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Aircraft — Catering vehicle for large capacity aircraft — Functional requirements

*Aéronefs — Camions commissariat pour aéronefs gros porteurs —
Exigences fonctionnelles*



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Foreword

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International Standard ISO 10841 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 9, *Air cargo and ground equipment*.

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Introduction

The minimum essential criteria are identified by the use of the key word "shall". Recommended criteria are identified by the use of the key word "should", and while not mandatory are considered to be of primary importance in providing serviceable, economical, and practical catering vehicles. Deviation from the recommended criteria should occur only after careful consideration, extensive testing, and thorough service evaluation have shown alternate methods to be satisfactory.

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Aircraft — Catering vehicle for large capacity aircraft — Functional requirements

1 Scope

1.1 This International Standard specifies the functional, performance and safety requirements for a vehicle equipped with a liftable van body designed for:

- cabin resupply and servicing, and/or
- loading and unloading of catering equipment and supplies

on all large capacity aircraft types commonly in service in international civil air transport with a cabin door sill height equal to or exceeding 2,54 m (100 in) over the ground.

1.2 The intent of this International Standard is not to specify equipment design, but rather to define minimum functional and performance requirements and highlight those criteria which are known to be essential to an efficient and safe operation on civil transport aircraft in the environment of international airports by aircraft and vehicle manufacturers as well as airlines and catering agencies.

1.3 It shall be applied with due reference to national governmental regulations of the country where the vehicle is to be operated. The main though not exclusive areas in which such national regulations may be more stringent than the requirements of this International Standard are:

- sanitary requirements regarding design, cleaning and disinfection of vehicles used to carry food for human consumption,

- stability and other safety requirements applicable to elevating equipment carrying personnel in the elevated position.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1496-2:—¹⁾, *Series 1 freight containers — Specification and testing — Part 2: Thermal containers.*

ISO 6966:1993, *Aircraft — Basic requirements for aircraft loading equipment.*

ISO 7000:1989, *Graphical symbols for use on equipment — Index and synopsis.*

ISO 8058:1985, *Air cargo equipment — Air mode insulated containers — Thermal efficiency requirements.*

ISO 11995:1996, *Aircraft — Stability requirements for loading and servicing equipment.*

1) To be published. (Revision of ISO 1496-2:1988)

3 Structure and overall dimensions

3.1 General

3.1.1 The vehicle shall be constructed on a standard automotive chassis of appropriate gross weight rating.

3.1.2 The dimensions, laden weight and other characteristics of the vehicle shall satisfy all applicable government regulations for vehicles to be used on public roadways.

3.1.3 The vehicle shall be equipped with a fully enclosed elevating van body with a front platform, capable of reaching heights between 2,54 m (100 in) and 5,6 m (220 in) above the ground.

3.1.4 The allowable load capacity in the elevating van body should be no less than 2 700 kg (6 000 lb). A 3 500 kg (7 700 lb) load capacity is recommended.

3.2 Overall dimensions

3.2.1 The overall height of the vehicle in the fully lowered position shall not exceed 4 m (157 in).

3.2.2 The overall width of the vehicle in a driving condition (with stabilizers retracted) shall not exceed 2,5 m (98 in), or less if so required by locally applicable regulations.

NOTE 1 Overall height and width of the vehicle may be further restricted by public roads regulations in certain countries.

3.2.3 The vehicle shall be capable of turning within an overall swept radius of less than 12,2 m (40 ft).

3.2.4 In order to alleviate aircraft handling difficulties and ramp congestion in the vicinity of an aircraft being serviced, the overall length of the vehicle should be kept to a minimum, consistent with intended van body usable internal length, and other requirements and vehicle equipment (e.g. tail gate).

3.3 Van body

3.3.1 The usable internal length of the van body should be not less than 6 m (20 ft).

3.3.2 The usable internal width of the van body should be not less than 2,3 m (91 in).

3.3.3 The minimum clear height at any point within the van body with its doors open or closed shall be 1,9 m (75 in).

3.3.4 The interior of the van body shall be fully lined with a smooth, non-moisture-absorbent, non-toxic material, sanitarily approved for use in vehicles carrying food for human consumption. In addition:

- the lining material shall be compatible with repeated cleaning with strong detergents and disinfecting agents, as well as suitable for repeated water pressure cleaning and/or steam cleaning;
- any joints or appurtenances inside the van body shall be flush, rounded, sloped or otherwise protected to prevent any accumulation of dirt or rubbish and facilitate comprehensive cleaning.

3.3.5 The floor shall repeatedly withstand a full complement of catering carts weighing up to 80 kg (175 lb) each on four 50 mm (2 in) diameter and 25 mm (1 in) width, castered wheels located 750 mm × 250 mm (30 in × 10 in) apart from each other, without deflecting more than 6 mm (0,25 in). No permanent deflection is allowable.

3.3.6 In addition, the floor shall:

- a) be smooth and free from any joint or recess allowing accumulation of dirt or rubbish, and shall meet the cleaning requirements in 3.3.4;
- b) provide an anti-slip surface throughout its whole area;
- c) provide drainage to cater for elimination of any spilled fluids.

3.3.7 Both sidewalls shall be equipped with:

- a) protective devices to avoid deterioration by impact from fully loaded catering carts as defined in 3.3.5, and
- b) quick fastening restraint devices capable of ensuring proper restraint of a full complement of such catering carts under normal over-the-road horizontal and vertical accelerations.

3.3.8 The van body shall be equipped with two doors at the forward and rear ends, with a minimum usable width of 0,8 m (31 in) and a minimum clear height of 1,9 m (75 in).

3.3.9 A lighting system shall be fitted within the van body, to provide a minimum illumination of 50 lx (4,65 ft-cd) at any point on the floor.

3.4 Front platform

3.4.1 The vehicle shall be equipped with a front platform to be level with the van body floor within the specified working height range, consisting of:

- a) a fixed platform over the full width of the van, the length of which should be a minimum of 1,6 m (63 in), and
- b) a sliding bridge to allow alignment with the aircraft door. The width of the sliding bridge should be at least 0,8 m (31 in) and shall not exceed 1 m (39 in).

3.4.2 The fixed front platform shall repeatedly withstand a distributed load of 600 kg (1 320 lb), or a 300 kg (660 lb) concentrated load at either forward quarter area, without deflecting more than 6 mm (0,25 in). No permanent deflection is allowable.

3.4.3 A suitable safety shield shall be fitted vertically in front of the van body, the function of this shield being to close the gap between the body floor in the lowered position and the upper floor line of the front platform. The safety shield shall be flush mounted, with a maximum 6 mm (0,25 in) clearance from the forward edge of the van body's floor.

3.4.4 The platform floor shall provide an anti-slip surface throughout its whole area.

3.4.5 A spotlight or equivalent shall be fitted on the front end of the van body to light the platform, and provide a minimum illumination of 50 lx (4,65 ft-cd) at any point on its floor and the floor of the sliding bridge.

3.4.6 The sliding bridge shall:

- a) be adjustable over the whole width of the fixed front platform, and lockable at intermediate positions, and
- b) have telescopic extension and retraction capability over a minimum length of 0,5 m (20 in).

3.4.7 The sliding bridge shall repeatedly withstand a distributed load of 350 kg (770 lb), or a 100 kg (220 lb) concentrated load at its forward end when fully extended, without deflecting more than 6 mm (0,25 in). No permanent deflection is allowable.

3.4.8 The area directly below the sliding bridge shall be free from any components or protrusions within at least 0,3 m (12 in) from its forward end. The bridge's thickness in this area shall be kept to a minimum.

3.4.9 The forward edge of the sliding bridge shall be protected at aircraft interface by a full-width cylindrical rubber bumper.

4 Stability

4.1 A minimum of four stabilizers shall be provided for van body elevation. The stabilizers in the retracted position shall not protrude from the vehicle's overall width as specified in 3.2.2. In addition, the stabilizers in the extended position should preferably not protrude from the overall width.

4.2 When supported by the fully extended stabilizers, the vehicle in both the maximum gross weight and empty conditions shall meet the static and wind stability criteria of ISO 11995.

4.3 It shall not be possible:

- a) to raise the van body beyond 2,54 m (100 in) height when the stabilizers are not fully extended and supporting the vehicle's weight against a supporting surface.
- b) to retract the stabilizers under normal conditions until the van body has been lowered to 2,54 m (100 in). (See 7.2 for emergency conditions.)
- c) to drive the vehicle when the stabilizers are not fully retracted or the van body is not in the fully down position. Manual override of the latter interlock shall be possible for emergency conditions. (See 7.3.)
- d) for the stabilizers to collapse in case of a system failure.

5 Controls

5.1 Controls for raising and lowering the van body and the front platform shall be located in the van body and the vehicle cabin.

5.2 The control panel in the van body shall be located at the forward end.

5.3 Controls for extending and retracting the stabilizers shall be located in the vehicle cabin only, and shall be protected against inadvertent activation. Positive confirmation by a warning light or equivalent device indicating that the stabilizers are either fully retracted or fully extended and supporting the vehicle's weight against a supporting surface shall be provided next to the controls.

5.4 Emergency stop buttons which kill the engine shall be provided at both control panels.

5.5 It shall be possible to start and stop the engine from both the vehicle cabin and the van body control panels.

5.6 The engine shall be equipped with a demand throttle providing high idle whenever one of the hydraulic functions is actuated.

5.7 All controls shall be identified by the appropriate pictographic symbols as described in ISO 7000.

5.8 The control panels' layout should insofar as practical meet the requirements of IATA AHM 915, section 2.

6 Personnel protection

6.1 The equipment shall meet the appropriate requirements of ISO 6966.

6.2 A ladder shall be provided to give access from the ground to the front platform when in the lowered position. The ladder shall not extend beyond the overall width of the vehicle as specified in 3.2.2. It shall be fitted with anti-slip rungs and adequate handholds.

6.3 Steps shall be provided at the rear of the body to allow easy access to and from the body in the lowered position. The steps shall have an anti-slip surface and be fitted with adequate handholds.

6.4 Rigid handrails including knee rails and footrails shall be provided on both sides of the front platform. They shall include:

- a) adjustable elements between the platform and the sliding bridge.
- b) extendable elements along both sides of the sliding bridge.

- c) an adequate opening to gain access to and from the platform, to and from the access ladder.

6.5 The handrails' geometry shall be designed to allow opening and closure of the aircraft doors while the sliding bridge is fully retracted, regardless of the relative positions of the vehicle and the aircraft.

6.6 All moveable, adjustable or extendable parts of the handrails shall have a means for positive locking in as many intermediate positions as may be necessary.

6.7 The vehicle chassis at ground level shall be entirely surrounded by a rigid protective structure in order to prevent any possibility of inadvertent access of personnel or equipment (e.g. dollies) under the van body while elevated.

7 Emergency

7.1 The vehicle shall be fitted with an emergency auxiliary system allowing:

- a) the platform and the van body to be lowered,
- b) the stabilizers to be retracted,
- c) the vehicle to be towed away,

in the event of primary power loss, in order to allow safe evacuation of personnel and removal of the vehicle from the aircraft.

7.2 Emergency lowering shall not compromise vehicle stability, i.e. it shall not be possible to retract the stabilizers using the emergency system while the platform or van body are above 2,54 m (100 in) height.

7.3 Whenever the chassis propulsion is still available while the van body cannot be completely lowered, it shall be possible to manually override the interlock preventing the vehicle being driven while the van body is not fully down as specified in 4.3(c). The override control shall be located together with other emergency controls and sealed or otherwise protected against inadvertent or unauthorized use.

7.4 The emergency auxiliary system may be either manual (hand pump) or, as an option, have an independent power source. Its controls shall be located at ground level and protected by a cover or equivalent device.

8 Options

The following optional additional features may be considered.

- a) Capability of servicing aircraft with cabin door sill heights as low as 1,9 m (75 in).
- b) Sliding or folding canopy over the front platform. The canopy shall not interfere with opening and closure of aircraft doors.
- c) Thermally insulated van body. General guidance on thermal insulation efficiency and performance can be found in ISO 1496-2 and ISO 8058.
- d) Refrigerated van body. General guidance on self-contained refrigeration units classification and performance assessment can be found in ISO 1496-2 (see 8.3).
- e) Folding tailgate lift to allow loading and unloading of the vehicle from the ground at its rear end.
- f) Emergency operation system (see clause 7) with an independent power source.
- g) Detection device on top of the platform below the aircraft door, that initiates a flashing light or audible warning in case the clearance between the platform and the door becomes too small.
- h) Automatic levelling system for platform height adjustment during aircraft height changes.

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