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# International Standard



# 6968

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

*Aéronefs — Chargeur de conteneurs et palettes en soutes inférieures d'aéronefs gros porteurs — Caractéristiques fonctionnelles*

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## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6968 was developed by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, and was circulated to the member bodies in May 1981.

It has been approved by the member bodies of the following countries :

Australia	France	Romania
Austria	Germany, F.R.	South Africa, Rep. of
Belgium	Ireland	Spain
Brazil	Italy	Sweden
China	Japan	United Kingdom
Czechoslovakia	Korea, Rep. of	USA
Egypt, Arab Rep. of	Netherlands	USSR

No member body expressed disapproval of the document.

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

## 0 Introduction

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This International Standard is to be read in conjunction with ISO 4116, *Ground equipment requirements for compatibility with aircraft unit load devices*.

## 1 Scope and field of application

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 as follows :

		Length mm (in)	Width mm (in)	Max. gross weight kg (lb)
Pallets	a	3 175 (125)	2 438 (96)	6 033 (13 300)
	b	3 175 (125)	2 235 (88)	6 033 (13 300)
	c	2 743 (108)	2 235 (88)	4 535 (10 000)
Containers	d <sup>1)</sup>	3 175 (125) up to 4 724 (186.6)	1 534 (60.4)	3 175 (7 000)
	e <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.

NOTE — The term "weight" is retained here above instead of the correct technical term "mass" in order to conform to current commercial usage.

## 2 Structure and overall dimensions

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

- a) a front platform which is positioned at the applicable aircraft door and which remains at this position during the loading/unloading operation;

- b) a main platform for up and down movement between 483 mm (19.0 in) and 3 450 mm (136 in).

2.2 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.

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

2.4 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.

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

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

## 3 Platform design, guide rails and stops

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

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

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

3.4 The surfaces of both platforms shall allow for longitudinal and lateral movement of the load units. Longitudinal movements shall be effected by means of a powered system.

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

3.6 The powered system shall be able to drive containers/pallets at a speed of approximately 18,3 m/min (60 ft/min). Adjustments to a reduced speed shall be possible.

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

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

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

**3.9** 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 :

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

— main platform : 2 438 mm (96 in) apart along both sides of the platform. The guide rails shall consist of two sections of the platform and be 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.

**3.10** 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.

**3.11** All stops shall have a minimum height of 50 mm (2 in).

## 4 Platform operation and loading

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

**4.2** 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 engine running.

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

**4.4** 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.

**4.5** 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.

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

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

## 5 Mobility and stability

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

**5.2** Power steering shall be provided.

**5.3** The unloaded unit shall be capable of starting from rest up a 5° incline under its own power.

**5.4** The unit shall be capable of turning with a swept radius of less than 12.2 m (40 ft).

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

**5.6** 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.

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

**5.8** It shall not be possible

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