

MIL-P-1716H
30 July 1981
SUPERSEDING
MIL-P-1716G
30 December 1971

MILITARY SPECIFICATION

POLE, TENT, TELESCOPIC, ADJUSTABLE 5 FEET TO 9 FEET, MAGNESIUM

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

1. SCOPE

1.1 Scope. This specification covers one type and size of tubular magnesium telescopic tent pole. The pole is expandable from 5 feet to 9 feet in length according to the following adjustments:

5 feet - 0 inches
5 feet - 8 inches
6 feet - 2 inches
7 feet - 0 inches
8 feet - 3 inches
8 feet - 6 inches
9 feet - 0 inches

2. APPLICABLE DOCUMENTS

* 2.1 Issues of documents. 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:

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Natick Research and Development Laboratories, Natick, MA 01760 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8340

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SPECIFICATIONS

FEDERAL

- QQ-A-591 - Aluminum Alloy Die Castings.
- QQ-S-571 - Solder; Tin Alloy; Lead-Tin Alloy; and Lead Alloy.
- QQ-S-698 - Steel, Sheet and Strip, Low-Carbon.
- QQ-S-700 - Steel, Sheet and Strip, Medium and High Carbon.
- QQ-W-412 - Wire, Steel, Alloy (General Purpose Quality),
For Mechanical Springs.
- QQ-Z-325 - Zinc Coating, Electrodeposited, Requirement For.
- TT-E-529 - Enamel, Alkyd, Semi-Gloss.
- TT-P-1757 - Primer Coating, Zinc Chromate Low-Moisture-Sensitivity.
- WW-T-825 - Tube, Magnesium-Alloy, Extruded.

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- MIL-M-3171 - Magnesium Alloy, Processes for Pretreatment and
Prevention of Corrosion On.
- MIL-C-52950 - Crates, Wood, Open and Covered.

STANDARDS

FEDERAL

- FED-STD-601 - Rubber: Sampling and Testing.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by
Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized Unit Loads.
- MIL-STD-1188 - Commercial Packaging of Supplies and Equipment.
- MS16562-24 - Pins, Spring, Tubular, Slotted.

DRAWINGS

U.S. ARMY NATICK RESEARCH AND DEVELOPMENT LABORATORIES

- 5-4-1073 - Pole, Tent, Telescopic, Adjustable, 5'-0" to 9'-0",
Magnesium; Assembly Complete.
- 5-4-1074 - Pole, Tent, Telescopic, Adjustable, 5'-0" to 9'-0",
Magnesium; Pole Details and Sections.
- 5-4-1075 - Pole, Tent, Telescopic, Adjustable, 5'-0" to 9'-0",
Magnesium; Details.

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(Copies of specifications, standards, drawings and publications required by contractors 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 issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- B 94 - Magnesium - Alloy Die Castings
- D 412 - Tension Testing of Rubber
- D 1053 - Measuring Rubber Property - Stiffening at Low Temperature Using a Torsional Wire Apparatus
- D 2240 - Rubber Property-Durometer Hardness
- E 18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

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

SOCIETY OF AUTOMATIVE ENGINEERS, INC. (SAE)

SAE J404g Chemical Compositions of SAE Alloy Steels

(Application for copies should be addressed to Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

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

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), the contractor shall furnish a sample for first article inspection and approval (see 4.3 and 6.3).

3.2 Materials (see 6.4). The materials used shall conform to the applicable specifications, standards, and drawings referenced hereinafter.

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3.2.1 Magnesium alloy.

3.2.1.1 Tube. Magnesium alloy tubes shall conform to composition AZ31B of WW-T-825.

3.2.1.2 Die Castings. Magnesium alloy die casting shall conform to magnesium alloy AZ91B of ASTM B 94.

3.2.2 Aluminum alloy die castings. Aluminum alloy die castings shall conform to alloy number A-380.0 of QQ-A-591.

3.2.3 Steel.

3.2.3.1 Strip, alloy. Alloy steel strip shall conform to alloy steel number 6150 hot rolled condition of SAE J404g.

3.2.3.2 Strip, low carbon. Low carbon steel strip shall conform to chemical compositions 1008-1020, any quality, temper and finish of QQ-S-698.

3.2.3.3 Sheet, medium and high carbon. Medium and high carbon steel sheet shall conform to composition SAE number 1050, cold rolled, annealed last of QQ-S-700.

* 3.2.3.4 Wire, alloy. Alloy steel wire shall conform to composition 1, type II, condition B of QQ-W-412 except that the wire shall be flat with 1/64 inch radii on edges.

3.2.4 Solder. Solder shall conform to composition Sn50 of QQ-S-571. When the alternate coating specified in 3.2.9 is used, solder conforming to Brace 053 (TEC), or equal shall be used with the appropriate flux. Prior to use of the "or equal" item, the contractor shall submit the item to the contracting officer with supporting data for approval.

3.2.5 Pins, spring. Spring pins shall conform to MS 16562-24.

3.2.6 Primer. Primer shall conform to composition G or L, as applicable, color Y of TT-P-1757.

3.2.7 Enamel. Enamel shall conform to class A or B, composition G or L, Olive Drab No. 24087 of TT-E-529.

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3.2.8 Rubber, synthetic. Synthetic rubber shall conform to the following properties before and after aging 24 hours at 212°F in accordance with Method 7221 of FED-STD-601 (see 4.1.1):

- (a) Minimum tensile strength of 1200 psi in accordance with ASTM D 412.
- (b) Ultimate elongation of 500 \pm 20 percent in accordance with ASTM D 412.
- (c) Minimum 600 psi at 300 percent elongation in accordance with ASTM D 412.
- (d) Tension set at break of 20 \pm 2 percent in accordance with ASTM D 412.
- (e) Shore A Durometer hardness of 60 \pm 5 in accordance with ASTM D 2240.
- (f) Low temperature stiffness at minus 65°F with exposure time of 10 minutes and coolant of dry ice cooled methanol in accordance with ASTM D 1053, using routine inspection and acceptance procedure.

- * 3.2.9 Epoxy coating. As an alternate to the primer and enamel specified above, the tent poles may be coated with standard Corvelli ECA-1555-FC3 epoxy coating, or equal. The color shall be Olive Drab No. 24087. Prior to use of the "or equal" item, the contractor shall submit the item to the contracting officer with supporting data for approval.

3.3 Construction. The construction of all components and assembly of the pole covered herein shall conform to the requirements of this specification and as shown on Drawings 5-4-1073 through 5-4-1075. The lock retaining sleeve shall be fabricated of material specified in 3.2.8.

3.3.1 Top, center and bottom tubular sections. Top, center and bottom tubular sections shall be fabricated from material specified in 3.2.1.1.

3.3.2 Plug. Plug shall be fabricated from material specified in 3.2.1.2 or 3.2.2.

3.3.3 Spindle. Spindle shall be fabricated from material specified in 3.2.2.

- * 3.3.4 Locks.

3.3.4.1 Body. The body of the locks shall be fabricated from material specified in 3.2.3.1. At the option of the contractor; alloy steel wire as specified in 3.2.3.4 may be used in lieu of the alloy steel strip. Prior to assembly with the nib filler, the body of the locks shall be heat treated to a Rockwell hardness of C40-C45. When tested as specified in 4.4.1, the Rockwell hardness shall be within the limits of a minimum of C40 and a maximum of C45.

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3.3.4.2 Filler, nib. The nib filler shall be fabricated from material specified in 3.2.3.2.

3.3.4.3 Soldering. After assembly of the lock, the nib filler shall be soldered in place with solder specified in 3.2.4. Soldered joints shall be complete, sound, smooth and free from pin holes and flux residue.

3.3.5 Alternate construction. Locks may be fabricated by an alternate method conforming to Drawing 5-4-1075 and as specified herein:

- a. Locks shall be fabricated from material specified in 3.2.3.3.
- b. Locks shall be heat treated to a Rockwell hardness of C40-45.

When tested as specified in 4.4.1, the Rockwell hardness shall be within the limits of a minimum of C40 and a maximum of C45 prior to stress relieving before plating.

3.4 Finish.

* 3.4.1 Plating, zinc. Locks shall be zinc plated conforming to class 2, type II of QQ-Z-325 except as follows:

a. Locks shall be stress relieved before plating by heat treatment at 275 to 300°F for a period of 30 minutes followed by air cooling.

b. The temperature of the heat treatment for embrittlement relief of the locks after plating shall be 340°F plus or minus 20°F for a minimum period of 3 hours.

3.4.2 Pretreatment. Prior to assembly, interior and exterior surfaces of the magnesium plug and tubular sections shall be pretreated in accordance with type III or IV of MIL-M-3171.

3.4.3 Priming. After pretreatment as specified in 3.4.2 and prior to assembly, all inside and outside surfaces of the tubular sections, plug and spindle shall be coated with primer specified in 3.2.6.

3.4.4 Enameling. Either before assembly of the pole or with the assembled pole (excepting the locks and lock retaining sleeves) in the fully extended position, all exterior primed surfaces shall be coated with enamel specified in 3.2.7. At the option of the contractor, interior surfaces may be enameled. The enamel shall be air dried or cured in accordance with the enamel manufacturer's instructions. The coating shall level out to produce a smooth, uniform, dry film without runs, wrinkles, streaks, grit and coarse particles. Any coating damaged during assembly of the pole or during examination shall be touched up.

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3.5 Marking for identification. The letters "U.S." and the manufacturer's name or trade name or trademark of such characters identifiable with the manufacturer, shall be distinctly indented or raised on the bottom surface of the plug and shall be not less than 1/8 inch in size.

3.6 Workmanship. Components shall be free from split, puncture, burr, rough or sharp edge, malformation, deformation, or fracture. The completely finished pole shall be capable of function without the use of tools.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate 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 Classification of inspection. 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 defects specified in table III and 4.4.3.2. The presence of any defect 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 specifications, drawings, and standards unless otherwise excluded, amended, modified, or qualified, in this specification or applicable purchase document. In addition to the quality assurance provisions of the subsidiary specifications and drawings, testing shall be performed on components listed in table I for the test characteristics shown. A lot shall consist of all bodies of locks (or locks when alternate construction is used) offered for inspection at one time prior to stress relieving and plating. The sample unit shall be one body of the lock (or lock when alternate construction is used). The inspection level shall be S-2 and the acceptable quality level (AQL) shall be 4.0 expressed in terms of percent defective.

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TABLE I. Component test

Component	Charac- teristic	Specification reference	Test method	Require- ments appli- cable to Individ- ual unit	Number determi- nations per unit	Results reported as
Body of lock	Hardness Rockwell C40-C45	3.3.4.1 or 3.3.5 as appli- cable	4.5.1	X	3	Average of three deter- minations to nearest Rock- well scale reading

4.4.2 In-process examination. Examination shall be made at any point during any phase of the manufacturing for the requirements specified in table II to establish that no deviation is made from the indicated requirements. Whenever a nonconformance is noted, correction shall be made to affected items and process.

TABLE II. In-process examination of finishing

Requirement or operation	Requirement
Zinc plating	3.4.1
Pretreatment of magnesium surfaces prior to assembly	3.4.2
Priming of tubular sections, plug, and spindle prior to assembly	3.4.3

4.4.3 End item inspection. The end item shall be examined in accordance with 4.4.3.1 and 4.4.3.2. The lot size shall be expressed in units of one pole. The sample unit shall be one completely fabricated pole.

4.4.3.1 Visual examination. The end item shall be examined for the defects listed in table III. The inspection level shall be II and the AQL shall be 4.0 major and 10.0 total (major and minor combined) defects per hundred units.

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TABLE III. Visual defects

Examine	Defect	Classification		
		Major	Minor	
Finish	Not finished as specified, e.g., locks not zinc plated	X		
	Aluminum and magnesium components not enameled as specified	X		
	Color of finish is not as specified		X	
	Coating not smooth or uniform		X	
	Finish is not dry, i.e., wet or tacky to touch		X	
	Runs, wrinkles, streaks, grit or coarse particles		X	
	NOTE: Defects in finish attributable to extension during examination will not be scored as a defect. However, the contractor shall touch up areas of finish damaged during examination.			
Construction and workmanship	Any part not fabricated of the specified materials	X		
	Any component, e.g., the lock, not fabricated as specified	X		
	Component missing, e.g., tubular section, lock or spring pin	X		
	Component is split, punctured, malformed, deformed, or fractured		X	
	Spring pin is loose or is not flush with tubular section		X	
	Fluting on spindle or plug is missing		X	
	Plug end of bottom tubular section not swaged against plug		X	
	Spindle end of top tubular section not swaged against spindle		X	
	Plug vent hole missing		X	
	Slot missing in tubular section		X	
	Burr or rough or sharp edge		X	
	Soldered joint of nib filler (when applicable) to lock body is incomplete, unsound, not smooth, or not free from pin holes or flux residue		X	

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TABLE III. Visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor
Extension and col- lapsibility	Pole cannot be extended or collapsed, e.g., tubular section binds prohibit- ing free manipulation of tubular sections	X	
	Pole comes apart	X	
	Pole cannot be locked at each specified length		X
Identifica- tion marking	Missing, wrong location, wrong size, incomplete, illegible, incorrect, or not accomplished as specified		X

4.4.3.2 Dimensional examination. Examination shall be made of the poles for defects in dimensions. Any dimension not within specified requirements shall be classified as a defect. The inspection level shall be S-1 and the AQL shall be 6.5 defects per hundred units.

- * 4.4.4 Packaging inspection. An examination shall be made to determine that packing and marking comply with the section 5 requirements. Defects shall be scored as specified in table IV. The sample unit shall be one shipping container fully packaged with the exception that it need not be closed. Examination for the closure defects specified in table IV shall be made on shipping containers fully packaged. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per hundred units.

TABLE IV. Packaging defects

Examine	Defect
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application
Materials	Any component missing, damaged, or not as specified
Workmanship	Container is not snug-fitting (poles are not immobilized) Poles are not packed in four layers of five poles in each layer Poles are not alternated end for end in each row and each layer Bulged or distorted container

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4.4.5 Palletization inspection. An examination shall be made to determine that palletization complies with the section 5 requirements. Defects shall be scored as specified in table V. The sample unit shall be one palletized unit load fully packaged. The lot size shall be the number of palletized unit loads in the end item inspection lot. The inspection level shall be S-1 and the AQL shall be 6.5 defects per hundred units.

TABLE V. Palletization defects

Examine	Defect
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern not as specified Interlocking of loads not as specified Load not bonded with required straps as specified
Weight	Exceeds maximum load limit
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

4.5 Methods of inspection.

4.5.1 Hardness test. The Rockwell hardness of the body of the locks shall be tested in accordance with ASTM E 18. Any body of the locks having a Rockwell hardness of less than C40 or more than C45 shall be classified as defective.

5. PACKAGING

* 5.1 Packing. Packing shall be level A or Commercial as specified (see 6.2).

5.1.1 Level A packing. Twenty tent poles, fully collapsed, shall be packed in a snug-fitting shipping container conforming to type II, style A of MIL-C-52950. The tent poles shall be packed in four layers of five each alternated end for end so that a plug end shall be adjacent to a spindle end in each row and each layer.

* 5.1.2 Commercial. Tent poles shall be packed in accordance with MIL-STD-1188.

5.2 Palletization. When specified (see 6.2), tent poles packed as specified, shall be palletized in accordance with type I of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance

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with bonding means K and L. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If a container is of a size which does not conform to any of the pallet patterns specified in MIL-STD-147, the pallet pattern used shall be submitted to and approved by the contracting officer prior to its use.

5.3 Marking. In addition to any special marking required by the contract, shipping containers and palletized unit loads shall be marked in accordance with MIL-STD-129 or MIL-STD-1188 as applicable.

6. NOTES

6.1 Intended use. The adjustable, telescopic, magnesium, tent pole is intended to be used with the arctic ten-man tent and the hexagonal lightweight tent.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) When a first article is required (see 3.1, 4.3 and 6.3).
- (c) Selection of applicable level of packing (see 5.1).
- (d) When palletization is required (see 5.3).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of DAR 7-104.55. The first article should be a preproduction sample. The first article should consist of one unit. The contracting officer should include specific instructions in all procurement instruments regarding arrangements for 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 the specification (see 3.2).

* 6.5 International standardization agreements. Certain provisions of this specification 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 specification 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, if required.

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

Custodians:

Army - GL
Navy - NU
Air Force - 99

Preparing activity:

Army - GL
Project No. 8340-0427

Review activities:

Army - ME
DLA - CT

User activities:

Army - MD
Navy - MC
Air Force - 45

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