

INCH-POUND

MIL-T-82152B(MC)
28 AUGUST 1990
SUPERSEDING
MIL-T-82152A(MC)
23 May 1973

MILITARY SPECIFICATION

TARPAULIN: DUCK, COTTON, VINYL RESIN COATED
BOTH SIDES, 14 FEET LONG BY 6 FEET WIDE

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 one type and size coated tarpaulin.

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.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to the Commanding General (PSE-C), Marine Corps Research, Development, and Acquisition Command, Washington, DC 20380, 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 8340

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

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SPECIFICATIONS

FEDERAL

- T-R-605 - Rope, Manila And Sisal.
- T-T-616 - Treatment: Mildew Resistant, For Rope and Cord.
- T-T-871 - Twine, Fibrous Cotton, Wrapping.
- V-T-285 - Thread, Polyester.
- UU-P-268 - Paper, Kraft, Wrapping.
- CCC-C-419 - Cloth, Duck, Cotton, Unbleached, Plied-Yarns Army And Numbered.
- DDD-L-20 - Label; For Clothing, Equipage, And Tentage, (General Use).
- PPP-T-45 - Tape, Gummed, Paper, Reinforced And Plain, For Sealing And Securing.

MILITARY

- MIL-C-10799 - Cloth, Coated, Cotton, Vinyl Coated, Fire And Mildew Resistant.
- MIL-G-16491 - Grommet, Metallic.
- MIL-B-17757 - Boxes, Shipping, Fiberboard (Modular Sizes).
- MIL-R-24049 - Rope, Polypropylene

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods.
- FED-STD-751 - Stitches, Seams, And Stitchings.

MILITARY

- MIL-STD-105 - Sampling Procedures And Tables For Inspection By Attributes.
- MIL-STD-129 - Marking For Shipment And Storage.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents order desk, Bldg 4D, 700 Robins 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.

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DRAWING

MARINE CORPS

72C5022A0000 - Tarpaulin; Duck, Cotton, Vinyl
Resin Coated, Both Sides.

(Copies should be obtained from the contracting officer or his authorized representative.)

2.2 Non-Government publications. The following document forms 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.

UNIFORM CLASSIFICATION COMMITTEE

Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Freight Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

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 Samples. Samples are furnished solely for guidance and information to the supplier (see 6.4). Variation from this specification may appear in the sample, in which case the specification shall govern.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.4), in accordance with 4.4.

3.3 Material.

3.3.1 Basic material. The basic material, before coating, shall be cloth, duck, cotton, 14.77-ounce conforming to type III of CCC-C-419.

3.3.1.1 Color and coating. The coating shall be olive drab shade No. 7 and shall meet the requirements specified for type II, class 5 of MIL-C-10799.

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3.3.2 Thread, polyester. The thread for seaming and stitching the tarpaulin, and for machine serving the ends of the tie rope, shall be polyester conforming to type I, class 1, subclass B of V-T-285. Sizes shall be as follows:

For all stitching except stitching indicated by "Z" on Drawing No. 72C5022A0000	size FF
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For stitching indicated by "Z" on Drawing No. 72C5022A0000	size FF for needle and size F for looper
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3.3.2.1 Color and colorfastness. The thread shall be dyed olive drab shade S-1 (Cable No. 66022). The dyed thread shall show good fastness to weathering in accordance with V-T-285.

3.3.3 Twine, cotton. The twine for hand serving, in lieu of machine serving, the ends of the rope shall be cotton, 5 ply, mildew resistant treated, conforming to type II, class 1 of T-T-871. Not required for alternate rope (see 3.3.4).

3.3.4 Rope. The rope for the tarpaulin shall be manila or sisal, 1-1/8 inch circumference, conforming to T-R-605, type M, class 2 for the manila rope and type S for the sisal rope. The rope shall be mildew-resistant treated with copper-8-quinolinolate in accordance with T-T-616. As an alternate, polypropylene rope conforming to type I of MIL-R-24049, 1 inch circumference may be used.

3.3.5 Grommet and washers. The rolled rim grommets with spur washers shall be brass, black chemical finish, size No. 5, conforming to type III, class 3 of MIL-G-16491.

3.4 Design. The coated tarpaulin shall conform in all respects to the design shown in Drawing No. 72C5022A0000.

3.5 Construction. The construction of the coated tarpaulin shall conform in all respects to Drawing No. 72C5022A0000 and as specified herein. The more heavily coated side of the cloth shall appear on the outside of the tarpaulin. A rope clip in accordance with order no. 7979543 may be used in lieu of the 3-tuck eye splice on attaching ropes.

3.5.1 Stitches, seams and stitchings. The stitch, seam and stitching types shall conform to FED-STD-751 as follows. Chain portion of stitching shall not appear on the outside of tarpaulin.

For all stitching except stitching indicated by "Z" on Drawing No. 72C5022A0000	Type 301, 5 to 7 stitches per inch
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For stitching indicated by "Z"
on Drawing No. 72C5022A0000

Type 401, 5 to 7
stitches per inch

3.5.1.1 Type 301 stitching. Thread breaks in stitching shall be backstitched not less than 1 inch at each break. Stitching ends shall be backstitched not less than 1 inch, except where ends are turned under in a hem or held down by other stitching. Thread tensions shall be maintained properly so that there will be no loose stitching and the lock will be embedded in the center of the materials being sewed. All thread ends shall be trimmed.

3.5.1.2 Type 401 stitching. Thread breaks in stitching shall be overstitched not less than 1-1/2 inches at each break. Thread tension shall be maintained properly so that there will be no loose stitching. All thread ends shall be trimmed.

3.5.2 Set grommets and washers. Holes punched to receive grommets shall be smaller than the outside diameter of the grommet barrel, so that the barrel must be forced through the hole. Grommets and washers shall be securely clinched without cutting or otherwise damaging the material.

3.5.3 Splicing of rope. Splicing of rope shall be done in a tight and workmanlike manner. After splice has been completed, all ends of strands shall be clipped to a length of not less than 1 inch nor more than 1-1/4 inches. Not required if alternate rope clip is used (see 3.5).

3.5.4 Serving ends of the ropes. The free ends of the manila or sisal tie ropes shall be either machine or hand served.

3.5.4.1 Hand serving. All hand serving as indicated on Drawing No. 72C5022A0000 shall be done with twine specified in 3.3.3, using two strands twisted together.

3.5.4.2 Machine serving. Machine serving shall be done with a machine capable of stitching the ends of the tie ropes with polyester thread specified in 3.3.2.

3.5.5 Splicing of panels. Spliced panel or panels may be made of two pieces of coated duck, but not more than two pieces and the short length shall be not less than 1 yard in length. Spliced panels shall be nonadjacent to each other, and the two outside panels shall not be spliced.

3.5.6 Sealing of seams. All sewed seams shall be sealed with a sealing compound compatible with the coating used for the basic fabric. The sealing compound shall be applied to the more heavily coated side of the tarpaulin. The compound shall be applied so as to effectively seal all needle holes, and shall

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approximate the shade of the outer surface of the tarpaulin. As an alternate, a colorless sealing compound, compatible with the coating, may be used.

3.5.6.1 Dusting powder. The sealed seams shall be dusted with talc, or any other finely divided mineral material which will not support mildew growth.

3.6 Finished measurements. The finished tarpaulins shall conform to the measurements shown in Drawing No. 72C5022A0000.

3.7 Marking. The identification marking shall be applied in the location shown on Drawing No. 72C5022A0000 and shall conform to type IV, class 8 of DDD-L-20; the time of exposure to accelerated weathering shall be 100 hours. The letters "U.S" shall be applied in the size characters and in the location indicated on Drawing No. 72C5022A0000 and shall conform to type IV, class 9 of DDD-L-20. Fastness of the class 9 marking shall be as specified for class 8 marking.

3.8 Workmanship. The finished tarpaulins shall conform to the quality and grade of product established by this specification.

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 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. This does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

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4.1.2 Certification of compliance. Where certificates of compliance are permitted, the Government reserves the right to check test such items to determine the validity of the certification.

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

1. First article inspection (see 4.4)
2. Quality conformance inspection (see 4.5)

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in MIL-STD-105.

4.4 First article inspections. When a first article is required (see 6.2), it shall be examined for the defects specified in 4.5.3.1 and 4.5.3.2. The presence of any defect or failure to pass any test shall be cause for rejection of the first article. The number of units to be inspected shall be specified by the contracting officer (see 6.2).

4.5 Quality conformance inspection.

4.5.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be tested in accordance with all requirements of referenced specifications, drawing and standards, unless otherwise excluded, amended, modified, qualified in this specification or applicable purchase documents.

4.5.2 In-process inspection. Inspection shall be performed during the manufacturing of the end item to ascertain that the operations are performed as specified herein. The Government reserves the right to determine the acceptability of construction methods not performed in accordance with specified requirements for operations or subassemblies.

4.5.3 Examination of the end item. The end item shall be examined for the defects listed in 4.5.3.1 and 4.5.3.2. The sample unit shall be one completely fabricated tarpaulin. The inspection level shall be II (see 6.5).

4.5.3.1 General defects. General defects shall be classified as follows:

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Examine	Defect	Classification	
		Major	Minor
Design	a. Seams joining panels not lengthwise.	101	
	b. Splice in outside panel.	102	
	c. More than one splice per panel or splice in adjacent panels.		201
Coated fabric	a. Any blister, lump or foreign matter affecting serviceability.	103	
	b. Any cuts, slits, tears, holes, or abraded areas through material or exposing base fabric.	104	
	c. Any hard permanent crease resulting in adhesion of coated surfaces.	105	
	d. Any peeling, cracking or flaking of coating compound.	106	
	e. Uneven coating-thin area where coating is missing or insufficient.	107	
	f. Any pit or abraded area not through material or exposing base fabric.		202

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Examine	Defect	Classification	
		Major	Minor
Grommets	a. Missing, broken or malformed; clinched, excessively tight, cutting fabric; or insecurely clinched.	108	
	b. Improperly set; two or more teeth exposed inside of barrel; loosely clinched, causing grommet to rotate around hole.		203
	c. Size or type not as specified.	109	
	d. Any grommet misplaced:		
	-not entirely within hem.	110	
	-entirely within hem.		204
	-misplaced by more than 1 inch.		205
Rope	a. Not specified type or class.	111	
	b. Any cut or abrasion.		206
	c. Length less than specified.		207
	d. Ends not finished as specified.		208
Construction and workmanship	a. Any required operation omitted.	112	
	b. Any needle chew which may develop into a hole.	113	
	c. Any repair or patch.	114	
NOTE: Restitching an open seam or thread break or recoating a seam shall not be considered as a repair.			

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Examine	Defect	Classification	
		Major	Minor
Seams and stitching	d. Chain portion of stitching (stitch type 401) exposed on outside of tarpaulin.	115	
	e. Any portion of coated seam not properly coated, i.e., tacky, flaking, or not effectively sealing needle perforation.	116	
	a. Wrong seam or stitch type.	117	
	a. On stitch type 401: -one row of stitching open. -both rows of stitching open (not necessarily at the same location).	118	209
<p>NOTE: A seam shall be classified as an open seam when one or more stitches joining a seam are broken or when two or more consecutive skipped stitches or runoffs occur. On double needle stitched seams, a seam shall be considered open when either one or both sides of the seam are open.</p>			
Raw edges (when securely caught in stitching)	a. Any raw edge on body seam or on hem.		210
<p>NOTE: Raw edges not securely caught in stitching shall be classified as open seams.</p>			
Stitch tension	a. Loose, resulting in a loosely exposed top or bobbin thread; or tight, resulting in excessive puckering of fabric on seams.		211

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Examine	Defect	Classification	
		Major	Minor
Stitches per inch	a. One or more stitches less than minimum specified.		212
	b. One or more stitches in excess of maximum specified.		213
NOTE: Variation in the number of stitches per inch, caused by the operator's speeding up the machine and pulling the fabric in order to sew over heavy seams or heavy places or turning corners shall not be classified as a defect.			
Stitching margins	a. Not as specified.		214
Stitching gage	a. Not as specified.		215
Stitching ends	a. Overstitched less than 1 inch (except where held down by other stitching or turned under in a hem).		216
Hem	a. Constructed with partial turnunder in lieu of double turnunder.		217
Thread breaks	a. Overstitched less than 1-1/2 inches on stitch type 401; backstitched less than 1 inch on stitch type 301.		218
NOTE: Thread breaks not backstitched or not overstitched shall be classified as open seams.			
Cleanliness	a. Any stain, clearly noticeable.		219
	b. Thread ends not trimmed throughout, or trimmed thread ends not cemented.		220

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Examine	Defect	Classification	
		Major	Minor
Marking	a. Omitted, incorrect, illegible or misplaced.		221

4.5.3.2 Dimensional examination. The tarpaulin shall be examined for defects in dimensions. Any dimension that is not within the tolerance specified in the Drawing No. 72C5022A0000 shall be classified as a defect. The inspection level shall be S-3 (see 6.5).

4.5.4 Examination of preparation for delivery. An examination shall be made to determine compliance with packaging, packing, and marking requirements of section 5 of this specification. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery with the exception that it need not be sealed. Defects of closure listed below shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 (see 6.5).

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; or of improper size, location, sequence, or method of application.
Materials	Any component missing. Any component damaged, affecting serviceability.
Workmanship	Inadequate application of components, such as incomplete closure of case liners, container flaps, loose strapping, inadequate stapling. Bulging or distortion of containers.
Contents	Number per container is more or less than required.

4.6 Testing of end item. The completely fabricated tarpaulin shall be subjected to the following tests. The sample unit shall be one completely fabricated tarpaulin (less tie ropes). The inspection level shall be S-1 (see 6.5).

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4.6.1 Seam hydrostatic. The tarpaulin shall be tested in accordance with method 5514 of FED-STD-191 with the following exceptions. The seam shall be positioned in the center of the 4-1/2 inch test area. Water pressure shall be applied to the top thread side of the seam. The hydrostatic head shall be raised to 20 centimeters and held for 1 minute. Leakage of the seam area shall be defined as the appearance of water along the seamed portions within the 4-1/2 inch test area.

4.6.2 Seam blocking. The tarpaulin shall be tested in accordance with method 5872 of FED-STD-191 with the following exceptions. The test specimen shall be prepared by folding the tarpaulin so that the sealed seam surfaces are superimposed with the heavily coated portion of the tarpaulin fabric on the inside of the ensemble and the seam in the center of the glass plate. Tackiness, blistering or softening of the fabric shall be cause for rejection.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be level A or commercial as specified (see 6.2).

5.1.1 Level A. Each tarpaulin shall be laid out flat. Tie ropes shall be placed toward the center of the tarpaulin. Each tarpaulin shall then be folded neatly and compactly to approximate dimensions of 23 by 14-1/2 inches; care shall be taken to expel as much air as possible from between the folds during each folding operation. The portions of the tarpaulin containing the identification markings shall be on the outside of the folded tarpaulin. Each tarpaulin, complete with ropes, shall be wrapped in 30 pound minimum basis weight kraft paper conforming to grade B of UU-P-268. The paper wrap shall be secured with 2 inch minimum width gummed paper tape conforming to type III, grade B of PPP-T-45.

5.1.2 Commercial. Packaging shall be in accordance with the contractor's commercial practice or as indicated by the procuring activity.

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

5.2.1 Level A.

5.2.1.1 Method 1. Two tarpaulins, folded as specified in 5.1.1, shall be packed in a corrugated fiberboard shipping container conforming to class weather resistant, variety DW, size 3 of MIL-B-17757. Each shipping container shall be assembled, closed and reinforced as specified in the appendix to the box specification. Level A packages shall be packed flat, two in depth.

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5.2.1.2 Method 2. When specified (see 6.2), three level B shipping containers (six tarpaulins) shall be overpacked in a corrugated fiberboard shipping container conforming to class weather resistant, variety DW, size 4, of MIL-B-17757 and reinforced as specified in the appendix to the box specification.

5.2.2 Level B. Two tarpaulins, folded as specified in 5.1.1, shall be packed in a fiberboard shipping container conforming to class domestic, variety DW, size 3 of MIL-B-17757. The fiberboard used for fabricating the container shall be grade 275. Each shipping container shall be assembled, closed and reinforced as specified in the appendix to the box specification. Level A packages shall be packed flat, two in depth.

5.2.3 Commercial. Tarpaulins, packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination. Container shall be in accordance with Uniform Freight Classification Rules or regulations of other carriers applicable to the mode of transportation.

5.3 Marking. In addition to any special marking required by the contract or purchase order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

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 tarpaulin covered by this specification is intended to be used for weather protection at ammunition pits by artillery units of the U.S. Marine Corps.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Whether first article is required (see 3.2).
- c. Number of tarpaulins in first article (see 6.4).
- d. Level of packaging and packing required (see 5.1 and 5.2).
- e. When level A, method 2 packing is required (see 5.2.1.2).
- f. Acceptance criteria (see 6.5).

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6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209 and the requirements of this specification. The sample(s) presented for inspection may be first article, preproduction samples, first production of sample(s) taken from the first lot depending on the contractor's history and will be as directed by the Contracting Officer. The Contracting Officer should include specific instruction in all acquisition instruments regarding arrangements for selection, inspection, and approval of the first article.

6.4 Standard samples and shade samples. For information regarding the availability of standard samples and standard shades specified, address inquiry to the procuring activity issuing the invitation for bids.

6.5 Acceptance criteria. The acceptance criteria below are recommended for use. The acceptance criteria as specified in the contract or purchase order shall be binding. Unless otherwise specified, the following acceptance criteria are in accordance with MIL-STD-105.

6.5.1 For end item visual examination. An acceptance quality level (AQL), expressed in terms of defects per hundred units, of 6.5 for major defects and 25.0 for total (major and minor combined) defects is recommended.

6.5.2 For end item dimensional examination. An AQL, expressed in terms of defects per hundred units, of 6.5 is recommended.

6.5.3 For packaging examination. An AQL, expressed in terms of defects per hundred units, of 2.5 is recommended.

6.5.4 For testing end item. An AQL, expressed in terms of defects per hundred units, of 4.0 is recommended.

6.6 Subject (Key word) listing.

Ammunition
Cover

6.7 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.

Preparing activity:
Navy - MC
Project No. 8340-N530

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.

1. RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-T-82152B(MC)	2. DOCUMENT DATE (YYMMDD) 28 AUGUST 1990
3. DOCUMENT TITLE TARPAULIN; DUCK COTTON, VINYL RESIN COATED BOTH SIDES, 14 FEET LONG BY 6 FEET WIDE			
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)	2. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME Commanding General, Marine Corps Research, Development, and Acquisition Command (PSE-C)		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON	
c. ADDRESS (Include Zip Code) Washington, DC 20380-0001		(202) 696-1186/87/88 226-1186/87/88	
		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	