

MIL-T-12685 (QMC)
13 May 1953

MILITARY SPECIFICATION

TENT, FWWMR, FRAME-TYPE, BALLOON INFLATION, M-1953

1. SCOPE

1.1 This specification covers a frame-type, vehicle-portable tent designed for use in the inflation of weather balloons.

1.2 This specification covers one type and size of Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953, consisting of the following:

- 1 ea. Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953 (Tent only)
- 3 ea. Arches, for Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953
- 20 ea. Purlins, 7'-4-1/4" long, Aluminum, for Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953.

2. APPLICABLE SPECIFICATIONS, STANDARDS, DRAWINGS, AND PUBLICATIONS

2.1 The following specifications, standards, publications, and drawings, of one issue in effect on date of invitation for bids, form a part of this specification:

SPECIFICATIONS

FEDERAL

- C-B-191 - Beeswax, Technical-A Grade.
- L-S-139 - Screening, Plastic, Insect.
- T-T-871 - Twine; Cotton, Wrapping.
- V-F-106 - Fasteners, Slide; Interlocking.
- V-T-276 - Thread; Cotton.
- FF-R-556 - Rivets, Burrs, and Caps; Copper and Brass.
- QQ-S-633 - Steel, Carbon; Bare (General Purpose).
- QQ-S-741 - Steel, Structural (Including Welding) and Rivet; for Bridges and Buildings.
- QQ-S-781 - Strapping, Flat, Steel.
- QQ-W-461 - Wire, Steel, (Carbon), Bare and Coated.
- TT-E-485 - Enamel; (for) Drums and Other Metal Products, Rust Inhibiting, Olive Drab.
- TT-I-559 - Ink, Stencil; Opaque, for Marking Porous Surfaces (Wooden-Boxes, Fiber-Cartons, etc.).

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- TT-P-636 - Primer, Paint; Synthetic (for Ferrous Metal and Wood Surfaces).
- WW-T-785 - Tubing, Aluminum Alloy, 24S, Round, Square, Rectangular and Other Shapes, Seamless, Drawn.
- CCC-T-191 - Textile Test Methods.
- DDD-S-751 - Stitches; Seams; and Stitching.

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- JAN-P-106 - Packaging and Packing for Overseas Shipment - Boxes, Wood, Nailed.
- JAN-C-496 - Clips, End.
- JAN-C-517 - Cloth, Label, Cotton, Permanent-Coated.
- JAN-W-530 - Webbing, Cotton, Natural or in Colors.
- JAN-B-543 - Buckles, Tongueless and Web Strap, For Tentage and Equipage Items.
- MIL-A-397 - Adhesive, Room-Temperature and Intermediate-Temperature Setting Resin (Phenol, Resorcinol, and Melamine Base).
- MIL-P-501 - Pins, Tent, Metal.
- MIL-D-504 - Dyeing and Aftertreating Processes for Cotton Duck and Twill.
- MIL-R-1670 - Rope, Tent-Lay.
- MIL-L-1709 - Lines, Tent.
- MIL-S-1734 - Slip, Tent, Wire.
- MIL-S-2032 - Snap, $1\frac{1}{4}$ ", Bolt, Swivel, Round Eye.
- MIL-S-2147 - Snaps, German and Harness.
- MIL-B-2481 - Bull's Eyes, 5/16 Inch Inside Diameter.
- MIL-R-3390 - Rings, "D".
- MIL-T-3530 - Treatment, Mildew-Resistant, for Thread and Twine.
- MIL-R-3817 - Rope: Cotton, Braided.
- MIL-W-6110 - Wood, Determination of Moisture Content of.
- MIL-F-10400 - Film, Flexible, Vinyl.
- MIL-C-10578 - Compound, Metal Conditioner and Rust Remover (Phosphoric Acid Type).
- MIL-D-10861 - Duck: Cotton, Plied-Yarns (Army, Numbered and Special Use).
- MIL-L-11075 - Loops, Strap.
- MIL-G-16491 - Grommets With Washers or Rings.

U. S. ARMY

- 3-201 - Primer, Zinc-Yellow.
- 57-0-2 - Finishes Protective, For Iron and Steel Parts.
- 57-136 - Steel, Carbon and Alloy; Sheets and Strips.

STANDARDS

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking of Shipments.

(Copies of specifications and standards required by contractors in connection with specific procurement functions should be obtained from the procuring agency or as directed by the contracting officer.)

PUBLICATIONS

NATIONAL BUREAU OF STANDARDS PUBLICATIONS

Handbook H-28 - Screw-Thread Standards for Federal Services.

(Copies of Handbook H-28 may be obtained, upon application, accompanied by money order, coupon, or cash to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

DRAWINGS

QUARTERMASTER CORPS

- 5-4-339 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Illustration (fig. 1).
- 5-4-340 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Assembly (fig. 2).
- 5-4-341 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Details and Sections (fig. 3).
- 5-4-342 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; End Wall Assembly (fig. 4).
- 5-4-343 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; End Wall Details and Sections (fig. 5).
- 5-4-344 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Body Assembly (fig. 6).
- 5-4-345 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Heater Duct Details (fig. 7).
- 5-4-347 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Window Details (fig. 8).
- 5-4-348 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Miscellaneous Details (fig. 9).
- 5-4-349 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Frame Assembly (fig. 10).
- 5-4-350 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Frame Details "A" (fig. 11).
- 5-4-351 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Frame Details "B" (fig. 12).
- 5-4-352 - Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953; Cover (fig. 13).

(Miniature copies of the above referenced drawings are included herein as figures No. 1 thru 13. Copies of the original size drawings will be furnished manufactures, upon request, by the procuring agency, or as directed by the contracting officer. The title and identifying number shall be stipulated.)

3. REQUIREMENTS

3.1 Preproduction sample approval.- Unless otherwise specified, before production is begun, a sample of the finished commodity shall be submitted to the contracting officer for approval.

3.2 Materials.- The materials shall conform, in all respects, to the specifications and drawings listed in section 2, and as specified herein.

3.2.1 Duck, cotton, 9.85 oz.- The cotton duck used to fabricate the tent, shall be, before finishing, 9.85 ounces per square yard, conforming to type II of Specification MIL-D-10861.

3.2.1.1 Color.- The cotton duck shall be vat-dyed to match an approved shade of olive drab (see 6.3).

3.2.1.2 Color fastness.- The finished fabric shall show good fastness to accelerated weathering and shall show no more crocking on dry white cloth than Munsell standard No. 7 when tested as specified in 4.3.

3.2.1.3 Physical requirements.- The finished fabric shall conform to table I.

TABLE I.- Physical requirements.

Weight per square yd. (Max.)	Threads per inch (Min.)		Breaking Strength (Grab Method) (Min.)		Yarn Ply	
	Warp	Filling	Warp	Filling	Warp	Filling
<u>ounce</u>			<u>pound</u>	<u>pound</u>		
12.0	55	37	145	100	2	2

3.2.1.4 Water-repellency.- The fabric shall be given a water-repellent finish to meet the requirements specified in table II when tested in accordance with 4.3. The water-repellent qualities shall be obtained by the use of waxes alone or in combination with soap and/or aluminum acetate (or formate) applied from an emulsion, solvent solution, or by a two-bath method to meet the specified requirements.

TABLE II.- Water-repellency requirements.

	Spray Rating		Hydrostatic pressure		Dynamic absorption (20 min. time interval)
	Average Min.		Average Min. (centimeters)		Maximum
Initial	80	80	30	30	25

3.2.1.5 Fire-resistance.- The fabric shall be given a fire resistant treatment such that it shall show an average time of flame of not more than 2 seconds and an average length of char of not more than 3.5 inches in both warp and filling directions before and after 3 cycles of laundering specified in 4.3.

3.2.1.6 Flexibility at -65°F.- The finished fabric, when subjected to a temperature of -65°F. for a period of 1 hour, shall show no appreciable change in flexibility in comparison with the unfinished fabric when folded and flexed at that temperature.

3.2.1.7 Mildew resistance.- The fabric shall be mildew resistant treated by incorporation of one of the following fungicides:

a. Dihydroxydichlorodiphenyl methane, so as to deposit a minimum of 1.0 percent, based on the weight of the finished fabric.

b. Copper-8-quinolinolate, so as to deposit a minimum of 0.04 percent metallic copper, based on the weight of the finished fabric.

c. A mixture of zinc salts of dimethyl dithiocarbamic acid and 2-mercapto-benzothiazole containing not less than 85 percent of dimethyl dithiocarbamic acid, so as to deposit a minimum of 1.0 percent, based on the weight of the finished fabric.

3.2.1.7.1 The fungicide shall be uniformly applied and well penetrated so that it shall show no more growth of mildew than indicated by "trace" when subjected to the enriched soil suspension test as specified in 4.3, nor shall lose more than 10 percent of its initial tensile strength when subjected to the 14-day soil burial test as specified in 4.3. Chemical analysis for fungicide content shall be determined in accordance with paragraph 4.3.2, 4.3.4, or 4.3.5, of Specification MIL-D-504.

3.2.1.8 Toxicity.- Due to toxicity hazards, the treated fabric shall not contain more than 2 percent active fungicide based on the weight of the finished fabric.

3.2.1.9 pH.- The pH of the finished fabric shall not be lower than 5.5, when tested as specified in 4.3.

3.2.1.10 Initial tearing strength.- The tearing strength of the finished fabric shall not be less than 4.4 pounds across the warp yarns and 3.0 pounds across the filling yarns when tested as specified in 4.3.

3.2.2 Webbing, cotton.- The webbing shall be vat dyed to match an approved shade of olive drab No. 7 (see 6.3), and shall be water repellent and mildew resistant treated, and shall conform to Specification JAN-W-530 as follows:

- Type I, 3/4-inch.
- Type I, 1-inch.
- Type I, 1-1/2-inch.
- Type III, 1-1/2 inch.

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3.2.3 Thread, cotton, machine.- The thread shall conform to Specification V-T-276, as follows:

- For type 301 stitching - Size 12/4, type IBI for needle, type IAI for bobbin.
- For type 304 stitching - Size 24/4, type IBI for needle, type IAI for bobbin.
- For type 401 stitching - Size 12/4, type IBI for needle, size 16/4, type IAI for looper.

3.2.3.1 Treatment, mildew resistant.- The thread shall be unbleached, and shall be mildew resistant treated to conform to class 1 treatment of Specification MIL-T-3530.

3.2.4 Twine, cotton, wrapping, 5-ply, MRT.- The twine shall conform to type I of Specification T-T-871.

3.2.4.1 Treatment, mildew-resistant.- The twine shall be mildew resistant treated to conform to class 1 treatment of Specification MIL-T-3530.

3.2.5 Lines, tent.- The lines shall conform to Specification MIL-L-1709, with the exception that the mildew resistant treatment shall be as specified in 3.2.6:

- Type I - Line, tent, footstop, 1/4" dia.
- Type XXI - Line, tent, 13-ft., with eye, 5/16" dia. (Tie line).
- Type XXIV - Line, tent, 15-ft., with eye, 3/8" dia. (guy line).
- Type XXX - Line, tent, 24-ft., unfinished-2-ends, 1/8" dia. (slide fastener pull line and ventilator hood line).

3.2.6 Rope, cotton, braided, 1/8 inch.- The rope shall conform to class 2 of Specification MIL-R-3817 with the following exceptions: The rope shall be mildew-resistant treated by deposition in the rope of 0.15 \pm 0.05 percent copper-8-quinolinolate in an approved manner so that the finished rope shall not lose more than 10 percent of its initial breaking strength when tested as specified in 4.3, and shall be analyzed for copper content in accordance with paragraph 4.3.4, of Specification MIL-D-504. The rope shall be unglazed.

3.2.7 Rope manila, 3-strand, 1/2 inch diameter, MRT.- The rope used in the blackout curtain hems shall conform to type II of Specification MIL-R-1670, except that the mildew resistant treatment shall be as specified in 3.2.6.

3.2.8 Cloth, label, cotton, permanent-coated.- The cloth used to fabricate the identification labels, labels of erection instructions, and labels of safety instruction shall conform to Specification JAN-C-517.

3.2.9 Beeswax.- The beeswax used for waxing the twine shall conform to Specification C-B-191.

3.2.10 Toggles, wood.- The wood toggles shall be fabricated from straight-grained, sound and smooth lumber, kiln-dried to not more than 12 percent moisture content. The lumber shall be free from knots, shakes, splits or splintery surfaces which may be injurious to handling, casehardening or any other defects which may tend to weaken the wood. Any of the following woods may be used:

Hickory	Pecan
Red or White Oak	Rock Elm
Beech	Maple, Hard
Birch	Ash

3.2.11 Slips, tent, wire.- The tent slips shall conform to Specification MIL-S-1734.

3.2.12 Screening, plastic, insect.- The screening shall be size 20 (20 mesh per inch), matching shade olive green 119 (see 6.3), and conforming to Specification L-S-139.

3.2.13 Film, vinyl, flexible.- The film used for fabrication of the windows shall be film, flexible, vinyl, conforming to type II, class 1 of Specification MIL-F-10400. The thickness of the film shall be 0.020-inch.

3.2.14 Fasteners, slide.- The slide fasteners shall conform to Specification V-F-106. They shall be class A (special), MH (medium heavy) size, made of brass, aluminum or zinc, natural finish, with water-repellent and mildew-resistant tape vat-dyed to match an approved shade of olive drab No. 7 (see 6.3). Each pull shall be provided with a webbing thong, fabricated from water-repellent and mildew-resistant treated tape, vat-dyed O.D. 7 (see 6.3), effective length after attachment to pull, 6-inches. The slide fasteners shall further conform to the following:

End doors: Type III, style 1, double wire stirrup pull, length of chain, 148 inches.

Windows: Type I, style 2, single wire stirrup pull, length of chain, 66-inches.

Heater ducts: Type I, style 2, single wire stirrup pull, length of chain, 80 inches.

3.2.15 Rings "D", steel or malleable iron, enameled.- The 1" x .75" and the 1.5" x 1.25" "D" rings shall conform to class 2 or 3 of Specification MIL-R-3390.

3.2.16 Grommets, brass, black oxide finish, rolled rim, with spur washer, No. 4.- The grommets shall conform to type III, class 7, of Specification MIL-G-16491.

3.2.17 Grommets, brass, black oxide finish, with toothed washer, No. 4.- The grommets shall conform to type II, class 7, of Specification MIL-G-16491.

3.2.18 Bull's-eyes, strapped.- The bull's-eyes shall conform to Specification MIL-B-2481.

3.2.19 Buckle, tongueless, double bar, 1-1/2-inch.- The buckles shall be steel, enameled, conforming to type II, class 1 of Specification JAN-B-543.

3.2.20 Snaps, harness, 1-1/2-inch.- The snaps shall conform to type II of Specification MIL-S-2147.

3.2.21 Clip, end, ball type, brass, bronze finish, 1-1/2-inch.- The end clips shall conform to type I of Specification JAN-C-496.

3.2.22 Belt rivets and burrs.- The rivets shall conform to grade B, type I, class b, size No. 12, 3/4-inch of Specification FF-R-556. The burrs shall conform to grade B, size No. 12 of Specification FF-R-556.

3.2.23 Plastic.- The plastic for the fabrication of the reinforcement plates shall be cellulose acetate butyrate, 0.125 \pm 0.005-inch thick. The plastic shall match olive drab shade 7 in color, and shall have a dull finish.

3.2.24 Loops, strap, 1-inch x 1/2-inch, style 1, malleable iron or steel, enameled.- The loops shall conform to class 2 or 3 of Specification MIL-L-11075.

3.2.25 Snaps, 1-1/4-inch, bolt, swivel, round eye, malleable iron, enameled.- The snaps shall conform to class B of Specification MIL-S-2032.

3.2.26 Pins, tent, steel, 12-inch, M-1948.- The tent pins shall conform to type II of Specification MIL-P-501.

3.2.27 Wood.-

3.2.27.1 Arch segments.- The wood used in the fabrication of the arch segments shall be thoroughly and uniformly dried to a moisture content of 8 to 12 percent at time of fabrication, determined in accordance with Specification MIL-W-6110, and shall be free from decay, case-hardening, shakes, checks or any other defect which may affect the strength, wear or serviceability of the tent. No more than two sound, tight knots 1/4-inch to 1/2-inch in diameter, or one 3/4-inch in diameter will be permitted per square foot. The exterior laminations of the segments shall be fabricated from yellow poplar, oak, hickory, Ponderosa or white pines, to minimize splintering. Any of the following species of wood may be used for the interior laminations of the arch segments:

- | | |
|------------------------------|---|
| 1. Cedar, Port Orford | 11. Tupelo, Black (Black Gum) |
| 2. Chestnut | 12. Tupelo, Water |
| 3. Cypress, Southern | 13. Yellow Poplar |
| 4. Fir, Douglas | 14. Oak |
| 5. Hemlock, Western | 15. Hickory |
| 6. Maple, Soft | 16. Pine, Southern (long leaf, slash, short leaf and loblolly). |
| 7. Pine, Norway or Ponderosa | 17. Larchwood |
| 8. Pine (White) Northern | 18. Basswood |
| 9. Spruce (Eastern, Sitka) | 19. Ash, White |
| 10. Sweet Gum (Red Gum) | |

3.2.27.2 Plug.- The wood for the plug may be fabricated from any of the species of wood specified above suitable for the purpose.

3.2.28 Steel.-

3.2.28.1 Sheet or strip.- Sheet or strip steel, in the thickness and carbon content specified on drawings, shall conform to Specification 57-136.

3.2.28.2 Bar stock.- Bar stock steel, in dimensions and carbon content specified on drawings, shall conform to Specification QQ-S-633.

3.2.28.3 Structural.- Structural steel angles, in the dimensions specified on the drawings, shall conform to type II, grade B, class 2, Specification QQ-S-741.

3.2.28.4 Wire.- Steel wire, in the diameter and carbon content specified on drawings, shall conform to Specification QQ-W-461.

3.2.29 Tubing, aluminum alloy, 24S-T3.- Aluminum tubing shall conform to T3, type II, round corners, Specification WW-T-785.

3.2.30 Bolts (carriage), rivets, screws, cotter pins, washers, and nuts.-

3.2.30.1 Bolts (carriage), screws, rivets, and cotter pins.- Carriage bolts, screws, rivets, and cotter pins shall be steel, zinc-coated, conforming to current commercial standards, and in the design, type and dimensions specified on drawings. Threads shall be class 1 fit and conform to National Bureau of Standards Handbook H-28.

3.2.30.2 Washers, and nuts (except stop nuts).- Washers and square nuts shall be steel, unfinished, conforming to current commercial standards, and of the type and size specified on the drawings. Threads shall be class 1 fit and conform to National Bureau of Standards Handbook H-28.

3.2.30.3 Stop nuts.- Stop nuts shall be steel, zinc-plated of a good commercial grade designed to fit 1/4-inch, 20 UNC-CL-1 bolts. The stop nut shall have a plastic compression collar built into its head. The center opening of the collar shall be smaller than the 1/4-inch bolt to insure a friction grip on the threads of the bolt (see 6.4).

3.2.30.4 Chains, safety.- The chain used for loose pin retainer, in the length specified on the drawings, shall be steel galvanized and of a good grade of safety or plumber's chain, commonly known commercially as size No. 1.

3.2.31 Adhesive.- The glue used in the lamination of wood segments of the tent frame shall conform to type I or type II, class 1, Specification MIL-A-397.

3.2.32 Primer.-

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3.2.32.1 Primer.- Paint primer for steel parts shall conform to the requirements of Specification TT-P-636.

3.2.32.2 Primer, zinc-yellow.- Zinc-yellow primer shall conform to Specification 3-201.

3.2.33 Enamel.- Enamel shall conform to type II, Specification TT-E-485.

3.2.34 Ink, stencil.- The stencil ink shall be black and shall conform to Specification TT-I-559.

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

3.3.1 Segments, arch.- The arch segments shall be not less than 6-ply nor more than 16-ply laminated construction, using wood specified in 3.2.27, and glue specified in 3.2.31. Curvature of segment shall be formed during the operation of gluing laminations together and not after the laminations have been glued. Either edge grain or flat grain boards may be used, but the two types shall not be laminated together in a single segment. Predominance of grain direction in a board shall be the basis of segregation. Laminations shall be dressed to a uniform thickness throughout and shall be free from skips in dressing, oil, crayon marks, or any foreign material which will interfere with bonding of the adhesive. The thickness variation of any lamination at the time of gluing shall not exceed 0.015-inch.

3.3.1.1 Laminations shall be the full width of the arch, but to conserve raw material, laminations may be scarf-jointed. Scarf-joints shall not occur on the outer plies. Scarf-joining of laminations shall be with the same type of adhesive used in forming the curved segment. Scarf-joints shall be pre-glued before the final surfacing of the laminations. The scarf-joint shall be of a type that provides a gluing surface not less than twelve times the area of a squared end of the board. In case the hooked or step type of scarf-joint is used, the steps must not exceed 1/16-inch in depth. The scarfed area must be free from knots or pitch pockets. The distance between scarf-joints in adjacent plies shall be at least twenty-four times the thickness of the lamination. No less than three laminations shall intervene between joints in the same cross section. Outer laminations shall be free from diagonal or spiral grain whose combined slope exceeds 1 inch in 12 inches. Any knots which may occur in the intermediate laminations must not reduce the effective section of the laminations more than 25 percent.

3.3.1.2 Gluing.- The glue shall be applied in an adequate and uniform manner as recommended by the glue manufacturer, to insure tight joints of maximum strength. Assembly periods, clamping or pressing time, and pressure shall be in accordance with the glue manufacturer's instructions.

3.3.2 Welding.- All welding shall be as specified on drawings. Materials to be welded shall be clean and free of rust, scale, corrosion, oil, water, and other matter. Welds shall be sound and smooth, free from flash and show good fusion.

3.3.3 Setting of wood screws.- Wood screws shall be securely set and properly driven (not by hammer). When screws are driven by powered screwdrivers, care shall be taken that the threads made by screws are not stripped by over-driving.

3.3.4 Setting of rivets (including fixed hinge pins).- All rivets, except fixed hinge pins, shall be securely set with smooth and well formed heads. Rivets used for attaching "D" ring assemblies shall be headed by spinning. Rivets used for fixed hinge pins shall be neatly peened. All rivets shall be free from metal splinters, fins, or excessive roughness.

3.3.5 Finish for tent frame.-

3.3.5.1 Finish prior to assembly.-

3.3.5.1.1 Metal parts.-

3.3.5.1.1.1 After complete fabrication, all ferrules, hinges, purlin angles, purlin clips, foot plates, and eye bolts shall be thoroughly cleaned with an approved type of cleaner used in the best commercial practice and washed to remove all traces of grease, dirt, scale, rust, and foreign matter, and then given an electro-plated finish conforming to type I, class LS or NS of Specification 57-0-2. The plated surfaces shall be prepared for painting by a process which results in the deposition of a water insoluble phosphate coating. The phosphate coating shall be adherent to the plating, and shall weigh not less than 100 milligrams per square foot. (Stripping solution for test purposes shall be a 5 percent solution of chromic acid.) All surfaces shall then be given a coat of primer specified in 3.2.32.1 and shall be allowed to air dry thoroughly or be baked. The dry film thickness shall be 0.6 to 1.0 mil.

3.3.5.1.1.2 All carriage bolts, wood screws, rivets, and stop nuts shall be prepared for painting by the water-insoluble phosphate coating specified in 3.3.5.1.1.1.

3.3.5.1.1.3 All aluminum purlins, prior to attachment of purlin angles, shall be prepared for organic finish by application of conditioner conforming to Specification MIL-C-10578 followed by a coat of primer specified in 3.2.32.1.

3.3.5.1.2 Wood arch segments.- After complete fabrication, prior to attachment of metal parts, all wood arch segments shall be given a coat of primer specified in 3.2.32.2 and shall be allowed to air dry thoroughly or be baked. The dry film thickness shall be 0.6 to 1.0 mil.

3.3.5.2 Finish of metal parts and wood members after assembly.- After assembly of all metal parts to the wood segments, all surfaces of the fabricated tent frame shall be given a coat of olive drab enamel specified in 3.2.33. Dry film thickness of the enamel shall be 0.8 to 1.2 mils. The enamel shall level out to produce a smooth and uniform film, without brush marks, orange peel, runs, wrinkles, drops or areas of thick film or no film, and free from any trace of grit or coarse particles.

3.3.6 Stitching, machine.-

3.3.6.1 Types of stitching.- The stitching shall conform to Specification DDD-S-751, as follows:

For all stitching except overcast stitching and stitching indicated by "Z" on the drawings.	-	Type 301, 6 to 7 stitches per inch.
For overcast stitching.	-	Type 304, 14 to 16 stitches per inch.
For stitching indicated by "Z" on the drawings.	-	Type 401, 6 to 7 stitches per inch. Chain portion of the stitching shall not appear on the outside of the tent and cover.

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

3.3.6.1.2 Type 401 stitching.- Thread breaks in stitching shall be over-stitched not less than 1-1/2-inches at each break. Thread tension shall be maintained properly so that there will be no loose stitching.

3.3.6.1.3 Type 304 stitching.- Thread breaks in stitching shall be over-stitched not less than 1/2-inch at each break. Thread tension shall be maintained properly so that there will be no loose stitching.

3.3.7 Stitching, hand.- Hand stitching shall be done with four strands of twine. The twine shall be waxed, twisted, and well rewaxed with beeswax. Each stitch shall be pulled tight. All ends of stitching shall be secured.

3.3.8 Attachment of wood toggles.- The attachment of wood toggles shall be as illustrated on the drawings. Each toggle shall be overcast with four stitches.

3.3.9 Setting of grommets.- Holes punched to receive the grommets shall be smaller than the outside diameter of the grommet barrel so that the barrel must be forced through the hole. The grommets shall be securely clinched without cutting the materials.

3.3.10 Setting of end clips.- The webbing shall be inserted the full depth of the clips. The clips shall be securely attached without cutting the webbing, which shall be flat at the point of entrance.

3.4 Marking.-

3.4.1 The letters US on the tent shall be printed on the tent in the size characters and in the locations shown on the drawings.

3.4.2 An identification label, fabricated from the cloth specified in 3.2.8, shall be stitched to the tent in the locations shown on the drawings. Data as follows shall be printed or stenciled on the label in black characters 1/4-inch high:

Approved nomenclature of the item.

Stock number.

Specification number and date.

Name of contractor.

Number and date of contract.

Name of contracting officer.

In addition, a blank space shall be provided for the Government inspector's stamp.

3.4.3 Labels of safety instructions, fabricated from the cloth specified in 3.2.8 shall be attached to the tent in the locations shown on the drawings. The size of the label shall be 8 by 10-1/2 inches with a 1/2 inch margin on all sides. The following information shall be printed on the label clearly and legibly in black characters:

S A F E T Y N O T I C E

HYDROGEN MIXED WITH AIR FORMS AN EXPLOSIVE MIXTURE. WHEN WORKING WITH OR IN THE VICINITY OF HYDROGEN, OBSERVE THE FOLLOWING PRECAUTIONS TO PREVENT EXPLOSIONS:

1. Display conspicuous warning signs wherever hydrogen is generated, used, or stored.
2. Remove all sources of flame or sparks.
3. Do not smoke or strike matches in the vicinity of the inflation tent.
4. Do not expose the hydrogen cylinder or generator to the sun.
5. Do not wear fur or heavy woolen clothing.
6. Do not wear shoes with exposed nails which might strike against metal or concrete floors and produce a spark. Do not drop or strike iron tools against iron or concrete.
7. Keep friction between balloon and balloon shroud to a minimum.
8. Electrically ground all metal parts and all personnel so that any static charges will be dissipated.

9. On days of low relative humidity and high winds, inflate the balloon slowly and sprinkle the balloon, balloon shroud, and inflation area with water.

10. Remove all constrictions from the balloon neck. Keep all other connecting passages clear.

11. Expel all air from the balloon before filling it with hydrogen.

12. To prevent the accumulation of hydrogen and to permit its escape, be sure that the inflation tent is ventilated adequately at all times.

13. Never deflate a balloon inside the tent.

3.4.4 Black printing ink or black stencil ink, specified in 3.2.35 shall be used for the marking.

3.5 Label of erection instructions.- A label of erection instructions, fabricated from the cloth specified in 3.2.8 shall be stitched to the tent in the locations shown on the drawings. The size of the label shall be, borderline to borderline, 12 by 15-3/4 inches, with a 1/2-inch margin on all sides. The information on the label shall be a proportionate copy of figure 14. The printing shall be neatly and legibly done with black ink.

3.6 Workmanship.- The finished articles shall be clean, well made, and free from any defect which may affect their appearance or serviceability.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 Sampling.- Sampling shall be conducted in accordance with Standard MIL-STD-105.

4.2 Inspection.- Inspection will be made by the Government to determine compliance with this specification.

4.3 Tests.- The methods of testing specified in Specification CCC-T-191, wherever applicable, and as listed in table III, shall be followed.

TABLE III - Test methods

Test	Method
<u>Rope</u>	
<u>Mildew-Resistance</u>	
Soil burial method	4762
<u>Duck, Cotton, 9.85 oz.</u>	
<u>Mildew-Resistance</u>	
Soil suspension method	5752
Soil burial method	5762
<u>Color-Fastness</u>	
Accelerated weathering 1/	5671
Crocking	5650
<u>Water-Resistance</u>	
Spray rating	5526
Dynamic absorption	5500
Hydrostatic pressure	5514
<u>Fire-Resistance</u>	
Flame resistance of Cloth, Vertical	5902
Mobile Laundry Method 2/	5556
<u>pH</u>	
Colorimetric Method 3/	2810
<u>Tearing</u>	
Pendulum Method 4/	5132

1/ In the event of a dispute resulting from the use of method 5671, method 5672 shall be used.

2/ The test for determining the durability of the fire-resistant treatment shall be in accordance with method 5556, except that twenty-four 18-inch squares or equivalent area in full width pieces shall be used.

3/ In the event of a dispute resulting from the use of method 2810, method 2811 shall be used.

4/ The size of the specimen shall be reduced to 1.75 inches in width and the maximum shall have an augmenting weight attached to the pendulum sector.

4.3.1 Arch (laminated segments), wet and dry cycle test.- A specimen 6 inches long shall be cut from a finished arch segment. Ends of specimen shall not be treated. Specimen shall be subjected to three wet and dry cycles, each cycle to consist of 16 hours soaking in water at room temperature immediately followed by a drying cycle for 6 hours at a temperature of 125°F. After completion of test, specimen shall show no sign of delamination or separation of glue joints. The laminations shall then be torn apart and there shall be not less than 50 percent wood failure.

5. PREPARATION FOR DELIVERY

5.1 Packaging.

5.1.1 The tent shall be assembled for erection. The tent shall then be laid out flat and folded accordion style so that the intermediate section rests between the two end sections. Care shall be exercised during folding operations so that the hardware, guy lines, windows, zippers, etc. are well protected within the folds and all air expelled. The tent shall be further folded to form the most compact bundle, care being exercised in the folding operations so that erection will be expedited at destination. The approximate size of the folded bundle shall be 39 inches long by 30 inches wide by 16 inches deep.

5.1.2 The three arches shall be folded to their smallest dimension and the components of each arch wired together with not less than 15 gauge annealed wire. The purlins shall be bundled and securely wired at three points with not less than 15 gauge annealed wire.

5.1.3 The required number of metal and wood pins shall be packed in a nailed wood box conforming to style 2 of Specification JAN-P-106, except that the sides, top, bottom, and ends shall be a minimum of 3/4-inch thick and the end cleats a minimum of 3-1/4 inches wide by 3/4-inch thick. The top shall be provided with two cleats, 3-1/4 inches wide by 3/4-inch thick, each cleat spaced approximately three inches from each end. The top shall be attached to the body of the box with screws as specified in Specification JAN-P-106. Boxes shall be constructed to fit the contents in a compact manner.

5.2 Packing.

5.2.1 For domestic and overseas shipment.- The complete tent shall be packed in a nailed wood shipping container constructed to conform to style 2, 2-1/2, or 3 of Specification JAN-P-106, except that the minimum thickness of the sides, top and bottom shall be 3/4-inch and the ends 1-1/16 inch. Each container, with the exception of the top, shall be provided with two sets of interior battens 3-1/4 inches wide by 3/4-inch thick, each set spaced approximately 30 inches from each end. The top shall be provided with three cleats, 3-1/4 inches wide by 3/4-inch thick, spaced 12 inches from each end and the third cleat centered. The end cleats shall be a minimum of 3-1/4 inches wide by 1-1/16 inches thick. Each container shall be provided with three nominal 2 by 4 inch skids, one placed at each end parallel to the

ends, and the third spaced equidistant. The components of the tent shall be packed within the container as follows: Two arches shall be placed adjacent to one side of the container; the remaining arch shall be placed adjacent to the opposite side. The arches shall be placed in the container so that the straight wood segments of each arch rest on the bottom and the curved segments abut the top. The bundled purlins shall then be placed on the bottom of the container between the arches. The tent, bundled as specified in 5.1.1, shall be placed on top of the purlins. The box containing the pins shall also be placed on top of the purlins between the tent and the end of the container. Blocking and bracing shall be used to protect hardware on the arches and completely immobilize the contents. The internal wood blocking and bracing shall not depend on end-grain nailing alone. Supplemental supporting cleats shall be provided to reinforce the blocks and prevent splitting of the blocking and bracing. The cleated top shall then be attached to the body of the container with screws as specified in Specification JAN-P-106. Each shipping container shall be provided with three flat steel straps, 3/4 by 0.023 inch, conforming to type I, class A of Specification QQ-S-781. One strap shall be placed approximately 15 inches from each end of the container and the remaining strap approximately equidistant.

5.3 Marking.- Interior packages and shipping containers shall be marked in accordance with Standard MIL-STD-129. In addition to the markings specified in Standard MIL-STD-129, the top of each container shall be legibly printed or stenciled in characters a minimum of two inches in height as follows:

REUSABLE CONTAINER

DO NOT DESTROY

REMOVE SCREWS FROM TOP

6. NOTES

6.1 Intended use.- The Tent, FWWMR, Frame-Type, Balloon Inflation, M-1953 is intended to be used as a shelter while filling balloon ML-391/AM with gas.

6.2 Ordering data.- Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Sampling and inspection required (see 4.1 and 4.2).
- c. Stock number (see 1.2).

6.3 Samples of approved shades may be obtained from the Quartermaster Research and Development Laboratories, Philadelphia Quartermaster Depot, 2800 South Twentieth Street, Philadelphia 45, Pa.

6.4 The following commercial products have been found to meet the requirements of this specification. This information is included for the convenience of those interested and is not intended to preclude the purchase of any items produced by

MIL-T-12685 (QMC)

other manufacturers which are in accordance with this specification.

Heavy-weight Hex-nuts, type U, regular height.

Elastic Stop Nut Corporation of America
2330 Vauxhall Road, Union, New Jersey.

Notice.- When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Custodian:

Army - Quartermaster Corps

Other interest:

Army - Sig.

REUSABLE CONTAINER

DO NOT DESTROY

REMOVE SCREWS FROM TOP

NOTES

0.1 Intended use.- The Tent, TWWNR, Frame-Type, Balloon Inflation, M-1223 is intended to be used as a shelter while filling balloon M-221 AM with gas.

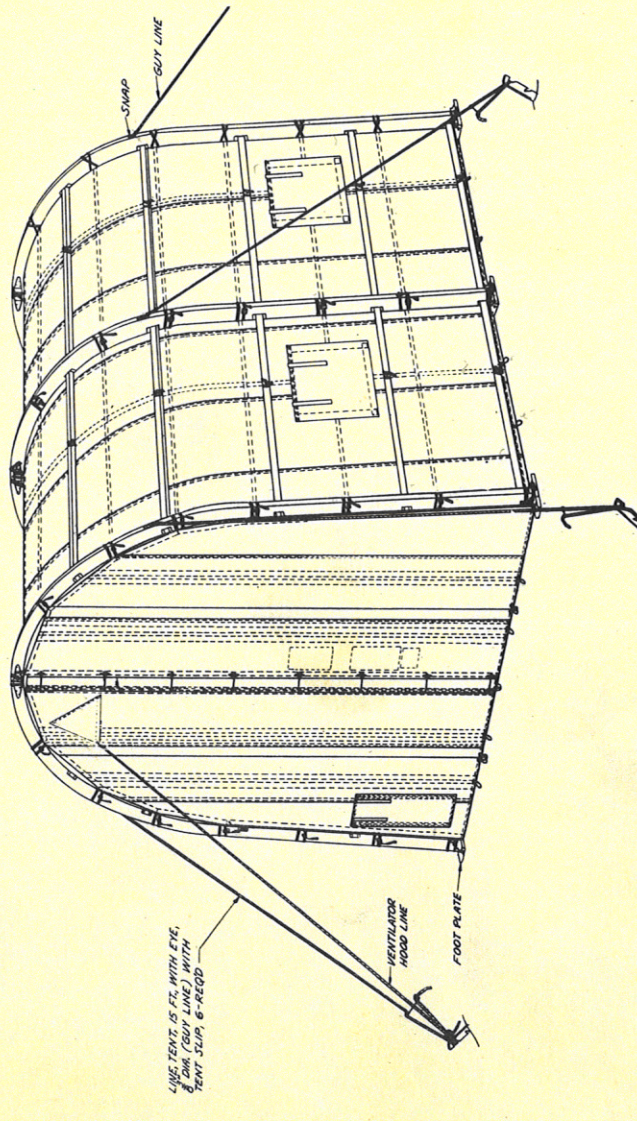
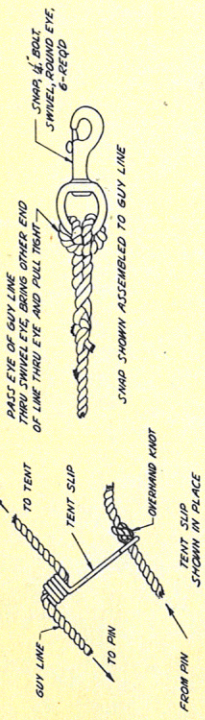
0.2 Ordering data.- Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Sampling and inspection required (see 4.1 and 4.2).
- c. Stock number (see 1.2).

0.3 Samples of approved shades may be obtained from the Quartermaster Research and Development Laboratories, Philadelphia Quartermaster Depot, 2800 South Twentieth Street, Philadelphia 45, Pa.

0.4 The following commercial products have been found to meet the requirements of this specification. This information is included for the convenience of those interested and is not intended to preclude the purchase of any items produced by

11 10 9 8 7 6 5 4 3 2 1



ILLUSTRATION

PARTS LIST		NO. REQD.	
HARDWARE		TENT	COVER TOTAL
NOMENCLATURE			
BUCKLE, TOMBELL, DOUBLE END, 1/2"		2	2
BULL'S-EYE, MAGNETUM, 1/8" INSIDE DIAMETER		10	10
CLIP, END, 1" BALL TYPE		55	55
CLIP, END, 1/2" BALL TYPE		2	2
PLATE, REINFORCEMENT (LINE)		55	55
PLATE, REINFORCEMENT (OUTER)		0.5	0.5
FASTENER, SLIDE, 6" NON-SEPARATING TYPE (WINDOWN)		4	4
FASTENER, SLIDE, 6" NON-SEPARATING TYPE (HATCHDOOR)		1	1
FASTENER, SLIDE, 12" 4" NON-SEPARATING TYPE (DOOR)		2	2
CORDMATT, ROLLED RMA, WITH 5/16" WASHER, 10.4		30	30
CORDMATT, ROLLED RMA, WITH 5/16" WASHER, 10.5		4	4
LOOP, STRAP, 1 1/2", STEEL-1		130	130
RINGS, D: 1 1/2"		0.8	0.8
RINGS, D: 1 1/2" X 1 1/2"		2	2
RINGS, BELT, NO. 12 K. 75, WITH BURR		130	130
SLIP, TENT, WIRE		6	6
SWAP, 1/2" BOLT, SWIVEL, ROUND EYE		6	6
SWAP, HARDNESS, TYPE-BT, 1/2"		2	2
TOGGLE		16	16
			10

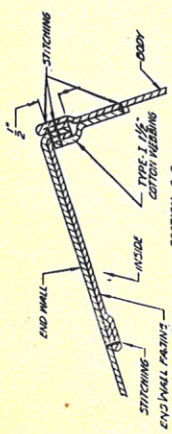
TENT LINES		NO. REQD.	
NOMENCLATURE		TENT	COVER TOTAL
LINE, TENT, FOOTSTOP, 1/2" DIA. (FOOTSTOP)		20	20
LINE, TENT, 13'-FT, WITH EYE, 1/2" DIA. (TIE LINE)		2	2
LINE, TENT, 13'-FT, WITH EYE, 1/2" DIA. (GUY LINE)		6	6
LINE, TENT, 24'-FT, UNFINISHED-2-ENOS, 1/2" DIA. (SLIDE FASTENER PULL LINE)		2	2
LINE, TENT, 24'-FT, UNFINISHED-2-ENOS, 1/2" DIA. (VENTILATOR HOOD LINE)		2	2

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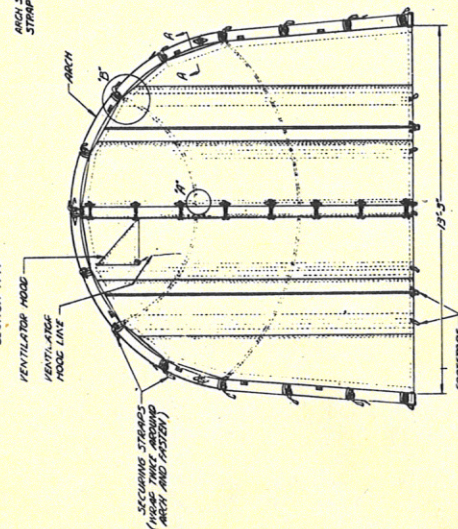
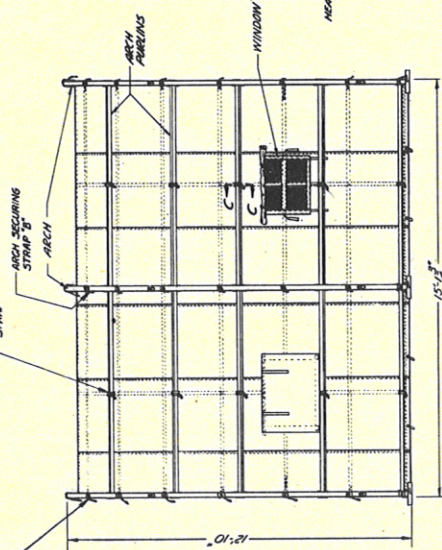
UNLESS OTHERWISE SPECIFIED, FABRICATING TOLERANCES ARE: DIMENSIONS 1" AND OVER ± .015" DIMENSIONS .5" - .999" ± .005"

FIGURE-1 TENT, FFWHWR, FRAME-TYPE, BALLOON INFLATION, M-1953; ILLUSTRATION

NOTE: SEE SHEET 3-4 FOR SECTION C-C AND ENLARGED VIEW AT C



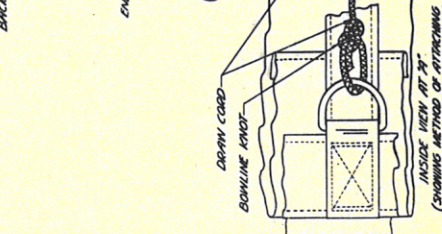
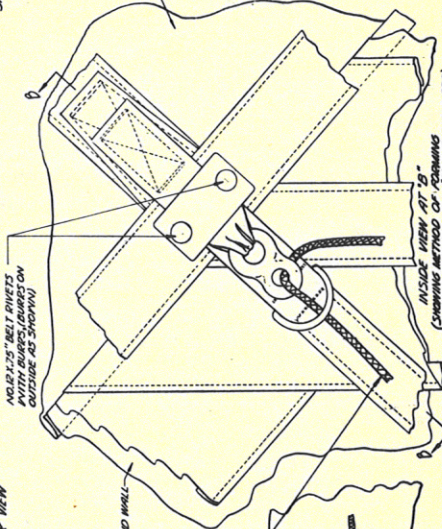
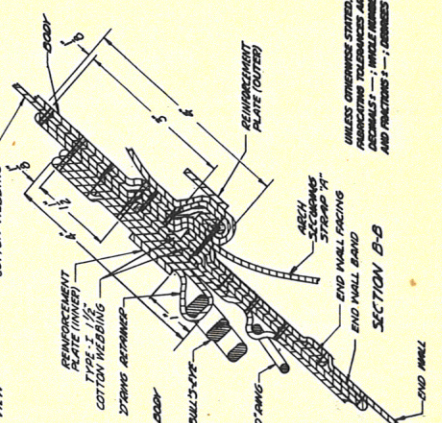
LINE TENT, 24\"/>



FRONT VIEW

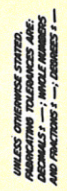
SIDE VIEW

BACK VIEW



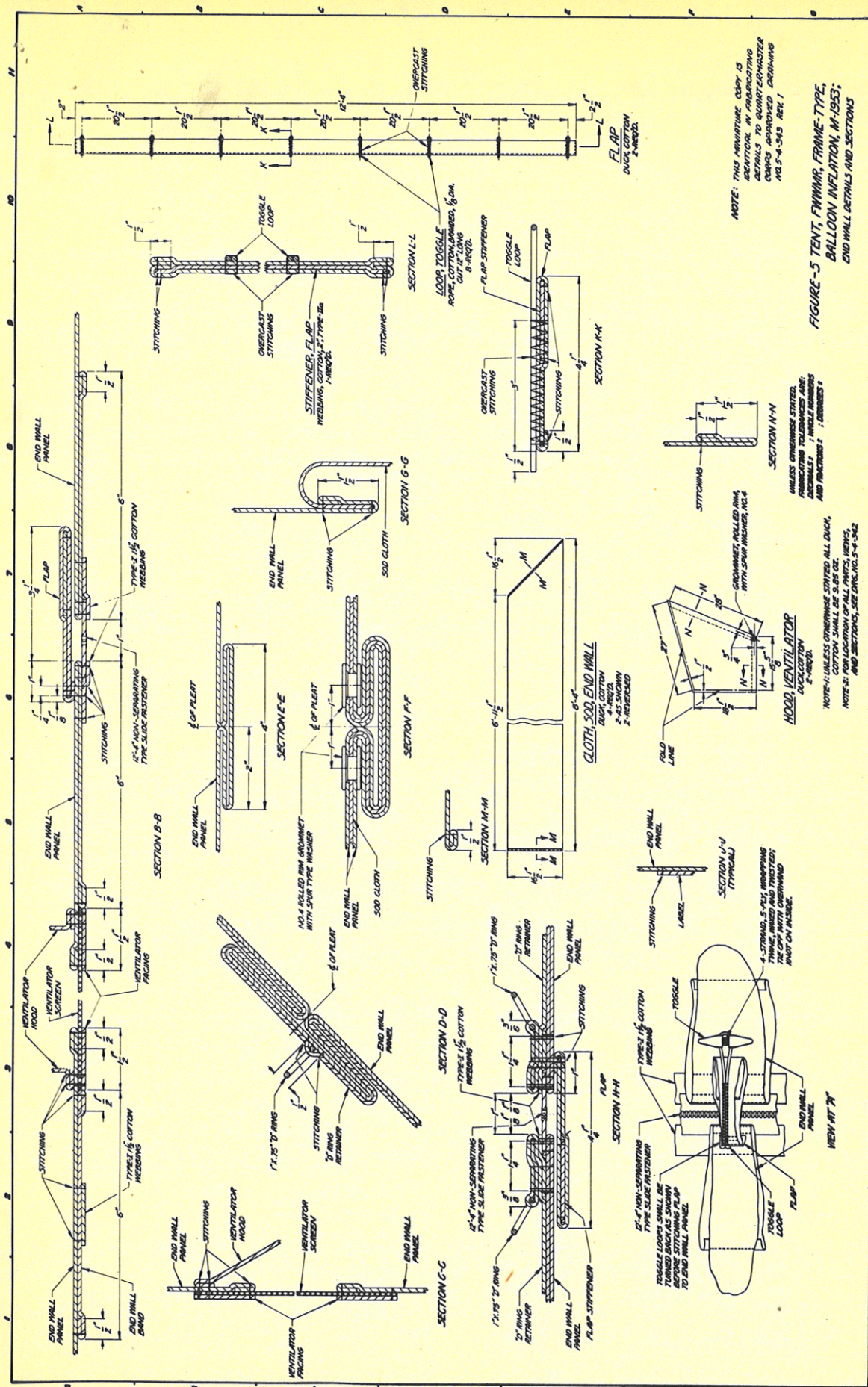
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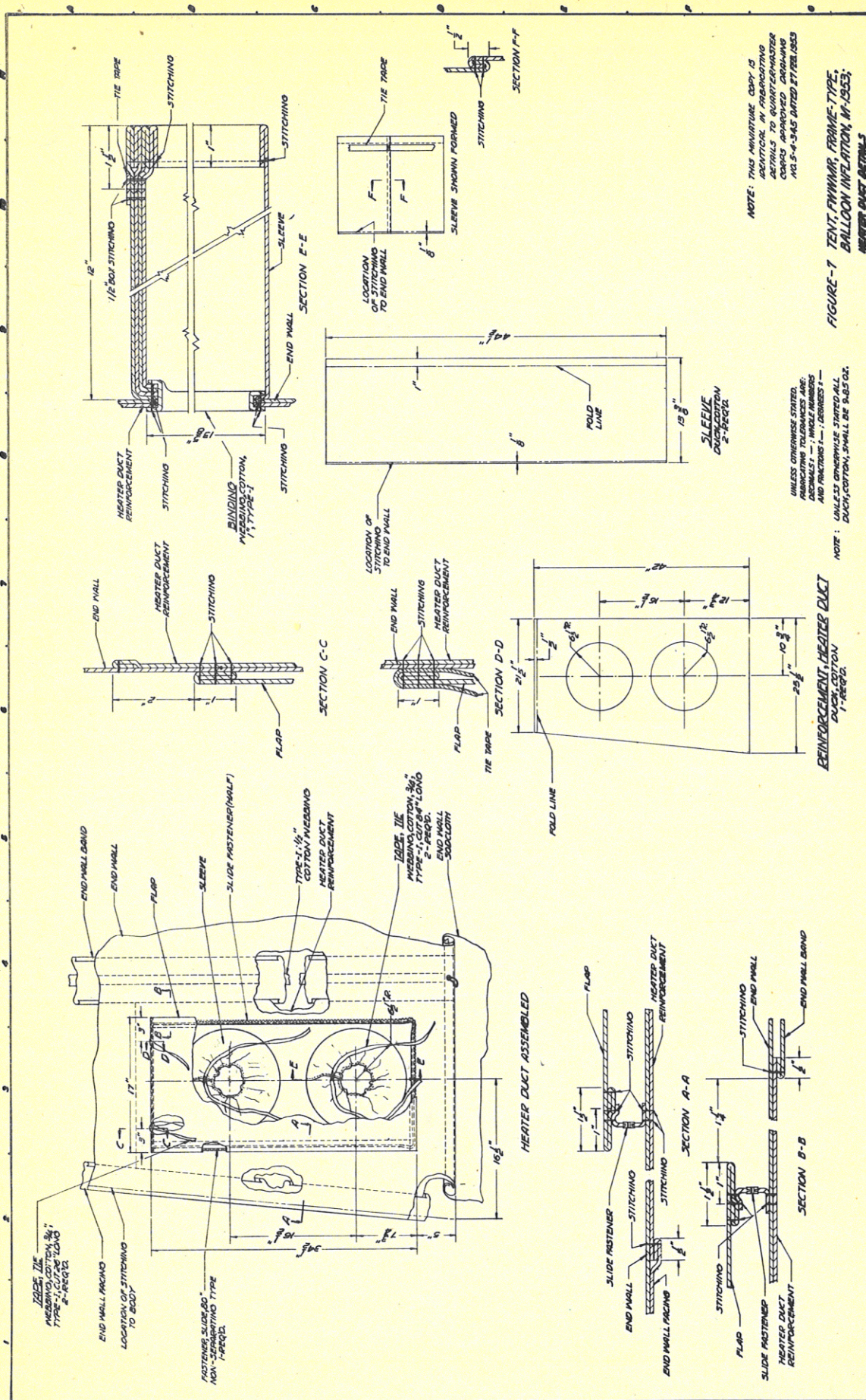
FIGURE-2 TENT, FFWMA, FRAME-TYPE, BALLOON INFLATION, M-1953; ASSEMBLY

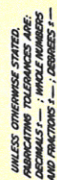


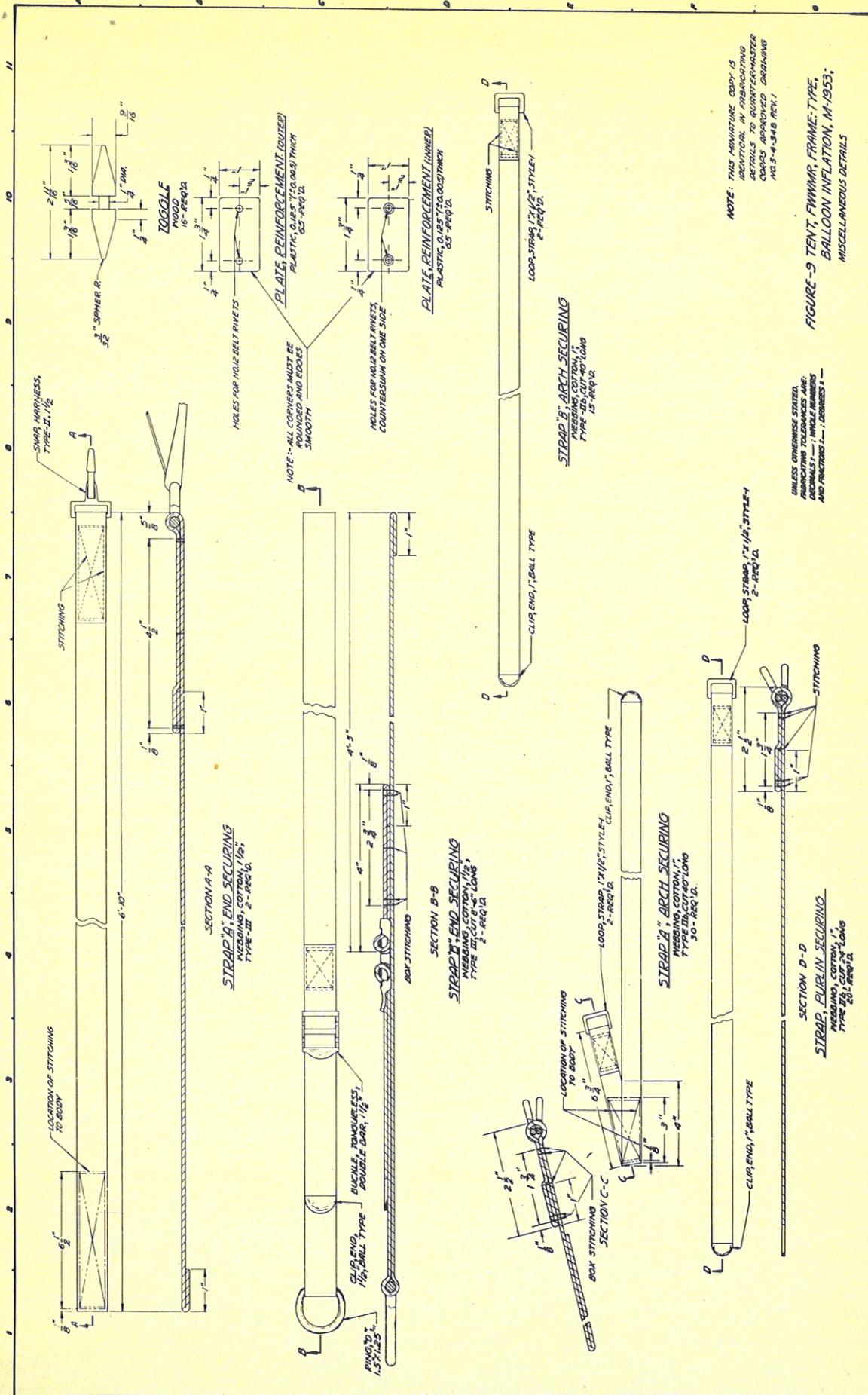
NOTE: THIS MINIATURE COPY IS IDENTICAL IN FABRICATING DETAILS TO QUARTERMASTER CORPS APPROVED DRAWING NO.5-4-341 REV.1

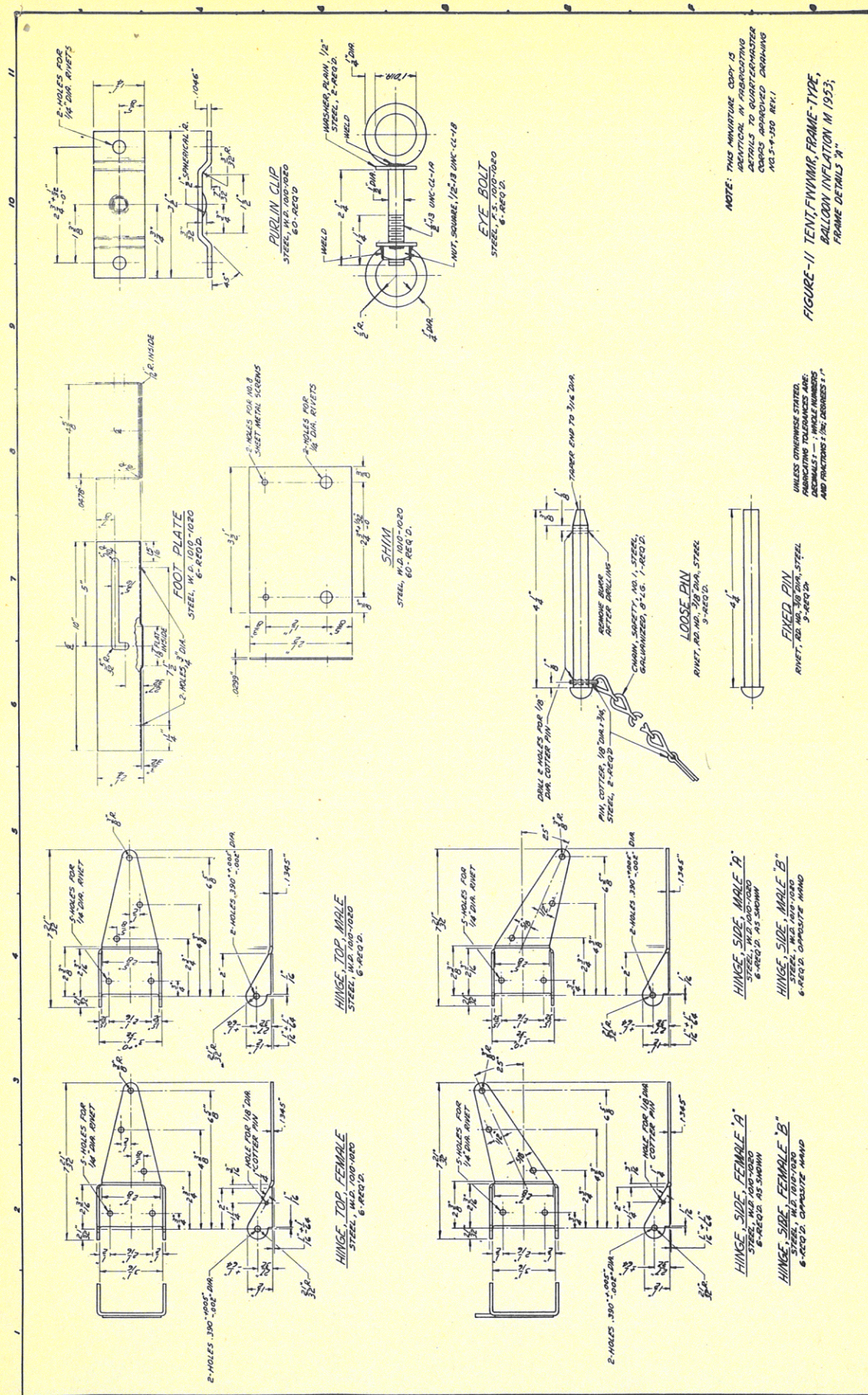
FIGURE-3 TENT, FWWMR, FRAME-TYPE,
BALLOON INFLATION, M-1953;
DETAILS AND SECTIONS

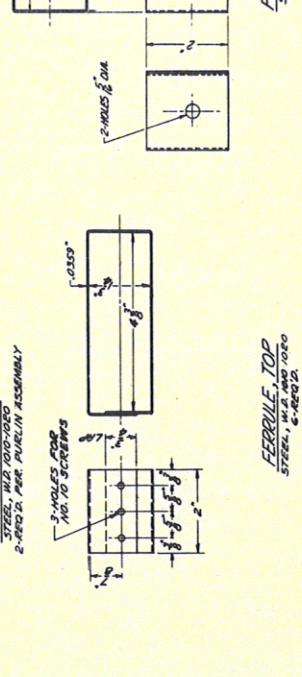
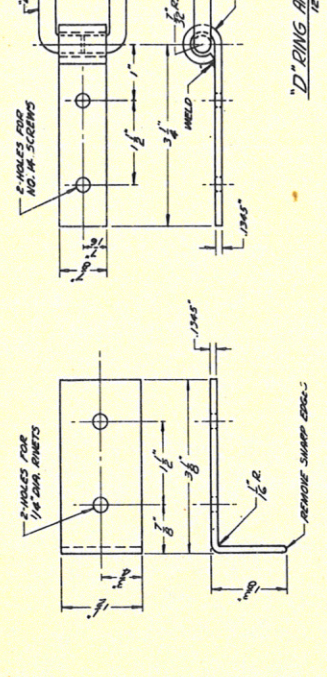
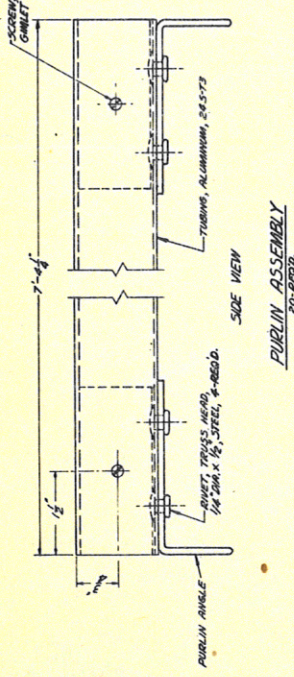
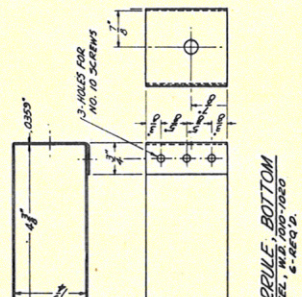
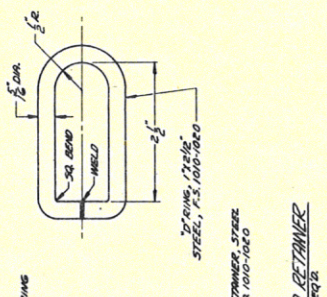
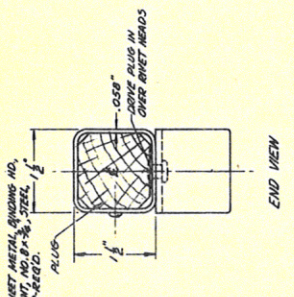
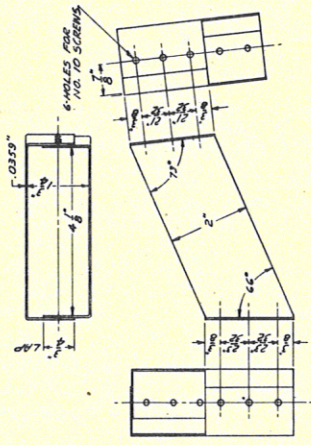
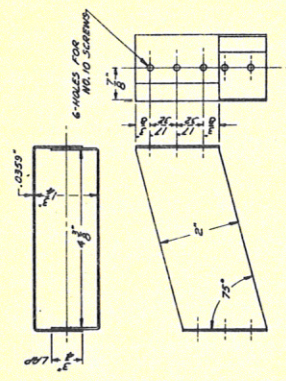
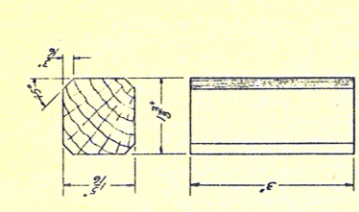












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DETAILS OF THE STRUCTURE
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NO. 3-4-351 (REV)

FIGURE-12 TENT FPMWAR FRAME-TYPE
BALLOON INFLATION M 1953
FRAME DETAILS "B"

UNLESS OTHERWISE SPECIFIED,
ALL DIMENSIONS ARE IN INCHES
AND FRACTIONS 1/16, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2, 2 3/4, 3, 3 1/4, 3 1/2, 3 3/4, 4, 4 1/4, 4 1/2, 4 3/4, 5, 5 1/4, 5 1/2, 5 3/4, 6, 6 1/4, 6 1/2, 6 3/4, 7, 7 1/4, 7 1/2, 7 3/4, 8, 8 1/4, 8 1/2, 8 3/4, 9, 9 1/4, 9 1/2, 9 3/4, 10, 10 1/4, 10 1/2, 10 3/4, 11, 11 1/4, 11 1/2, 11 3/4, 12, 12 1/4, 12 1/2, 12 3/4, 13, 13 1/4, 13 1/2, 13 3/4, 14, 14 1/4, 14 1/2, 14 3/4, 15, 15 1/4, 15 1/2, 15 3/4, 16, 16 1/4, 16 1/2, 16 3/4, 17, 17 1/4, 17 1/2, 17 3/4, 18, 18 1/4, 18 1/2, 18 3/4, 19, 19 1/4, 19 1/2, 19 3/4, 20, 20 1/4, 20 1/2, 20 3/4, 21, 21 1/4, 21 1/2, 21 3/4, 22, 22 1/4, 22 1/2, 22 3/4, 23, 23 1/4, 23 1/2, 23 3/4, 24, 24 1/4, 24 1/2, 24 3/4, 25, 25 1/4, 25 1/2, 25 3/4, 26, 26 1/4, 26 1/2, 26 3/4, 27, 27 1/4, 27 1/2, 27 3/4, 28, 28 1/4, 28 1/2, 28 3/4, 29, 29 1/4, 29 1/2, 29 3/4, 30, 30 1/4, 30 1/2, 30 3/4, 31, 31 1/4, 31 1/2, 31 3/4, 32, 32 1/4, 32 1/2, 32 3/4, 33, 33 1/4, 33 1/2, 33 3/4, 34, 34 1/4, 34 1/2, 34 3/4, 35, 35 1/4, 35 1/2, 35 3/4, 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