
**Aircraft ground equipment —
Design, testing and maintenance
requirements for nose gear
towbarless towing vehicle (TLTV) —**

**Part 2:
Regional aircraft**

*Matériels au sol pour aéronefs — Exigences de conception, essais et
entretien pour tracteur sans barre de train avant (TLTV) —*

Partie 2: Aéronefs régionaux

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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 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.

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 9, *Air cargo and ground equipment*.

This second edition cancels and replaces the first edition of ISO 20683-2:2004, which has been technically revised.

A list of all parts in the ISO 20683 series can be found on the ISO website.

Introduction

This document specifies design, testing, maintenance and associated requirements to be applied on towbarless aircraft towing vehicles to be used on regional civil transport aircraft in order to ensure their operation will not result in damage to aircraft nose landing gears, their steering systems or associated aircraft structure.

Throughout this document, the minimum essential criteria are identified by the use of the keyword “shall.” Other recommended criteria are identified by the use of the keyword “should” and, while not mandatory, are considered to be of primary importance in providing safe and serviceable towbarless tractors. Alternative solutions may be adopted only after careful consideration, extensive testing and thorough service evaluation have shown them to be equivalent.

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Part 2: Regional aircraft

1 Scope

This document is applicable to towbarless aircraft towing vehicles (TLTVs) interfacing with the nose landing gear of civil transport aircraft with a maximum ramp mass comprised between 10 000 and 50 000 kg (22 000 and 110 000 lb), commonly designated as “regional aircraft.” The requirements for main line transport aircraft with a higher maximum ramp mass are specified in ISO 20683-1. It is not applicable to TLTVs which were manufactured before its date of publication.

It specifies general design requirements, testing and evaluation requirements, maintenance, calibration, documentation, records, tracing and accountability requirements in order to ensure that the loads induced by the tow vehicle will not exceed the design loads of the nose gear or its steering system, or reduce the certified safe life limit of the nose gear, or induce a stability problem during aircraft push back and/or maintenance towing operations.

This document specifies requirements and procedures for towbarless tow vehicles (TLTVs) intended for aircraft pushback and gate relocation or maintenance towing only. It is not intended to allow for dispatch (operational) towing (see [Clause 3](#)). Dispatch towing imposes greater loads on nose gears and aircraft structure due to the combination of speed and additional passenger, cargo, and fuel loads.

This document does not apply to towbarless towing vehicles interfacing with aircraft main landing gear.

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.

NOTE TLTV designers should also take into account the requirements of documents referenced in the Bibliography.

ISO 6966-1, *Aircraft ground equipment — Basic requirements — Part 1: General design requirements*

ISO 6966-2, *Aircraft ground equipment — Basic requirements — Part 2: Safety requirements*

Federal Aviation Regulations (FAR) 14 CFR Part 25, *Airworthiness Standards: Transport category airplanes, paragraphs 25.301, Loads, and 25.509, Towing loads*¹⁾

*Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes CS-25, paragraphs 25.301, Loads, 25.509, Towing loads, 25.745(d), Nose-wheel steering, and AMC 25.745(d)*²⁾

1) FAR Part 25 constitutes the U.S.A. government transport aircraft airworthiness regulations and can be obtained from US Government Printing Office, Mail Stop SSOP, Washington DC 20402-9328, U.S.A.

2) EASA CS25 constitute the European governments transport aircraft airworthiness regulations, and can be obtained from European Aviation Safety Agency: Ottoplatz 1, D-50679 Cologne, Germany - <http://easa.europa.eu/official-publication/>.