

MIL-T-1956D(GL)

18 November 1970

SUPERSEDING

MIL-T-1956C

9 May 1967

MILITARY SPECIFICATION

TARPAULINS, WATERPROOF, SPECIAL PURPOSE, 10 FEET LONG BY 8 FEET WIDE

1. SCOPE

1.1 Scope.- This specification covers the requirements for special purpose, waterproof tarpaulins (see 6.1).

1.2 Classification.- The tarpaulins covered by this specification shall be of one type and three classes (see 6.2).

Class 1 - Stitched and sealed seams.

Class 2 - Single stitched, laid in cement and strapped seams.

Class 3 - Cemented seams.

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

FEDERAL

- | | |
|-----------|---|
| V-T-285 | - Thread, Polyester. |
| UU-P-268 | - Paper, Kraft, Untreated, Wrapping. |
| CCC-C-432 | - Cloth, Sheeting, Cotton (Unbleached, Bleached and Dyed). |
| DDD-L-20 | - Label; For Clothing, Equipage and Tentage (General Use). |
| PPP-T-45 | - Tape; Gummed Paper, Reinforced and Plain, for Sealing and Securing. |

FSC 8340

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- MIL-R-1670 - Rope, Tent-Lay.
- MIL-L-1709 - Lines, Tent.
- MIL-G-16491 - Grommet, Metallic.
- MIL-B-17757 - Boxes, Fiberboard, Corrugated (Modular Sizes).

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods.
- FED-STD-406 - Plastics: Methods of Testing.
- FED-STD-601 - Rubber: Sampling and Testing.
- FED-STD-751 - Stitches, Seams, and Stitching.

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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 and Containerized Unit Loads 40" x 48" Pallets, Skids, Runners or Pallet-Type Base.

DRAWINGS

ARMY NATICK LABORATORIES

- 8-2-69 - Tarpaulins, Waterproof, Special Purpose.

(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 documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issues in effect on date of invitation for bids or request for proposal shall apply:

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC.,

National Motor Freight Classification

(Application for copies should be addressed to American Trucking Associations, Attn: Tariff Order Section, 1616 P Street, N.W., Washington, D.C. 20036.)

UNIFORM CLASSIFICATION COMMITTEE

Uniform Freight Classification

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(Application for copies should be addressed to Uniform Classification Committee, Room 202 Union Station, 516 W. Jackson Blvd., Chicago, Illinois 60606.)

3. REQUIREMENTS

* 3.1 First article.- This specification contains provisions for first article test and approval (see 4.2, 6.2, and 6.4).

3.2 Material.-

3.2.1 Base fabric.- The base fabric shall be cotton sheeting cloth, coating quality, type VIII, class 1, conforming to CCC-C-432.

3.2.2 Coating compound.- The compound used for coating the fabric and strapping material shall be synthetic rubber (except that the use of natural rubber is permissible in the anchor coat) suitably plasticized and pigmented to produce shade OG-207. No reclaimed rubber shall be used.

* 3.2.3 Cement or sealing compound.- The cement or sealing compound used in strapping or sealing of seams shall be of synthetic rubber base. No reclaimed rubber shall be used. Heat curing type cement or sealing compound shall be used for tarpaulins made from uncured coated fabric; self curing type shall be used for tarpaulins made from cured coated fabric. Compatibility of the cement or sealing compound with the coating compound and their suitability in producing acceptable tarpaulins shall be based upon conformance with performance requirements of tarpaulins as specified in 3.5. The color shall be comparable to the shade of coating compound specified in 3.2.2.

3.2.4 Coated fabric.- The base fabric shall be coated on both sides with 8 ounces \pm 1 ounce per square yard of the specified coating compound. The face side of the fabric shall be coated with 6 ounces \pm 1/2 ounce of coating compound per square yard; the reverse side shall contain the balance of the coating. After vulcanization, the coated fabric shall be free from pinholes. The coated fabric shall conform to the physical requirements specified in table I when tested as specified in 4.3.1. The color of the coated fabric shall be OG-207 and shall match the standard sample for shade when such a standard is available, (see 6.3).

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TABLE I.- Physical requirements of coated fabric

<u>Characteristic</u>	<u>Requirement</u>	
	<u>Minimum</u>	<u>Maximum</u>
Overall weight, ounces/sq. yd	12.5	16.0
Breaking strength - pounds		
Warp	65	
Filling	55	
Tearing strength - grams		
Warp	800	
Filling	640	
Hydrostatic resistance - pounds/sq. inch		
Initial	30	
After resistance to low temperature	30	
After weatherometer	30	
After strength of coating	30	
Adhesion of coating - pounds/2 inch width		
Initial	6.0	
After water spray <u>1/</u>	5.0	
Abrasion resistance	Pass <u>2/</u>	
Blocking - scale rating		No. 3
Stiffness - centimeters - warp only		
Initial		11.0
After heat treatment		11.0
After water leaching		11.0

1/ Coating shall not soften.2/ No visual loose fibers of the base fabric shall be exposed in the center one inch of the abraded portion.

3.2.5 Thread.- The thread for stitching shall be thread, polyester conforming to type I or II, class 1, sub-class B of V-T-285. The thread shall be size FF for needle and bobbin for stitch type 301 and size FF for needle and size F for looper for stitch type 401.

3.2.5.1 Color.- The thread shall match shade S-1, cable No. 66022.

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3.2.5.2 Colorfastness.- The thread shall show fastness to weathering equal to or better than the standard sample, or if no standard sample is available, "good" fastness to weathering, (see 6.3).

3.2.6 Rope.- The rope shall conform to type I, class 2, size 3/4 inch circumference of MIL-R-1670.

3.2.7 Grommets.- The grommets shall conform to type II, class 3, size 2J of MIL-G-16491.

3.2.8 Dusting powder.- To prevent blocking, the coated fabric and all sealed seams shall be dusted with whiting, talc or other finely divided mineral material which does not support mildew growth.

3.2.9 Suppliers identification marking.- Each tarpaulin shall have a suppliers identification marking conforming to type IV, class 8 of DDD-L-20 located as specified in Drawing 8-2-69.

3.3 Design.- The design of the tarpaulins shall be in accordance with Drawing 8-2-69. Except as otherwise specified, tolerances for all dimensions shall be shown in Drawing 8-2-69. The lightly coated side shall be the inside of the tarpaulin.

3.4 Construction.-

- * 3.4.1 Overall construction.- The tarpaulin shall be made of not more than three panels. Splicing of panels shall not be permitted. The seams shall be full length and shall be parallel to the lengthwise direction of the tarpaulin. All edges shall be hemmed as specified in 3.4.1.2; the finished hems to measure 3/4 inch wide. One grommet shall be inserted in each of the four corners of the tarpaulin, centered at the apex two inches from the long and short hem. Four additional grommets shall be inserted along each of the two hems. Two of the grommets shall be inserted 3 inches apart and placed so that each grommet is centered 1-1/2 inches from the crosswise center line of the tarpaulin. The other two grommets shall be inserted midway between the corner and center line grommets. All grommets shall be double reinforced with self material 1-1/4 inches \pm 1/8 inch in diameter. The grommet reinforcement pieces shall be cemented to the inside of the tarpaulin (see 3.3). The barrel of the grommet shall be on the inside of the tarpaulin. A rope twenty-feet in length plus or minus six inches conforming to the requirements specified in 3.2.6 shall be supplied with each tarpaulin. The ends of the rope shall be securely served or whipped to prevent unlaying or fraying in accordance with the material and construction requirements of MIL-L-1709. Machine serving of

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ends shall be accomplished using stitch type 304 and 12 to 16 stitches per inch. The stitching shall extend at least 1-1/2 inches from the free end of the rope.

3.4.1.1 Stitches, seams and stitching (general).- Stitches, seams and stitching shall conform to FED-STD-751. Whenever stitch type 401 is used, the looper, that is the underthread, shall be on the inside (see 3.3) of the tarpaulin. The needle shall be the smallest size possible which can be used with the specified thread in order to minimize the size of the hole made in the fabric by the needle. Thread breaks in type 301 stitching shall be backstitched not less than one inch. Ends of seams and stitchings shall be backstitched not less than one inch except where the ends are caught in other seams or stitchings. Ends of 401 stitchings shall be chained off 1/2 to 1 inch, folded back and tacked with a 301 stitch. Thread breaks in type 401 stitching shall be overstitched not less than 1-1/2 inches.

3.4.1.2 Hemming.- The hem shall be formed using either stitching type Eft-2 or seam type LSk-2 with a strip of self material, 1/4 inch turnunder, 1/8 inch stitching margin, stitch type 301 or 401, 5 to 7 stitches per inch; or the hem may be firmly cemented to the body fabric without turning the raw edge. The hem shall be on the inside (see 3.3) of the tarpaulin. Application of sealant to the hem is not required.

3.4.2 Seam construction.- At the option of the supplier, the seams for joining the panels of the tarpaulins shall conform to any of the constructions specified in 3.4.2.1, 3.4.2.2 and 3.4.2.3.

3.4.2.1 Class 1 seam construction.- When class 1 seam construction is used, the tarpaulins shall be constructed from cured, coated fabric. All joining seams shall be seam type LSc-2, 3/4 inch gage 1/8 inch stitching margin, stitch types 301 or 401, 5 to 7 stitches per inch. The seams shall be sealed with a minimum of three coats on the inside (see 3.3) of the tarpaulin with the cement or sealing compound specified in 3.2.3 by brushing, spraying or squeegeeing the compound onto the seam. The compound shall be applied so as to effectively seal and junction of the body fabric and the seam overlap and to effectively seal all needle holes.

3.4.2.2 Class 2 seam construction.- When class 2 seam construction is used, the tarpaulins shall be constructed from cured coated fabric. All joining seams shall be formed by superimposing the two plies of fabric with their edges 1/8 to 3/16 inch apart and seaming 1/2 inch from the edge

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of the bottom ply in accordance with figure (a) of seam type LSr-2, stitch type 301 with 5 to 7 stitches per inch. The seam shall be laid in cement, turned to one side and cemented down forming a 1/2 inch seam on the inside (see 3.3) of the tarpaulin, then strapped on the inside with a 1-1/4-inch wide strip of coated fabric centered on the seam. The strapping may be either bias or straight cut.

- * 3.4.2.3 Class 3 construction.— When class 3 construction is used, the tarpaulins must be fabricated from coated fabrics in the uncured state and thoroughly cured after fabrication. All seams shall be single lapped (seam type LSA-1, except that no stitching is required) a minimum of one inch in width, cemented and rolled so as to secure adhesion of the cemented parts.

3.5 Physical requirements.— All tarpaulins shall conform to the applicable end item requirements in table II when tested as specified in 4.3.2.2.

TABLE II.— End item physical requirements

Characteristics	Requirement
Adhesion of strapping - pounds minimum (applicable for class 2 only)	
Initial	3.0
After water immersion	2.4
Adhesion of cemented seams - pounds minimum (applicable for class 3 only)	
Initial	3.0
After water immersion	2.4
Seam hydrostatic - (all classes)	No leakage
Seam blocking (all classes) maximum	No. 3

- * 3.6 Workmanship.— The finished tarpaulins shall be clean, and free from any cut, slit, tear, hole, abraded area, blister, lump, peeling, cracking, or flaking. The coating shall be evenly applied. The occurrence of defects shall not exceed the applicable acceptable quality levels.

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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, 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 Certificates of compliance.- Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

- * 4.2 First article inspection.- When required, the preproduction samples submitted in accordance with 3.1 shall be examined as specified in 4.3.2.1 for compliance with design, construction, workmanship and dimensional requirements and shall be tested for physical characteristics in accordance with 4.3.2.2 to the extent applicable.

4.3 Inspection.- Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

4.3.1 Inspection of materials and components.- In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable documents. In addition, testing shall be performed on components and materials listed in table III for the characteristics shown. The sample unit for coated fabric shall be 3 yards full width. The inspection level shall be S-2 of MIL-STD-105. The acceptable quality level (AQL) shall be 4.0 defects per 100 units. The lot size shall be expressed in units of 1 linear yard. The methods of testing contained in FED-STD-191 whenever applicable and as listed in table III shall be followed. The physical values specified apply to the average of the determinations made on a sample unit for test purposes as specified in the applicable test methods.

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TABLE III.- Testing of components

Component	Characteristic	Requirement	Test method
Coating compound	Composition	3.2.2	<u>1/</u>
Cement and sealing compound	Composition	3.2.3	<u>1/</u>
Dusting powder	Composition	3.2.8	<u>1/</u>
Coated fabric	Weight	3.2.4	5041
	Breaking strength		
	Warp	3.2.4	5100
	Filling	3.2.4	5100
	Tearing strength		
	Warp	3.2.4	5132 <u>2/</u>
	Filling	3.2.4	5132 <u>2/</u>
	Hydrostatic resistance		
	Initial	3.2.4	4.4.2
	After resistance to low temperature	3.2.4	4.4.3
	After weatherometer	3.2.4	4.4.4
	After strength of coating	3.2.4	5972 and 4.4.2
	Adhesion of coating		
	Initial	3.2.4	5970
	After water spray	3.2.4	5528 and 5970 <u>3/</u>
	Abrasion	3.2.4	4.4.5
	Blocking	3.2.4	5872
	Stiffness		
	Initial	3.2.4	5204
	After heat treatment	3.2.4	5870 and 5204
	After water leaching	3.2.4	5830 and 5204

1/ The supplier shall furnish a certificate of compliance with each shipment or lot citing conformance to the applicable requirement.

2/ Standard instrument with one NBS augmenting weight.

3/ During the test, if the coating is separated from the fabric at an average force greater than that specified in table I or if the average force necessary to separate the cemented sample at the cement line is greater than that specified in table I, the adhesion of coating requirement shall be considered as passing.

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4.3.2 Inspection of the end item.-

4.3.2.1 Examination of the end item.- The end item shall be examined in accordance with the classification of defects in 4.3.2.1.1 and with 4.3.2.1.2 at the inspection levels and acceptable quality levels (AQLs) set forth in 4.3.2.1.5. The lot size for purposes of determining the sample size in accordance with MIL-STD-105 shall be expressed in units of one tarpaulin each for the examination in 4.3.2.1.1 and 4.3.2.1.2.

- ★ 4.3.2.1.1 Examination of the end item for visual defects.- The sample unit for this examination shall be one completely fabricated tarpaulin.

Examine	Defect	Classification	
		Major	Minor
Design	More than 3 panels per tarpaulin.		X
	Seam joining panels not lengthwise.		X
	Not hemmed as specified.	X	
Coated fabric	Any blister, lump or foreign matter.	X	
	Any cut, slit, tear, hole (including pinhole) or abraded area through material or exposing base fabric, any thin area where coating is missing or insufficient.	X	

NOTE: The material shall be examined for pinholes and thin areas using through-light inspection. The through-light equipment shall consist of a table with a clear glass top, lighted with a minimum of two 25 watts fluorescent bulbs spaced 5 to 6 inches apart (distance between bulbs). The top of the glass shall be 9 to 10 inches above the top of the bulbs. The inside of the light housing shall be painted flat white. The table sides and ends shall be 6 to 8 inches from the bulbs. The table shall be used in a darkened area. A darkened area is defined as follows: The surface of the cloth shall be illuminated by 20 ± 5 foot-candles of natural, artificial or a combination of natural and artificial light.

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Examine	Defect	Classification	
		Major	Minor
Coated fabric (cont'd)	Any hard permanent crease resulting in adhesion of coated surfaces.	X	
	Any peeling, cracking or flaking of coating compound.	X	
	Heavily coated area - clearly noticeable.		X
	Any pit or abraded area not through material or exposing base fabric.		X
	Color not OG-207.	X	
	Color not uniform.		X
Grommets	Any grommet missing, broken or malformed; clinched excessively tight, cutting fabric, or insecurely clinched.	X	
	Any grommet improperly set; two or more teeth exposed inside of barrel; loosely clinched, causing grommet to rotate around hole.		X
	Size or type not as specified: Seriously affecting serviceability.	X	
	Affecting serviceability but not seriously.		X
	Any grommet not reinforced with self material.	X	
	Any grommet reinforcement not cemented on the inside of the tarpaulin.		X
Rope	Not specified type or class.	X	
	Any cut or abrasion.	X	
	Ends not finished as specified.		X
Construction and workmanship	Any required operation omitted.	X	
	Any needle chew.	X	
	Any panel spliced.	X	
	Any repair or patch.	X	
	Thread ends not trimmed throughout or trimmed thread ends not cemented.		X

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Examine	Defect	Classification	
		Major	Minor
Construction and workmanship (cont'd)	NOTE: Restitching an open seam or thread break or re-cementing a seam shall not be considered as a repair.		
	Chain portion of stitching (stitch type 401) exposed on outside of tarpaulin.		X
Class 1	Seam or stitching poorly cemented or cement not smoothly applied resulting in peeling, blistering or unsealed areas.	X	
	Seam not sealed on inside of the tarpaulin.		X
Class 2	Seam or strapping not securely cemented - strapping open at one or both edges; tunnel or air pocket; strapping less than one inch wide; strapping misplaced, exposing stitching or edge of seam.	X	
	Strapping less than 1-1/4 inches wide but not less than 1 inch.		X
	Seam not on inside of tarpaulin.		X
	Strapping not on inside of tarpaulin.		X
Class 3	Seam open or not securely cemented.	X	
	Seam overlapped less than 1 inch.		X
Seam and stitching	Wrong seam or stitch type: Seriously affecting serviceability.	X	
	Affecting serviceability but not seriously.		X
Open seams	On stitch type 301: 1/2 inch or less		X
	More than 1/2 inch.	X	
	On stitch type 401, except runoffs. Runoff on stitch type 401: 1/2 inch or less.	X	
	More than 1/2 inch.	X	X

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Examine	Defect	Classification	
		Major	Minor
	NOTE: A seam shall be classified as open 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.		
Raw edges (when securely caught in stitching)	Class 1 construction: Any raw edge on body seam or hem when edges are required to be turned under.		X
	Class 2 and 3 construction: Any raw edge on hem exposed when edges are required to be turned under.		X
	NOTE: Raw edges not securely caught in stitching shall be classified as open seams.		
Stitch tension	Loose, resulting in a loosely exposed top or bobbin thread; or tight, resulting in excessive puckering of fabric on seams.		X
Stitches per inch	One stitch less than minimum specified.		X
	Two or more stitches less than minimum specified.	X	
	One or more stitches in excess of maximum specified.		X
	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 be classified as follows:		
	(a) Within the minor defect classification - No defect		
	(b) Within the major defect classification - Minor defect		

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Examine	Defect	Classification	
		Major	Minor
Stitching margins	Not as specified.		X
Stitching gage	Not as specified.		X
Stitching ends	Backstitched less than 1 inch, or not folded back 1/2 to 1 inch and tacked except where held down by other stitching or turned under in a hem.		X
Thread breaks	Overstitched less than 1-1/2 inches on stitch type 401; backstitched less than 1 inch on stitch type 301.		X
	NOTE: Thread breaks not backstitched or not overstitched shall be classified open seams.		
Cleanliness	Any stain, clearly noticeable.		X
Marking	Omitted, incorrect, illegible or misplaced.		X

* 4.3.2.1.2 Dimensional examination.- The tarpaulin shall be examined for defects in dimensions. The sample unit shall be one completely fabricated tarpaulin. Any dimension that is not within the tolerance specified in Drawing 8-2-69 and paragraph 3.4.1, shall be classified as a defect.

* 4.3.2.1.3 Examination of preparation for delivery.- An examination shall be made to determine that packaging, packing and marking complies with the Section 5 requirements 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 or palletized. 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 and acceptable quality level (AQL) shall be as shown in 4.3.2.1.5.

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

- * 4.3.2.1.4 Examination for palletization.- An examination shall be made to determine that the palletization complies with the Section 5 requirements of this specification. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully prepared for delivery. The lot size shall be the number of palletized unit loads in the end item inspection lot. The inspection level and acceptable quality level (AQL) shall be as shown in 4.3.2.1.5.

<u>Examine</u>	<u>Defect</u>
Finished dimension	Length, width, or height exceeds specified maximum requirement.
Palletization	Not as specified. Pallet pattern not as specified. Interlocking of loads not as specified. Load not bonded with required straps as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; of improper size, location, sequence or method of application.

- * 4.3.2.1.5 Inspection levels and acceptable quality (AQLs) levels.- The inspection levels and acceptable quality levels (AQLs) expressed in defects per hundred units shall be as follows:

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<u>Examination paragraph</u>	<u>Inspection level</u>	<u>AQLs</u>	
		<u>Major</u>	<u>Total</u>
4.3.2.1.1	I	1.0	4.0
4.3.2.1.2	S-3	---	6.5
4.3.2.1.3	S-2	---	2.5
4.3.2.1.4	S-1	---	6.5

- * 4.3.2.2 Testing of the end item.— The methods of testing contained in FED-STD-191 whenever applicable and as listed in table IV shall be followed. The requirements for all tests are referenced in 3.5. Except for hydrostatic and blocking tests, the physical values specified apply to the average of the determinations made on a sample unit for test purposes as specified in the applicable test methods. Results of the hydrostatic and blocking tests shall be reported as pass or fail. The sample unit shall be one tarpaulin. The inspection level shall be S-2 of MIL-STD-105. The acceptable quality for each characteristic shall be 4.0 defects per 100 units. The lot size shall be expressed in units of one tarpaulin each.

TABLE IV.— Instructions for testing the end item

<u>Characteristic</u>	<u>Test method</u>
Adhesion of strapping	
Initial	5962
After water immersion	5962 <u>1/</u>
Adhesion of cemented seams	
Initial	5960
After water immersion	5964
Seam hydrostatic	5514 <u>2/</u>
Seam blocking	5872 <u>3/</u>

- 1/ Except that the seam shall be immersed in water at a temperature of 75 ± 5°F. for 2 hours before testing. Test shall be conducted while samples are dripping wet.

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2/ The hydrostatic head shall be raised to 20 centimeters and held for one minute. Leakage of the seam area shall be defined as the appearance of water at three or more different places within the 4-1/2 inch diameter test area. Failure of any single specimen constitutes failure of the sample unit.

3/ Except that the test specimen shall be prepared by folding the tarpaulin so that the sealed seam surfaces are superimposed with the lightly coated side of the fabric on the inside of the ensemble and the seam in the center of the glass plate. Failure of any single specimen constitutes failure of the sample unit.

4.4 Tests.-

* 4.4.1 Test conditions.- Results of physical tests obtained under testing conditions defined in FED-STD-406, FED-STD-601 or FED-STD-191 will be acceptable except in case of dispute; in dispute cases, tests shall be conducted with both the specimen and test apparatus under standard conditions as defined in FED-STD-191.

* 4.4.2 Hydrostatic resistance tests.- The hydrostatic resistance test shall be conducted as specified in Method 5512 of FED-STD-191. Water pressure shall be applied to the heavily coated side of the fabric only.

* 4.4.3 Hydrostatic resistance after low temperature test.- The hydrostatic test specified in 4.4.2 shall be performed after the specimens have been subjected to the low temperature test specified in Method 5874 of FED-STD-191. The test specimens shall be exposed for 35 ± 5 minutes at a temperature of minus $20 \pm 5^{\circ}\text{F.}$ and tested immediately thereafter without removal from the low temperature test chamber.

* 4.4.4 Hydrostatic resistance after weatherometer.- The hydrostatic resistance test specified in 4.4.2 shall be performed after the specimens have been subjected to the weatherometer test specified in Method 5804 of FED-STD-191. The weatherometer test shall be performed with filters for a period of 100 hours with the heavily coated side of the fabric exposed.

* 4.4.5 Abrasion.- The abrasion test shall be conducted as specified in Method 5304 of FED-STD-191, except that three determinations shall be made per sample unit. The heavily coated side of the fabric shall be tested using fine emery cloth, 3 pound pressure and six pounds tension.

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5. PREPARATION FOR DELIVERY

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

5.1.1 Level A.- Each tarpaulin shall be neatly folded to approximate dimension of 15 by 11-1/2 inches. The rope component shall be coiled and placed between a fold of the tarpaulin. Each tarpaulin, complete with rope, 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 Level C.- Each tarpaulin shall be packaged to afford adequate protection against physical damage during shipment from the supply source to the first receiving activity. The supplier may use his standard practice when it meets this requirement.

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

- * 5.2.1 Level A.- Six tarpaulins, of one class only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled, closed and reinforced conforming to class weather-resistant, grade V2s, size 2A of MIL-B-17757. The fiberboard for the box liner shall conform to type CF, class weather-resistant, variety DW, grade V15c of MIL-B-17757. Level A packages shall be packed flat, two in length, one in width and three in depth within a shipping container.
- * 5.2.2 Level B.- Six tarpaulins, of one class only, packaged as specified in 5.1, shall be packed in a fiberboard shipping container assembled and closed conforming to class domestic, grade 275, size 2A of MIL-B-17757. The fiberboard for the box liner shall conform to type CF, class domestic, variety DW, grade 275 of MIL-B-17757. Level A packages shall be packed flat, two in length, one in width and three in depth within a shipping container.
- * 5.2.2.1 When specified (see 6.2), the shipping container shall be a grade V3c or V3s fiberboard box fabricated in accordance with MIL-B-17757 and closed in accordance with the appendix of the box specification. The shipping container material may also be grade V4s of PPP-F-320.
- * 5.2.3 Level C.- Tarpaulins, packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. Containers shall be in accordance with Uniform Freight Classification Rules or National Motor Classification Rules, as applicable.

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- * 5.3 Palletization. Unless otherwise specified (see 6.2), tarpaulins packed as specified in 5.2, shall be palletized in accordance with Load Type I of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L. The pallet pattern shall conform to pattern no. 3 as shown in the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the patterns of each course.
- * 5.4 Marking.- In addition to any special marking required by the contract or order, interior packages, shipping containers and palletized loads shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use.- The tarpaulins covered by this specification are for use as protective coverings for signal equipment.

- * 6.2 Ordering data.- Procurement documents should specify the following:
 - (a) Title, number and date of this specification.
 - (b) First article. When preproduction sample is required (see 3.1, 4.2, and 6.4).
 - (c) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).
 - (d) When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
 - (e) When palletization is not required (see 5.3).

6.3 Standard samples.- For access to standard samples for color and colorfastness, referenced in 3.2.4 and 3.2.5.2, address the procuring office issuing the invitation for bids.

- * 6.4 First article.- The item covered by this specification requires first article test and approval under the appropriate provisions of paragraph 7-104.55 of the Armed Services Procurement Regulations. The first article should be a preproduction sample and should consist of one completely fabricated tarpaulin. The contracting officer should include specific instructions in all procurement instruments, regarding arrangements for examination, test and approval of the first article.

6.5 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions)

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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 suppliers are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the previous issue.

Custodian:

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Preparing activity:

Army - GL

Review activity:

Army - MD

Project No. 8340-0201

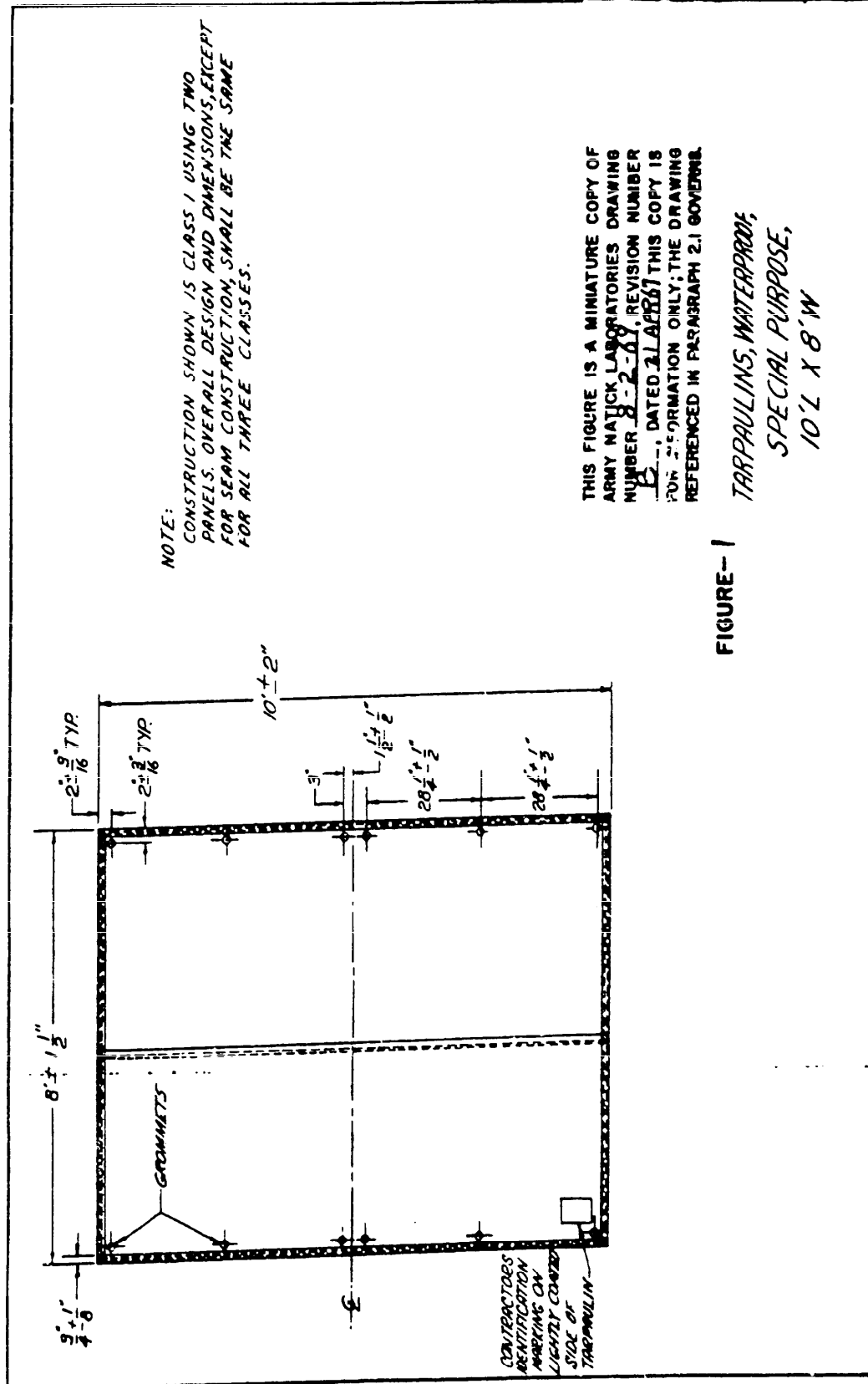


FIGURE-1

TARPAULINS, WATERPROOF,
SPECIAL PURPOSE,
10' L X 8' W

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 22-R255
<p>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.</p>		
<p>SPECIFICATION Tarpaulins, Waterproof, Special Purpose 10 Feet Long By 8 Feet Wide</p>		
<p>ORGANIZATION MIL-T-1956D(GL)</p>		
<p>CITY AND STATE</p>		<p>CONTRACT NUMBER</p>
<p>MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT </p>		
<p>1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING.</p>		
<p>B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES</p>		
<p>2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID</p>		
<p>3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?) </p>		
<p>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)</p>		
<p>SUBMITTED BY (Printed or typed name and activity - Optional)</p>		<p>DATE</p>

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