

MIL-C-21318C

23 October 1987

SUPERSEDING

MIL-C-21318B(AS)

6 March 1973

MILITARY SPECIFICATION

CLOTH, BEDFORD, CORD

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

1. SCOPE

1.1 Scope. This specification covers the requirements for an aircraft upholstery ribbed nylon cloth.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

* 2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

Military

PPP-P-1133

Packaging and Packing of Synthetic Fiber Fabrics

STANDARDS

Federal

FED-STD-4

Glossary of Fabric Imperfections

FED-STD-191

Textile Test Methods

Military

MIL-STD-105

Sampling Procedures and Tables for Inspection by Attributes

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to Systems Engineering and Standardization Department (Code 53), Naval Air Engineering Center, Lakehurst, NJ 08733-5100, 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 8305

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MIL-C-21318C

* 2.1.2 Other Government document The following other Government document forms a part of this specification to the extent specified herein. Unless otherwise specified, the issue shall be that in effect on the date of the solicitation.

Rules and Regulations Under the Textile Fiber Products Identification Act

* (Copies of specifications, standards and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

* 2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Standard sample. The cloth shall, unless otherwise indicated (see 6.2), match the standard sample for shade and appearance and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).

3.2 Materials

3.2.1 Yarn. The nylon filament yarn shall be a bright, high tenacity, light and heat resistant polyamide prepared from hexamethylene diamine and adipic acid or its derivatives. It shall have a minimum melting point of not less than 244°C (471.2°F). The yarn shall not be bleached in any manner or in any subsequent process.

3.3 Weave. The cloth shall be woven as shown in Figure 1.

3.4 Physical requirements. The physical requirements of the finished cloth shall be as specified in Table I when tested as specified in 4.4.

3.4.1 Dyeing and finishing The cloth shall be thoroughly scoured and then dyed to meet the color and colorfastness requirements. The cloth shall not be bleached in any manner or process. The type of dyestuff used shall not increase the flammability of clean, undyed, finish-free nylon cloth (see 6.4). Fire retardant type compounds or other finishing materials shall not be added. The dyed finished cloth shall have a maximum char length average of 7 inches.

3.5 Color. The color of the cloth shall be as specified by the procuring activity.

MIL-C-21318C

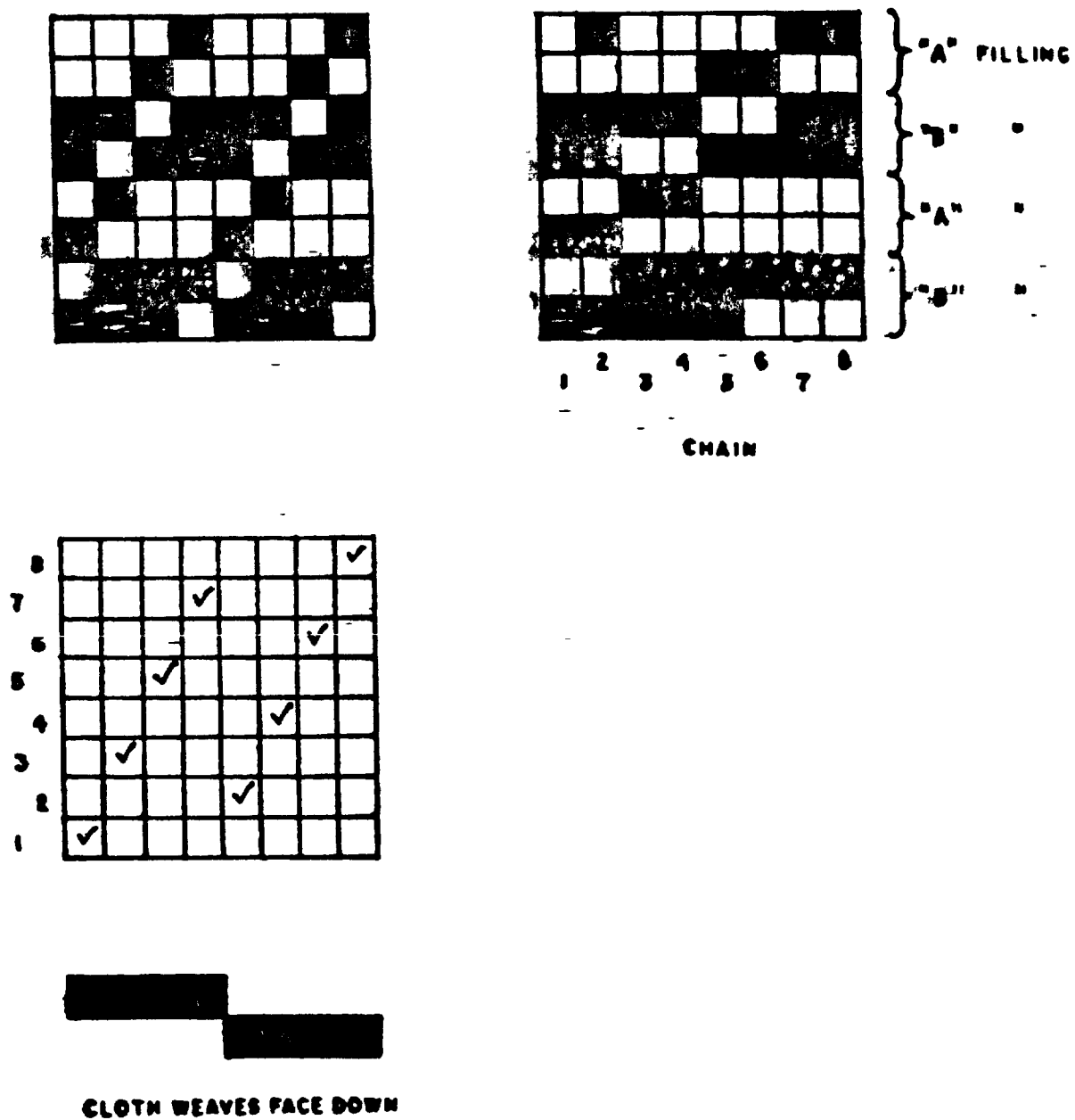


Figure 1. Weave diagram.

MIL-C-21318C

TABLE I. Physical requirements.

Characteristics	Requirements
Yarn per inch, min	
Warp	88
Filling	36
Weight, ozs/sq yd	9.0 - 11.0
Breaking strength, lbs, min	
Warp	350
Filling	225
Tearing strength, lbs, min	
Warp	20
Filling	30
Colorfastness to	
Laundering	Good
Light (40 Standard Fade-Ometer hours)	Good
Shrinkage in laundering, percent, max	
Warp	3.0
Filling	2.0
pH	5.0 - 8.5

* 3.5 Matching The color and appearance of the dyed and finished cloth shall match the standard sample when viewed under filtered tungsten lamps which approximate artificial daylight having a correlated color temperature of $7500 \pm 200K$, with illumination of 100 ± 20 foot candles, and shall be a good match to the sample under incandescent lamplight at $2300 \pm 200K$

3.6 Width The width shall be as specified and shall be the minimum acceptable width inclusive of selvages.

* 3.7 Length The cloth shall be furnished in rolls of not less than 40 yards or more than 120 yards in length. Each roll shall contain no more than 2 pieces and no piece shall be less than 40 yards in length.

3.8 Fiber identification Each roll of cloth shall be labeled, ticketed, or invoiced for fiber content in accordance with the Rules and Regulations Under the Textile Fiber Products Identification Act.

3.9 Workmanship. The dyed finished cloth shall conform to the quality and grade of product established by this specification. The occurrence of defects shall not exceed the point level specified

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

MIL-C-21318C

of all inspection requirements 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

* 4.1.1 Responsibility for compliance. All items must 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 assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Certificate of compliance. Where certificates of compliance are submitted in accordance with 4.6, they shall contain verifiable actual test and inspection data. The Government reserves the right to inspect and test the cloth to verify the validity of the certification.

4.2 Classification of inspections. The inspections specified herein are classified as quality conformance inspections.

4.3 Quality conformance inspection. The quality conformance inspection shall consist of all the inspections described in the specification and the end item tests of 4.4.

4.4 Examination of the end item. Examination of the end item shall be in accordance with 4.4.1 through 4.6.

4.4.1 Yard-by-yard examination. Each roll in the sample shall be examined on the face side only. When the total yardage in the roll does not exceed 100 yards, the entire yardage in the roll shall be examined. When the total yardage in the roll exceeds 100 yards, only 100 yards shall be examined. All defects as defined in Section III of FED-STD-4 which are clearly noticeable at normal inspection distance (3 feet) shall be scored and assigned demerit points as listed in 4.4.1.1. Only those slubs and knots which exceed the limits shown on Figure 2 of FED-STD-4 shall be scored. No linear yard (increments of 1 yard on the measuring device of the inspection machine) from any one roll within the sample shall be penalized more than 4 points. The sample size shall be in accordance with Table II. The lot shall be unacceptable if the points per 100 square yards of the total yardage examined exceeds 50 points. The lot shall be unacceptable if the points per 100 square yards of two or more individual rolls exceed 75 points. If one roll exceeds 45 points per 100 square yards, a second sample equal in size to that of the first sample shall be examined only for individual roll quality examination. The lot shall be unacceptable if one or more rolls in the second sample exceeds 45 points per 100 square yards. Point computation for lot quality and individual roll quality shall be as follows:

MIL-C-21318C

$$\frac{\text{Total points scored in sample} \times 3600}{\text{Contracted width of cloth (inches)} \times \text{total yards inspected}} = \text{Points per 100 square yards}$$

TABLE II. Sample size.

Lot size (yards)	Sample size (rolls) 1/
3200 or less	8
3201 up to and including 10,000	13
10,001 and over	20

1/ No more than one roll shall be taken from any shipping container unless the number of shipping containers in the lot is less than the required number of rolls in which case all shipping containers shall be present in the sample.

4.4.1.1 Demerit points. Demerit points shall be assigned as follows:

<u>Defect</u>	<u>Points</u>
Defect 3 inches or less in any dimension	1 point
Defect exceeding 3 inches, but not exceeding 6 inches in any dimension	2 points
Defect exceeding 6 inches, but not exceeding 9 inches in any dimension	3 points
Defect exceeding 9 inches in any dimension	4 points

The following defects, when present, shall be scored four points for each yard in which they occur:

Baggy, ridgy or wavy cloth
 Width less than specified
 Uneven weaving

4.4.2 Examination for length.

4.4.2.1 Individual rolls. During the yard-by-yard examination, each roll in the sample shall be examined for length. Any length found to be less than the minimum specified or more than 2 yards less than the length marked on the ticket shall be considered a defect with respect to length. The lot shall be unacceptable if two or more rolls in the sample are defective in respect to length.

MIL-C-21318C

4.4.2.2 Total yardage in sample The lot shall be unacceptable if the total of the actual lengths of rolls in the sample is less than the total of the lengths marked on the tickets. The rolls examined shall be those selected for the examination of individual rolls.

4.5 Examination of preparation for delivery requirements. Examination shall be made in accordance with the provisions of PPP-P-1133 to determine that packaging, packing and marking complies with the Section 5 requirements

4.6 Tests. The methods of testing specified in FED-STD-191 wherever applicable and as listed in Table IV shall be followed. The physical and chemical values specified in Section 3 apply to the results of the determinations made on a sample unit for test purposes as specified in the applicable test methods. The sample unit shall be 3-1/2 continuous yards full width of the dyed and finished cloth and one continuous full yard full width of the unfinished cloth. The lot size shall be expressed in units of 1 yard. The lot shall be unacceptable if one or more sample units fail to meet any test requirement specified. All test reports shall contain the individual value utilized in expressing the final result. The sample size (number of sample units) shall be in accordance with Table III

TABLE III. Sample size.

Lot size (units)	Sample size
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

TABLE IV. Test methods.

Characteristic	Reference Paragraph	Test Method
Melting point	3.2	1533
Bleaching	3.2	1/
Weave	Figure 1	Visual
Yarns per inch	Table I	5050
Weight	Table I	5041
Breaking strength	Table I	5100
Tearing strength	Table I	5134
Dyestuff	3.4.1	1/
Flame retardant compound	3.4.1	1/
Flame resistance	3.4.1	5903
Shrinkage	Table I	5552
Colorfastness to		
Laundering	Table I	5614
Light	Table I	5660
pH	Table I	2811

1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirement. Manufacturer shall state the test method used.

MIL-C-21318C

5. PREPARATION FOR DELIVERY

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

5.1.1 Level A and C The cloth shall be preserved in accordance with the applicable requirements of PPP-P-1133.

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

5.2.1 Levels A, B and C The cloth shall be packed in accordance with the applicable requirements of PPP-P-1133.

5.3 Marking. In addition to any special marking required by the contract or order, shipments shall be marked in accordance with PPP-P-1133.

6. NOTES

6.1 Intended use. The cloth covered by this specification is intended for use in the fabrication of aircraft upholstery.

6.2 Ordering data Procurement documents should specify the following:

- a Title, number and date of this specification.
- b Color of cloth required (see 3.5).
- c Width of cloth required (see 3.6).
- d Length required if other than specified (see 3.7)
- e Selection of applicable levels of put-up, packaging and packing (see 5.1 and 5.2)

6.3 Standard sample For access to standard sample, address the procuring office issuing the invitation for bids.

6.4 Most of the acetate and acid dyes have slight or no effect on flammability of nylon cloth, but many of the chrome and other metallized dyes are known to appreciably increase the flammability of nylon cloth.

* 6.5 Subject term (keyword) listing.

Bedford
Cloth
Cord
Ribbed nylon
Upholstery

MIL-C-21318C

6.6 Changes from previous issue. The margins of this specification are marked with asterisks (or vertical lines) to indicate where changes (additions, modifications, corrections, deletions) from the previous addition were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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(Project No. 8305-N169)

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