

MIL-T-4183OE  
30 September 1986  
SUPERSEDING  
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26 November 1976

## MILITARY SPECIFICATION

### TENT, VEHICLE MAINTENANCE, COMPLETE WITH A-FRAME

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

#### 1. SCOPE

1.1 Scope. This document covers a cotton duck tent with a lightweight metal A-frame support assembly.

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

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

## SPECIFICATIONS

### FEDERAL

T-T-871	- Twine, Cotton, Wrapping
T-T-911	- Twine, Fibrous, Jute
V-T-285	- Thread, Polyester

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014, 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.

## MIL-T-41830E

QQ-A-200/8	- Aluminum Alloy 6061, Bar, Rod, Shapes, Tube and Wire, Extruded
QQ-A-225/8	- Aluminum Alloy 6061, Bar, Rod, Wire, and Special Shapes: Rolled, Drawn, or Cold Finished
QQ-A-250/11	- Aluminum Alloy 6061, Plate and Sheet
QQ-A-596	- Aluminum Alloy Permanent and Semipermanent Mold Castings
QQ-A-601	- Aluminum Alloy Sand Castings
QQ-W-423	- Wire, Steel, Corrosion-Resisting
TT-E-529	- Enamel, Alkyd, Semigloss
TT-P-595	- Preservative Coating, Canvas
TT-P-1757	- Primer Coating, Zinc Chromate, Low-Moisture-Sensitivity
WW-T-700/6	- Tube, Aluminum Alloy, Drawn, Seamless, 6061
CCC-C-429	- Cloth, Osnaburg, Cotton
CCC-C-467	- Cloth, Burlap, Jute (or Kenaf)
DDD-L-20	- Label: for Clothing, Equipage, and Tentage (General Use)
PPP-B-601	- Boxes, Wood, Cleated-Plywood
PPP-B-621	- Boxes, Wood, Nailed and Lock-Corner

## MILITARY

MIL-C-496	- Clips, End, Strap
MIL-W-530	- Webbing, Textile, Cotton, General Purpose, Natural or in Colors
MIL-B-543	- Buckles, Tongueless and Web Strap
MIL-R-1670	- Rope, Tent-Lay
MIL-L-1709	- Lines, Tent
MIL-S-1734	- Slips, Tent Line
MIL-C-2399	- Cement, Liquid, Tent Patching
MIL-R-3390	- Rings, Dee
MIL-C-5541	- Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-P-10971	- Pins, Spring, Tubular (Coiled and Slotted)
MIL-G-16491	- Grommet, Metallic
MIL-T-40625	- Tubing, Bias Sewn (Burlap or Onasburg), Cloth
MIL-T-43566	- Tape, Textile, Cotton, General Purpose, Natural or in Colors
MIL-C-43627	- Cloth, Duck, Cotton, Plied Yarns, Fire, Water, Weather and Mildew Resistant Treated, Lightdry Finish
MIL-W-44049	- Webbing, Textile and Tape, Textile, Polypropylene, General Purpose, Natural or in Colors

## MIL-T-4183OE

## STANDARDS

## FEDERAL

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

## DRAWINGS

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

5-4-369 - Tent Cover, for General Purpose Use  
5-4-814 - Tent, Vehicle Maintenance, Complete With A-Frame;  
Assembly and Details  
5-4-815 - Erection Instructions  
5-4-816 - Frame Assembly  
5-4-817 - Frame Details Sheet No. 1  
5-4-818 - Frame Details Sheet No. 2  
5-4-819 - Erection Instructions, Frame  
5-4-820 - Details and Sections

- \* 2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

Department of the Army Field Manual FM 10-16 - General Repair of Tents, Canvas and Webbing

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

- \* 2.2 Other 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 shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

MIL-T-41830E

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

B 241 - Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube

D 3951 - Standard Practice for Commercial Packaging

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

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

- \* 2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.3, 6.2, and 6.3).

- \* 3.2 Materials and components. (See 6.4.)

3.2.1 Cloth, duck, cotton. Cloth for the tent and cover shall conform to MIL-C-43627, and the color shall be Olive Drab 7.

- \* 3.2.2 Tape, cotton. The cotton tape shall conform to type I, class 4 of MIL-T-43566, 1 inch and 1 1/2 inch widths, Olive Drab 7. Alternatively, the tape shall be polypropylene conforming to type I, class 4, Olive Drab 7 of MIL-W-44049.

- \* 3.2.3 Webbing, cotton. The cotton webbing shall conform to type III, class 4 of MIL-W-530, 1 inch width, Olive Drab 7. Alternatively, the webbing shall be polypropylene conforming to type III, class 4, Olive Drab 7 of MIL-W-44049.

3.2.4 Thread, polyester. The thread for all stitching shall conform to type I, class 1, subclass B, Olive Drab S-1 (C.A. 66022) of V-T-285. The dyed thread shall show fastness to weathering equal to or better than the standard shade sample. If no standard shade sample is available, the dyed thread shall show good fastness to weathering. Thread sizes shall be as follows:

## MIL-T-41830E

- a. For all stitching, except stitching indicated by "Z" on drawings, size F for needle and bobbin.
- b. For all stitching indicated by "Z" on drawings, size F for needle, size E for looper.

3.2.5 Rope, tent-lay. The manila rope shall conform to type I, class 2, 5/16 inch diameter of MIL-R-1670. The ends of the 56-foot ropes shall be finished to conform to figures 3 or 4 of MIL-L-1709.

3.2.6 Lines, tent. The tent lines shall conform to type XXI, class A of MIL-L-1709.

3.2.7 Rings, dee. The dee rings shall conform to class 1 or 2, configuration K, size 1 by 3/4 inch and class 1 or 2, configuration H of MIL-R-3390.

3.2.8 Buckles. The buckles shall conform to type II, style 1, class 1 of MIL-B-543.

3.2.9 Clips, end. The end clips shall conform to type I, class 1, size 1 inch of MIL-C-496.

3.2.10 Grommets, metallic. The grommets shall conform to type III, class 3, size No. 4 of MIL-G-16491.

3.2.11 Slips, tent line. The tent line slips shall conform to type I of MIL-S-1734.

3.2.12 Aluminum alloy.

3.2.12.1 Tubing, drawn. The drawn tubing shall be 6061-T6, type I of WW-T-700/6.

3.2.12.2 Pipe. The pipe shall be 6061-T6, 3/4 inch nominal pipe size, standard (schedule 40), conforming to ASTM B 241.

3.2.12.3 Bar and rod. The drawn bar and rod shall conform to 6061-T6 of QQ-A-225/8.

3.2.12.4 Plate and sheet. The plate and sheet shall conform to 6061-T6 of QQ-A-250/11.

## MIL-T-41830E

3.2.12.5 Castings. The hinge and cap end (items 11 and 12, respectively, on Drawing 5-4-818) if cast, as an alternate method of manufacture, shall conform to 355-T6 of QQ-A-596 (permanent or semipermanent mold cast) or 355-T6 of QQ-A-601 (sand cast).

3.2.12.6 Extrusions. The ridge support, yoke brace, and lug brace (items 17, 35, and 36, respectively, on Drawing 5-4-818) if extruded, as an alternate method of manufacture, shall conform to temper T6 of QQ-A-200/8.

3.2.13 Wire, steel. The corrosion resisting steel wire shall conform to form I, composition 304, condition A of QQ-W-423.

3.2.14 Pin, spring. The spring pins shall conform to type I, class 2, composition A, cadmium plated of MIL-P-10971.

3.2.15 Primer. Metal primer shall conform to composition G or L, as applicable, color Y of TT-P-1757, except that the lacquer resistance and lacquer holdout property requirements with corresponding tests need not apply.

3.2.16 Enamel. Enamel shall be made Olive Drab 24087 conforming to class A or B composition G or L, as applicable, of TT-E-529 except that the following requirements with corresponding tests need not apply:

- a. Nitrogenous resin (class B only), percent by weight of nonvolatile vehicle
- b. Unsaponifiable matter, percent by weight of nonvolatile vehicle
- c. Rosin, on isolated vehicle
- d. Phenolic resin, on isolated vehicle
- e. Water, percent by weight of enamel
- f. Coarse particles and skins (retained on No. 325 standard sieve), percent by weight of pigment
- g. Flash point, Pensky-Martens, degrees F.

3.3 Construction. The construction shall conform to the drawings listed in section 2 and as specified herein.

## MIL-T-41830E

3.3.1 Stitching, machine. All stitch types shall conform to FED-STD-751 as follows:

- a. For all stitching except indicated by "Z" on drawings, type 301, 5 to 7 stitches per inch.
- b. For all stitching indicated by "Z" on drawings, type 401, 5 to 7 stitches per inch. Chain portion of stitching shall not appear on outside of tent or cover.

3.3.1.1 Thread breaks. Thread breaks in stitching shall be overstitched not less than 1 inch at each break on stitch type 301 and not less than 1 1/2 inches on stitch type 401. Thread breaks in 401 stitching may be overstitched with stitch type 301. Thread breaks noted during inspection shall be repaired by overstitching the existing stitching starting from a distance of 1 inch before the break, across the defective area, to a distance of 1 inch beyond the break.

3.3.1.2 Stitching ends, type 301. Stitching at the ends shall be overstitched not less than 1 inch, except where ends are turned under in a hem or held down by other stitching. Where stitching is performed automatically on stitch patterns such as box, box with cross stitch, "W" stitching or straight line tacking; at least three tying, overlapping, or back stitches shall be used to secure the ends of stitching.

3.3.1.3 Skipped stitches. Two or more consecutively skipped stitches occurring in type 301 stitching shall be overstitched not less than 1 inch. Any skipped stitch in type 401 stitching shall be overstitched not less than 1 1/2 inches. Skipped stitches in 401 stitching may be overstitched with type 301 stitching. Skipped stitches noted during inspection shall be repaired as specified for thread breaks (see 3.3.1.1).

3.3.1.4 Thread lubricant. The addition of any lubricant to the polyester thread prior to or during the sewing operation is prohibited.

\* 3.3.1.5 Stitching margins. Unless otherwise specified, all stitching margins shall be  $1/8 \pm 1/16$  inch.

3.3.2 Setting of grommets. 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 shall be securely clinched without cutting the materials.

3.3.3 Setting of end clips. The webbing shall be inserted the full depth of the clip. Clips shall be securely attached without cutting the webbing and the webbing shall be flat at the point of entrance.

## MIL-T-41830E

3.3.4 Wicking of sewing thread (cup test). There shall be no seepage of water through the tent stitching when the tent is tested as specified in 4.4.8. The cup test is intended to ensure that nonwicking thread has been utilized and that no lubrication has been added to the polyester thread during the sewing operation.

3.3.5 Repairs. All necessary repairs shall be effected in accordance with Department of the Army Manual FM 10-16, except that handsewn patches or cemented patches other than as specified herein will not be acceptable. Cemented patches on holes, cuts, or tears not more than 1 inch in diameter or length, using cement specified in MIL-C-2399, shall be allowed. Three cemented patches per tent shall be acceptable without prior authorization. All other repairs shall require contracting officer authorization. Repairs required as a result of failure of the cup test shall be performed by treating with a compound conforming to type I of TT-P-595 prior to retesting (see 6.6).

3.3.6 Splicing of fabric components. Splicing of body panels is prohibited. Reinforcement strips may be spliced; however, not more than three pieces per reinforcement shall be permitted and no spliced piece shall be less than 24 inches in length.

3.3.7 Welding. The surfaces of parts to be welded shall be free from oxide, scale, paint, grease, and other foreign matter. Welds shall be continuous, sound, smooth, and free from burn through area, porosity, cracks, incomplete fusion, and deformation of material. The deposited weld metal shall be thoroughly fused with the base metal along all surfaces and edges of the union.

3.3.8 Castings. Sand or mold castings, if used as an alternate method of construction for items so specified on Drawing 5-4-818, shall be sound and free from burrs, porosity, or cracks, and shall be as specified in 3.2.12.5.

3.3.9 Extrusions. Extrusions, if used as an alternate method of construction for items so specified on Drawing 5-4-818, shall be as specified in 3.2.12.6.

3.3.10 Finish of frame. Exterior surfaces of aluminum frame components shall be treated in accordance with class 1A of MIL-C-5541, except that corrosion-resisting properties of unpainted surfaces need not apply. Surfaces of other metallic components shall be thoroughly cleaned. Exterior surfaces, including chains, eyes of eye bolts, and toggles, shall be coated so as to produce good coverage with primer specified in 3.2.15. When thoroughly dry, the primed surfaces shall be coated with enamel specified in 3.2.16. The enamel finish shall be continuous and uniform, without objectionable runs, drops, streaks, area of thin film or no film, and shall not be blistered,



## MIL-T-41830E

flaky, or peeled. The contractor shall touch up any areas where the finish has been damaged during erection for examination. When touch up painting is performed, adequate ventilation controls and appropriate personal protective equipment should be provided.

3.4 Marking. All labels and markings, except frame identification marking, shall conform to DDD-L-20.

3.4.1 Nomenclature. The letters "US" on the tent and cover and the nomenclature on the cover shall conform to type IV, class 9 in the size characters and in the locations shown on the drawings. Class 9 markings shall be clearly legible after subjection to accelerated weathering.

3.4.2 Identification labels. The identification labels shall be stitched to the tent and cover in the location shown on the drawings and shall conform to type VI, class 6. The size of the labels shall be 3 1/2 inches by 5 1/2 inches minimum with a blank space of at least 1 1/4 inches provided on the bottom of the label for the Department of Defense inspector's stamp.

3.4.3 Erection instruction labels. Labels of erection instructions for the tent and frame shall conform to type VI, class 7 and shall be stitched to the tent and cover in the locations shown on the drawings. The labels shall be proportionate copies of Drawings 5-4-815 and 5-4-819 as reproduced from glossary prints of these drawings furnished by the contracting officer. The size of the labels, borderline to borderline, shall be 10 inches  $\pm$  1/4 inch in the longer dimension, with a minimum 1/2 inch margin outside of the borderline on all sides.

3.4.4 Frame identification marking. One end cap on the outer face of the frame shall be permanently and distinctly indented or etched, prior to finishing, with the letters "US" in characters 1/4 inch high, with the name of the manufacturer or brand or mark of such known characters as to make the source of manufacture easily determined and with the number and year of the contract in characters 1/8 inch high. Marking for molded parts (alternate construction) may be incorporated in the mold. The marking shall be legible after enameling. No other brands or marking shall be shown on the frame.

3.5 Workmanship. Cloth components shall be clean and free from holes, cuts, tears, or cloth defects such as multiple floats or broken or missing yarns. Webbing and tape shall not have frayed or scalloped edges, and rope components shall be free of cuts or breaks. Thread tension shall be maintained so that there will be no loose stitching, and seam allowances shall be maintained so that no run-offs, twists, pleats, or open seams shall result. All thread ends shall be trimmed to 1/2 inch or less. Care shall be taken in sewing to see that no needle chews occur. Metal components shall be free from burrs, sharp edges, or corroded areas and shall not be broken or malformed.

## MIL-T-41830E

## 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 document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

- \* 4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirement in the document shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 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.

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 6.2), it shall be examined for the defects specified in 4.4.3 through 4.4.7 and tested as specified in 4.5.1. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

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 document or applicable purchase document.

## MIL-T-41830E

4.4.2 In process examination. Examination shall be made to determine whether the following are as specified:

- a. There shall be no lubrication of polyester thread prior to or during sewing operations for compliance with 3.3.1.4.
- b. Holes punched to receive grommets are in compliance with 3.3.2.
- c. Surfaces to be welded shall be clean for compliance with 3.3.7.
- d. Surface of frame components shall be treated, prior to application of primer, for compliance with 3.3.10.
- e. Primer coat has produced good coverage and is thoroughly dry prior to application of enamel for compliance with 3.3.10.

Whenever nonconformance is noted, correction shall be made to the item affected and to the process.

- \* 4.4.3 Tent and cover visual examination. The completely fabricated tent or cover, as applicable, shall be examined for the defects listed in table I. The lot size shall be expressed in units of tents or covers, as applicable. The sample unit shall be one tent or cover, as applicable. For inspection of tents, the inspection level shall be I and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 6.5 for major defects, 15.0 for combined major and minor A defects, and 40.0 for total combined (major, minor A, and minor B) defects. For inspection of covers, the inspection level shall be S-3 and the AQL shall be 10.0 for major defects, 15.0 for combined major and minor A defects, and 40.0 for total combined (major, minor A, and minor B) defects.

## MIL-T-41830E

TABLE I. Tent and cover visual defects

Examine	Defect	Classification	
		Major A	Minor B
Fabric	Cut, tear, or hole (including exposed drill hole) greater than 1/8 inch in length or diameter:		
	- on tent	X	
	- on cover		X
	Cut, tear or hole (including exposed drill hole) 1/8 inch or less in length or diameter:		
	- more than 20 holes:		
	- on tent	X	
	- on cover		X
	- more than 10 but not more than 20 holes:		
	- on tent		X
	- on cover		X
Webbing and tape	- more than 5 but not more than 10 holes:		
	- on tent		X
	Broken or missing yarn; multiple floats, clearly visible at normal inspection distance (approximately 3 feet)		X
	Edge frayed or scalloped		X
Hardware	Broken		X
	Malformed:		
	- fails to perform intended function		X
	- but will perform intended function		X
	Corroded area		X
	Burr or sharp edge which may cause injury in handling or damage to fabric	X	

## MIL-T-41830E

TABLE I. Tent and cover visual defects - Continued

Examine	Defect	Classification	
		Major A	Minor B
Hardware - continued			
Clip ends	Improperly clinched (i.e. webbing not flat at point of entrance into clip)		X
	Clinched excessively tight, cutting webbing		X
	Webbing not inserted full depth of clip	X	
Grommets	Improperly set: two or more teeth exposed		X
	Clinched loosely, allowing grommet to rotate		X
	Clinched excessively tight, cutting fabric	X	
	Insecurely clinched (i.e., grommets or washers become disengaged)	X	
Buckles	Not assembled to strap as specified (i.e., reversed, failing to effect a secure fastening of straps)	X	
Rope components	Any cut; any break		X
	Free ends of rope not finished as specified		X
Seams and stitching	Open seam on stitch type 301:		
	- for more than 1/4 inch but not more than 1 inch		X
	- for more than 1 inch	X	
	Open seam on stitch type 401:		
	- one row of stitching open for 1 inch or less		X
	- one row of stitching open for more than 1 inch	X	
	- both rows of stitching open (not necessarily at same location)	X	

## MIL-T-41830E

TABLE I. Tent and cover visual defects - Continued

Examine	Defect	Classification	
		Major	Minor
Seams and stitching - continued		A	B
	NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken, or when one or more skipped or run-off stitches occur. On double-stitched seams, a seam shall be considered open when either one or both sides of the seam are open.		
	Raw edges caught in stitching:		
	- more than 1 inch but not more than 3 inches		X
	- more than 3 inches	X	
	Thread breaks:		
	- overstitched less than 1 1/2 inches on stitch type 401		X
	- overstitched less than 1 inch on stitch type 301		X
	NOTE: Thread breaks not overstitched shall be classified as open seams.		
	Skipped stitches:		
	- overstitched less than 1 1/2 inches on stitch type 401		X
	- overstitched less than 1 inch on stitch type 301 (where 2 or more skipped stitches occur)		X
	NOTE: Skipped stitches not overstitched shall be classified as open seams.		
	Needle chew resulting in cut, tear, or hole (see fabric cut, tear, or hole for classification)		
	One or more required rows of stitching omitted (except on boxstitching)	X	

## MIL-T-41830E

TABLE I. Tent and cover visual defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Seams and stitching - continued			
Boxstitching	Incomplete:		
	- one row of stitching omitted		X
	- two or more rows of stitching omitted	X	
	Any boxstitching less than specified length by more than 1/8 inch		X
Stitching ends	Overstitched less than 1 inch on stitch type 301 (except where ends are held down by other stitching, turned under in a hem, or where stitching is performed automatically)		X
	Secured with less than three tying, overlapping or backstitches when automatic stitching is performed		X
Seams	Seams pleated		X
Seam type	Wrong seam type	X	
Stitch type	Wrong stitch type	X	
Stitch tension	Loose, resulting in a loosely exposed bobbin or top thread; 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

## MIL-T-41830E

TABLE I. Tent and cover visual defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Seams and stitching - continued	<p>NOTE: Variation in the number of stitches per inch, caused by the operator speeding up the machine and pulling the fabric in order to sew over heavy places or in turning corners shall be classified as follows:</p> <p>a. Within the minor "A" defect classification - minor "B" defect</p> <p>b. Within the minor "B" defect classification - no defect</p>		
Stitching gage	Not as specified		X
Stitching margin	<p>Larger than specified by more than 3/16 inch:</p> <p>- for more than 2 inches but not less than 4 inches in length</p> <p>- for more than 4 inches in length</p> <p>Less than specified:</p> <p>- for more than 2 inches but not more than 4 inches in length</p> <p>- for more than 4 inches in length</p>	X	X
Stitching indicated by "Z" on drawings	Chain portion of stitching shows on outside of tent or cover	X	
Mends, darns, or patches	Repairs not in accordance with Department of the Army Field Manual FM 10-16; not authorized by the contracting officer (unless otherwise specified, see 3.3.5)	X	



## MIL-T-41830E

TABLE I. Tent and cover visual defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Components and assembly	Any required component or part omitted (unless otherwise classified herein)	X	
Hems	Twisted or pleated		X
	Constructed with partial turnunder when double turnunder is required		X
Reinforcements	Improperly applied, causing excessive fullness on reinforcements or reinforced parts		X
	Not securely stitched to reinforced parts on all sides, or not securely caught in seams of reinforced parts		X
Splicing	Number of splices per reinforcement more than allowable		X
	Spliced pieces not joined as shown on Drawing 5-4-814		X
Loops	Stitching attaching loops to hems or reinforcement to loops other than optional methods indicated on Drawing 5-4-814		X
Dee ring chapes on hems	Dee rings set horizontally instead of vertically (see view at "A", Drawing 5-4-820)		X
Dee ring chapes on "A" and "B"	Not set to corners as specified on Drawing 5-4-814, "Typical Corner"		X
Tie down straps	Boxstitching not through both reinforcements and body	X	
	Any strap not positioned as indicated on Drawing 5-4-814, "Assembly"		X

## MIL-T-41830E

TABLE I. Tent and cover visual defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Marking; "U.S.", identification labels, erection instruction labels	Omitted, incorrect, illegible or misplaced		X
Cleanness	Grease or oil stains, thread ends not trimmed to 1/2 inch or less		X

- \* 4.4.4 Tent and cover dimensional examination. The completely fabricated tent or cover, as applicable, shall be examined for the defects listed in table II. The lot size shall be expressed in units of tents or covers, as applicable. The sample unit shall be one tent or cover, as applicable. For inspection of tents, the inspection level shall be S-3; for inspection of covers, the inspection level shall be S-2. For both tents and covers, the AQL, expressed in terms of defects per hundred units, shall be 6.5 for major defects, 15.0 for combined major and minor A defects, and 40.0 for total combined (major, minor A, and minor B) defects.

TABLE II. Tent and cover dimensional defects

Examine	Defect	Classification	
		Major	Minor A B
Overall dimensions	Smaller than specified dimensions less applicable minus tolerances indicated on drawings	X	
	Larger than specified dimensions and applicable plus tolerances indicated on drawings		X

## MIL-T-41830E

TABLE II. Tent and cover dimensional defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Rope component (56 foot)	Less than specified length by more than 2 inches		X
Hems	Width of hems less than specified by more than 1/4 inch		X
Reinforcements	Finished dimensions of reinforcements less than specified by more than 1/2 inch		X
	Any spliced piece less than 2 feet in length		X
Loop reinforce- ments	Edges of loops uneven with inner edge or hem by more than 1/8 inch		X
	Stitched to hems with inner edges overlapped or not abutted by more than 1/8 inch		X
	Set unequally spaced (from center to center of loops) by more than 1 inch	X	
	Edges of loop reinforcements uneven with edges of loops by 1/8 inch or more		X
Dee ring chapes	Inner edge of chapes uneven with inner edge of hem by more than 1/8 inch		X
	Set unequally spaced (from dee ring to dee ring) by more than 1 inch	X	
	Length or width of boxstitching less than specified by more than 1/8 inch		X

- \* 4.4.5 Frame assembly visual examination. The completely fabricated frame, prior to erection, shall be examined for the defects listed in table III. The lot size shall be expressed in units of frames. The sample unit shall be one frame assembly. The inspection level shall be I and the AQL, expressed in

## MIL-T-41830E

terms of defects per hundred units, shall be 6.5 for major defects, 15.0 for combined major and minor A defects, and 40.0 for total combined (major, minor A, and minor B) defects.

TABLE III. Frame assembly visual defects

Examine	Defect	Classification	
		Major	Minor A B
Finish on frame assemblies (except pins, bolts, nuts, washers, and screws)	Not finished	X	
	Finish not type specified		X
	Area of no film:		
	- bare metal showing in area of 6 square inches or more	X	
	- bare metal showing in area of less than 6 but more than 2 square inches		X
	- bare metal showing in area of 2 square inches or less		X
	Area of no enamel:		
	- primer shows through in area of 9 square inches or more		X
	- primer shows through in area of less than 9 square inches		X
	Not adherent (e.g., is blistered, peeling or flaking)	X	
	Foreign matter imbedded in finish		X
	Scratched, scuffed, or abraded, exposing bare metal:		
	- more than 12 inches in longest dimension		X
	- 12 inches or less in longest dimension		X
	Scratched, scuffed or abraded more than 6 inches in longest dimension, exposing prime coat		X
	Not dry (i.e., tacky, run, drop, or sag)		X
	Damage caused during erection for examination not touched up	X	
	Touched up areas not completely covered; touch-up not neat		X

## MIL-T-41830E

TABLE III. Frame assembly visual defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Finish of pins, bolts, nuts, washers and screws	Not finished or finish not as specified	X	
	Not adherent (except brass toggle bolts); foreign matter imbedded; scratched, abraded, or scuffed; not dry		X
Construction and workmanship (applicable to all components and assemblies)	Component missing	X	
	Component fractured, split, or broken	X	
	Component punctured, dented, twisted, bowed, sprung, malformed, bent out of shape, or is otherwise impaired		X
	Evidence of corrosion on any metal component		X
	Any operation omitted or not properly performed (e.g., hole is not countersunk or ends are not chamfered where required)		X
	Countersink or chamfer is not as specified		X
	Any functioning component that is inoperative or will not operate as intended	X	
	Any functioning component that requires undue force to operate, but will function		X
	Not connected or joined as specified, or attachment is poorly accomplished	X	
	Assembly hole missing		X
	Sharp edge, burr, or sliver		X

## MIL-T-41830E

TABLE III. Frame assembly visual defects - Continued

Examine	Defect	Classification	
		Major	Minor A B
Construction and workmanship (applicable to all components and assemblies) - continued	Threaded components		
	Any bolt, nut, or screw missing	X	
	Not specified size or type (e.g., not self tapping screw when required)	X	
	Thread damaged or stripped	X	
Welds and welding	Missing, where required (check chain rings)	X	
	Weld is not specified type or size		X
	Weld is not complete or is not continuous, where required		X
	Weld is cracked, porous, fractured, unsound, or otherwise not fused	X	
	Burn through area, or metal is deformed in welding		X
	Slag or foreign matter included, but weld is sound		X
	Slag or flux deposit not removed		X
	Weld is not smooth		X
Castings	Not as specified	X	
	Cracked, porous, or unsound	X	
	Contain burrs		X
Extrusions	Not as specified	X	

## MIL-T-41830E

TABLE III. Frame assembly visual defects - Continued

Examine	Defect	Classification	
		<u>Major</u>	<u>Minor</u> A B
Marking	Missing, not specified type or size, not legible, incorrect, incomplete, not in specified location, or not applied in the specified manner		X
	Evidence that marking was applied after enameling		X

- \* 4.4.6 Frame assembly dimensional examination. The completely fabricated frame shall be examined for the dimensions specified on the drawings. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of frames. The sample unit shall be one frame. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.
- \* 4.4.7 Frame erection examination. The frames shall be erected and fully extended to determine facility of assembly and fit of mating parts. Defects shall be scored as specified in table IV. The lot size shall be expressed in units of frames. The sample unit shall be one frame. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

## MIL-T-41830E

TABLE IV. Frame erection defects

<u>Examine</u>	<u>Defect</u>
Assembly	<p>Any component that cannot be connected or joined with companion part</p> <p>Not readily assembled; i.e., assembling required realignment of parts, drilling or enlargement of holes, or use of drift pin or other mechanical means</p> <p>Assembly hole missing or misplaced</p> <p>Toggle bolt cannot be inserted through hole, or toggle bolt will not lock in position</p> <p>Undue force or special tool is required to effect assembly</p> <p>Component buckled, bent out of shape, or is otherwise damaged</p> <p>Any component missing (check all bolts, nuts, pins, washers, screws, et cetera)</p>

4.4.8 Tent testing. The completely fabricated tent shall be tested as specified in 4.5.1 for compliance with 3.3.4. The lot size shall be expressed in units of tents. The sample unit shall be one tent. The inspection level shall be S-3. Failure in any area shall be cause for rejection of the lot.

4.4.9 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



## MIL-T-41830E

<u>Examine</u>	<u>Defect</u>
Workmanship	Inadequate application of components, such as loose strapping
Content	Number per container is more or less than required

4.5 Method of inspection.

- \* 4.5.1 Wicking test. The tent shall be tested once on a roof panel lap seam and once on an eave reinforcement seam. Lay the test area over a hoop with a diameter of 6 inches ( $\pm 1/8$  inch) so as to form a depression  $1 \pm 1/4$  inch deep, with the seam to be tested running through the center of the depression. Slowly pour 500 mL of water at  $77^\circ \pm 4^\circ\text{F}$  into the depression and observe the under surface of the seam. Any wicking of water in either test area along the sewing thread, identified by a discoloration or darkening of the thread within 5 minutes of pouring the water, shall be considered a test failure. Water leakage through the needle holes or between the plies of the lapped seamed fabrics shall not be considered a failure.

## 5. PACKAGING

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

5.1.1 Level A.

5.1.1.1 Frame assembly. Each "A" frame unit and ridge unit shall be collapsed and closed to its smallest dimension. The toggle and eye bolts shall be inserted in the holes provided. The 10-foot length of chain shall be tightly wound around one leg of each "A" frame unit. All chains shall be secured with tape, cord, twine, or self secured to prevent movement of the chain during transit.

5.1.1.2 Tent and cover. Each tent shall be laid out flat with the inside facing up. All tent lines with attached slips shall be fully extended toward the center of the tent. The tent shall then be neatly folded to measure approximately 3 feet by 3 feet. Care shall be taken to expel all excess air during the folding operation. The completely folded tent shall be placed within the cover provided and the cover securely closed.

- \* 5.1.2 Commercial. Frame assemblies and tents shall be preserved in accordance with ASTM D 3951.

## MIL-T-41830E

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

5.2.1 Level A packing.

5.2.1.1 Frame assembly. One complete frame assembly, preserved as specified in 5.1, shall be packed in a shipping container conforming to class 2, style 2 or 4, type 3 load of PPP-B-621, except that the requirements for additional battens shall not apply. The frame assembly shall be arranged within the container with the two "A" frame units reversely positioned on the bottom of the container and the ridge unit placed on the "A" frame units. The contents shall be immobilized by blocking and bracing with lumber. Blocking and bracing shall not depend on the end-grain nailing alone. Supplemental supporting cleats shall be provided to reinforce and prevent splitting of the blocking and bracing. Each shipping container shall be closed and strapped with flat steel strapping in accordance with the appendix of PPP-B-621.

5.2.1.2 Tent. One maintenance tent, preserved as specified in 5.1, shall be packed in a close-fitting plywood box conforming to overseas type, style A of PPP-B-601. When a multiple of tents per shipping container is required, a type 3 load box with skids shall be fabricated in accordance with the gross weight requirements in PPP-B-601. Each shipping container shall be closed and reinforced with flat steel strapping in accordance with the appendix of PPP-B-601.

5.2.2 Level B packing.

5.2.2.1 Frame assembly. One complete frame assembly, preserved as specified in 5.1, shall be packed as specified in 5.2.1.1.

5.2.2.2 Tent. One maintenance tent, preserved as specified in 5.1, shall be wrapped in cotton osnaburg cloth conforming to class 2 of CCC-C-429 or burlap cloth conforming to class 2 of CCC-C-467. The wrapping shall be securely hand sewn with type I or II, 16-ply cotton twine conforming to T-T-871 or type I, size No. 2 jute twine conforming to T-T-911, with approximately one stitch to the inch and every third stitch knotted. Alternatively, the seams of the wrap may be machine-sewn. In lieu of the sewn wrap, bias-sewn tubing (or bag pre-sewn one end) conforming to MIL-T-40625 may be used. A minimum of 5 inches of wrapping material or tubing shall be gathered together on each of the four corners and securely sewn into ears for handles. Whenever machine sewing is used, the thread type, stitch type, and number of stitches per inch shall conform to the requirements specified in MIL-T-40625. The polyester thread used in manufacturing the end item may be used for effecting the machine closure of the wrapping or tubing.

## MIL-T-41830E

- \* 5.2.3 Commercial packing. Frame assemblies and tents, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.
- \* 5.3 Marking. In addition to any special marking required by the contract or purchase order, shipments shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable. The shipments composed of a complete tent shall be set or assembly marked as specified in MIL-STD-129.

5.3.1 Additional marking. The following shall be stenciled or imprinted on each shipping container in characters not less than 3/4 inch high:

SEE ERECTION INSTRUCTIONS SEWED TO INSIDE OF TENT

## 6. NOTES

6.1 Intended use. The tent is designed to be used as a shelter for personnel performing maintenance on trucks and tanks in the field.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. When a first article is required (see 3.1, 4.3, and 6.3).
- c. Selection of applicable level of preservation, and packing (see 5.1 and 5.2).

\* 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 include specific instructions in all acquisition instruments regarding arrangements for selection, inspection, and approval of the first article.

\* 6.4 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of this document (see 3.2).

6.5 Label prints source. Glossy prints of drawings of labels specified in 3.4.3 may be obtained from the contracting activity.

6.6 Seam repair. A satisfactory method of applying the textile retreatment compound for the repair of leaking seams is as follows:

## MIL-T-41830E

a. A suitable volume of compound conforming to type I, class 1, of TT-P-595 (NSN 8030-00-290-4383) (55 gallons) shall be thoroughly stirred and diluted with an equal volume of petroleum solvent (Stoddard solvent or equal). Thoroughly stir the mixture again before use.

b. Prior to application of the compound, tents must be dry. Special attention must be taken to insure adequate ventilation and that proper fire preventive measures are employed since the compound is flammable. Prolonged skin contact by compounds classified as skin irritants require personal protective equipment for protection.

c. Two coats of compound shall be applied to the seams (on the outside of the tent only). A 4-inch wide stiff brush is recommended for use. The first coat shall be air dried for a minimum of four hours prior to the application of the second coat. Elapsed time between coats may be reduced by providing a supply of hot air to evaporate the solvent more quickly. In this manner, a second coat may be applied as soon as the first coat is dry to the touch. After the application of the second coat, the treated tent shall be allowed to air dry for a period of 24 hours.

6.6.1 Seams to be treated. Seams which have failed the test specified in 4.5.1 shall be treated as follows:

- a. Failure at panel lap seam - treat all panel lap seams.
- b. Failure at reinforcement seam - treat all stitching on reinforcement seams.

6.7 International standardization agreements. Certain provisions of this document are the subject of international standardization agreement as cited in NATO, STANAG NO. 2882, relative to camouflage requirements for tents, shelters, and subsidiary components. When amendment, revision, or cancellation of this document is proposed which will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices to change the agreement or make other appropriate accommodations.

\* 6.8 Subject term (key word) listing.

Shelter, personnel and equipment  
Tent, vehicle maintenance

## MIL-T-41830E

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

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Army - GL

Preparing activity:

Army - GL

Review activities:

Army - MD

DLA - CT

Project No. 8340-0489

User activity:

Air Force - 82

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## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-T-41830E		2. DOCUMENT TITLE Tent, Vehicle Maintenance, Complete with A-Frame	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
		<input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
b. ADDRESS (Street, City, State, ZIP Code)			
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	