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## MILITARY SPECIFICATION

## FITTINGS, CARGO TIEDOWN, AIRCRAFT

This specification was approved by the Departments of the Army, the Navy and the Air Force for use of procurement services of the respective Departments.

## 1. SCOPE

1.1 This specification covers the requirements for one type of tiedown fitting for installation in the floors of aircraft.

## 2. APPLICABLE SPECIFICATION, OTHER PUBLICATIONS, AND DRAWINGS

2.1 The following publications, of the issue in effect on date of invitation for bids, shall form a part of this specification to the extent specified herein:

2.1.1 Specifications.-Military

JAN-P-120	Packaging and Packing for Overseas shipment - cartons, Folding, paperboard
JAN-P-105	Packaging and Packing for Overseas Shipment - Boxes, Wood, Cleated, Plywood
JAN-P-106	Packaging and Packing for Overseas Shipment - Boxes, wood, Nailed
JAN-P-125	Packaging and Packing for Overseas Shipment - Barrier-Materials, Waterproof, Flexible
JAN-P-139	Packaging and Packing for Overseas Shipment - Plywood, Container Grade

Air Force-Navy Aeronautical

AN-QQ-S-689	Steel; Nickel (2330), Bar and Rod
AN-P-13	Preservation and Packaging; Parts and Equipment (General Specification for)

U. S. Army

94-40645	Harking; Exterior, Domestic and Export Shipment, by Contractors
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2.1.2 Other Publications.Bureau of Supplies and Accounts

Navy Shipment Marking Handbook

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### 2.1.3 Drawings. -

#### Air Force-Navy Aeronautical Standard Drawing

AN7516

Fitting - Cargo Airplane Tiedown

(Copies of this specification and copies of other publications referenced herein or required for Government procurement, and the Index of Military Aeronautical (AN or MIL) Standards, may be obtained upon application to the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio; or the Commanding Officer, U. S. Naval Air Station, Johnsville, Pennsylvania.)

### 3. REQUIREMENTS

3.1 Materials. The materials shall conform to applicable specifications as specified herein. Materials which are not covered by applicable specifications or which are not specifically described herein shall be of the best quality, of the lightest practicable weight and entirely suitable for the purpose intended.

3.1.1 Fittings shall be made of steel conforming to Specification AN-QQ-S-689.

3.1.1.1 Heat Treatment. - Steel shall be heat-treated to 125,000 psi tensile strength.

### 3.2 Design and Construction. -

3.2.1 The fitting shall consist of a stud and a ring attached to a plate as shown on Drawing AN7516.

3.2.2 Fittings shall be so designed and constructed that they will not interfere with loading aircraft in normal operations; they shall be capable of taking rolling wheel loads and normal handling loads.

3.2.3 The fittings shall be easily maintained free from slogging by dirt, mud, debris, ice, et cetera, without the use of special equipment.

3.2.4 The fittings shall be of simple design, shall contain a minimum number of moving parts, and shall be as light in weight as possible to meet the requirements specified herein.

3.2.5 The fittings shall contain no openings by which dust, dirt, debris, et cetera, can pass through to the space beneath the floor.

3.2.6 The fittings shall be so designed and constructed that the top surface of the stud and of the attaching means of the ring will be flush with the fitting plate.

3.2.7 The fitting shall be designed so that the stud only shall be permanently attached within the clearance circle shown on Drawing AN7516. The diameter of the clearance circle shall be as shown and shall be concentric with the stud, to permit the attaching and detaching of mating pieces of equipment such as seats, stanchions, et cetera.

### 3.3 Strength.-

3.3.1 Stud. - The stud and its attachment to the plate or floor shall be capable of taking a 1,500-pound ultimate up-load and a 500-pound ultimate load parallel to the floor surface, simultaneously applied. The stud shall be capable of taking a 2,500-pound ultimate down-load perpendicular to the floor surface.

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3.3.2 Ring. - The ring and its attaching means shall sustain a 1,250-pound ultimate load perpendicular to the floor surface and a 500-pound ultimate load parallel to the floor surface in any direction, simultaneously applied.

3.4 Workmanship. - All details of workmanship shall be in accordance with high-grade aircraft construction practice.

#### 4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 General. - All the tests required for the testing of the fittings are classified as inspection tests, for which necessary sampling techniques and methods of testing are specified in this section. The contractor shall furnish all samples and shall be responsible for accomplishing the required tests. When inspection is conducted at the contractor's plant, all inspection and testing shall be under the supervision of the Government Inspector. Contractors not having laboratory testing facilities satisfactory to the Government shall engage the services of a commercial testing laboratory acceptable to the Inspector. The contractor shall furnish test reports, in duplicate, showing quantitative results for all tests required by this specification, and signed by an authorized representative of the contractor or laboratory, as applicable. Acceptance or approval of material during course of manufacture shall in no case be construed as a guaranty of the acceptance of the finished product.

4.2 Examination of Product. - Each fitting shall be carefully examined to determine conformance with this specification with respect to design and construction.

##### 4.3 Strength test. -

4.3.1 Sampling. - Sufficient fittings to insure consistency of manufacture shall be selected from each lot by the Inspector for subjection to the tests for strength.

4.3.1.1 Lot. - A lot shall consist of all fittings forming part of one contract or order submitted for inspection at the same time.

4.3.2 Method. - fittings shall be placed on suitable jigs and subjected to the ultimate load specified herein.

4.4 Rejection and Retest. - When any sample fails to meet the requirements for strength specified herein, the lot represented shall be rejected and returned at the contractor's expense. Any fitting failing to meet the requirements for design and construction shall be rejected and returned at the contractor's expense. Fittings which have been rejected may be replaced or repaired to correct the defects and resubmitted for all the specified tests. Before resubmitting, full particulars concerning previous rejection shall be furnished the Inspector. Fittings rejected after retest shall not be resubmitted without the specific approval of the Procuring Service.

#### 5. PREPARATION FOR DELIVERY

5.1 Application. - The packaging, packing, and marking requirements specified herein apply only to direct purchases by or direct shipments to the Government.

5.2 Preservation. - Unless otherwise specified, fittings shall be protected from corrosion in accordance with Specification AN-P-13.

5.3 Packaging. - Unless otherwise specified, fittings of the same part number shall be packaged within a full telescopic box conforming to Specification JAN-P-120 and the carton sealed with gummed paper tape. Fittings shall be packaged in multiples of 10 to a carton, the total weight not to exceed 5 pounds.

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5.4 Packing.- Unless otherwise specified, all items shall be packed for overseas shipment. Shipping containers, insofar as possible, shall contain identical number of articles, shall be uniform in size and snugly packed. The gross weight of the fully packed shipping container shall not exceed approximately 200 pounds.

5.4.1 Domestic Packing. - Unless otherwise specified, interior packages shall be packed in substantial commercial shipping containers so constructed as to insure acceptance by common or other carrier for safe transportation, at the lowest rate, to the point of delivery. All containers shall have full overlay flaps, with all flaps glued or stapled flap-to-flap. The use of corrugated or solid fiberboard having a minimum Mullen test of less than 275 pounds is prohibited. Containers shall be able to withstand storage, rehandling and reshipment without the necessity of repacking.

5.4.2 Overseas Packing. - Unless otherwise specified, for overseas shipment, the interior Packages shall be packed in shipping containers conforming to Specification JAN-P-105 or JAN-P-106. A sealed water-proof liner is required conforming to Specification JAN-P-125. Plywood when used, shall conform to type B, condition I of Specification JAN-P-139.

#### 5.5 Marking and Labeling. -

5.5.1 Packages.- Each package shall be durably and legibly marked with the following information in such a manner that the markings will not become damaged when the packages are opened:

FITTING - CARGO TIEDOWN, AIRCRAFT  
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Stock Number (USAF or Navy, as applicable)  
Manufacturer's Part Number  
Contract or Order Number  
Quantity  
Name of Manufacturer  
Name of Contractor (if different from manufacturer)

5.5.2 Shipping Container. - Each shipping Container shall be marked in accordance with the requirements applicable to the individual Services as specified in Specification 94-40645 for the Air Force, and the Navy Shipment Marking Handbook for the Navy.

#### 6. NOTES

6.1 Intended Use. - The tiedown fittings covered by this specification are intended for use in aircraft to secure cargo, seats, litter stanchions, litter straps, et cetera. to the floor.

6.2 Ordering Dae. - Requisitions, contracts, and orders should state the type of packing required.

NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Custodian:  
Air Force  
Other interest:  
Navy - BuAer