

**INCH-POUND**

MIL-R-1832D  
28 February 1989  
SUPERSEDING  
MIL-R-1832C  
8 August 1977

## MILITARY SPECIFICATION

### RUBBER BAND, PARACHUTE SUSPENSION LINE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification covers two types of rubber bands used in the packing of parachutes.

1.2 Classification. Rubber bands shall be of the following types as specified (see 6.2).

Type I - Natural rubber (2 inches long by 1/2 inch wide by 1/32 inch wall thickness)

Type II - Natural rubber (2 inches long by 3/8 inch wide by 1/16 inch wall thickness]

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications, standards, and handbook. The following specifications standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 1670

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SPECIFICATIONS

FEDERAL

- PPP-T-45 - Tape, Gummed, Paper, Rrinforced and plain, for Sealing and Securing
- PPP-B-566 - Boxes, Folding, Paperboard
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-B-676 - Boxes, Setup

STANDARDS

MILITARY

- MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shippment and Storage
- MIL-STD-147 Palletized Unit Loads
- MIL-STD-731 - Quality of Wood Members for Containers and Pallets

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS

- D 412 - Test Methods for Rubber Properties in Tension
- D 573 - Test Method for Rubber Deterioration in an Oven
- D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

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(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the 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.

### 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3), in accordance with 4.3.

#### 3.2 Material.

3.2.1 Natural rubber. The type I and type II bands shall be made from natural rubbers suitably compounded and steam cured. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification.

3.3 Physical requirements. Type I and type II rubber bands shall conform to the physical requirements specified in table I, when tested as specified in 4.4.4.

TABLE I. Physical requirements

Property	<u>Type I</u>	<u>Type II</u>
Permanent set, percent (maximum) (after 500 $\pm$ 50 percent elongation for 10 minutes)	20	15
Breaking force, pounds (minimum)		
Initial	45	
After aging	<u>1/</u>	
Ultimate elongation, percent (minimum)		
Initial	700	650
After aging	<u>1/</u>	<u>1/</u>
Weight (minimum), bands/pound	390	300

1/ Shall be not less than 75 percent of the initial figure.

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## 3.4 Dimensions.

3.4.1 Flat length. The outside flat length, doubled, shall measure 2 inches + 1/8 inch for type I and II bands.

3.4.2 Width. The width shall be uniform and shall measure 1/2 inch  $\pm$  1/16 inch for the type I band and 3/8 inch  $\pm$  1/16 inch for the type II band.

3.4.3 Wall thickness. The wall thickness shall be uniform and shall measure 1/32 inch +5 percent -0 percent for the type I band and 1/16 inch +5 percent -C) percent for the type II band.

3.5 Workmanship. The finished rubber bands shall not contain any cuts, cracks, pinholes or punctures, lumps, thin or thick areas, foreign matter? rough or nicked edges. Rubber bands shall be uniform in width and wall thickness. The rubber bands shall conform to the quality of product established by this specification and the occurrence of defects shall not exceed the applicable acceptable quality levels.

## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all produces or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements! however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point, or at all

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points in the manufacturing process necessary to assure compliance with all dimensional requirements.

4.1.3 Certificates of compliance. When certificates of compliance are submitted, the Government reserves the right to inspect such items to determine the validity of the certification.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3)
- b. Quality conformance inspection (see 4.4)

4.3 First article inspection. When a first article is required (see 3.1 and 6.2), it shall be examined for the defects specified in 4.4.2 and 4.4.3 and tested as specified in 4.4.4.

4.4 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase specification.

4.4.1.1 Component and material certification. A Certificate of compliance may be acceptable as evidence that the rubber conforms to the requirements specified in 3.2.1.

4.4.2 End item visual examination. The end items shall be examined for the defects listed in table II. The lot size shall be expressed in units of rubber bands. The sample unit shall be one rubber band. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.0.

TABLE II. End item visual defects

Examine	Defect
Workmanship	Any cuts, cracks, pinholes or punctures, lumps, thin or thick areas, foreign matter, rough or nicked edges Not of uniform thickness

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4.4.3 End item dimensional examination. The end items shall be examined to determine compliance with dimensions specified in 3.4.1, 3.4.2 and 3.4.3. The lot size shall be expressed in units of rubber bands. The sample unit shall be one rubber band. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

4.4.4 End item testing. The methods of testing specified in ASTM methods shall be followed as applicable. The end items shall be tested as specified in table III. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 1.0. Any test failure shall because for rejection of the lot.

TABLE III. Test methods

Characteristic	Require- ment refer- ence	ASTM test method	Requirements applicable to		Number deter- minations per sample unit	Results reported numerically to nearest
			Ind. unit	Lot average		
Permanent set	3.3	D 412	X		1	1 percent
Breaking force lbs/min:						
Initial	3.3	D 412	X		1	1 pound
After aging	3.3	D 573	X		1	1 pound
Ultimate elon- gation percent (minimum):						
Initial	3.3	D 412	X		1	1 percent
After aging	3.3	D 573	X		1	1 percent
Weight	3.3	STD	-	X	1	0.1 ounce

4.4.5 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

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Examine	Defect
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequences or method of application
Materials	Any component missing, damaged, or not as specified
Workmanship	Inadequate application of components, such as: incomplete sealing or closure of flap, improper taping, loose strapping or inadequate stapling Bulged or distorted container
Content	Number per container is more or less than required

4.4.6 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1, and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

Examine	Defect
Finished dimensions	Length, width, or height exceeds specified maximum requirements  Pallet pattern not as specified Interlocking of loads not as specified Load not bonded with required straps as specified
Weight	Exceeds maximum load limits
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

## 5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial, as specified (see 6.2).

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5.1.1 Level A. One hundred rubber bands of type I or type II shall be unit packing in a snug-fitting, folding paperboard box conforming to variety 1, style III, type F, class F of PPP-B-566, or set-up paperboard box conforming to type I, variety I, class A, style 4 of PPP-B-676. Box closure shall be secured with gummed paper tape conforming to type 111, grade B of PPP-T-45.

5.1.2 Commercial. Rubber bands shall be preserved in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B or Commercial, as specified (see 6.2).

5.2.1 Level A packing. Twenty-five thousand (250 boxes) type I or type II rubber bands, as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, grade V2S of PPP-B-636. Level A unit packs shall be packed 5 in length, 5 in width and 10 in depth within the shipping container. Inside dimensions of each shipping container shall approximate 23-3/4 inches in length, 18-3/4 inches in width, and 27-3/4 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed, waterproofed, and reinforced in accordance with the appendix of the container specification.

5.2.2 Level B packing. Twenty-five thousand (250 boxes) of type I or type II rubber bands, as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. Level B unit packs shall be packed 5 in length, 5 in width, and 5 in depth within the shipping container. Inside dimensions of each shipping container shall approximate 23-3/4 inches in length, 13-3/4 inches in width, and 18-3/4 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method II as specified in the appendix of the container specification.

5.2.2.1 Weather-resistant fiberboard box. When specified (see 6.2), the shipping container shall be grade V3c, V3s or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with the appendix of the container specification.

5.2.3 Commercial packing. Rubber bands preserved as specified in 5.1 shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), rubber bands packed as specified in 5.2.2 or 5.2.3, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet types shall be type I (4-way entry), type IV, or type V in accordance with MIL-STD-147. Pallets shall be fabricated from wood groups I, II, III, or IV of MIL-STD-731. Each prepared load shall be



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bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallets pattern shall be number 90 in accordance with appendix of MIL-STD-147.

5.4 Marking. In addition to any special marking required by the contract or purchase order, unit packs, shipping containers, and palletized unit loads, shall be marked in accordance with MIL-STD-129.

5.4.1 Cure date. The cure date (quarter and calendar year) shall be shown on the unit pack and shipping container in accordance with MIL-STD-129 (see 6.4).

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The rubber bands are intended for use as retainers for suspension line and static line stows in the packing of parachutes

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number and date of this specification.
- b. Type of rubber band required (see 1.2).
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1).
- d. When a first article is required (see 3.1, 4.3, and 6.3).
- e. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
- f. Whether weather-resistant fiberboard shipping containers are required for level B shipments (see 5.2.2.1).
- g. When Palletization is required (see 5.3).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should **include** specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Information. MIL-HDBK-695 establishes the expected life of rubber products in accordance with this specification and provides guidance to the ultimate user on the expected life of the rubber product during shelf storage.

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6.5 Subject term (key word) listing.

Packing  
Retainers

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL  
Navy - AS  
Air Force - 99

Preparing activity:

Army - GL

Review activities:

Army - AV, TS  
Navy - MC  
Air Force - 82

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-R-1832D		2. DOCUMENT TITLE Rubber Band, Parachute Suspension Line	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
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		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify): _____	
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	

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**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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