SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

SAE AS5488

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Regional Aircraft Towbar Attach Fitting Interface

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1. SCOPE:

1.1 Purpose:

This SAE Aerospace Standard (AS) specifies the interface requirements for towbar attachment fittings on the nose gear (when towing operations are performed from the nose gear) of conventional tricycle type landing gears of commercial civil transport aircraft with a maximum ramp weight between 8600 kg (19 000 lb) and 50 000 kg (110 000 lb), commonly designated as "regional aircraft".

Its purpose is to achieve towbar attachment fittings interface standardization by aircraft weight category (which determines towbar forces) in order to ensure that one single type of towbar with a standard connection can be used for all aircraft types within or near that weight category, so as to assist operators and airport handling companies in reducing the number of different towbar types used.

1.2 Field of Application:

This Aerospace Standard is intended to be applicable to all new models of regional aircraft within the specified maximum ramp weight range, entering service or designed after its date of publication. See Section 3, Effectivity, hereafter.

It is not its intent to apply to previously in service regional aircraft models, which present a considerable variety of towbar attachment fittings, However, where deemed appropriate in order to facilitate operation of such aircraft types at airports, simple retrofit modifications are described that may be considered to bring certain in service fittings to be compatible with a towbar head meeting this Aerospace Standard.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 Regulatory:

Available from U.S. Government Printing Office, M/S SSOP, Washington, DC 20402-9328.

Federal Aviation Regulations 14CFR Part 25, Airworthiness Standards: Transport category airplanes, paragraph 25.509, Towing loads

2.2 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AS1614B Commercial Aircraft Towbar Attach Fitting Interface

2.3 ISO Publications:

Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

International Standard ISO 8267-1, Aircraft - Towbar attachment fittings for transport aircraft with a maximum ramp mass over 50 000 kg (110 000 lb) - Interface requirements

Draft International Standard ISO DIS 8267-2, Aircraft - Regional aircraft towbar attachment fittings - Interface requirements (in preparation)

3. EFFECTIVITY:

3.1 This Aerospace Standard is applicable to commercial transport aircraft airworthiness certified under FAR Part 25 up to a maximum ramp weight of 50 000 kg (110 000 lb). It does not apply to:

- aircraft airworthiness certified under FAR Part 23 as commuter category airplanes,
- aircraft airworthiness certified under FAR Part 25 but with a maximum ramp weight in excess of 50 000 kg (110 000 lb), which are covered by AS1614B.

3.2 Where a family of existing or contemplated aircraft types bridges two weight categories, a single towbar attachment fitting interface should be used for all of them, and consideration should be given to possible use of the standard dimensions for the higher weight category, be it part of this Aerospace Standard or AS1614B, throughout the family.

NOTE: Inasmuch as practical, this Aerospace Standard was defined in order to be compatible with as many existing aircraft types as possible in the weight category concerned.

4. REQUIREMENTS:

4.1 Towing Loads:

The aircraft nose landing gear towbar attachment fitting shall be able to react the limit towing loads prescribed in FAR Part 25, paragraphs 25.509 (a), (c) and (d), based on the following towing load F_{TOW}:

- F_{TOW} = 0.3 Wr (where Wr is the design maximum ramp weight) for Wr less than 13 600 kg (30 000 lb)
- $F_{TOW} = \frac{6\ Wr + 450\ 000\ lb}{70}$ for Wr between 13 600 kg (30 000 lb) and 45 360 kg (100 000 lb)
- F_{TOW} = 0.15 Wr for Wr in excess of 45 360 kg (100 000 lb)

4.2 Aircraft Attachment Fitting Location:

The fitting shall be designed to enable simple attachment of the towbar at the front of the nose landing gear for push-pull towing operations. No fitting is required at the rear of the nose landing gear.

4.3 Aircraft Weight Categories:

See Table 1.

TABLE 1 - Aircraft Weight Categories

Category	Maximum Ramp Weight
I	8 600 kg (19 000 lb) to 22 680 kg (50 000 lb)
II	13 600 kg (30 000 lb) to 50 000 kg (110 000 lb)

NOTE: The towbar attachment fitting category shall be selected in such a way that no change of type will be necessary during aircraft development. For aircraft whose design maximum ramp weight is near the top limit of a weight category, it may be classified in the next higher category to allow for weight growth (see 3.2).