

INCH-POUND

MIL-F-44422

27 December 1990

SUPERSEDING

(See 6.4)

MILITARY SPECIFICATION

FIBER ROPE ASSEMBLY, INSERTION/EXTRACTION

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

1. SCOPE

1.1 Scope. This specification covers a fiber rope assembly (see 6.1).

1.2 Classification. The rope assembly shall be of the following types as specified (see 6.2).

Type I - 60 feet long (+5%, -0%)
Type II - 90 feet long (+5%, -0%)
Type III - 120 feet long (+5%, -0%)

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. 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 used in improving this document should be sent to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5019 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4020

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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SPECIFICATIONS

FEDERAL

- UI-T-81 - Tag, Shipping and Stock
- PPP-B-601 - Boxes, Wood, Cleated-Plywood

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods
- FED-STD-595 - Colors Used in Government Procurement

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment 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 Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS

U.S. ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

- 11-1-3957 - Fiber Rope Assembly, Insertion/Extraction

(Copies of drawings are available from the U.S. Army Research, Development, and Engineering Center, ATTN: STRNC-UX, Natick, MA 01760-5017.)

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).

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 276 - Identification of Fibers in Textiles
- D 3951 - Standard Practice for Commercial Packaging

(Applications for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

(Non-Government standards and publications are normally available from 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 Government and contractor purchases. The requirements specified in 3.7 and 3.8 apply only to rope purchased directly by the Government. All other requirements apply both to rope purchased by a contractor as a component for an end item and to rope purchased directly by the Government.

3.3 Material.

3.3.1 Main rope. The main rope shall be fabricated from virgin continuous filament, heat and light resistant polyethylene terephthalate type polyester with a staple wrap. The rope shall be dyed green to approximate any color in the range indicated by color chips 34052, 34079, 34086, 34092, 34096, 34097, 34098, 34102, 34108, and 34128 of FED-STD-595. Testing shall be as specified in 4.4.1.1.

3.3.2 White extraction loops rope. The extraction loops rope shall be fabricated from bright, virgin, continuous filament, heat and light resistant nylon of at least 6 denier size, having a minimum tenacity of 8.5 grams per denier. The nylon shall be a long chain polymer made of hexamethylene diamine and adipic acid, or a long chain polymer of epsilon amino caproic acid. Mixture of nylon types shall be prohibited in any one rope. Testing shall be as specified in 4.4.1.1.

3.3.3 Safety line rope. The safety line rope shall be fabricated from continuous filament, U.V. stabilized nylon having a minimum tenacity of 6.5 grams per denier. Mixture of nylon types shall be prohibited in any one rope. The rope shall be dyed black to approximate any color in the range indicated by color chips 27040, 37038, and 37056 of FED-STD-595. Testing shall be as specified in 4.4.1.1.

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3.4 Component construction.

3.4.1 Main rope. The rope shall be constructed of eight strands arranged in four pairs, where one individual strand shall be laid adjacent to the second strand in each pair, and shall conform to the requirements specified herein and in table I. Individual strands shall be made of one size of singles yarn and shall have an equal number of yarns. The yarn shall be 40000 to 50000 denier and shall be "S" and "Z" twist. The rope shall be constructed without knots or splices in the strands of the rope. However, knots will be permitted in the singles yarn. In preparation of the constituent rope strands, the pattern "SZ" shall be employed in the twisting of the yarns and the individual strands of the two pairs while the components of the remaining pairs shall be twisted in the "ZS" pattern. The finished rope shall be so constructed that in the interweaving procedure, pairs of strands of the former structure shall be twisted in the "Z" direction, while alternating pairs of the latter shall be twisted simultaneously in the "S" direction. Heat setting of the rope or any portion of its components shall not be permitted.

3.4.2 White extraction loops rope. The rope shall be constructed of eight strands arranged in four pairs, where one individual strand shall be laid adjacent to the second strand in each pair and shall conform to the requirements specified herein and in table I. Individual strands shall be made of one size of balanced 3-ply yarns and shall have equal numbers of plied yarns. The singles yarn shall be 4000 to 10000 denier. The rope shall be constructed without knots or splices in the singles yarn, 3-ply yarns, strands, or rope. Knots in the single filaments are acceptable. In the preparation of the constituent rope strands, the pattern "SZS" twist shall be employed in the twisting of the singles yarns, the 3-ply yarns and the individual strands of two pairs, while the components of the remaining pairs shall be twisted in the "ZSZ" pattern. The finished rope shall be so constructed that in the interweaving procedure, pairs of strands of the former structure shall be twisted in the "Z" direction, while alternating pairs of the latter structure shall be twisted simultaneously in the "S" direction. The finished rope shall be heat set. Dry heat setting is prohibited.

3.4.3 Safety line rope. The rope shall be constructed of eight strands arranged in four pairs, where one individual strand shall be laid adjacent to the second strand in each pair and shall conform to the requirements specified herein and in table I. Individual strands shall be made of one size of balanced 3-ply yarns and shall have equal numbers of plied yarns. The singles yarn shall be 4000 to 10000 denier. The rope shall be constructed without knots or splices in the singles yarn, 3-ply yarns, strands, or rope. Knots in the single filaments are acceptable. In the preparation of the constituent rope strands, the pattern "SZS" twist shall be employed in the twisting of the singles yarns, the 3-ply yarns and the individual strands of two pairs, while the components of the remaining pairs shall be twisted in the "ZSZ" pattern. The finished rope shall be so constructed that in the interweaving procedure, pairs of strands of the former structure shall be twisted in the "Z" direction, while alternating pairs of the latter structure shall be twisted simultaneously in the "S" direction. The finished rope shall be heat set. Dry heat setting is prohibited.

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TABLE I. Component physical requirements.

Characteristic	Main rope	Extraction loops rope	Safety line rope
Diameter in inches <u>1/</u>	1-3/4	9/16	9/16
Circumference in inches at load "P" <u>2/</u>	5-1/2 \pm 1/4	1-3/4 \pm 1/8	1-3/4 \pm 1/8
Load "P" (pounds) <u>2/</u>	610	65	65
Breaking strength minimum (pounds)	35,000	--	--
Hardness minimum/maximum (pounds)	325/450	4/12	30/60
Feet per pound at load "P" <u>2/</u>	1.23 \pm 5%	10.79 \pm 5%	10.34 \pm 5%
Elongation maximum (percent)	59%	--	--
Loss in breaking strength after heat aging, not exceeding (percent)	10%	10%	10%
Moisture content maximum (percent)	5%	5%	5%
Extractable matter maximum (percent)	4%	4%	4%

1/ Not a specification requirement; included for information only.

2/ The load "P" (pounds) shall be equal to 200 times the square of the nominal diameter of the rope in inches ($P = 200D^2$).

3.5 Construction of assembly. The fiber rope assembly shall be constructed in accordance with 3.5.1, 3.5.2 and 3.5.3, and Drawing 11-1-3957.

3.5.1 Main rope. The main rope shall have an eye splice on one end with a minimum of 4 inches and a maximum of 6 inches inside length. The eye splice shall be made using a minimum of three full tucks and two half tucks. The free end shall be seared and whipped.

3.5.2 White extraction loops rope. The white nylon extraction loops rope shall be passed through the center of the main rope five picks up from the free end and eye spliced around the outer half of the main rope. At the end of the eye splice, the white rope shall pass through the center of the main rope to form the

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bottom of the first loop, and then enter again through the center of the main rope three picks up from the bottom of the first loop to form the first loop. Each white loop shall consist of 10 inches (+ 1 inch) of exposed rope. After the white rope has been passed through the center of the main rope forming a loop, it shall be passed back through the center of the main rope one and one-half picks up, and then passed through the center of itself where it last entered the main rope. The white rope will then be passed through the center of the main rope two and one-half picks up from the top of the last loop, then passed back through the center of the main rope two picks up from the last exit, then passed back through the center of itself, and passed back through the center of itself and passed back through the center of the main rope one pick up from where it had last passed through itself, forming the bottom of the second loop. The same procedure shall be followed to make the second and third white loops. After making the third loop, the white nylon rope shall be passed through the center of the main rope three and one-half picks up from the top of the third loop, and then eye spliced around the outer half of the main rope. Each eye splice in the white nylon rope shall consist of four full and two half tucks.

3.5.3 Safety line rope. The black nylon safety line rope shall pass through the center of the main rope one and one-half picks above, and on the same side as, the upper eye splice of the extraction loops rope. The black nylon safety line rope shall then pass through the two securing passes of the extraction loops rope, on the same side as the main rope, then through the center of the main rope, one pick above the lower eye splice of the extraction loops rope. After passing through the main rope, the safety line rope will then be passed through the securing passes on the opposite side of the first two, and the rope will then be spliced to itself with a short splice between the top eye and the top securing pass. After being spliced together, the safety line rope shall extend out as far as the extraction loops, and shall not interfere with the extraction loops.

3.6 Physical requirements.

3.6.1 Finished assembly. The finished fiber rope assembly, consisting of the main rope, extraction loops rope, and safety line rope shall conform to the physical properties listed in table II when tested as specified in 4.4.6.

TABLE II. End item physical requirements.

	Breaking strength, minimum (pounds)
Extraction loops (each)	9,000
Safety line rope	9,000

3.7 Identification. Each rope assembly shall have a ticket (identification tag) attached for identification purposes. The ticket shall conform to the requirements for type B, class 1, size 4 or 5 of UU-T-81. The ticket shall be made of not less than 15-point paper stock and have a minimum tearing resistance

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in both directions (total) of 850 grams when tested as specified in UU-T-81. All ticket entries shall be legibly printed, stamped, or typed with water insoluble ink. The ticket shall contain the following information:

National stock number
 Nomenclature
 Specification number
 Length and weight
 Contract number and date
 Contractor's name
 Date of manufacture (month and year)

3.8 Workmanship. The end item 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 products 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 points in the manufacturing process necessary to ensure 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.

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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 through 4.4.5, and tested as specified in 4.4.6.

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 document.

4.4.1.1 Component testing. The main rope, extraction loops rope, and safety line rope components shall each be tested for the characteristics listed in table IV. The lot size shall be expressed in units of yards of rope. The sample unit shall be 12 yards of rope for the main rope, and 14 yards each for both the extraction loops rope and safety line rope. The inspection level shall be S-1. The lot shall be unacceptable if one or more of the sample units fails to meet any requirement.

TABLE III. Component tests.

Characteristic	Requirement paragraph	Test method
Material		
Main rope	3.3.1	D 276 <u>1/</u> <u>2/</u>
Extraction loops rope	3.3.2	D 276 <u>1/</u> <u>2/</u>
Safety line rope	3.3.3	D 276 <u>1/</u> <u>2/</u>
Color	3.3.1 and 3.3.3	9010 <u>3/</u>
Hardness	Table I	6020 <u>3/</u> <u>4/</u>
Moisture content	Table I	2600 <u>3/</u>
Extractable matter	Table I	2611 <u>3/</u>
Circumference	Table I	<u>5/</u>
Length per pound	Table I	6004 <u>3/</u>

1/ ASTM test method.

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- 2/ A certificate of compliance shall be submitted.
- 3/ Test method in FED-STD-191.
- 4/ The length of the rope previously used in the weight determination shall be taped off at each end and used as the test sample.
- 5/ The circumference shall be measured at the beginning of the breaking strength test with the specimen under the load "P" specified in table I. A hard fiber shall be passed snugly around the rope and cut where it overlaps. The cut length shall be straightened and measured to the nearest 1/4 inch for the main rope and to the nearest 1/8 inch for the extraction loops rope and safety line rope. This determination shall be repeated at least three times in different positions not less than two turns of rope apart. The average of these determinations shall be the circumference of the rope.

4.4.2 End item critical defect examination. Every end item, prior to the visual and dimensional examinations in 4.4.3 and 4.4.4, shall be examined for the critical defects listed in table V. Any end item found to contain one or more critical defects shall be rejected.

4.4.3 End item visual examination. The finished fiber rope assemblies shall be examined for the defects listed in table V. The lot size shall be expressed in units of finished rope assemblies. The sample unit shall be one finished rope assembly. The inspection level shall be S-4, and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for total (major and minor combined) defects. Any critical defect found during sampling shall be cause for rejection of the lot represented by the sample.

TABLE IV. End item visual defects.

Examine	Defect	Classification		
		Critical	Major	Minor
Appearance and workmanship	Not constructed as specified	1		
	Any cut	2		
	Chafed or damaged	3		
	Kink	4		
	Knot (singles, ply, strand, or rope)	5		
	Broken or loose ends (singles, ply, strand, or rope)	6		
	Bulged strand	7		
	Ends not securely whipped, taped, or heat sealed to prevent fraying or untwisting			

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TABLE IV. End item visual defects. (cont'd)

Examine	Defect	Classification		
		Critical	Major	Minor
Color	Other than specified		101	
	Resists and/or spotty dyeing			202
	Uneven			203
Cleanness	Spot or stain, clearly visible <u>1/</u>			204
Identification	Omitted, incorrect, illegible, or not as specified			205

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

4.4.4 End item dimensional examination. The fiber rope assemblies shall be examined for the dimensions specified in the applicable drawing. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of fiber rope assemblies. The sample unit shall be one fiber rope assembly. The inspection level shall be S-3, and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

4.4.5 End item testing. The end items shall be tested as specified in 4.4.5.1. The lot size shall be expressed in units of fiber rope assemblies. The sample unit shall be one fiber rope assembly. The inspection level shall be S-1. Any test failure shall be cause for rejection of the lot.

4.4.5.1 End item breaking strength and elongation testing. The main rope, extraction loops rope, and safety line ropes of the finished fiber rope assembly shall be tested for breaking strength in accordance with Method 6015 of FED-STD-191, except that the load "P", as determined in table I, shall be used in lieu of 1 percent of the breaking strength for measurement of "O" in the elongation calculation and the extraction loops rope and safety line rope specimens shall be prepared as follows:

The main rope of the fiber rope assembly shall be cut so that at least 3 feet of clear main rope remains above the top extraction loop. As specified in Method 6015, the cut end shall be eye spliced, and the round metal pins or posts from the testing machine shall hold the specimen at the main rope eye splice and at the loop being tested. No more than one extraction loops rope and one safety line rope shall be tested per each fiber rope assembly. Any failure to meet the requirements in 3.6.1 shall be classified as a test failure.

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4.4.6 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.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, 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
Contents	Number per container is more or less than required

4.4.7 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.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern not as specified Load not bonded 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).

5.1.1 Level A preservation. Each fiber rope assembly shall be coiled and secured with at least two equally spaced ties of cord or rope passing through the center of the coil to the outside, and knotted.

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5.1.2 Commercial preservation. Each fiber rope assembly 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. Each fiber rope assembly, preserved as specified in 5.1, shall be packed in a shipping container conforming to overseas type, style A, type II load of PPP-B-601. Inside dimensions of the shipping container shall be approximately 19 inches in length, 19 inches in width, and 17 inches in depth for types I and II, and 19 inches in length, 19 inches in width and 22 inches in depth for the type III. The shipping container shall be closed and strapped as specified in the appendix of PPP-B-601.

5.2.2 Level B packing. Each fiber rope assembly, preserved as specified in 5.1, shall be packed as specified in 5.2.1, except that the shipping container shall be domestic type.

5.2.3 Commercial packing. Each fiber rope assembly, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), fiber rope assemblies packed as specified in 5.2, shall be palletized on a 4-way entry pallet in accordance with load type I 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 bonded with straps in accordance with bonding means C and D or film bonding means F or G. Pallet pattern shall be number 90 in accordance with the appendix of MIL-STD-147.

5.4 Marking. In addition to any special marking required by the contract or purchase order, shipping containers and unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

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 fiber rope assembly is intended for use during both infiltration and exfiltration of military personnel from rotary wing aircraft at elevations up to 120 feet above ground level.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Type 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, and 2.2).

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- d. When a first article is required (see 3.1, 4.3, and 6.3).
- e. Levels of preservation and packing (see 5.1 and 5.2).
- f. 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 also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Supersession data. This specification supersedes Limited Production Purchase Description No. 1087 (GL), Rope Assembly, Infiltration, Exfiltration.

6.5 Subject term (key word) listing.

Aircraft
 Cordage
 Equipment, aircraft
 Exfiltration
 Helicopter
 Infiltration

Custodians:

Army - GL
 Navy - SH
 Air Force - 99

Preparing Activity:

Army - GL
 (Project 4020-0324)

Review activities:

DLA - IS
 Air Force - 82

User activity:

Navy - MC

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of 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.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-F-44422	2. DOCUMENT DATE (YYMMDD) 1990 December 27
3. DOCUMENT TITLE FIBER ROPE ASSEMBLY, INSERTION/EXTRACTION		
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY		
a. NAME U.S. Army Natick RD&E Center	b. TELEPHONE (Include Area Code) (1) Commercial 508-651-4532	(2) AUTOVON 256-4532
c. ADDRESS (Include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: STRNC-IRT Natick, MA 01760-5019	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	