

# INTERNATIONAL STANDARD

**ISO**  
**6968**

Second edition  
1994-09-15

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## **Aircraft — Wide body aircraft lower deck container/pallet loader — Functional requirements**

**iTeh STANDARD PREVIEW**

*(Aéronefs — Chargeurs de conteneurs et palettes en soutes inférieures  
d'aéronefs gros porteurs — Exigences fonctionnelles*

ISO 6968:1994

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Reference number  
ISO 6968:1994(E)

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6968 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 6968:1983), of which it constitutes a technical revision.

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# Aircraft — Wide body aircraft lower deck container/pallet loader — Functional requirements

## 1 Scope

This International Standard specifies the functional requirements for a self-propelled loader capable of raising pallets and containers with standard base dimensions and maximum weights<sup>1)</sup> as follows:

	ISO 8097 base size code	Length mm (in)	Width mm (in)	Max. gross weight kg (lb)
Pallets	M	3 175 (125)	2 438 (96)	6 804 (15 000)
	A	3 175 (125)	2 235 (88)	6 804 (15 000)
	B	2 743 (108)	2 235 (88)	4 536 (10 000)
Containers	L <sup>1)</sup>	3 175 (125) up to 4 724 (186,6)	1 534 (60,4)	3 175 (7 000)
	K <sup>2)</sup>	1 562 (61,5) up to 2 337 (92)	1 534 (60,4)	1 588 (3 500)

1) Full size.  
2) Half size.

This International Standard shall be read in conjunction with ISO 4116.

1) The term "weight" is used in this International Standard instead of the correct technical term "mass" in order to conform to current commercial usage.

2) AHM 931 is part of the *IATA Airport Handling Manual*, which is available from: IATA Publications Dept., 2000 Peel Street, Montreal, Quebec H3A 2R4, Canada, or: IATA Publications Dept., Route de l'Aéroport 33, PO Box 672, CH-1215 Geneva 15 Airport, Switzerland.

For further information, see IATA Specification AHM 931, *Functional specification for lower deck container/pallet loader*<sup>2)</sup>.

## 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4116:1986, *Air cargo equipment — Ground equipment requirements for compatibility with aircraft unit load devices*.

## 3 Structure and overall dimensions

**3.1** On an adequate chassis, the loader shall provide two platforms:

- a front platform which is positioned at the applicable aircraft door and which remains at this position during the loading/unloading operation;
- a main platform for up and down movement between 483 mm (19 in) and 3 450 mm (136 in).

**3.2** The overall height of the entire unit shall not exceed 3 600 mm (142 in) when being driven. The height of the front platform (top of rollers) shall not exceed 1 880 mm (74 in) in the fully down position.

**3.3** The overall dimensions of the unit shall be kept to a minimum.

**3.4** The loader shall support at their maximum gross weight:

- a) two half-size containers on the main platform and simultaneously one half size container on the front platform;
- b) one pallet on the main platform, and simultaneously one half-size container on the front platform.

**3.5** The unit shall have adequate clearance underneath from any portion of the equipment to the ground when negotiating two ramps that intersect at 5°.

**3.6** The loader shall not interfere with the positioning of the aircraft tractor below the fuselage of the aircraft.

## 4 Platform design, guide rails and stops

**4.1** The length of the front platform shall be adequate to accept one half-size container lengthwise.

**4.2** The length of the main platform shall be adequate to accept two half-size containers lengthwise.

**4.3** The width of both platforms shall be adequate to accept a pallet with its 2 438 mm (96 in) dimension across the platforms.

**4.4** The forward end of the front platform shall have, at its right-hand side, provisions to accommodate 1 780 mm (70 in) wide container-hold doors. These provisions may either consist of a retractable extension to the front platform, or may be met by a front platform of adjustable width.

**4.5** Several aircraft have flap track fairings which project from the trailing edge of the wing. If the loader, owing to its overall width, has to pass under the wing for approach to or removal from the rear lower deck compartment, the height of any portion likely to pass under the flap track fairings shall, for safety reasons, not exceed 2 800 mm (110 in). Installations, if any, extending beyond this limit shall be foldable or retractable.

**4.6** The surfaces of both platforms shall allow for longitudinal and lateral movement of the containers/pallets. Longitudinal movements shall be effected by means of a powered system.

**4.7** The loader shall be designed for powered end and side loading of containers/pallets.

**4.8** The powered system shall be able to drive containers/pallets at a speed of approximately 0,3 m/s (60 ft/min). Adjustments to a reduced speed shall be possible.

**4.9** The front platform shall be adjustable to changes in aircraft pitch, roll and height.

**NOTE 1** It is recommended that the front platform be capable of being attached to the aircraft so as to compensate for changes in aircraft attitude.

Users of this International Standard are advised that proprietary rights apply to devices conforming to this recommendation. The patent holder has agreed to negotiate licences on terms and conditions defined in a statement that is available upon request from the ISO Central Secretariat.

**4.10** The front platform shall be designed not to interfere with the opening and closing of the aircraft doors.

**4.11** Removable guide rails, fixed on the main platform and adjustable on the front platform to the following container/pallet widths:

- a) 1 534 mm (60,4 in);
- b) 2 235 mm (88 in);
- c) 2 438 mm (96 in);

shall be provided as follows:

- a) Front platform

Along the whole length of both sides of the platform to exactly guide load units into the aircraft. They shall be adjustable laterally to align with the appropriate in-aircraft guides;

- b) Main platform

2 438 mm (96 in) apart along both sides of the platform. The guide rails shall consist of two sections able to be operated independently. All four sections shall automatically extend when the main platform starts moving upward and remain

in this position. When the main platform is being lowered and it reaches the height of 1 520 mm (60 in) from the ground, it shall be possible for the operator to control the retraction of the guide rails.

**4.12** Automatic container/pallet stops shall be provided as follows:

a) Front platform

At the end adjacent to the main platform. These stops shall rise at the moment the main platform starts moving down and shall be retracted when the upcoming main platform is level with the front platform;

b) Main platform

At both ends. Ramp side stops shall automatically retract as the platform reaches a full down position and extend, when the platform rises. The stops at the end adjacent to the front platform shall be extended in the down position and retract when the platform lines up with the front platform. The location of these stops shall take into account the container overhang.

**4.13** All stops shall have a minimum height of 51 mm (2 in).

## 5 Platform operation and loading

**5.1** It shall be possible to adjust the container/ pallet in a lateral direction on the front platform.

**5.2** Platform elevating systems shall be able to hold both platforms at maximum height with full specified continuous lift capacity with no noticeable height decrease for 30 min with and without the engine running.

**5.3** Both the front and main platform elevating mechanisms shall incorporate safety features to prevent sudden collapse in the event of system failure.

**5.4** Load movement in and out of the aircraft shall be carried out by one person (operator). The unit shall be capable of being positioned and operated by one person. The operator shall be able to open the aircraft door from the front platform.

**5.5** The time taken for the main platform to reach maximum height from the lowered position and vice versa, i.e. one complete cycle, shall be less than 35 s.

**5.6** The front platform shall be accessible from the ground at all times.

**5.7** It shall not be possible to alter the height of either platform when containers/pallets are bridging the platforms.

## 6 Mobility and stability

**6.1** The unit shall be capable of being driven at speeds up to 16 km/h (10 mile/h) for at least 3 km (2 miles). The unit does not require the capability of being driven when loaded.

**6.2** Power steering shall be provided.

**6.3** The unloaded unit shall be capable of starting from rest up a 3° incline under its own power.

**6.4** The unit shall be capable of turning with a swept radius of less than 12,2 m (40 ft).

**6.5** For the final safe positioning at the aircraft door a slow positive non-jerking speed is required.

**6.6** Power-operated stabilizers shall be installed in order to provide for the stability required for loading/unloading operations and to unload the wheel axles. In case of power failure, manual retraction of the stabilizers shall be possible.

**6.7** The unit in the raised position with stabilizers extended shall be safe in wind velocities up to 130 km/h (80 mile/h). In the lowered position, the loader shall remain stable in wind velocities up to 190 km/h (120 mile/h).

**6.8** It shall not be possible

- to activate the transfer system and to raise the main platform from the full down position if the stabilizers are not extended;
- to drive the loader when the stabilizers are extended;
- for stabilizers to collapse in the case of system failure.

## 7 Controls

**7.1** All controls necessary to move and position the loader shall be located in the driver position.

**7.2** An electrical control panel shall be provided to allow control of both platforms and complete loading/unloading processes from the front platform. This should be located so that it can be used simultaneously with the in-aircraft control systems.

**7.3** Ample lighting is required for night operations and to illuminate the platforms and close surroundings.

**7.4** Normal system warning and indicator lights shall be provided.

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