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Aircraft — Ground service connections — Locations and types

Aéronefs — Prises de service au sol — Emplacements et types

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 9, *Air cargo and ground equipment*.

This second edition cancels and replaces the first edition (ISO 10842:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

— 5.1, 5.2, 6.1, 7.2 and 7.3 has been technically revised;

— a new subclause (8.4) has been added.

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Introduction

This document specifies standardized locations and types of main line transport aircraft ground service connections to accommodate the growing trend toward fixed systems which use the passenger boarding bridge and/or underground “pop-up” or pit systems as a vehicle for sources of utilities. In standardizing the locations of aircraft service connections, they should, however, continue to be served efficiently in those instances where mobile ground support equipment (GSE) is used.

The objectives of standardizing the locations of aircraft servicing connections are:

— reducing ramp congestion and equipment interference around the aircraft, and minimizing the chance of aircraft damage from mobile ground support equipment (GSE);

— allowing for optimization of ground services, both fixed and mobile, specifically 400 Hz electric power, preconditioned air for cabin conditioning, pneumatic power for jet engine start, potable water, lavatory service (draining, flushing), aircraft refuelling, and interphone (headset) connections;

— standardizing the locations of service points around the aircraft to allow airport planners and facility engineers to design fixed servicing systems to serve all aircraft easily and efficiently, as well as to provide additional standards and parameters for mobile ground support equipment (GSE) that connects to the aircraft.

Throughout this document, the minimum essential criteria are identified by use of the key word “shall”. Recommended criteria are identified by use of the key word “should” and, while not mandatory, are considered to be of primary importance in providing serviceable, economical and practical aircraft ground service connections layouts. Deviation from recommended criteria should only occur after careful consideration and thorough service evaluation have shown alternate methods to provide an equivalent level of efficiency.

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Aircraft — Ground service connections — Locations and types

1 Scope

This document specifies the locations and types of aircraft ground service connections in order to optimize ground services both fixed and mobile, for the seven different services hereafter:

— 400 Hz electrical power;

— preconditioned air for cabin conditioning;

— pneumatic power for jet engine start;

— potable water;

— lavatory service (draining, flushing);

— aircraft refuelling;

— interphone (headset) connections.

It focuses on these aircraft services because:

— these connections are those most frequently used during aircraft airport turnaround operations;

— in terms of economic benefit, they have the greatest impact through improved efficiency.

This document is intended to apply to any new type of main line commercial transport category aircraft designed or built after its publication.

In addition, it is expected that any substantially modified new derivative aircraft type in the same category (derived from a previously existing type) will, insofar as technically and economically practical, meet the requirements of this document, if specified in the aircraft type specification established between customer airline(s) and manufacturer.

It is not the intent of this document to restrict in any way the basic design of any future types of civil passenger transport aircraft. It aims, however, at clarifying for aircraft design engineers the design characteristics which would make it difficult or impossible for a new type of aircraft to be adequately serviced from existing airport facilities. Should basic aircraft design requirements impose on a future model certain characteristics not complying with the present document:

— either alternative methods of servicing the aircraft will have to be implemented; or

— existing facilities in the airports where such a new type of aircraft is to operate will require some degree of modification/rework; or

— additional interface devices/equipment will be required in order to service such a new type of aircraft;

in either case resulting in increased aircraft servicing constraints and operating cost.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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ISO 45, *Aircraft — Pressure refuelling connections*

ISO 461-1, *Aircraft — Connectors for ground electrical supplies — Part 1: Design, performance and test requirements*

ISO 461-2, *Aircraft — Connectors for ground electrical supplies — Part 2: Dimensions*

ISO 1034, *Aircraft — Ground air-conditioning connections*

ISO 2026, *Aircraft — Connections for starting engines by air*

ISO 7718-1, *Aircraft — Passenger doors interface requirements for connection of passenger boarding bridge or passenger transfer vehicle — Part 1: Main deck doors*

ISO 10254, *Air cargo and ground equipment — Vocabulary*

ISO 17775, *Aircraft — Ground-service connections — Potable water, toilet-flush water and toilet drain*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10254 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
main line aircraft
civil passenger and/or freight transport aircraft with a maximum ramp mass over 50 000 kg (110 000 lb)

3.2
maximum ramp mass
MRW
maximum Ramp Weight
maximum mass allowable for an aircraft type when leaving its parking position either under its own power or towed, comprising maximum structural take-off mass (MTOW) and taxiing fuel allowance

3.3
nose landing gear
NLG
aircraft nose landing gear in a conventional tricycle landing gear layout

3.4
passenger doors
<aircraft> main deck doors from the aircraft's nose to its tail

Note 1 to entry: Passenger doors are numbered 1, 2, 3 (sequentially) followed with index L if they are on the aircraft's left hand side and R if they are on its right hand side.

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