



# AEROSPACE STANDARD

AS1491™

REV. B

Issued 1982-03  
Reaffirmed 2012-09  
Revised 2023-01

Superseding AS1491A

(R) Interline Air Cargo Pallets

## RATIONALE

AS1491B has been revised from AS1491A in both format and wording to be harmonized with ISO 4171( ). Reference to AS36100 in addition to NAS3610 has been added.

Pallet sizes Q and S designated in the prior revision of this specification as Type III pallets were added and are now covered by AS36100 as Type 2 pallets. All references to Type III pallets along with their performance and test requirements contained in the previous revision of this SAE Aerospace Standard have been removed.

### 1. SCOPE

This SAE Aerospace Standard specifies the dimensional, design criteria, fabrication, performance, operational, environmental, and testing requirements for interline pallets requiring airworthiness approval for loading onto civil transport aircraft equipped with NAS3610/AS36100 restraint systems and using pallet nets meeting the requirements of AS1492. Type II/2 covers NAS3610/AS36100 code sizes. Type III pallets have been removed from this SAE Aerospace Standard revision.

#### 1.1 Purpose

This SAE Aerospace Standard establishes minimum requirements for pallets used to transport cargo in an approved aircraft cargo compartment with a restraint system that conforms to the flight cargo restraint requirements of Title 14 CFR Part 25, except for the 9.0 g forward ultimate inertia force of § 25.561 (b)(3)(ii) and using pallet nets meeting the requirements of AS1492. The minimum essential criteria are identified by the use of the key word "shall." Recommended criteria are identified by the key word "should" and while not mandatory, are considered to be of primary importance in providing safe air transport pallets. Deviation from the recommended criteria should occur only after careful consideration, extensive testing, and thorough service evaluation have shown alternate methods to be satisfactory.

### 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 (except where specified by Technical Standard Order). The applicable issue of other publications shall be the issue in effect on the date of the purchase order (design acceptance). 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.

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SAE WEB ADDRESS:

**For more information on this standard, visit**  
<https://www.sae.org/standards/content/AS1491B/>

### 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](http://www.sae.org).

AIR1490	Environmental Degradation of Textiles
ARP1334	Ground Equipment Requirements for Compatibility with Aircraft Unit Load Devices
ARP36103	Air Cargo Unit Load Devices - Center of Gravity Control Methods
AS1492	Interline Air Cargo Pallet Nets
AS [and EN/JIS-Q] 9100	Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations
AS [and EN/JIS-Q] 9102	Aerospace First Article Inspection Requirement
AS33601	Track and Stud Fitting for Cargo Transport Aircraft, Standard Dimensions for
AS36100	Air Cargo Unit Load Devices - Performance Requirements and Test Parameters
AS36101	Air Cargo Unit Load Devices - Load Distribution Model
AS36102	Air Cargo Unit Load Devices - Testing Methods

### 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](http://www.aia-aerospace.org).

NAS3610	Cargo Unit Load Devices, Specification for
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### 2.1.3 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/> or 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](http://www.iso.org).

ISO 4116	Air cargo equipment - Ground equipment requirements for compatibility with aircraft unit load devices
ISO 4170	Air cargo equipment - Interline pallet nets
ISO 4171	Air cargo equipment - Interline pallets
ISO 7166	Aircraft - Rail and stud configuration for passenger equipment and cargo restraint
ISO 8097	Aircraft - Minimum airworthiness requirements and test conditions for certified air cargo unit load devices
ISO 21100	Air cargo unit load devices - Performance requirements and test parameters
ISO/TR 8647	Environmental degradation of textiles used in air cargo restraint equipment

#### 2.1.4 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](http://www.iata.org).

IATA ULDR Standard Specification Number 50/0 ULD General Technical Requirements

IATA ULDR Standard Specification Number 50/1 Aircraft Pallet

IATA ULDR Standard Specification Number 50/2 Aircraft Pallet Net

#### 2.1.5 U.S. Government Publications

Federal Aviation Administration Technical Standard Order TSO C90 - Cargo Pallets, Nets and Containers

Federal Aviation Regulations 14 CFR Part 21 - Certification Procedures for Products and Parts

Federal Aviation Regulation Title 14 CFR Part 25, Airworthiness Standards: Transport Category Airplanes

(Advisory Circular 21.1B - Production Certificates (Quality Control data requirements))

(Federal Aviation Administration Order 8120.2B - Production approval and Surveillance Procedures)

(Federal Aviation Administration Order 8120.12 - Use of 'Other Parties' to Supplement Supplier Control Program)

#### 2.1.6 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), [www.asme.org](http://www.asme.org).

ASME Y14.5 Dimensioning and Tolerancing

#### 2.1.7 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

ASTM G99 Standard Test Method for Wear Testing with a Pin-on-Disk Apparatus

## 2.2 Definitions

**CONTAINER (AIR CARGO -):** A rigid structure which interfaces directly with the aircraft cargo handling and restraint system and alone performs all the functions of a unit load device.

**PALLET (AIR CARGO -):** A unit load device consisting of a flat platform with flat undersurface of standard dimensions, on which goods are assembled and secured by a pallet net before being loaded as a unit onto the aircraft, and which interfaces directly with the aircraft handling and restraint system.

**NET (AIR CARGO -):** A webbing or rope net for restraining load onto an air cargo pallet.

**NUMERIC SIMULATION:** Simulation (e.g., computer model) of physical test condition(s) and reaction(s) of pallet employing numeric analysis, computational geometry and computer graphics to obtain proof support and design verification, as validated by demonstration to other parties' and/or airworthiness authorities' satisfaction that parameters, algorithms, and analytical methods used in such a simulation provide results of at least equivalent reliability to the outcome of a specified actual test.