

MIL-W-9406B(USAF)

2 February 1971

SUPERSEDING

MIL-W-9406A(USAF)

29 October 1965

MILITARY SPECIFICATION

WEBBING, TEXTILE, INTEGRAL LOCKING LOOP

1. SCOPE

1.1 This specification establishes the requirements for one type of cotton webbing.

2. APPLICABLE DOCUMENTS

- * 2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-W-43334

Webbing And Tape, Textile, Packaging
And Packing Of

STANDARDS

Federal

FED-STD-191

Textile Test Methods

Military

MIL-STD-105

Sampling Procedures And Tables For
Inspection By Attributes

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

Rules And Regulations Under The Textile Fiber Products Identification Act

(Application for copies should be addressed to the Federal Trade Commission, Washington DC 20508.)

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3. REQUIREMENTS

3.1 Bid or preproduction sample approval. (See 4.2 and 6.2.)

3.1.1 Bid sample or laboratory report approval. Unless otherwise specified at the time of submission of a bid, the bidder shall submit to the contracting officer a 2-yard sample and a certified copy of a recent laboratory report covering the material which he proposes to deliver. Unless otherwise specified by the contracting officer, the bidder shall certify that the sample submitted was manufactured in a mill of the bidder's or quotation as the plant producing the material. This laboratory report shall contain test data which demonstrate that the finished product which the contractor proposes to deliver has been tested and found to comply with the requirements of this specification. Any of the following types of reports will be satisfactory from the standpoint of this requirement:

- a. An independent or commercial laboratory report.
- b. The prospective contractor's own laboratory report.
- c. A Governmental Laboratory Report from a contract within not more than six months prior to date of submission for bid.

The purpose of the above requirement is to assist the Government to determine the capability of bidders to manufacture webbing meeting all the requirements of the specification. The submission of an acceptable sample under this requirement shall not be construed as relieving a contractor from subsequently meeting all requirements of the specification on all deliveries.

3.1.2 Preproduction sample approval. When specified (see 6.2), before production is commenced, a sample of the finished item shall be submitted or made ready for the contracting officer or his authorized representative for inspection as specified in 4.2.2. The approval of the preproduction sample authorizes the commencement of production but does not relieve the supplier of responsibility for compliance with all applicable provisions of this specification. The preproduction sample shall be manufactured by the supplier in the same facilities to be used for the manufacture of the production item.

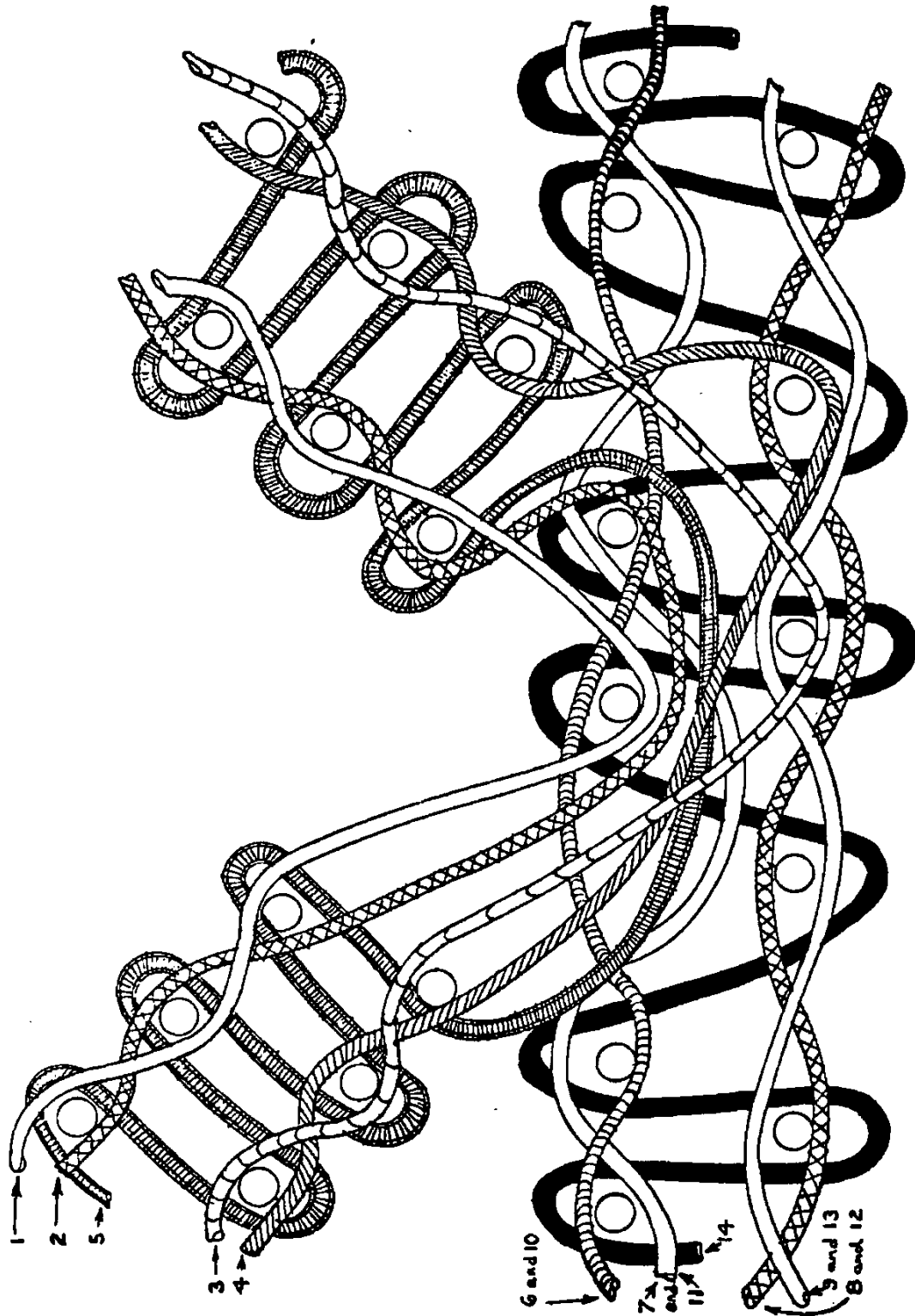
3.2 Material. The cotton shall be cleaned and carded or combed, and shall be of suitable grade and staple length.

- * 3.3 Construction and physical requirements. The webbing shall conform to Table I and the following requirements when tested as specified in 4.4, wherever applicable

3.3.1 Weave. The webbing shall be woven in accordance with Figure I and in such a manner as to produce loops which tend to lie flat and in the same direction.

3.3.2 Loops. The loops shall form a junction with the base webbing every $1\frac{1}{4} \pm 1/16$ inch when measured along the base webbing. The loops shall be of such a size as to allow the insertion of a $7/8$ inch diameter mandrel, but shall prevent the insertion of a mandrel with a diameter greater than $15/16$ inch.

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INTERWEAVE OF POCKET AND BASE ENDS IN CROSS SECTION, ONE REPEAT IN FILLING DIRECTION

FIGURE 1

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TABLE I
CONSTRUCTION AND PHYSICAL PROPERTIES

| | |
|---|--------------|
| Weight, ounces per yard | 8.19 - 9.0 |
| Thickness, inches | |
| Base webbing | 0.085 ±0.015 |
| Loop webbing | 0.085 ±0.015 |
| Width, inches | |
| Base, webbing | 3-1/2 ±1/8 |
| Loop, Webbing | 2 ±1/16 |
| Breaking strength, full width, pounds, min. | |
| Webbing | 1100 |
| At junction of loop and base webbing | 500 |
| Yarns | |
| Base warp ends, total | 263 of 3 ply |
| Base binder ends, total | 32 of 3 ply |
| Loop warp ends, total | 87 of 4 ply |
| Loop binder ends, total | 20 of 3 ply |
| Base filling picks per inch, min. | 28 |
| Loop filling picks per inch, min. | 34 |

3.4 Color. The color of the webbing and the loop shall be natural.

3.5 The use of detergents, or chemical or finishing agents which would cause deterioration or affect the color of the webbing under normal warehouse conditions or cause dermatitis on prolonged contact is prohibited.

3.6 Length of roll. Unless otherwise specified, each roll shall contain not less than 25 yards. No roll shall contain more than 3 pieces and no piece shall contain less than 3 yards. (See 6.2)

3.7 Identification of product. Each roll of webbing shall be marked for identification in accordance with MIL-W-43334.

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

3.9 Workmanship. The finished webbing shall conform to the quality and grade of product established by this specification. 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 supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein,

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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.

4.2 Preacceptance inspection.

4.2.1 Bid sample inspection. The bid sample submitted in accordance with 3.1.1 shall be visually inspected for appearance, color and finish. The data contained in the report shall be obtained in accordance with the requirements of this specification.

4.2.2 Preproduction sample inspection. When required, the preproduction sample submitted in accordance with 3.1.2, shall be visually inspected for appearance and color. The sample shall be tested for physical and chemical characteristics in accordance with 4.4 to the extent applicable.

4.3 Inspection of the end item.

* 4.3.1 Examination of the end item. Defects found during the examination shall be classified in accordance with Table III, 4.3.1.1, 4.3.1.2 and 4.3.1.3.

TABLE III

CLASSIFICATION OF DEFECTS

| <u>Defect</u> | <u>Description</u> | <u>Classification</u> | |
|---|--|-----------------------|--------------|
| | | <u>Major</u> | <u>Minor</u> |
| Abrasion mark | Resulting in the rupture of individual yarns or plies, distortion in the orientation of threads, dimensional distortion, areas noticeably thinner than adjoining unaffected areas, or in nap sufficient to obscure the identity of any yarn. | X | |
| Broken or missing end | Two or more contiguous, regardless of length | X | |
| | Single, missing more than 1 inch | | X |
| Broken or missing pick | Ground (base and loop fabric) | X | |
| | Single | | X |
| At interweave (of base and loop fabric) | Any broken or missing pick | X | |
| Construction of loop | Loop fabric not tightly interwoven with base fabric, i.e., filling of loop fabric not beaten up close to base fabric at interweave. | X | |

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TABLE III - CLASSIFICATION OF DEFECTS (Cont'd)

| <u>Defect</u> | <u>Description</u> | <u>Classification</u> | |
|--|---|-----------------------|--------------|
| | | <u>Major</u> | <u>Minor</u> |
| Hole, cut, or tear | Any hole, cut or tear | X | |
| Double pick | Extending full width of webbing | | X |
| Edges | Cut, torn or frayed | X | |
| | Loose, resulting in loosely interwoven or shifting warp ends clearly visible <u>1/</u> | X | |
| | Loose, resulting in waviness or lack of firmness in affected areas. | | X |
| | Loopy or beady, clearly visible <u>1/</u> | | X |
| Fine or light filling bar | Clearly visible <u>1/</u> fine or light filling bar resulting in visible difference in stiffness or thickness of webbing. | X | |
| Fine thread or drop ply | Less than 1/2 the normal thickness | | X |
| Float Ground (base and loop fabric) | Multiple, more than 1/2 inch in combined warp and filling | X | |
| | Multiple, 1/2 inch or less in combined warp and filling directions | | X |
| | Single, over 1 inch in length | X | |
| | Single, over 1/2 inch, but not over 1 inch in length | | X |
| At interweave (of loop and base fabric) | Any multiple float | X | |
| | Single, over 1 inch in length | X | |
| | Single, over 1/2 inch, but not over 1 inch | | X |
| | Kink or loop - inside of loop | X | |
| | Knot - oversized or untrimmed end on inside of loop | X | |

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TABLE III - CLASSIFICATION OF DEFECTS (Cont'd)

| <u>Defect</u> | <u>Description</u> | <u>Classification</u> | |
|---|--|-----------------------|--------------|
| | | <u>Major</u> | <u>Minor</u> |
| Mispick | At interweave of loop with base fabric | X | |
| | In base or loop fabric, except at interweave | | X |
| Slack end | Multiple, jerked in between picks, or resulting in soft, wavy or weak spot | X | |
| | Single, jerked in between picks | | X |
| Slack warp | Causing distortion, bagginess, or irregular position of filling | X | |
| Slub or Slug | More than 3 times the thickness of the normal yarn | | X |
| Smash | Any smash | X | |
| Spot, stain or streak | Clearly visible <u>1/</u> | | X |
| Weak or soft spot | Any weak or soft spot | X | |
| Wrong draw | Extending for 6 inches or more | | X |
| Width | Base fabric | | |
| | Less than 3-3/8 inches | X | |
| | More than 3-5/8 inches | | X |
| | Loop fabric | | |
| | Less than 1-15/16 inches | X | |
| | More than 2-1/16 inches | | X |
| Loop spacing (measured along base fabric) | More than 1-5/16 inches | X | |
| | Less than 1-3/16 inches | | X |

1/ At normal inspection distance (approximately 3 feet).

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4.3.1.1 Yard-by-yard examination. The required yardage of each roll shall be inspected for the defects listed below. All defects found shall be counted regardless of their proximity one to another, except where two or more defects represent a single local condition of the webbing, in which case only the more serious defect shall be counted. A continuous defect shall be counted as one defect for each warpwise yard or fraction thereof in which it occurs. The unit of product for this examination shall be one linear yard. The sample size shall be in accordance with Level II, MIL-STD-105. The acceptable quality level shall be 0.40 major and 1.5 total defects (major and minor combined) per 100 units (yards). The lot size shall be expressed in units of one (1) yard each. An approximate equal number of yards shall be examined from each roll selected. The number of rolls from which the sample is to be selected shall be in accordance with Table IV.

4.3.1.2 Overall examination. Each defect listed below shall be counted no more than once in each roll examined. The unit of product for this examination shall be one (1) roll. The sample size and acceptance number shall be as shown in Table IV.

Defects

Overall uncleanness
 Objectionable odor
 Color, other than natural
 Uneven weaving throughout
 Width, beyond specified tolerances

TABLE IV

| <u>Lot Size in Yards</u> | <u>Sample Size in Rolls</u> | <u>Maximum Number of Defects Acceptable</u> |
|---------------------------------------|-----------------------------|---|
| 1300 and less ^{1/} | 3 | 0 |
| 1301 up to and including 3200 | 5 | 0 |
| 3201 up to and including 8000 | 7 | 0 |
| 8001 up to and including 22,000 | 10 | 1 |
| 22,001 up to and including 110,000 | 15 | 1 |
| 110,001 and over | 25 | 1 |

^{1/} If a lot contains fewer than three (3) rolls, each roll in the lot shall be examined.

4.3.1.3 Examination for length.

4.3.1.3.1 Examination for length of individual rolls. Each defect listed below shall be counted not more than once in each roll examined. The unit of product for this examination shall be one (1) roll. The acceptance number shall be as shown in Table IV.

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Defects

Any gross length found to be more than 2 yards below the gross length marked on the roll ticket.

Any gross length less than the minimum specified.

Any gross length more than the maximum specified.

Any piece in roll less than 3 yards long.

Any roll containing more than 3 pieces.

4.3.1.3.2 Examination for total yardage in sample. The lot shall be unacceptable if the actual gross lengths of rolls in the sample is less than the total of the gross lengths marked on the roll tickets.

4.3.2 Examination of preparation for delivery. An examination shall be made in accordance with provisions of MIL-W-43334. Defects will be scored in accordance with the table below. The sample unit shall be one shipping container fully prepared for delivery. The lot size shall be the number of containers in the inspection lot. The sample size shall be in accordance with Inspection Level S-2 of MIL-STD-105. The acceptable quality level for this examination shall be 4.0 defects per hundred units.

| <u>Examination</u> | <u>Defect</u> |
|-----------------------------------|---|
| Markings Exterior and interior | Omitted; incorrect; illegible; of improper size, location, sequence or method of application. |
| Materials | Any nonconforming component; component missing, damaged or otherwise defective affecting serviceability. |
| Workmanship | Inadequate application of components such as incomplete closure of case liners, container flaps, loose strapping, et cetera. Bulging or distortion of containers. |
| Weight Exterior | Gross/Net weight exceeds requirement. |

4.4 Testing of the end item. The methods of testing specified in FED-STD-191, wherever applicable and as listed in Table V, 4.5 thru 4.5.1 shall be followed. The physical and chemical values specified in section 3 apply to the average of the determinations made on a unit of product for test purposes as specified in the applicable test methods. The acceptable quality level for each characteristic shall be 6.5 test failures per 100 units. The sample size shall be in accordance with Inspection Level S-1 of MIL-STD-105. The lot size shall be expressed in units of one (1) linear yard. The unit of product for testing shall be 8 linear yards.

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TABLE V

| <u>Characteristic</u> | <u>Requirement</u> | <u>Test Method</u> | <u>No. Det. per Indiv. Unit</u> | <u>Results Reported as</u> |
|---|--------------------|--------------------|---------------------------------|--|
| Weight oz/lin yd | Table I | 5041 | 5 | Avg of the 5 det. to nearest 0.1 oz. |
| Thickness | Table I | 5030 | 5 | Avg of the 5 det. to nearest .001 inch |
| Breaking strength Full width | Table I | Para 4.5 | 5 | Avg of the 5 det. to nearest 1.0 lb. |
| Junction of loop and base | Table I | Para 4.5.1 | 5 | Avg of the 5 det. to nearest 1.0 lb. |
| Warp (total ends) Base Warp | Table I | 5050 | 5 | Avg of the 5 det. to the nearest whole number |
| Loop Warp | Table I | 5050 | 5 | Avg of the 5 det. to the nearest whole number. |
| Filling (picks per inch) Base filling | Table I | 5050 | 5 | Avg of 5 det. to the nearest whole number |
| Loop filling | Table I | 5050 | 5 | Avg. of 5 det. to the nearest whole number |
| Weave | Figure 1 | Visual | 1 | Pass or fail |
| Loops | Para 3.3.2 | Para 3.3.2 | 1 | Pass or fail |
| Ply | | | | |
| Warp | | | | |
| Base | Table I | Visual | 1 | Pass or fail |
| Loop | Table I | Visual | 1 | Pass or fail |
| Binder | | | | |
| Base | Table I | Visual | 1 | Pass or fail |
| Loop | Table I | Visual | 1 | Pass or fail |
| Filling | | | | |
| Base | Table I | Visual | 1 | Pass or fail |
| Loop | Table I | Visual | 1 | Pass or fail |

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4.5 Breaking strength. Breaking strength shall be made in accordance with method 5100 of FED-STD-191 except that split-drum type of jaws (approximately 3-3/4 inches in diameter and 4 inches in length) shall be used and the no-load rate of jaw separation shall be from 4 to 10 inches per minute. The distance between jaws at the start of the test shall be 10 ±1/2 inches.

NOTE: Laboratory reports shall specify the separation rate of the pulling jaws utilized in the breaking strength test.

4.5.1 Breaking strength of junction. One end of the webbing shall be placed in one jaw of the machine. A 7/8 inch diameter mandrel shall be inserted through a loop at least 10 inches from the first jaw. The mandrel shall be attached to the movable jaw of the machine and the machine operated until a break occurs. A total of 5 breaks shall be obtained on one specimen by moving the mandrel on loop closer to the first jaw after each break. The breaking strength reported shall be the average of the 5 determinations made on one specimen of webbing.

5. PREPARATION FOR DELIVERY

5.1 Packaging and packing. The webbing shall be packaged and packed in accordance with MIL-W-43334.

6. NOTES

6.1 Intended use. The webbing covered by this specification is intended for use in the manufacture of troop-type parachute packs.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this specification.
- b. When bid and laboratory approval is not required (see 3.1.1 and 4.2.1).
- c. When preproduction sample is required (see 3.1.2 and 4.2.2).
- d. Length of roll required (if other than specified in 3.6).

6.3 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue 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.

Custodian:
Air Force - 82

Preparing Activity:
Air Force - 82

Review Activity:
Air Force - 82

Project No. 8305-F155

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 22-R255

INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.

SPECIFICATION

ORGANIZATION

CITY AND STATE

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

 DIRECT GOVERNMENT CONTRACT SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

YES NO (If "yes", in what way?)

4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)

SUBMITTED BY (Printed or typed name and activity - Optional)

DATE

DD FORM 1426
1 JAN 66

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.