



AEROSPACE INFORMATION REPORT

AIR4359™**REV. A**Issued 1997-11
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Superseding AIR4359

(R) Effects of Hanging Loads (e.g., GOH) on ULD Performance

RATIONALE

This document is being revised to make it available in electronic portable document format, change/update obsolete info, add missing data, and update the document acc. to AS36100A.

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1. SCOPE

This SAE Aerospace Information Report (AIR) provides information on the subject of Air Mode containers used for transporting "Hanging Loads" such as Garment-On-Hangers (GOH), or other roof supported cargo. It suggests considerations and recommendations for roof loaded containers to transport hanging loads efficiently and safely by air and to protect the aircraft floor and cargo system from damage due to overload conditions.

1.1 Purpose

This document provides considerations and recommendations for the design and use of unit load devices (ULDs) (certified or non-certified) for transportation of hanging loads in aircraft equipped with a restraint system designed to transport ULDs approved in accordance with NAS3610/AS36100A.

Because the load paths of roof-loaded containers are totally different from the more commonly used floor-loaded ULD, the purpose of this document is to alert and inform ULD manufacturers, shippers, the airline industry, and the airframe manufacturers of the unique load distribution characteristics of roof-loaded containers and the potential consequences of loading in this manner.

Specific topics covered are:

- a. Load distribution within the container - from roof to base.
- b. Distribution of container-loads to the aircraft cargo compartment.

Also included are suggested methods of improving load distribution and recommended load limits for various types of roof-loaded containers.

1.2 Field of Application

These containers are to be used exclusively in conjunction with the air mode on the Main Deck (certified containers only), and Lower Deck (certified and non-certified containers) of Freighter, Convertible, Combi, and Passenger versions of fixed-wing wide- and standard body aircraft. Air mode containers will normally be on aircraft roller conveying systems and/or on similarly equipped ancillary ground handling devices.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document 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.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS832	Air/Surface (Intermodal) General Purpose Containers
AS1677	General Requirements for Noncertified Cargo/Baggage Containers
AS4041	Air Mode General Purposes Containers
AS5896	Certified Containers for Lower Deck Compartments
AS36100A	Air Cargo Unit Load Devices - Performance Requirements and Test Parameters

2.1.2 AIA Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, www.aia-aerospace.org.

National Aerospace Standard NAS3610 Cargo Unit Load Devices, Specification for (Revision 10)

2.1.3 FAR Publications

Available from www.acquisition.gov/far.

Federal Aviation Regulation (FAR) Part 25, United States Department of Transportation

2.1.4 EASA Publications

Available from European Aviation Safety Agency, Ottoplatz, 1, D-50679 Cologne, Germany, Tel: +49 221 8999 000, www.easa.europa.eu.

CS-25 (Large Aeroplanes)

2.1.5 IATA Publications

Available from International Air Transport Association, Publications Assistant, 800 Place Victoria, P.O. Box 113, Montreal, Quebec H4Z 1M1, Canada, Tel: 1-514-874-0202, www.iata.org.

IATA ULD Regulations / Section 5 – Technical Specifications:

Standard Specification 50/0, ULD General Technical Requirements

Standard Specification 50/4, Section 7.1 - Hanging Loads

Standard Specification 50/6, Section 11.3 - Hanging Devices

IATA ULD Regulations / Section 6 – ULD Operating Specifications:

Operating Specification 6/04, Section 6.4 – Hanging Loads

2.1.6 ISO Publications

Available from International Organization for Standardization, ISO Central Secretariat, 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, Tel: +41 22 749 01 11, www.iso.org.

ISO4118 Non-certified Lower Deck Containers for Air Transport

ISO6517 Aircraft Containers - Base Restrained Certified Containers for the Lower Deck of High Capacity Aircraft

ISO10327 Air Cargo Equipment - Certified Aircraft Container.

2.2 Definitions

GOH CONTAINER: An article of transport equipment having an internal volume of 1 m³ (35 feet³) or more, with NAS3610 or AS36100A compatible restraint provisions for an aircraft restraint system and an entirely flush base to allow handling on rollerized cargo handling systems, and fitted with roof devices from which garments (or other hanging loads) may be hung.