



AERODROME SAFETY PUBLICATION

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ICAO Doc 9157 – Aerodrome Design Manual, Part 3

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Note – Aerodrome Safety Publications are published by the SCAA for purposes of promulgating supplementary guidance materials to the Standards and Recommended Practices (SARPs) in the Manual of Aerodrome Standards. The publications are intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means, of complying with SARPs. Aerodrome Safety Publications may explain certain regulatory requirements by providing interpretive and explanatory materials.

1. Purpose

- 1.1. The purpose of this Aerodrome Safety Publication (ASP) is to provide supplementary guidance to aerodrome operators on regulating the use of pavements by aircraft with an ACN higher than the reported PCN at a certified aerodrome. It provides guidance on what is acceptable to the Aerodromes Safety & Standards Inspectorate (ASSI) of the Seychelles Civil Aviation Authority (SCAA) to demonstrate compliance with regulatory requirements under AS 6.7 – Strength of pavements, of the Seychelles Manual of Aerodrome Standards (MAS).

2. Applicability

- 2.1. This ASP applies to all aerodrome operators certified under Regulation 61 of the Civil Aviation (Safety) Regulations, 2017 and the Manual of Aerodrome Standards.

3. Cancellation

- 3.1. This ASP supersedes TGO AGA 02.

4. Introduction

- 4.1. Overloading of pavements can result either from loads too large or from a substantially increased application rate or both. Loads larger than the defined (design or evaluation) load shorten the design life whilst smaller loads extend it. With the exception of massive overloading, pavements in their structural behavior are not subject to a particular limiting load above which they suddenly or catastrophically fail. Behaviour is such that a pavement can sustain a definable load for an expected number of repetitions during its design life. As a result, occasional minor overloading is acceptable, when expedient, with only limited loss in pavement life expectancy and relatively small acceleration of pavement deterioration

5. Definitions

- 5.1. Aircraft Classification Number (ACN)
A number expressing the relative effect of an aircraft on a pavement for a specified standards subgrade category.
- 5.2. Composite pavement
A pavement consisting of both flexible and rigid layers with or without separating granular layers.

5.3. Flexible pavement

A pavement structure that maintains intimate contact with and distributes loads to the subgrade and depends on aggregate interlock, particle friction, and cohesion for stability.

5.4. Pavement Classification Number (PCN)

A number expressing the bearing strength of a pavement for unrestricted operations.

5.5. Rigid pavement

A pavement structure that distributes loads to the subgrade, having as its surface course a Portland cement concrete slab of relatively high bending resistance.

6. Use of pavement under overload operations

6.1. For those operations in which the magnitude of overload and/or frequency of use of pavement by aircraft with an ACN higher than the PCN reported for that pavement do not justify a detailed analysis, the following criteria are suggested to determine the allowable extent of overload operations:

- a. for flexible pavements, occasional movements by aircraft with ACN not exceeding 10 percent above the reported PCN should not adversely affect the pavement;
- b. for rigid or composite pavements, in which a rigid pavement layer provides a primary element of the structure, occasional movements by aircraft with CAN not exceeding 5 per cent above the reported PCN should not adversely affect the pavement;
- c. if the pavement structure is unknown, the 5 per cent limitation should apply; and
- d. the annual number of overload movements should not exceed approximately 5 per cent of the total annual aircraft movements.

6.2. Such overloading movements should not normally be permitted on pavements exhibiting signs of distress or failure. Furthermore, it should be avoided when the strength of the pavement or its subgrade could be weakened by water. Where overload operations are conducted, the airport operator should review the relevant pavement condition regularly, and should also review the criteria for overload operations periodically since excessive repetition of overloads can cause severe shortening of pavement life or require major rehabilitation of pavement.

6.3. For those aircraft operations where the magnitude of overload and/or the frequency of use exceed the limits of the criteria given above, it is recommended that the advisability of allowing the operation be determined

on the basis of a detailed engineering analysis comparing the individual aircraft load to the structural capability of the pavement.

- 6.4. The airport operator should also have a detailed engineering analysis of the airside pavements carried out to determine the maximum overloads which could safely be allowed in the event that an “emergency only” type of aircraft operation is required on short notice. The determination of “emergency only” overload limits should be based on ensuring the safety of the aircraft from pavement surface “break-through” during the “emergency” operation.

Note – Please refer to ICAO Doc 9157 – Aerodrome Design Manual, Part 3, for further guidance and examples of practices of some States.

7. Queries

- 7.1. Any queries relating to this Aerodrome Notice should be addressed to Head of Aerodrome Safety & Standards Inspectorate on seyaga@scaa.sc

**Aerodrome Safety & Standards Inspectorate
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