flight is the same.

1.2 Definition of a demonstration flight

The demonstration flight is the practical demonstration by the AOC applicant that the documented procedures and systems previously inspected can work together in real time to produce a safe operation, which complies with the legislation.

It should be made clear to the AOC applicant that the demonstration flight is not a dry run to find teething problems. It is the final "dress rehearsal" for the commencement of operations. If the AOC applicant cannot successfully demonstrate their ability to implement their processes and procedures through a demonstration flight, the demonstration flight will need to be repeated.

1.3 Legislative Requirement to conduct a demonstration flight

In accordance with AC OPS 002R02 LYCAA can require an AOC applicant to conduct a demonstration flight.

1.4 When is a demonstration flight required ?

The requirement for demonstration flights and what form a demonstration flight must be undertaken are at LYCAA's discretion.

It is LYCAA policy that demonstration flights **are** required for the following:

- First issue of an AOC for high capacity passengers scheduled operations
- First issue of an AOC for high capacity passenger charter operations
- The initial issue of an AOC authorising Charter or Scheduled operations
- A charter or scheduled AOC variation upgrading in type of power plant from piston engine to turboprop or jet engine, and turboprop to jet engine operations
- The introduction of an additional high capacity aircraft type.



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It is LYCAA policy that demonstration flights **may** be required for the following:

- A major change in company structure—for example, an additional main base
- The introduction of an additional aircraft type
- The introduction of overseas operations
- For initial issue of an AOC authorising specialist Aerial Work
- The following changes of aircraft type for high capacity passenger operations:
 - Major change in aircraft passenger carrying capacity
 - Significant change to the geographical area of operation for high capacity passenger operations.

If a demonstration flight is not warranted, LYCAA may require a LYCAA Inspector to be in the cockpit and observe the first flight(s).

1.5 Demonstration flight readiness check

1.5.1 What is a readiness check and when is it required?

During the assessment phase of an AOC application, the project team may find that individual elements of the assessment comply with legislative requirements but may have doubts about the interaction between the various elements. This doubt would need to be resolved to prevent the AOC applicant and LYCAA from committing considerable resources and funds on a demonstration flight.

The LYCAA Project Manager must decide if the AOC applicant is ready to proceed to the demonstration flight phase or if the conduct of a readiness check workshop prior to the demonstration flight is required. If a readiness check is required, the AOC applicant will be advised by LYCAA in writing.

The readiness check is a ground exercise that gives the AOC applicant the opportunity to test the concerns held by LYCAA and decide if they are ready for the demonstration flight. If the AOC applicant or the LYCAA project team identifies the need to modify or amend certain elements in the procedures, the amendments will need to be completed to LYCAA's satisfaction before the demonstration flight is conducted.

Where the readiness check workshop demonstrates that the AOC applicant's processes and procedures function as planned, the LYCAA Project Manager and the AOC applicant will work on finalising the conduct of the demonstration flight.

The readiness check does not preclude the operator from conducting their own "dry-runs". The AOC applicant may initiate the readiness check by inviting LYCAA to observe the AOC applicant's dry run exercise. In this instance, LYCAA will provide scenarios to the applicant.

1.5.2 Conducting a readiness check

If the LYCAA Project Manager considers a readiness check is required the project team will be tasked to:

- Create workshop sample scenarios that include the areas the project team has concerns with



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- Negotiate with the AOC applicant, a suitable time and location for the workshop
- Provide the AOC applicant with a draft agenda for the workshop meeting
- Provide the applicant with a list of documentation that is required at the workshop meeting
- Brief all LYCAA participants on their roles during the readiness check
- Facilitate the workshop in accordance with the agenda and required documentation

During the readiness check the LYCAA project team will:

- Introduce the sample scenarios as you would for a demonstration flight
- Ask operational staff to conduct role-playing exercises
- Simulate a flight scenario

Depending on the AOC applicant's responses during the readiness check workshop, the team members will discuss with the AOC applicant whether further preparation or amendments to their processes and procedures need to be made, prior to the conduct of a demonstration flight. The LYCAA Project Manager will notify the AOC applicant of the decision as soon as possible after the workshop. If the project team concluded the AOC applicant is not ready, the applicant will be advised of their decision and the reasons for the decision.

The specific scenarios used during the readiness check will not be the same as those prepared for the demonstration flight. A successful outcome of the readiness check will not have any bearing on the actual demonstration flight.



1.6 Notification and Response

When the LYCAA Project Manager considers a demonstration flight is required, LYCAA must give written notice to the AOC applicant. The written notice will clearly outline the matters relating to the demonstration flight.

The written notice will contain at least:

- A proposed date for the conduct of the demonstration flight
- The objectives of the demonstration flight
- The process LYCAA will use to conduct the demonstration flight
- The safety considerations / conditions that must be observed during the demonstration flight
- The areas to be assessed
- Means of assessment including the use of test scenarios
- The route the demonstration flight will follow

After receiving the notice, the AOC applicant must provide a detailed plan for the conduct of the proposed demonstration flight. The plan should include specific schedules for the en-route phase, showing departure and arrival dates, times and destinations.

For small charter operations, initial notice that a demonstration flight is required can be verbal. Where verbal advice is given to the AOC applicant for the conduct of the demonstration flight, the LYCAA Inspector must confirm the advice in writing.

If the chief pilot assessment is conducted at the same time as the demonstration flight, the AOC applicant must be notified that passengers will not be carried on the flight as simulated emergencies will be conducted.

1.7 Planning Requirements for the Conduct of Demonstration Flights

The AOC applicant is required to conduct the demonstration flight as if it were conducting a normal revenue flight to allow LYCAA to observe all the elements that made up the AOC assessment. Depending on the nature of the operation, more than one demonstration flight may be required.

For small charter operations the demonstration flight may be conducted in conjunction with the chief pilot flight assessment.



1.8 Conditions applying to demonstration flights

The form in which a demonstration flight is to be undertaken is at LYCAA's discretion.

The demonstration flight must be conducted in accordance with the procedures outlined in the AOC applicant's Operations Manual, therefore, any outstanding issues in relation to the Operations Manual must be resolved to LYCAA's satisfaction prior to the conduct of the demonstration flight.

The following conditions apply to demonstration flights:

1. Compliance with safety regulations at all times. If a LYCAA Inspector believes that safety may be jeopardised, the exercise will be terminated.
2. Demonstration flights must cover at least two route sectors, preferably with one sector conducted at night.
3. Adequate time must be planned at each port to allow for inspection of the AOC applicant's:
 - Ground staff, procedures and facilities
 - Dispatch preparation
 - Aircraft loading
 - Passenger processing
 - Aircraft servicing
4. A demonstration flight for scheduled services must include a representative selection of the destinations intended to be serviced.
5. Carriage of passengers:

Fare -paying passengers or revenue cargo must not be carried on demonstration flights. The operator will be required to carry non-fee paying passengers that could be company staff or invited guests to simulate a normal passenger load. Non-revenue company cargo or equipment may also be carried. In a demonstration flight, LYCAA expects a passenger load equivalent to 50% of normal capacity.


The LYCAA team may ask some passengers on the flight to actively participate in certain scenarios. They will be thoroughly briefed by LYCAA team members on the day.

No passengers are allowed on board if the demonstration flight involves a Chief Pilot assessment.

1.9 Variation to the conduct of a demonstration flight

Where an applicant holds a current AOC in another class of operations, demonstration flights may be conducted as a revenue service in accordance with that AOC. Circumstances where this policy is applicable are as follows:

- Other than high-capacity operations
- The aircraft to be used for the proposed operation is the same aircraft type authorised on the current AOC
- The nature of the proposed operation is substantially similar e.g. routes
- The operator has an approved training and checking organisation

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For example, where an applicant holds a charter AOC for that aircraft type, the LYCAA Project Manager may elect to conduct the scheduled demonstration flight on a revenue-earning charter flight.

1.10 Scope of the demonstration flight assessment

The operator must provide the normal compliment of regular flight and cabin crew to operate the flight.

The following functions must (where applicable) be demonstrated in accordance with the provisions of the company Operations Manual during demonstration flights:

- Compliance with an approved flight crew flight and duty time system
- Usability of the safety Management System
- Scheduled turn-around times and on-time departures
- Recording and rectification of defects encountered and where applicable the use of the maintenance release and the MEL
- Refuelling
- In flight fuel management and recording in accordance with the AOC applicant's fuel policy
- Load control including weight & balance
- Ground operations including baggage and/or cargo loading and unloading
- Passenger handling
- Flight and cabin crew compliance with duties and company procedures
- Capacity of port facilities to support the services
- Aircraft pushback (when used)
- Capacity to notify relevant persons of operational changes
- Flight planning
- Operational control
- Suitability of aircraft performance information
- Suitability of route qualification training.
- Demonstration of all operational planning
- Ground support and communications
- Pre-flight walk around
- Flight dispatch
- Flight and cabin crew decision making
- Normal, and abnormal, situations
- Critical system failures
- Critical communication systems
- Communication with 'Nav Services'
- Turn around procedures
- The management of the operation, including support from contracted parties.

1.11 Conduct of a demonstration flight



Demonstration flights need not be conducted for each separate authorisation on an AOC. Proof that the AOC applicant's organisation is satisfactory may be reasonably accomplished by inspecting appropriate samples of the proposed operations.

For an applicant for a small IFR charter AOC it would be expected that a demonstration flight would take approximately one hour as a minimum and involve one landing away from the departure base. The demonstration of one instrument approach may be carried out as part of the demonstration flight. At least one emergency type scenario is to be questioned in accordance with Operations Manual procedures.

The LYCAA Project Manager must brief the project team members, prior to a demonstration flight, on their role during the demonstration flight phase.

1.11.1 Pre-flight meeting

All project team members participating in the flight phase and those involved at the operator's main base will attend a pre-flight meeting. The purpose of this meeting is to coordinate inspection activities to ensure that all the planned checks are accomplished during the demonstration flight phase with minimum distraction.

1.11.2 Inspection team meeting

A combined meeting of the LYCAA inspection team and the AOC applicant's nominated staff will also be held prior to the flight. The purpose of this meeting is to ensure that the AOC applicant's staff are fully aware of the process the project team will follow and the objectives to be achieved during the demonstration flight(s).

The LYCAA project team will normally allow the demonstration flight to run without intervention—that is, the crew will not normally be required to divert from the flight plan. LYCAA Inspectors may, however, request demonstrations of specific operations, such as a particular form of departure, arrival or instrument approach. LYCAA Inspectors may also ask questions of flight deck and cabin crew to confirm the crewmembers' knowledge and familiarity with company procedures. In addition, flight crew are expected to demonstrate adequate knowledge of the layout of airfields, parking and fuelling arrangements at the various destinations and ATC requirements en route. Where cabin staff are employed, the LYCAA Project Manager will determine the LYCAA project team members who will take part in the flight phase of the demonstration flight. Additional LYCAA Inspectors may be required to observe activities associated with operational control, loading, dispatch.

Cabin attendants are expected to demonstrate their familiarity with safety-related company procedures. Areas covered may include:

- Passenger handling arrangements
- In-flight emergency procedures
- Actions when encountering unexpected turbulence
- The handling of incapacitated passengers.

1.11.3 Scenarios

As part of the testing process LYCAA will introduce "scenarios", or simulated exercises, mainly cabin / passenger in nature that are typical with day-to-day passenger operations.



There will also be some abnormal exercises and an emergency exercise to test the cabin and flight crew's ability to implement appropriate actions. The operator's crew may be questioned on their actions and their knowledge of company procedures. None of these scenarios will impact on the profile, or progress of the flight.

The LYCAA project team must prepare suitable scenarios simulating unusual conditions that should be demonstrated—for example:

- The handling of disabled passengers
- Passenger incapacitation in flight
- A cabin fire
- Cabin Attendants knowledge on the location and operation of emergency equipment.
- Actions when encountering unexpected turbulence

It is important that scenarios are pre-planned, realistic and achievable, and that all crew are aware of the simulated nature of the demonstration.

Safety is paramount and should any crew member or LYCAA person believe that safety may be jeopardised as a consequence of a scenario, it shall be terminated. Similarly, if any person on the flight becomes distressed with the conduct of a scenario, the exercise shall be terminated.

The aircraft captain on the flight has absolute authority as pilot in command to take whatever action deemed appropriate, in consideration of the conduct and safety of the flight. The project team will ensure that this has been discussed and understood at the pre-flight meeting.

LYCAA shall introduce each scenario with the words, "this is a simulated exercise", or words to this effect. LYCAA shall conclude each scenario with the words, "This simulated exercise is complete", or words to this effect. If a message relating to a scenario is passed down a line of communication, it shall be identified as a simulated exercise.


1.12 Possible outcomes of the demonstration flight

At the completion of the demonstration flight, the LYCAA project team will meet to decide whether further demonstration flights are required and the need for and extent of corrective action required by the AOC applicant.

The LYCAA project team must agree on the result and rate the AOC applicant against one of the three outcomes listed below.

1. Another demonstration flight is required
2. Any areas of deficiencies can be addressed without further demonstration flights
3. The result was satisfactory

Rating 1: The LYCAA project team finds deficiencies in the AOC applicant's compliance with *Operations Manual* processes and procedures or regulatory requirements. If the LYCAA Project Manager determines the deficiencies are such that on-ground testing would not be appropriate to verify the AOC applicant has satisfactorily addressed the deficiencies then the applicant will be deemed to have failed the demonstration flight and a further demonstration flight will be necessary.

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Rating 2: The LYCAA project team finds deficiencies in the AOC applicant's compliance with *Operations Manual* processes and procedures or regulatory requirements. If the LYCAA Project Manager determines a ground exercise can verify the outcome of remedial action additional demonstration flights may not be required. The AOC applicant will rectify the deficiencies and LYCAA will verify the deficiencies have been addressed satisfactorily before the demonstration flight is accepted.

Rating 3: The demonstration flight meets the standard LYCAA expects an AOC applicant to achieve. No further demonstration flights required.

Some deficiencies are to be expected during the demonstration flight and all deficiencies will require rectification. The LYCAA Project Manager will use his discretion to determine the rating to apply to the demonstration flight based on the advice from the LYCAA project team and will advise the AOC applicant of the outcome. The LYCAA project team will then meet with the AOC applicant to discuss the outcome and the resolution of any deficiencies found.

1.13 Checklist

At the completion of the demonstration flight phase the LYCAA project team will complete the Demonstration Flight Checklist to confirm all the planned assessments have been completed.

1.14 Key Legislation

The following legislation applies to a demonstration flight:

- LYCAR's Part 119
- LYCAA's Advisory Circular AC – FSD –OPS 002R02