

INCH-FOUND

MIL-T-3510E
 21 August 1989
 SUPERSEDING
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 14 August 1978

MILITARY SPECIFICATION
 TARGET, SURVEYING, BEACON
 (WITH CARRYING BAG)

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

1. SCOPE

1.1 Scope. This specification covers a fabric-covered, pyramidal-frame target for surveying applications, and its carrying case.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards and drawing. The following specifications, standards, and drawings form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

QQ-S-781	- Strapping, Steel, and Seals.
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-B-640	- Boxes, Fiberboard, Corrugated Triple-Wall.

MILITARY

MIL-C-22775	- Cloth, Bunting, Acrylic.
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Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research, Development, and Engineering Center, ATTN: SIRBE-TSE, Fort Belvoir, VA 22060-5606 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 6675

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STANDARDS

FEDERAL

FED-STD-751 - Stitches, Seams, and Stitching.

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129 - Marking for Shipment and Storage.

MIL-STD-130 - Identification Marking of U.S. Military Property.

MIL-STD-889 - Dissimilar Metals.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.1.2 Government drawings. The following Government drawings form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those cited in the solicitation.

DRAWING

ME

TA13217E2455 - Target, Surveying, Beacon.

(Copies of drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the USA Belvoir Research, Development, and Engineering Center, ATTN: STRBE-JDT, Fort Belvoir, VA 22060-5606.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, (except for associated detail specifications, specification sheets or MS standards) the text of this specification shall take precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The target and its carrying bag shall be in accordance with TA13217E2455, and as specified herein.

3.1.1 Drawings. The drawings forming a part of this specification are end product drawings. No deviation from the prescribed dimensions or tolerance is permissible without prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to ensure correct fit, assembly, and operation of the target, surveying, beacon. Any data (e.g., shop drawings, layouts, flow sheets, processing procedures, etc.) prepared by the

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contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or his designated representative.

3.2 First article. Unless otherwise specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.3 Material. Material shall be as specified herein and on the applicable drawings. Material not specified shall be selected by the contractor and shall be subject to all provisions of this specification (see 4.1.2).

3.3.1 Material deterioration prevention and control. The target, surveying, beacon shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which the target, surveying, beacon may be exposed.

3.3.1.1 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. Dissimilar metals and methods of protection are defined and detailed in MIL-STD-889.

3.3.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and subcomponents, and shall make this information available upon request to the contracting officer or designated representative.

3.3.2 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces, and parts incorporated in the target, surveying, beacon may be newly fabricated from recovered materials to the maximum extent practicable, provided the target, surveying, beacon produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the target, surveying, beacon.

3.4 Construction.

3.4.1 Fabric. The fabric used for the signal assembly shall be 0.134-kg acrylic bunting cloth conforming to MIL-C-22775.

3.4.2 Cordage. Cordage used in supporting the target, surveying, beacon shall be made of three strands of twisted polyamide cord to 9.525 mm standards. All ends shall be heat sealed and taped to assure against fraying or opening of the twisted fibers.

3.4.3 Stitching. Stitching for the acrylic flag cloth and for the nylon webbing shall be in accordance with FED-STD-751, type 301, 6 to 8 stitches per 25.4 mm. Each end or break shall be backstitched not less than 25.4 mm. All exposed edges of the acrylic material shall be turned under to prevent raveling. Adjustment of the thread tension shall be maintained to prevent loose stitches and to assure embedding of the stitches with the thread lock deep in material thickness. Stitching shall be of polyester thread and as specified in the applicable drawings.

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3.4.4 Fasteners. All finger or hand operable fasteners (i.e. wing nuts, turn keys, etc.) shall be made captive by the simplest means possible to prevent their loss.

3.5 Dimensions. Tolerances shall conform to the limits specified herein and on the applicable drawings.

3.6 Color. The panels of the signal assembly and the target flag shall be fast dyed as follows: The upper panels of the signal assembly and the outside panel of the flag shall be yellow dye color no. 3510 of MIL-C-22775. The lower panels of the signal assembly and the inside panel of the flag shall be international orange; should international orange dye color not be available, the dye color of these panels shall be dye no. 3803 of MIL-C-22775. Binding tape for both signal assembly and flag shall be black or blue acrylic bunting cloth.

3.7 Identification marking. Each target, surveying, beacon shall be identified in accordance with MIL-STD-130, and as specified herein.

3.8 Workmanship. The target, surveying, beacon shall be clean and free from abrasion marks, permanently embedded creases and wrinkles, loopy and loose edges, dye stains or streaks, and loose, missing, or incorrect stitches.

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, examination and tests as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of 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 Component and material inspection. The contractor is responsible for ensuring that components and materials are manufactured, examined, and tested in accordance with referenced specifications and standards as applicable.

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).
- c. Inspection of packaging (see 4.6).

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4.3 First article inspection.

4.3.1 First article examination. The first article shall be examined as specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.3.2 First article tests. The first article shall be tested as specified in 4.5.2. Failure of any test shall be cause for rejection.

4.4 Quality conformance inspection.

4.4.1 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.4.2 Examination. Samples selected in accordance with 4.4.1 shall be examined as specified in 4.5.1.

4.5 Inspection procedure.

4.5.1 Examination. The targets shall be examined as specified herein for the following defects.

101. Material not as specified (see 3.3).
102. Material not resistant to corrosion and deterioration, or treated to be resistant to corrosion and deterioration for the applicable storage and operating environments (see 3.3.1).
103. Dissimilar metals, as defined in MIL-STD-889, are not effectively insulated from each other (see 3.3.1.1).
104. Contractor does not have documentation available for identification of material, material finishes, or treatment (see 3.3.1.2).
105. Used, rebuilt or remanufactured components, pieces or parts incorporated in the target, surveying, beacons (see 3.3.2).
106. Fabric not as specified (see 3.4.1).
107. Cordage not as specified (see 3.4.2).
108. Stitching not as specified (see 3.4.3).
109. Fasteners not as specified (see 3.4.4).
110. Dimensions not as specified on drawings (see 3.5).
111. Color not as specified (see 3.6).
112. Identification markings not as specified (see 3.7).
113. Workmanship not as specified (see 3.8).

4.5.2 Tests.

4.5.2.1 Assembly and disassembly. The target shall be assembled over a station site; it shall remain in position for three days, and then be disassembled and stowed in the carrying bag. Failure of any of the following conditions shall constitute failure of this test:

- a. Evidence of incorrect fit of components.
- b. Inability to assemble or disassemble the target.
- c. Inability to position the target over a point.

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- d. Inability of the target, after setup and under any existing weather conditions, to stay over a point and present an acceptable sighting target after three days of continuous setup.
- e. Inability to stow target in the carrying bag.

4.6 Inspection of packaging.4.6.1 Quality conformance inspection of packaging.

4.6.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.1.3 Examination. Samples selected in accordance with 4.6.1.2 shall be examined for the following defects.

- 114. Target not contained in bag as specified for level A or C (see 5.1.1 and 5.1.2).
- 115. Boxes not as specified and not closed and sealed for level A, or C. Each incorrect box shall be considered one defect (see 5.1.1 and 5.1.2)
- 116. Shipping containers not as specified for level A and B (see 5.2.1 and 5.2.2).
- 117. Strapping not as specified for level A, B, or C (see 5.2.1 and 5.2.2).
- 118. Gross weight or size of box exceeds the limitations of the applicable box specification for level A or B (see 5.2.1 and 5.2.2).
- 119. Marking missing, illegible, incorrect, or incomplete for level A, B, or C (see 5.3).

5. PACKAGING

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

5.1.1 Level A. Each target contained in the bag shall be placed in a close-fitting box conforming to PPP-B-636, W5c, style optional. The box shall be closed and sealed as specified for method V in the appendix to the box specification.

5.1.2 Level C. Each target contained in the bag shall be preserved as specified for level A except the box shall be domestic type.

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

5.2.1 Level A. The bags containing the targets, preserved as specified in 5.1, shall be packed together in a close-fitting box conforming to PPP-B-601, overseas type, style optional, in quantities not to exceed the weight limitation of the box. Closure and strapping shall be in accordance with the appendix to the box specification. Strapping shall conform to QQ-S-781, class 1, type I or IV, finish B, size as applicable.

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5.2.2 Level B. The bags containing the targets, preserved as specified in 5.1, shall be packed together in close-fitting wood boxes conforming to PPP-B-601, domestic type, style optional, or in close-fitting fiberboard boxes conforming to PPP-B-640, class 2, style optional. The gross weight or size of each box shall not exceed the limitations of the applicable box specification. Box closure and strapping shall be in accordance with the appendix to the applicable box specification.

5.2.3 Level C. The bags containing the targets, preserved as specified for level A (see 5.1.1) shall require no additional packing. Quantities of targets shall be palletized on 40 X 48-inch wood pallets. Targets shall be secured to the pallets with strapping, stretch wrap or other means to prevent the loss of the load.

5.3 Marking. In addition to any special marking specified in the contract or purchase order (see 6.2), marking shall be in accordance with MIL-STD-129.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The target is intended for use as a beacon in marking angular surveying measurements.

6.2. Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see. 2.1.1).
- c. Part number (see 1.2).
- d. When a first article is required for inspection and approval and the number of units required (see 3.2).
- e. Level of preservation and packing required (see 5.1 and 5.2).
- f. Any special marking (see 5.3).

6.3 First article. When a first article inspection is required, the item(s) should be a preproduction model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, tests, and approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or tests, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-T-3510E		2. DOCUMENT TITLE Target, Surveying, Beacon (w/Carrying Bag)	
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	
8. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		9. DATE OF SUBMISSION (YYMMDD)	

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