

# Steep Approach Approval Compliance Statement and Checklist.



## Background Information

### INTRODUCTION

Few aerodromes in Europe require a steep angle approach capability. The UK currently has only one such aerodrome, London City (LCY), and this will only accept aeroplanes approved for such operations. The glideslope angle at this aerodrome was originally  $7\frac{1}{2}^{\circ}$ , but this has now been reduced to  $5\frac{1}{2}^{\circ}$ . This reduction, allied to an increase in TORA/ASDA/LDA to 1199 metres, allows greater flexibility and may lead to more CAT operators requesting clearance for their aeroplane(s) at this aerodrome.

### DEFINITION OF STEEP APPROACHES

The majority of approaches are flown at glideslope angles of  $3^{\circ}$ . Angles up to  $3\frac{1}{2}^{\circ}$  are considered to be routine and within the capability of any certificated aeroplane. Approach angles greater than  $3\frac{1}{2}^{\circ}$ , but less than  $4\frac{1}{2}^{\circ}$ , are unlikely to produce significant problems in normal operations, and accordingly there are no specific requirements. Operators using these approach angles should consult the aircraft manufacturer and satisfy themselves that the performance and handling characteristics are acceptable. Approach angles of  $4\frac{1}{2}^{\circ}$  or greater are defined as steep approaches. Any approach angle  $4\frac{1}{2}^{\circ}$  or more requires specific approval.

### APPROVAL OF STEEP APPROACH OPERATIONS

Approvals for steep approach and landing (SAL) operations are stated in the Operations Specifications certificate issued in accordance with the EU Air Operations Regulations. Airworthiness approval for the conduct of steep approaches will generally appear in the AFM as a steep approach supplement. This supplement will specify a maximum approach angle and the limitations and operational procedures required to ensure safe approaches up to this approach angle. If no such entry is contained within the AFM it must be assumed that the aeroplane is not so cleared for SAL operations.

Steep approach clearance for a particular type of aeroplane will not automatically permit all individual aircraft of that type to operate to the maximum approved angle. The clearance might require modification to existing equipment, such as GPWS/TAWS, autopilot and flight director computers. Additionally, there will likely be MEL considerations. The operator is responsible for determining the eligibility of a particular airframe in respect of the AFM SAL requirements and serviceability.

### CONSIDERATIONS AND CONCERNS FOR OPERATIONAL APPROVAL

Speed and flight path control become more demanding with increasing approach angle. The ability to track a steep approach path, especially to regain the glideslope from above, depends upon an aircraft having adequate residual throttle movement to make the necessary corrections.

Generally steep approaches may only be initiated with all engines and all systems operating normally. Consideration must be given to the procedures to be adopted in the event of an engine or system failure after commencement of the approach. This will include an engine inoperative go-around in the landing

configuration. Screen height is normally 50 ft. If reduced landing distance is being sought the data must be in the AFM. There is a common misunderstanding that steep approach clearance automatically allows reduced scheduled landing performance, but this has never been the case, and short field landing is a separate certification item, regardless of the approach path. Touchdown vertical velocity should not be greater than 6 ft/sec. Tailwind limit should be 5 kt, unless test evidence has shown other figures acceptable.

In the specific case of LCY the aeroplane type must be acceptable to the Airport Director. Training approaches should be practised on PAPIS set to at least 5½°. An initial visit to that airport would involve an ILS approach, go-around and landing in weather conditions not less than 3 km visibility and 1500 ft cloud base. This would enable the pilot to become familiar with the local terrain. An operator's first flight into LCY with that aircraft should have a TRI qualified and current in SAL operations plus the assigned inspector on board to validate the training and hence clear the company for subsequent flights. LCY should be categorised as "C" (or equivalent) in the OM.

There are several aerodromes, both in the UK and Europe, whose approach slopes may be classified as 'steep'. While clearance into LCY would be adequate for operation into these other aerodromes, it should be remembered that the converse is not acceptable.

|          | <b>Checklist Question</b>   | <b>Compliance Statement</b> |
|----------|---|-----------------------------|
| <b>1</b> | The operator has a defined declaration of weather minima for operational and training flights including acceptable headwind, cross wind and tail wind limits, gust factors, visibility/RVR requirements and cloud base. |                             |
| <b>2</b> | The operators procedures for collating/managing and verification of performance data, including obstacle clearance.   |                             |
| <b>3</b> | The operator's procedures for path guidance (internal, external, visual or instrument).   |                             |
| <b>4</b> | The operator's procedures for management of the MEL and system serviceability including GPWS, TAWS, FD, autopilot, auto-throttle etc.   |                             |
| <b>5</b> | The operator's procedures for initial training and qualification programme, recurrent training and recency requirements.  |                             |
| <b>6</b> | The operator's procedures for ensuring that only qualified, competent and current crew are rostered for steep approach operations.  |                             |

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| <b>7</b>  | The operator has reviewed the AFM limitations, and this has been publicised to operating crew through training and publication. |                             |
| <b>8</b>  | The operator's procedure for missed approach criteria   |                             |
| <b>9</b>  | If applicable, the terms under which single-pilot operation is permitted.   |                             |
| <b>10</b> | The operator has reviewed CAT.POL.A.245 and has ensured compliance.   |                             |
| <b>11</b> | The operator has reviewed CAT.POL.A.345 and has ensured compliance.   |                             |