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MILITARY SPECIFICATION

SHOES, SAFETY (CHUKKA)

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

1. SCOPE

1.1 Scope This specification covers the requirements for materials and manufacture of a work style shoe having water-resistant leather uppers, steel toes, and oil and jet fuel resistant soles and heels.

1.2 Classification The shoes shall be of one type in the following whole, and half sizes, and widths as specified (see 6.2):

Sizes	Widths
5 through 15	XN - Extra Narrow
4 through 15	N - Narrow
4 through 15	R - Regular
4 through 15	W - Wide
4 through 15	XW - Extra Wide

2. APPLICABLE DOCUMENTS

2.1 Government documents

2.1.1 Specifications and standards Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation 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: Officer in Charge, Navy Clothing and Textile Research Facility, 21 Strathmore Road, 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 8430

SPECIFICATIONS

FEDERAL

C-F-206	- Felt, Sheet: Cloth, Felt, Wool, Pressed
V-L-61	- Laces, Nylon
V-T-285	- Thread, Polyester
V-T-295	- Thread, Nylon
KK-I-570	- Insole, Footwear, Leather, Cattlehide
TT-S-735	- Standard Test Fluids Hydrocarbon
DDD-T-86	- Tape, Textile, Cotton, General Purpose (Unbleached, Bleached, or Dyed)
PPP-B-636	- Boxes, Shipping, Fiberboard

MILITARY

MIL-S-4383	- Sealing Compound, Topcoat, Fuel Tank, Buna-N Type
MIL-C-13924	- Coating, Oxide, Black, For Ferrous Metals
MIL-C-41814	- Counters, Footwear
MIL-C-43956	- Cloth, Twill, Cotton, 10.0 ounces
MIL-L-43585	- Lasts, Footwear, Shoe, Safety-Toe, Men's US MIL-7
MIL-S-22777	- Soles and Heels, Rubber, Traction Tread, Shoe
MIL-L-10867	- Leather, Gusset, Chrome-tanned, Fat Liquored

STANDARDS

FEDERAL

FED-STD-151	- Metals; Test Methods
FED-STD-191	- Textile Test Methods
FED-STD-311	- Leather, Methods of Sampling and Testing
FED-STD-601	- Rubber; Sampling and Testing
FED-STD-751	- Stitches, Seams, and Stitchings

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MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	- Marking for Shipment and Storage

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

LAWS AND REGULATIONS

US POSTAL SERVICE MANUAL

(Copies of the manual may be obtained from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402).

2.2 Other publications The following documents form a part of this specification to the extent specified herein. Unless a specific issue is indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

AMERICAN SOCIETY FOR TESTING AND MATERIALS

B-36	- Brass Plate, Sheet, Strip and Rolled Bar
B-134	- Brass, Wire
D-5	- Penetration of Bituminous Materials
D-412	- Tension Testing of Vulcanized Rubber
D-746	- Brittleness Temperature of Plastics and Elastomers by Impact
D-816	- Rubber Cements
D-1084	- Viscosity of Adhesives
D-1610	- Conditioning Leather and Leather Products for Testing
D-2098	- Dynamic Water Resistance of Shoe Upper Leather by the Dow Corning Leather Tester
D-2099	- Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester
D-2240	- Indentation of Rubber by Means of a Durometer
D-2813	- Sampling Leather for Physical and Chemical Tests
E-28	- Softening Point by Ring and Ball Apparatus

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

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI Z41.1-1976 - American National Standard for Men's Safety-toe Footwear

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018).

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT
National Motor Freight Classification

(Application for copies should be addressed to American Trucking Associations, Attn: Traffic Department, 1616 P Street, Washington, DC 20036.)

UNIFORM CLASSIFICATION COMMITTEE, AGENT
Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, ILL 60606.)

3. REQUIREMENTS

3.1 Guide sample Samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variation from this specification may appear in the sample, in which case this specification shall govern.

3.2 First article When a first article is required, it shall be inspected and approved and should be a preproduction sample. The first article should consist of one finished pair of shoes. The contracting officer should include specific instructions in all acquisition documents regarding arrangements for inspection and approval of the first article (see 4.2 and 6.2).

3.3 Materials

* 3.3.1 Upper leather The uppers shall be cut from the best quality green salted chrome tanned sides. The tannery lots shall not exceed 25,000 square feet. The sides shall be full grained, 4 1/2 to 6 ounces in thickness and the area of a side shall not exceed 28 square feet. The break in vamps or quarters shall not be more than a break scale of 5 (see 4.3.5.1). Surface defects, if barely perceptable, are permitted in cut parts. Embossing or printing of leather shall not be permitted. Cut parts with perceptable scratches, brands, open scars or light flesh cuts that show through on the grain surface of the leather shall not be used. Flanky, loose, boney, pipey, cracked or any rough or coarse grain leather shall not appear in the vamps or quarters; however, these defects may appear in the top tongue area or counter pocket. Cut parts shall be examined as specified in 4.3.2.2.

* 3.3.1.1 Water resistance The sides of the leather shall be treated with a suitable water resistance compound to bar water penetration and water absorption and shall be tested as follows:

* 3.3.1.1.1 Water penetration The leather shall withstand 4,000 Dow Corning flexes or 15,000 Maeser flexes; however, 30 percent of the samples shall withstand not less than 1000 Dow Corning Flexes or 3,000 Maeser flexes when tested as specified in 4.3.1.

* 3.3.1.1.2 Water absorption The leather shall absorb not more than 30 percent of its weight after being immersed in water when tested as specified in 4.3.1.

3.3.1.2 Color and finish The leather shall be black and shall be drum dyed. The leather shall be full grain and shall be finished grain side out with no buffing or snuffing to remove surface blemishes. The flesh side of the leather shall be cleaned of coarse fibers. The contractor shall supply a certificate of compliance stating that a top finish was not applied. Colors shall be uniform.

* 3.3.2 Bellows wing The leather used for the bellows wing and eyelet facing shall be chrome-tanned, dyed black, lightly finished kidskin, water resistance treated (see 3.3.1.1). Not less than 80 percent of the samples tested shall withstand a minimum of 50 taps when tested as specified in 4.3.1. The thickness of the leather shall be a minimum of 1 1/2 ounces and a maximum of 2 1/4 ounces. As an alternate, leather conforming to treatment B of MIL-L-10867 may be used, except that the thickness shall be 2 to 2 3/4 ounces, all the specimens tested for water resistance shall withstand a minimum of 50 taps, and the requirements for stitch tear strength, shrinkage temperature, stiffness, paranitrophenol, and chemical requirements shall not apply.

* 3.3.3 Vamp lining The vamp shall have a leather toe tip and leather tongue lining of soft, chrome-tanned, full grain or corrected grain cattlehide glove leather or pigskin leather. The color of the leather shall be as produced by the tanning agents. A light application of dye may be used to level the color of the grain surface. The leather shall be a minimum of 2 ounces and a maximum of 3 1/2 ounces in thickness. The remainder of the vamp lining shall be fabric conforming to class 2 of MIL-C-43956. Lining shall not show wrinkles or excessive fullness.

3.3.4 Heel pads The heel pads may be cut from leather specified in 3.3.3 and also from sheepskin, kid, calf or kip with a minimum of 2 ounces and a maximum of 3 1/2 ounces in thickness. Use of leather specified in 3.3.1 is acceptable provided the top finish has been removed by buffing or splitting and the thickness is a minimum of 2 ounces and a maximum of 3 1/2 ounces.

3.3.5 Insoles

3.3.5.1 Leather When leather insoles are used they shall conform to type I, class 1, tannage (a) or (b) of KK-I-570, except that the thickness shall be 5 1/2 to 7 1/2 irons and the requirements for paranitrophenol shall not apply.

* 3.3.5.2 Synthetic (Texorist) When synthetic insoles are used they shall be cut from Texorist material. The Texorist material shall contain 0.25 to 1.00 percent copper-8 quinoinolate uniformly distributed throughout the insole. The insole shall be 0.116 (± 0.010) inch thick and shall be cut with the heel-to-toe direction across the machine direction of the Texorist material. The Texorist insole shall have a stuck-on rib applied to the printed side of the material (see 6.5).

3.3.6 Leather, general Leather components are not required to contain a fungicide treatment. However, leather components may contain paranitrophenol fungicide provided the fungicide content of the leather does not exceed 0.70 percent based on the dry weight of the leather, when tested as specified in Table VI.

* 3.3.7 Outsoles The rubber outsoles shall conform to type I, Grade C of MIL-S-22777. As an alternate, the tread area may be of a straight bar design or of a commercial design that has been approved by the preparing activity of this specification.

3.3.8 Heels The rubber heels shall conform to Type II, Grade A, Class 1 of MIL-S-22777. As an alternate, the tread area may be smooth or of a commercial design that has been approved by the preparing activity of this specification.

* 3.3.9 Welting, vinyl The vinyl welting shall be of flat top design, bright black in color and may be formed with or without a storm welt of medium size bead. The welting shall be of sufficient width to assure that the required extensions on the finished shoes are met (see 3.7.19). The thickness of the welting shall be 0.12 to 0.13 inch. The base compound shall be virgin polyvinyl chloride, compounded with suitable non-bleeding plasticizers. The finished welting shall be smooth, uniform in texture, and free of blemishes, cracks, blisters, and other defects that might affect serviceability or appearance. The vinyl welting shall conform to the requirements of table I when tested as specified in 4.4.1.

Table I - Vinyl welting requirements

Property	Requirements
Initial	
Hardness	85-95
Specific gravity	1.32 maximum
Brittle point, before aging	-15°F or less
Brittle point, after aging	+20°F maximum change from standard brittle point
Tensile strength, PSI	2100 minimum
Elongation, percent	225 minimum
Water absorption, percent gain	3.00 maximum
Fuel resistance (after immersion)	
Hardness	55 minimum
Tensile strength, PSI	1800 minimum
Elongation, percent	225 minimum
Volume swell, percent	35 maximum

3.3.10 Counters Counters shall conform to the requirements of MIL-C-41814.

3.3.10.1 Counter sizes Counters shall be made in a sufficient number of sizes to cover shoe sizes 4 through 15 and necessary widths. Counters shall conform to the shape of the MIL-7 last. Counter patterns shall assure that counters are the correct size to fill the counter pocket of the finished shoe.

3.3.11 Adhesives

3.3.11.1 Seam seal adhesive The adhesive used for sealing the inseam areas shall be one of the following:

3.3.11.1.1 Vinyl type The adhesive shall be composed of a polyvinyl butyral base and a non-bleeding phthalate plasticizer and other ingredients necessary to produce a clear colorless adhesive for the purpose intended. The adhesive shall have a minimum weight of 7.40 pounds per gallon, with a minimum total solids content of 19 percent and a viscosity of 40 to 50 seconds when tested as specified in 4.3.1.

3.3.11.1.2 Buna-N-type The adhesive shall conform to the requirements of MIL-S-4383 except that the color shall be natural or colorless.

3.3.12 Backseam tape The backseam tape, when used, shall be 1/2 or 17/32 inch wide conforming to type I, class 1 of DDD-T-86, except that the requirement for nonfibrous material shall not apply.

3.3.13 Thread

3.3.13.1 Thread, upper fitting Upper fitting stitching operations shall be performed using nylon thread conforming to type I, II or III of V-T-295. Colorfastness requirements shall not apply. Thread size shall be E for the needle and bobbin on stitch type 301 and E for the needle and B or E for the looper with stitch type 401. The color shall be black.

3.3.13.2 Thread, Goodyear stitching Thread used for Goodyear (sole) stitching shall be polyester conforming to Type I, Class 1, subclass C of V-T-285. The running thread shall be black, size 10, 3 ply. The shuttle thread shall be natural, size 10, 3 or 6 ply. Colorfastness requirements shall not apply.

3.3.13.3 Thread, inseaming, polyester The polyester inseaming thread shall conform to type I, class 1, subclass C of V-T-285. The thread shall be size 10, 3 or 6 ply and natural in color.

3.3.14 Box toes

3.3.14.1 Understructure box toe The understructure box toe shall be made of two layers of single napped cotton fabric, having a combined finished thickness of 0.034 to 0.038 inch and shall have a minimum finished weight of 12 ounces per square yard when cemented together with a polyvinyl acetate resin. The amount of the adhesive used shall not be less than 50 percent of the fabric weight. The napped surfaces shall be on the outer sides. The polyvinyl acetate resin adhesive shall become soft and pliable when the box toe is inserted in the box toe heating equipment. As an alternate a unicellular foam (closed cell) material, not less than 3/32 inch in thickness, may be used in lieu of the impregnated understructure box toe. The foam material used shall extend approximately 1/2 inch rearward of the steel box toe and completely line the steel box toe and shall be large enough to be caught in the inseaming operation. Also, as an alternate, a virgin ionomer resin (SURLYN) laminated with a combination of flannel fabric on one side and a flannel, nonwoven, or sheeting fabric on the outer side with a combined thickness of 0.033 (± .005) inches may be used.

3.3.14.2 Toe cushion The material used to cushion the steel box toe and mask the breastline, shall be of wool felt conforming to Type III, classification 9A2 of C-F-206. As an alternate, the following materials may be used in lieu of wool felt, and shall be cut large enough to extend approximately 1/2 inch rearward of the steel box toe breastline:

(a) Foamed polyvinyl material, 3/32 (± 1/32) inch in thickness weighing 4 to 6 pounds per cubic foot.

(b) Latex foam rubber 1/8 (± 1/64) inch thick.

* 3.3.14.3 Steel Box toe The steel box toe shall be fabricated from cold-rolled carbon steel, and shall conform to the requirements of Table III after heat treatment, when tested as specified in 4.3.1. The steel box toes shall be thoroughly cleaned and completely coated with a zinc compound. As an alternate, the steel box toes may be coated with any suitable coating that will assure protection against corrosion and will not damage the component parts of the shoe.

Table II - Physical requirements, steel box toe

Hardness (Rockwell (Scale)	Carbon content	Thickness (inches)	Trade Pattern No.
43-50	0.50 to 0.82	0.062 ± 0.0025	400

3.3.14.3.1 Impact resistance The steel box toes of the finished shoes shall have a minimum inside clearance of 1/2 inch when tested as specified in 4.3.5.2.

3.3.15 Bottom filler The bottom filler may be either thermoplasticor cold process type. The thermoplastic type shall consist of a mixture of ground cork and a suitable thermoplastic binder in the proportion of a minimum of 2 3/4 parts by volume of cork to each part of binder. The cork granules shall be of the best quality and free of bark. The ground cork and binder shall be thoroughly and evenly mixed. The binder shall be water insoluble and flexible. It shall have a softening point of at least 125°F and a maximum penetration of 85 millimeters at a 200 gram load for 50 seconds at 77°F, when tested as specified in 4.3.1. The cold process type shall be spreadable without the use of heat. It shall consist of a mixture of ground cork and a suitable binder in the proportion of two parts cork to one part binder by volume. The cork granules shall be the best quality and free of bark. When the spread filler is dry and set, it shall consist of four parts to one part binder. It shall not soften at less than 150°F and shall be water resistant and flexible. As an alternate to the cold process bottom filler specified above, when applied by semi-automatic equipment or method, the cold process bottom filler shall consist of a mixture of ground cork and a suitable binder in the proportion by weight of one part cork to five parts binder. Upon loss of solvent, it shall consist by weight of one part cork to 3 3/4 parts binder. The binder shall be water-insoluble and have a softening point of at least 125°F when tested as specified in 4.3.1.

3.3.16 Shanks

3.3.16.1 Steel shank combination The steel shank combination shall be made of a shank board piece with a single reverse rib steel shank securely attached by four prongs or two rivets. The steel shanks shall be positioned 1/2 (± 1/16) inch from the front edge of the shankboard. There shall be 7 sizes of shank combination for the run of shoe sizes specified in Table III.

3.3.16.1.1 Shank board The shank board shall be water resistance (shank board that has been hot waxed is considered as being water resistant). The finished thickness of the shank board shall be 1/8 (± 1/32) inch. The shank board shall be cut in accordance with Government furnished patterns specified in 3.5. The shank board pieces shall be molded to follow the bottom cavity of the shoes, and both ends shall be skived with a graduated scarf 1 3/8 (± 1/16) inches wide. The shank board pieces shall be graded up or down 1/4 (± 1/16) inch and shall be marked consecutively with a steel stamp starting with figure "1" on the smallest size up through "7" on the largest size. The size 4 shank board piece shall be 6 (± 1/16) inches long.

3.3.16.1.2 Steel shank The steel shank shall be constructed from 19 gage 0.0418 (± 0.0030) inch cold rolled carbon steel with a hardness ranging from 47 to 54 Rockwell C scale when tested as specified in 4.3.1 and shaped to the manufacturer's standard number 4 bend, conforming to the arch of the MIL-7 last. The width of the steel shank shall be 5/8 (± 1/64) inch. The steel shank shall be made with a single or double rib. The overall thickness of the steel shank with rib shall be 0.080 to 0.125 inch. The steel shank shall have a zinc electroplated coating, dull or bright finish, or a zinc compound completely and uniformly applied to the base metal following a cleansing by any method of TT-C-490. Steel shanks with black oxide coating comforming to class 1 of MIL-C-13924 may be used in lieu of steel shanks with zinc coating. The rib shall taper off at a point 3/8 to 7/8 inch from each end. The steel shank for size 4 shall be 4 1/2 (± 1/16) inch in length and the lengths for the other sizes shall grade up or down 1/4 (± 1/16) inch.

* 3.3.16.2 Fiberglass shank As an alternate, a fiberglass shank (see 6.6) without shank board may be used. The shank shall consist of glass fibers impregnated with vinylester resins encased in a plastic sleeve or tube. The width of the uncured encased fiberglass resin shall be 5/8 ± 1/32 inch. The shank shall be cured and bonded to the insole and conform to the shape of the last. When fully cured the shank (glass and resin area) shall be 5/8 ± 1/16 inch in width. The cured length of shanks shall be graded as specified in 3.3.16.1.2. The forward end of the shank shall have a 1/2 (± 1/8) inch taper. The heel end shall be tapered for a minimum of 3/8 inch.

3.3.16.3 Shank fitting sizes The shank fitting shall conform to the schedule specified in Table III.

Table III - Shank fitting schedule

Shank sizes	1						2				3			
Shoe widths and sizes														
XN-N 1/	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½
R - W	4	4½	5				5½	6	6½	7	7½	8	8½	9
XW	4	4½					5	5½	6	6½	7	7½	8	8½

	4				5				6			7	
XN - N	11	11½	12	12½	13	13½	14		14½	15			
R - W	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	
XW	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15

1/ Except that the XN width is not required for sizes 4 and 4 1/2.

3.3.17 Laces The laces shall be black and shall conform to Type II, Class 3 of V-L-61. The minimum length of laces for shoe sizes 4 through 6 1/2 shall be 29 inches and 34 inches for shoe sizes 7 through 15.

3.3.18 Metal fittings

3.3.18.1 Eyelets Eyelets shall have a roll setting barrel and shall be made from aluminum not less than 0.012 inch in thickness. The eyelets shall be anodized or finished with a corrosion preventative treatment. The heads shall be roller coated with two coats of enamel to approximately match the color of the upper leather. The eyelets may be tumble (fully) coated with not less than two coats of enamel in lieu of top roller coated. The eyelets shall have an outside diameter of 0.385 to 0.390 inch and a minimum inside diameter of 0.180 inch when tested as specified in 4.3.1.

3.3.18.2 Nails, heel attaching Heel nails shall be brass, cut or wire type and of sufficient length to produce a secure smooth clinch on the insole. The cut-type nails shall be of material conforming to alloy No. 6 or No. 8 of ASTM Standard B-36 and shall be commercial number 450 or 1336 with a 20 gauge point when gauged as specificed in 4.3.1. The wire nails shall be commercial type 13 gauge with a flat clinching point and shall be of material conforming to alloy No. 7 of ASTM Standard B-134, when tested as specified in 4.3.1.

3.3.18.3 Tacks and staples Assembly tacks and staples, heel seat lasting tacks, welt butt tacks, and tacks or staples used for attaching the shank shall be brass or steel and shall be of sufficient length to thoroughly attach the parts through which they are driven and leave the insole smooth on the inside. All brass tacks shall be of material conforming to alloy No. 6 or No. 8 of ASTM Standard B-36, when tested as specified in 4.3.1.

3.3.18.4 Nails, heel seat fastening Nails used for heel seat fastening shall be 12, 27, or 39 head, brass nail or steel nail of sufficient length to firmly secure all parts through which they are driven and leave a smooth, secure clinch on the insole. Testing shall be as specified in 4.3.1.

3.3.19 Wax The wax used during the inseam sewing and Goodyear stitching operations shall be white or golden in color and shall be a permenantly plasticized resin that will thoroughly penetrate the thread at temperatures encountered during normal sewing machine use.

3.3.20 Cleaner solution A suitable cleaning solution shall be used to remove grease and soil marks of manufacturing operations from the shoe uppers. The solution shall have a maximum pH value of 8 and shall not decrease the water resistant characteristics of the upper leather when tested as specified in 4.3.1.

3.3.21 Repairers Repairers shall be a liquid spray, crayon or paste type applied by hand. The color shall match the color of the upper leather and shall have sufficient coverage to correct minor surface imperfections of the leather.

3.3.22 Renovators Renovators used in lieu of, or in addition to the repairers, shall match the color of the upper leather. Application may be by sponge or spray method.

* 3.3.23 Insole, stuck-on rib The finished rib shall consist of a combination of coated fabric and fiberboard materials. The rib shall be 7/32 to 8/32 inch high with a minimum width of 5/8 inch when measured from the inside vertical portion of the rib, and shall extend around the periphery of the insole from heel breastline to heel breastline. The insole shall be scored or marked 2 5/8 inches from the end of heel on a size 8R insole; other sizes shall be graded up and down to insure proper welt butt location on the finished last. The fabric used for the stuck-on rib shall be cotton or cotton synthetic comforming to the requirements listed below. The fabric shall be coated on one side with a suitable adhesive and bonded to the flesh side of the insole. The fiberboard and fabric shall cover 4/32 to 6/32 inch of the peripheral edge, and provide for the required edge extension of the finished shoe.

Fabric requirements

Weight, ounces per sq. yd. (min)	Yarns per inch (min.)		Breaking strength, lbs (min)
	Warp	Filling	Warp and Filling
8.0	52	30	105

3.3.23.1 Rib strength The physical requirements for the stuck-on rib shall conform to the following when tested as specified in 4.3.4.2:

Characteristics	Minimum 1/	Average 1/
Shear strength, lbs	70	75
Stitch strength, lbs	20	30

1/ No single determination shall fall below the minimum value specified and the average of all determinations shall not be less than the average specified.

3.4 Design The shoes shall be a three or four eyelet, blucher style Chukka with water resistant upper leather; leather/cloth vamp lining, traction tread rubber sole and heel, and steel box toe (see figure 1).

3.5 Patterns and markers One set of paper patterns and markers will be furnished by the Government as a basis from which the contractors dies or patterns shall be made. The patterns, markers, and contractor cutting dies shall consist of the component parts specified in Table IV. Government patterns and markers shall not be altered in any way except as noted below. The contractor may modify the folded edge quarter patterns to eliminate the allowance for the fold. The outside counterpocket may be used with an inverted "V" removed in the back center of the counterpocket. The height of the cut for the inverted "V" shall be only that amount necessary to assist in proper heel seat lasting and fitting and shall be graded properly for the range of shoes sizes. The outside counterpocket shall conform to the Government patterns, except for the inverted "V" and shall conform to the back part of the last after closing. The lasting allowance shall be determined by the contractor.

Table IV - Patterns and markers

Component parts	Patterns and markers by width
Patterns 1/	
Vamp	Whole and half sizes, all widths
Folded edge quarters	Whole and half sizes, all widths
Counter pockets 2/	Whole and half sizes, all widths
Insole rounding	Whole and half sizes, all widths
Bellows wing	Whole sizes, all widths
Vamp lining 3/	Whole sizes, all widths
Shank board	7 sizes
Markers 1/	
Vamp	Whole sizes, all widths
Quarters	Whole sizes, all widths

1/ Patterns and markers may be modified to facilitate stitching and lasting when approved by the procuring activity.
2/ At the option of the contractor, whole sizes only may be used.
3/ The pattern shall be modified to allow the tongue area and steel box toe area to be made with the leather specified in 3.3.3.

3.6 Lasts Shoes shall be made over the MIL-7 (MIL-L-43585) last. All necessary sizes and widths will be loaned to the contractor by the Government. The contractor shall furnish the wood insole rounding patterns or dies, conforming to paper patterns furnished by the Government.

3.7 Construction

3.7.1 Cutting uppers The uppers shall be cut from grain out leather specified in 3.3.1. Vamps shall be cut from the bend area of the side leather.

3.7.1.1 Lining and bellows wings The lining shall be cut from leather specified in 3.3.3.2. The bellows wings shall be cut from leather specified in 3.3.2. Bellows wings and vamp linings shall be cut 1/2 size down on all half size shoes. Example: For size 8 1/2 shoe, cut bellows wing and vamp lining for size 8.

3.7.2 Skiving Upper leather cut parts shall be skived as indicated below. Scarf areas shall be sufficient to reduce bulk and to provide a smooth, even fitting. All skiving shall be done on the flesh side.

Skiving requirements

Part	Location
Quarters	Back edge
	Top edge, eyelet row edge, (Not required when top fold is not used)
Counterpocket	Optional
Vamp	Vamp line
Vamp lining (cloth & leather)	Tongue (optional)
	Toe tip-breastline

3.7.2.1 Staining of cut edges All cut leather edges that are exposed in the end item shall be stained to match the color of the upper leather.

3.7.3 Crimping When necessary, vamps shall be crimped not more than one pair at a time.

3.7.4 Marking and labeling

3.7.4.1 Contract marking The grain side of the tongue lining shall be stamped with the contractor's name, number and date of contract, correct size and width. The marking shall be positioned approximately 3/8 inch from the top edge of the lining.

3.7.4.2 ANSI labeling The shoes shall be labeled to indicate that they conform to Class 75 safety-toe requirements outlined in American National Standards Institute Standard ANSI Z41.1. Each shoe shall have an indelible cloth label sewn to the inside of the shoe on the tongue lining. The numbers and letters shall be a minimum of 3/16 inch in height. The label inscription shall be as follows:

ANSI
Z41.1-1967/75

3.7.5 Upper leather fitting Line marker patterns shall be used for all upper fitting. The leather shall not be die stamp marked. The skived top quarter edge and eyelet row edge shall be coated with a suitable cement, folded and stitched with 8 to 10 stitches per inch using stitch type 301. When the folded top-edge and eyelet-row edge construction is not used, the top and eyelet row edges shall be stitched 1/16 inch from the cut edge, 8 to 10 stitches per inch using stitch type 301. The quarters shall be butted and closed at the back using stitch type 502 or 503 with 8 to 10 stitches per inch. The back seam shall be rubbed down and reinforced on the grain side with the tape specified in 3.3.12, centered, and stitched with a single row of stitching 1/16 inch along each edge of tape using stitch type 301 or 401 with 8 to 10 stitches per inch. As an alternate, when good lasting and rubbing operations are performed on the back seam the tape may be eliminated. To prevent leakage, the smallest size needle shall be used. All other upper stitching shall be done using stitch type 301 of FED-STD-751, with 8 to 10 stitches per inch. The back seam area shall be flat and smooth and shall not contain any wrinkles or bunching.

3.7.5.1 Counter pocket fitting The edges of the counter pocket shall be stitched to the quarters with two rows of stitching, single or double needle, with the first row of stitching approximately 1/16 inch from the edge of the counter pocket. If the inverted "V" seam counterpocket is used, the "V" seam shall be closed upward from the lasting edge. The closing shall be done with one row of stitching, stitch type 401 with 6 to 10 stitches per inch. The stitching shall be close to the edge of the leather and the seam rubbed down. The butt side of the seam shall be on the flesh side.

* 3.7.5.2 Vamp lining assembly Stitch the leather tongue lining to the cloth lining in the throat area with one row of stitching, stitch type 301, 8 to 10 stitches per inch, 1/16 to 1/8 inch from edge of leather. Stitch the leather toe tip to the cloth lining at the breastline edge with one row of stitching, stitch type 301, 8 to 10 stitches per inch, 1/16 to 1/8 inch from the edge of the leather. The leather toe tip shall be cut large enough to extend rearward of the steel toe breastline.

3.7.5.3 Vamp assembly Cement vamp lining to the vamp, in the tongue and wing areas, with any suitable cement. Insert bellows wings between the cemented vamp lining and vamp and stitch vamp lining to tongue, including bellows wings, with one row of stitching 1/16 to 1/8 inch from the edge using stitch type 301 with 8 to 10 stitches per inch.

3.7.5.4 Vamping and barring Stitch quarters to corresponding vamp edges (including the lining) with a double row of 1/16 inch gauge stitching, stitch type 301, 8 to 10 stitches per inch, close to the edge, plus a second double row of 1/16 inch gauge stitching placed 5/32 to 1/4 inch on the inside of and parallel to the first double row. The vamp and lining lap shall extend beyond the inside double row of stitching by not more than 3/16 inch. A double row of bar stitching 1/2 (± 1/16) inch in length shall be positioned between the two rows of eyelet stitching and shall be placed at an angle of 30 to 45 degrees to the inside row of vamp stitching to which it shall join (see figure 1). The barring shall be done by single or double needle stitching, or by the automatic method with tying or locking ends.

3.7.5.4.1 Coating and sealing of outside upper stitching Daub or paint all outside needle threads with concentrated alkenyl succinic acid (Bavon) or a minimum of 15 percent Sylmer solution (a silicone polymer).

3.7.5.5 Bellows wing fitting Stitch bellows wings to quarters during the quarter top and eyelet edge stitching. Stitch bellows to quarters with a second single row of stitching approximately 13/16 inch from edge of quarter to form eyelet row. Stitch type shall be 301 8 to 10 stitches per inch.

3.7.5.6 Eyeletting On each quarter for shoe sizes 4 through 6 1/2 there shall be three eyelets. For shoe sizes 7 through 15, there shall be 4 eyelets on each quarter. The top eyelet shall be located as close as possible to the top edge of the quarter without cutting into the upper stitching. The remaining eyelets shall be evenly spaced so that the lower eyelet shall be located approximately 1/4 inch above the barring on each quarter at the blucher noses. Eyelets shall be located 3/8 to 1/2 inch from center of eyelet to front edge of quarters.

3.7.5.7 Lacing for lasting The machine lacing for lasting shall provide for an opening of approximately 1/2 inch after lasting. The quarters shall be laced in one or more sets of eyelets.

* 3.7.6 Insoles, leather Leather insoles when used, shall be lightly degrained or heavily buffed and shall be properly fleshed. The insoles shall be rounded to pattern. Die cut insoles will be accepted provided they conform to paper insole patterns loaned by the Government. A ± 1/64 inch tolerance from Government loaned insole patterns will be allowed.

* 3.7.7 Lasting Prior to lasting, the uppers may be conditioned by any suitable means except that they shall not be dipped in water. The correct size and width of uppers, box toes, counters and insoles shall be assembled to the last. Insoles shall be tacked to the last with not less than 5 tacks or staples, one in the center of the heel seat, one at the shank, one at each side of the ball and one at the toe. Edges of the insole shall be even on the last bottom at all points. Correct size counters shall be coated on both sides with any suitable adhesive. Counters shall be large enough to enable being caught by one or two stitches of the inseaming operation and provide for a wiped in heel seat of not less than 1/2 inch nor more than 9/16 inch. Counters shall be sized to fill the counter pocket. The heel seat shall be tacked flat and free of wrinkles. As an alternate, heel seat lasting may be done by any suitable method or equipment to assure a flat, secure heel seat. The box toe specified in 3.3.14.1 shall be large enough to enable being caught in the inseaming operation. The toe cushion may be cemented to the flesh side of the vamp. The vamp shall be laid back sufficiently for the proper positioning of the steel box toe and toe cushion material specified in 3.3.14.2. The vamp shall then be lasted back in place and secured with toe wire or nylon monofilament. As an alternate, a single toe lasting may be performed when the foam material specified in 3.3.14.2 is used as the understructure box in lieu of the impregnated material. The foam understructure shall be cemented to the vamp lining. When the alternate method is used to accommodate automatic equipment, the grain surface of the leather lining may be lightly buffed to provide an adequate surface to which the adhesive will adhere. The buffed area shall be no more than 2 inches in from the front (center of toe) edge of the lining and graduate out to the side of the toe in the toe lasted area. The uppers shall then be pulled down to the last with proper tension to assure that quarters at the blucher points are even. Sides of the shoes shall be spindled and uppers stapled firmly to the last. As an alternate, the side lasting and inseaming operation may be performed simultaneously with any suitable equipment or method. Prior to heel seat lasting and inseaming the shoes shall be spindled, drafting the forward counter edges into position and the uppers snugly to the last. The toe shall be firmly and smoothly wiped-in and the toe wire or nylon monofilament securely attached around the toe at the base of the insole rib, providing a shoulder for the inseaming operation. No tacks shall be used above the lasting line or in the back of the quarter. As an alternate, any suitable equipment or method may be used to smoothly and securely attach the toe around the base of the insole rib.

3.7.7.1 Time allowance on lasts The shoes shall remain on the lasts until all parts are thoroughly dry.

3.7.8 Inseaming and first seam sealing Inseaming shall be performed using thread specified in 3.3.13.3. The thread shall be thoroughly hot waxed and a needle not larger than No. 41 shall be used for stitching. The welting shall be inseam stitched to the bottom of the insole rib from rib end to rib end with not less than 3 1/4 stitches per inch and shall catch the counters with one or two stitches. Prior to inseaming, the lasted-over margin shall be coated with a seam sealer specified in 3.3.11.1.

3.7.9 Tack or staple pulling, inseam trimming All insole tacks or staples shall be removed and no broken tack or staple points shall remain. The inseam shall be closely trimmed from welt butt to welt butt, without cutting or damaging the stitches. The ends of the welt shall be skived with a 5/8 (± 1/8) inch bevel and tacked within the butt area. The welt shall be jointed by the inseamer with adequate tension and machine adjustment, whereas it will hinge easily after joining.

3.7.10 Second seam sealing The trimmed inseam, from inseam stitching on welt underside, over top of trimmed inseam and down the inside of the insole rib to its base covering the inseam stitching, nail, staple or tack holes, tacks and staples, shall be given a heavy coat of seam sealer specified in 3.3.11.1, and allow to dry at room temperature. The sealer may be applied to the underside of the welting.

3.7.11 Steel shank fitting, bottom filling The shank assemblies shall be selected for correct size in accordance with the casing schedule as specified in 3.3.16.3. The shank assemblies shall be inserted in position with the shankboard piece filling the cavity between the inside and outside ribs from the ball line rearward to the back of the heel seat. The forward end of the shankboard shall be flush with the insole, fit the contour of the shoe bottom back of the ball line, and be attached to the shoe with pitch, wax or two tacks or staples, one on each side of the steel piece at the rear end of the cover. The bottom filler shall be applied and firmly pressed into the insole channel around the toe, extending to the forward end of the shankboard with a uniform and even surface. The bottom shall present a flat, smooth surface for sole laying. Any cavities between the shank cover and insole rib, and in the heel seat area shall be filled with bottom filler.

* 3.7.11.1 Figerglass shank fitting When the alternate fiberglass shank specified in 3.3.16.2 is used, the forward end of the shank shall be positioned approximately 1/2 inch rearward of the ball line with the back end extending into the heel seat area. The shank shall be cured and bonded to the insole and shall conform to the shape of the last. Bottom filler shall be applied from the forward end of the shank back through the heel seat area filling all cavities around the shank.

3.7.12 Sole laying The shoe bottoms, except heel seat area, shall be thoroughly coated with any suitable adhesive. The outsole shall be properly positioned on the shoe bottom and laid on a sole laying machine with pressure. The outsoles shall be of adequate size and laid evenly to allow for the specified edge extension.

3.7.13 Rough rounding The soles shall be smoothly rounded on a rough rounding machine to provide for the edge extension of sole and welt specified in 3.7.19.

3.7.14 Goodyear stitching The soles and welt shall be stitched together on a lockstitch machine using thread specified in 3.3.13.2, with 4 1/2 to 7 stitches per inch, except that there shall be no more than 3 1/2 stitches per any one-half inch length in the ball and toe sole stitching. A needle and awl not larger than No. 45 shall be used. Stitches shall be laid on the surface of the welt and close to the outer edge of the welt on the finished shoe. The lock shall be just under the surface of the outsole. The Goodyear stitching shall not fall in the traction tread design area of the outsole.

3.7.15 Heel seat fastening Heel seat fastening shall be done using nails specified in 3.3.18.4, driven three to the inch and properly positioned at the edge of the insole from welt butt to welt butt to provide a secure, smooth clinch on the insole.

3.7.16 Heel seat rounding The outsole in the heel seat area shall be smoothly rounded from butt of welt to butt of welt.

3.7.17 Heel attaching Heels specified in 3.3.8 shall be attached with 13 nails (see 3.3.18.2). The nails shall be of sufficient length to insure a smooth secure clinch on the insole. The heeling machine shall be equipped with proper length drivers to assure that all nails are driven evenly against the plastic or composition cores in the heel and clinch the nails on the insole. Nails shall not be driven in the tread pattern. Proper size heels shall be used for the full range of shoe sizes.

3.7.18 Heel finishing The heels shall be trimmed square and smoothly scoured. The beveled breastline shall not be scoured.

3.7.19 Edge trimming Sole edges shall be trimmed square, and smoothly joined to the heel. The finished edge extension shall be not less than 3/16 inch wide at the toe and outside ball, and not less than 1/8 inch wide at the inside ball.

3.7.20 Finishing

3.7.20.1 Preparation The shoe uppers shall be cleaned, removing all excess wax and other foreign matter. All thread ends shall be trimmed.

3.7.20.2 Treeing All wrinkles shall be removed from the shoes while on the last and no material shall be used that may injure the leather or thread.

3.7.20.3 Final finish Shoes shall be repaired and properly renovated using material and methods as specified in 3.3.20 through 3.3.22. All raw edges shall match the color of the upper leather. A suitable dye solution that does not compromise the water resistance of the leather may be used to level off the color of the shoes. Acrylic or resin finishes shall not be used. The contractor shall furnish a certificate of compliance for this requirement.

3.7.21 Nails, tacks and staples Nails, tacks and staples that have been left protruding through the insole, and cannot be pulled out, shall be cut close to the surface leaving no protruding stumps. A mechanical tack detector or other suitable method may be used to indicate the presence of any protruding nails, tacks or staples inside the shoe.

3.7.22 Heelpads The heelpads specified in 3.3.4 shall be inserted grain side or buffed side up. The entire surface of the flesh side of the heelpads shall be coated with a suitable adhesive and firmly pressed into the heel seat area. The heelpads shall match the contour of the insole heel seat area and the width shall be sufficient to cover the entire heel seat area. The heel pads shall be graded properly for all sizes.

3.7. 23 Lacing-mating The shoes shall be properly mated and a lace shall be inserted through the top eyelet of the outside quarter of each shoe and both laces tied firmly together.

3.8 Workmanship The finished shoes shall conform to the quality of product established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality levels.

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 First article inspection The first article submitted in accordance with 3.2 shall be inspected as specified in 4.3.5 for compliance with design, construction, workmanship and dimensional requirements.

4.3 Inspection Inspection shall be in accordance with the provisions set forth in MIL-STD-105, except where otherwise indicated herein.

4.3.1 Component and material inspection In accordance with 4.1, components and materials shall be inspected and tested 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, testing shall be performed on components and materials listed in Table V. When data in the "Number of determinations per sample unit" and "results reported as" columns are not specified in Table V

they shall be reported as required by the referenced test methods. All test reports shall contain the individual values utilized in expressing the final result. The lot shall be unacceptable if one or more sample units or the composite fail to meet any requirements specified. The sample size shall be as follows:

Lot size	Sample size
800 or less	2
801 through 22,000	3
22,001 and over	5

Table V - **TESTING OF COMPONENTS**

Component and unit of product	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Requirement applicable to: Sample unit	Requirement applicable to: Lot average	No. of determinations per sample unit	Results reported as	Sample unit
*Upper leather (square feet)	Tannage, Thickness, grain	3.3.1	2/					One piece 8"x8" 1/
	Finish	3.3.1.2	2/					
	Water penetration	3.3.1.1.1	ASTM D-2098 or D-2099	X		1	No. of cycles	15 specimens "a" area 8 specimens "x" area 1/
	Water absorption	3.3.1.1.2	4.4.5	X		1	percent	15 specimens "a" area 8 specimens "x" area 1/
*Bellows wing leather (square feet)	Water resistance	3.3.2	FED-STD-311 8121 & 4.4.2	X		1	No. of taps	One 2" x 8" piece 1/
	Type and tannage	3.3.2	2/					
Lining leather (square feet)	Type, tannage grain and Thickness	3.3.3	2/					One piece 8" x 8" 1/
Leather, General	Paranitrophenol Content (when applicable)	3.3.6	FED-STD-311 6711 2/		X			

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Table V - **TESTING OF COMPONENTS**

Component and unit of product	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Requirement applicable to: Sample unit	Requirement applicable to: Lot average	No. of determinations per sample unit	Results reported as	Sample unit
*Insoles, Synthetic	Mat'l Ident.	3.3.5.2	2/					
	Copper 8-QUIN	3.3.5.2	2/					
	Thickness	3.3.5.2	2/					
Vinyl Welting(YD)	Material Identification	3.3.9	2/		X			5 yards
	Hardness (after immersion)	3.3.9	ASTM D-2240	X		3	number	
	Specific gravity	3.3.9	4.4.1.2	X		3	Nearest .01	
	Brittle point (before and after aging)	3.3.9	ASTM D-746 and 4.4.1.4	X		5	nearest 1°F	
	Tensile strength	3.3.9	D-412 "Die E"	X		5	Nearest 10 psi	
	Elongation	3.3.9	D-412 "Die E"	X		5	nearest 5%	
	Water absorption	3.3.9	4.4.1.3	X		3	Nearest .01%	
	Diameter of bead (when used)	3.3.9	gauge	X		1	nearest .001	
After immersion	Tensile strength	3.3.9	ASTM D-412 and 4.4.1.1.2	X		5	nearest 10 psi	
	Elongation	3.3.9	D-412 and 4.4.1.1.2	X		5	nearest 5%	
	Volume swell	3.3.9	4.4.1.1.3	X		3	nearest %	

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Table V - **TESTING OF COMPONENTS**

Component and unit of product	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Requirement applicable to: Sample unit	Requirement applicable to: Lot average	No. of determinations per sample unit	Results reported as	Sample unit
Vinyl Welting (Yds) (cont d)	Hardness	3.3.9	ASTM D-2240 and 4.4.1.1	X		3	nearest No.	
Seam seal adhesive vinyl (gallon)	Mat'l Ident.	3.3.11.1.1	2/					
	Gallon weight	3.3.11.1.1	ASTM Method D-816 2/	X		1	nearest ounce	one quart
	Total solids	3.3.11.1.1	4.4.4 2/	X		2	nearest 0.1%	
	Viscosity	3.3.11.1.1	D-1084 2/	X		2	nearest 1 second	
Understructure box toe (yard)	Mat'l Ident.	3.3.14.1	2/					1 square foot
	Thickness	3.3.14.1	FED-STD-191 5030					
	Weight	3.3.14.1	5041					
Foam material (yard)	Thickness	3.3.14.1	FED-STD-601 12031					1 square foot
Alternate toe cushion (yard)								1 square foot
Polyvinyl	Mat'l Ident.	3.3.14.2	2/					
	Thickness	3.3.14.2	2/					
	Weight	3.3.14.2	2/					
Latex	Mat'l Ident.	3.3.14.2	2/					
	Thickness	3.3.14.2	2/					

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Table V - **TESTING OF COMPONENTS**

Component and unit of product	Characteristic	Specification reference: Requirement paragraph	Specification reference: Test method	Requirement applicable to: Sample unit	Requirement applicable to: Lot average	No. of determinations per sample unit	Results reported as	Sample unit
Steel box toe (Pair)	Mat'l Ident.	3.3.14.3	2/					2 box toes
	Hardness (rockwell C scale)	3.3.14.3	FED-STD-151 243	X		3	number	
	Carbon content	3.3.14.3	2/					
	Coating identification	3.3.14.3	2/					
	Thickness	3.3.14.3	2/					
Bottom filler (pound)	Mat'l Ident.	3.3.15	2/					1 pint
	Softening point of binder	3.3.15	ASTM E-28		X	2	nearest degree	
	Penetration of binder	3.3.15	D-5		X	3	nearest MM	
	Solubility of binder in water	3.3.15	2/					
Shank board (boards)	Mat'l Ident.	3.3.16.1	2/					
	Thickness	3.3.16.1	2/					
Steel shank (shank)	Mat'l Ident.	3.3.16.2	2/					
	Coating Ident.	3.3.16.2	2/					
	Hardness (Rockwell C scale)	3.3.16.2	FED-STD-151 243	X		3	nearest number	3 shanks
	Width	3.3.16.2	2/					
	Thickness	3.3.16.2	2/					
Fiberglass Shank	Mat'l Ident.	3.3.16.2	2/					
	Width	3.3.16.2	2/					

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Table V - **TESTING OF COMPONENTS**

Component and unit of product	Characteristic	Specification reference		Requirement applicable to		No. of determinations per sample unit	Results reported as	Sample unit
		Requirement paragraph	Test method	Sample unit	Lot average			
Eyelets (pound)	Mat'l Ident.	3.3.18.1	2/					
	Thickness	3.3.18.1	2/					
	Finish	3.3.18.1	2/					
	Diameter	3.3.18.1	2/					
Heel nails (pound)	Mat'l Ident.	3.3.18.2	2/					
	Gauge	3.3.18.2	2/					
Tacks and staples (pound)	Mat'l Ident.	3.3.18.3	2/					
Nails (heel seat) (pound)	Mat'l Ident.	3.3.18.4	2/					
	Gauge	3.3.18.4	2/					
Stuck-on rib Fabric	Mat'l Ident.	3.3.23	2/					5 insole units
	Weight	3.3.23	2/					
	Yarns per inch	3.3.23	2/					
	Breaking strength	3.3.23	2/					

1/ Sampling procedures and location from which the sample unit is to be obtained shall be in accordance with ASTM standard D-2813.

2/ A certificate of compliance is acceptable for this characteristic.

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4.3.2 Examination of components

* 4.3.2.1 Examination of insoles

Leather - Shall be examined for visual and dimensional characteristics in accordance with KK-I-570.

Texorist - Shall be examined for the defects listed below. The inspection level shall be level II and the AQL shall be 4.0 defects per 100 units.

Any hole, cut, tear or gouge.
Any brittle area or evidence of delamination.
Thickness not as specified.
Insole outline not conforming to required pattern.
Insole not cut in specified direction.

4.3.2.2 Examination of vamps prior to fitting A 100% examination of each cut vamp for the defects listed in 3.3.1 shall be conducted prior to fitting operations. Any cut vamp containing one or more defects shall result in the rejection of that vamp.

4.3.3 In-process inspection Inspection shall be made at any point or during any phase of the manufacturing process to determine whether operations or assemblies are carried out as specified. The Government reserves the right to exclude from consideration for acceptance any material or service for which in-process inspection has indicated non-conformance.

4.3.4 Intermediate inspection

4.3.4.1 Visual Examination The defects found during intermediate examinations shall be classified in accordance with 4.3.4.1.1 and 4.3.4.1.2. The applicable inspection levels and acceptable quality levels shall be as indicated in 4.3.4.1.3.

NOTE: Defects designated by an asterisk (*) shall be scored as "Major" when seriously affecting serviceability and "Minor" when affecting serviceability but not seriously.

4.3.4.1.1 Examination of uppers after all fitting The upper assembly shall be examined for defects in cutting, fitting, and other construction characteristics which cannot be seen in the end item. The sample unit shall be one completely fabricated upper assembly prepared for lasting. The lot size shall be expressed in terms of the sample unit.

Examine	Defect	Classification Major	(*)	Minor
Construction and workmanship (general)	a. Construction not as specified	X		
	b. Any component missing or other than type specified	X		
	c. Any component misplaced or not affixed as specified		*	
	d. Any component not skived as specified	X		
	e. Backseam not rubbed down			X
	f. Backseam tape not caught in both rows of stitching			X
	g. ANSI label missing 1/			
Quality of leather (Upper leather and lining leather)	a. Not full grain	X		
	b. Not specified color - uppers	X		
	c. Not specified color - lining			X
	d. Coarse, rough fiber on the flesh side		*	
	e. Slaughter cut or otherwise damaged	X		
	f. Thickness more than 1/2 ounce less than the minimum specified	X		
	g. Thickness more than the maximum or up to 1/2 ounce less than the minimum specified			X
	h. Loose, flanky			X

1/ The contractor shall perform 100% examination for this defect. Any defective unit found, shall be repaired, replaced or excluded from the in-process lot.

4.3.4.1.2 Examination of shoe before bottom filling The partially fabricated shoe shall be examined for defects in construction and workmanship that cannot be seen in the end item. The sample unit shall be one partially constructed shoe at a point after lasting and attachment of the shank but before the application of the bottom filler. The lot size shall be expressed in terms of the sample unit.

Examine	Defect	Classification Major	(*)	Minor
Bottom of shoe	a. Any component missing or other than specified type	X		
	b. Shank not properly positioned, e.g., end of steel shank extending beyond ball line	X		
	c. Shank wrong size or malformed			X

Examine	Defect	Classification Major	(*)	Minor
Bottom of shoe (cont'd)	d. Shank not fitting contour of shoe bottom		*	
	e. Shank not securely attached			X
	f. Any tear in duck over 1/2 inch in stitch area	X		
	g. Any insole staple or anchor tack not removed	X		
	h. Upper damaged in lasting		*	
	i. Excess leather in heel seat interfering with proper fit of shank			X
	j. Poor heel seat lasting, e.g., heel seat not flat, upper not completely caught in by lasting tacks			X
	k. Poor side lasting, upper loose on last, i.e., insufficient lasting staples to hold upper to last			X
	l. Inseam not properly trimmed		*	
	m. Inseam seal operation before and after welting omitted or not properly performed	X		
	n. Less than three stitches per inch	X		
	o. Less than 3 1/4 stitches but not less than three stitches per inch on inseam			X
	p. Any inseam stitch broken, skipped, cut or damaged	X		
	q. Two or more inseam stitches not at bottom of insole rib or not in welt groove		*	
	r. Broken insole rib	X		
	s. Any operation omitted	X		
	t. Any operation improperly performed		*	
	u. Welt butt not properly skived and tacked			X
	v. Ends of counter not caught by inseam stitching			X
Upper part of shoe	a. Uppers not firmly down to last			X
	b. Lace opening more or less than specified			X
	c. Quarters not laced as specified			X
Steel toe assembly	Steel toe out of alignment, or crooked		*	

4.3.4.1.3 Acceptable quality levels (AQL's) and inspection levels The acceptable quality levels, expressed in defects per 100 units and the inspection levels shall be as follows:

	Inspection level	AQL's Major	AQL's Total
For intermediate examination in 4.3.4.1.1 (fittings)	I	2.5	6.5
For intermediate examination in 4.3.4.1.2 (before bottom filling)	I	2.5	6.5

4.3.4.2 Testing of combined rib and insole The stock on rib shall be tested for compliance with the requirements of 3.3.23.1 Method 2061 of FED-STD-311 shall be used for the shear strength test. Method 2171 of FED-STD-311 shall be used for the stitch tear strength. The sample unit shall be two ribbed insoles, one for each test, and the sample size shall be 5, regardless of the lot quantity. Requirements are applicable to the sample unit. The lot shall be unacceptable if one or more sample units or the lot average fail to meet the specified requirement. All test reports shall contain the individual values utilized in expressing the final result.

4.3.5 Examination of the end item The defects found during the examination of the end item shall be classified in accordance with 4.3.5.1 and 3.3.1. The applicable inspection level and acceptable quality levels (AQL's) shall be as indicated in 4.3.5.1.1.

4.3.5.1 Visual examination The shoes shall be examined for defects listed below. The sample unit shall be one completely fabricated shoe and the selection shall be by pairs. Heel pads removed during Government verification inspection shall be re-cemented and replaced by the contractor. For pairing examination, the pair shall be examined together. Each defect found during the examination for pairing shall be scored as a single defect. The lot size shall be expressed in units of one shoe. The vamp (except the top tongue area) and inside and outside quarter shall be examined for break of leather in accordance with the procedure below:

Vamp To examine the vamp, the shoe shall be held in an upright position with both hands. The toe of the shoe shall face away from the examiner. Position thumbs on top of vamp approximately half way between box toe line and blucher noses and 1 inch to 1 1/2 inches apart. Press downward with thumbs so as to form grain surface into a concave surface and observe the break pattern. Any vamp exhibiting a break pattern greater than No. 5 on the Satra scale shall be scored as a defect regardless of the direction in which the break pattern occurs (see 6.4).

Quarters Bend each quarter in a concave position in any direction. The break in leather shall be compared with break pattern of the Satra scale (see 6.4). Any quarter exhibiting a break pattern greater than No. 5 on the Satra scale shall be scored as a defect.

NOTE: Asterisk defects listed below shall be scored "Major" when affecting serviceability or appearance seriously and "Minor" when affecting serviceability or appearance but not seriously.

Examine	Defect	Classification Major	(*)	Minor
Pairing	a. Not properly mated, i.e., not right and left of same size	X		
	b. Variation in color or appearance		*	
Cleanliness	Any spot, stain or foreign matter			X
Color and finish	a. Not specified color	X		
	b. Color not uniform			X
	c. Any raw edges not stained to match upper leather			X
	d. Finish flaky, chipped, streaky, cracked or shows runs on uppers 3/			X
Design, type, & size	Not as specified	X		
Material (general)	Any component not fabricated of the material specified	X		
Upper leather	a. Not full grain	X		
	b. Leather damaged in processing		*	
	c. Break of vamp or quarters greater than No. 5 on SATRA scale	X		
	d. Surface embossed or printed	X		
	e. Rough or coarse grain	X		
	f. Flanky loose, boney or pipey leather	X		
	g. Brands, open scars, flesh cuts or deep scratches	X		
	NOTE: Leather showing a break pattern greater than No. 5 is considered to be loose, pipey or flanky.			
Lining	Wrinkled or excessive fullness of lining		*	
Construction and workmanship (general)	a. Any cut, tear, hole, repair, abrasion		*	
	b. Any component or assembly misplaced, operation omitted or not properly performed, e.g., backstay or blucher noses crooked to a degree where it is readily noticeable		*	
	c. Top edge of quarter and eyelet row edge of quarter, misaligned or irregular		*	

Examine	Defect	Classification Major	(*)	Minor
Construction and workmanship (general) (cont'd)	d. Top edge of backstay not aligned with top edge of quarters		*	
	e. Wrinkles or bunched area at the back seam		*	
	f. Any component or assembly misplaced or operation omitted or not properly performed, e.g. eyelet not properly clinched but is not expected to become detached from assembly			X
Seams and stitching (upper)	a. Any open seam (A seam shall be classified as open when one or more stitches joining a seam are broken, or when two or more consecutive stitches or runoffs occur. On multiple stitched seams, a seam is considered open when one or more rows of stitching are open).		*	
	b. Loose tension resulting in a loosely secured seam		*	
	c. Tight tension resulting in puckering or cutting of leather		*	
	d. Wrong stitch type or seam type	X		
	e. Less than the minimum number of stitches specified		*	
	f. More than the maximum number of stitches specified:			
	- resulting in damage to leather	X		
	- but does not damage leather			X
	g. Gauge of stitching not as specified or irregular			X
	h. Any row of stitching omitted		*	
	i. Thread ends not trimmed throughout shoe			X
	j. Needle holes or needle chews			X
Outsole stitching and bottom attaching (Goodyear)	a. Lock not just under surface of outsole	X		
	b. Lock on surface of outsole	X		
	c. Less than 3 1/2 stitches per inch	X		
	d. Less than 4 1/2 but not less than 3 1/2 stitches per inch			X
	e. More than 7 stitches per inch except ball and toe sole stitching			X

Examine	Defect	Classification Major	(*)	Minor
Outsole stitching and bottom attaching (Goodyear) (cont'd)	NOTE: More than 3 1/2 stitches per any one half inch length in the ball and toe sole stitching shall be classified as a minor defect. The ball and toe sole stitching shall be defined as that portion of the sole stitching that runs from the inside ball and around the toe to the outside ball.			
	f. Stitches do not extend under heel breast		*	
	g. Skipped or broken stitch		*	
	h. Goodyear stitching cutting into sole substance or deeper than specified	X		
	i. Gauge of Goodyear stitching not as specified or irregular			X
	j. Checked sole, i.e. separation of sole and welt			X
	k. Any stitching not visilbe on surface of sole	X		
	l. Goodyear stitching running into tread area	X		
Counters	a. Counters not filling counter pocket area		*	
	b. Rolled or curled counter		*	
Edge making	a. Edge trimmed into Goodyear stitching	X		
	b. Edge not trimmed square or trimming is irregular			X
	c. Sole extension less than the specified minimum:			
	(1) By not more than 3/32 inch			X
	(2) By more than 3/32 inch	X		
	d. Sole extension beyond specified maximum			X
Heel finishing and attaching	a. Heel not finished square, i.e. flared or tapered more than 1/8 inch			X
	b. Heel not finished smooth			X
	c. Checked heel, i.e., separation of heel and outsole			X
	d. Wrong size or type heel			X

Examine	Defect	Classification Major	(*)	Minor
Heel finishing and attaching (cont'd)	e. Breast of heels not beveled			X
	f. Any heel nail missing			X
	g. Open heel seat		*	
	h. Heel crooked			X
	i. Either corner breast nail not clinched on insole	X		
	j. Two or three nails other than corner breast nail not clinched on insole			X
	k. More than three nails other than corner breast nail not clinched on insole	X		
	NOTE: Evidence of heel nails on insole shall not be interpreted as proper or sufficient clinching.			
Eyelets	a. Number of eyelets not as specified	X		
	b. Eyelets not properly spaced within the row or misalignment between the rows to an extent interfering with proper lacing	X		
	c. Eyelet not securely clinched	X		
	d. Center of eyelet less than 3/8 inch or more than 1/2 inch from front edge of quarter			X
Inseaming	a. Grinning seam, e.g., thread exposed	X		
	b. Strained seam, i.e., needle holes visible but thread not exposed			X
Insoles	a. Short or long		*	
	b. Any protruding point ot tack, staple or nail on insole in heel area	X		
	c. Any protruding point of nail, staple or tack on insole forward of the heel breast 1/			
Steel box toe	Missing 2/			
Marking and Labeling	a. Missing, incomplete, incorrect, not applied in the specified manner, misplaced, illegible or not specified size			X
	b. Missing ANSI Label 4/	X		

1/ Any protruding point of tack, staple or nail found in the sample shall cause rejection of the lot represented.
2/ Any missing steel box toe found in the sample shall cause rejection of lot presented.
3/ Finish shall be examined for flakiness, cracking, etc., during examination for break in leather.
4/ When this defect is found, the defect shall be scored and the item shall be repaired, replaced or excluded from the lot.

4.3.5.1.1 Acceptable quality levels (AQL's) and inspection level The acceptable quality levels, expressed in defects per 100 units, and the inspection levels shall be as follows:

	Inspection level	AQL's Major	AQL's Total
For end item examination (4.3.5.1)	II	2.5	6.5

4.3.5.2 Testing of the end item The finished shoes shall be tested for the performance characteristic listed in Table VI. The sample unit for the impact test shall be one shoe and selection shall be by pairs. The lot size shall be expressed in terms of one shoe. All test reports shall contain the individual values utilized in expressing the final result. Requirements are applicable to the sample unit. The inspection level for the impact test shall be S-2. Any sample unit that fails to meet the requirement specified shall result in rejection of the lot.

Table VI - End item testing

Sample unit	Characteristic	Requirement paragraph	Test method	Determinations per sample unit	Results reported as
One shoe	Impact	3.3.14.3.1	4.4.3	1	pass or fail

4.3.6 Packaging inspection An examination shall be made to determine that preservation-packaging, packing, and marking complies with Section 5 requirements of this specification. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged with the exception that it need not be sealed. Defects of closure listed below shall be examined on shipping containers fully packaged. The lot size shall be the number of containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per one hundred units.

Examine	Defects
Marking (exterior)	Omitted, incorrect, illegible, of improper size, location sequence, or method of application. Size marking on item not in conformance with size shown on exterior container. 1/
Materials	Any component missing, damaged or not as specified.
Workmanship	Inadequate application of components such as: Incomplete closure of container flaps, loose strapping, inadequate stapling. Bulged or distorted container.
Content	Number of pairs of shoes per container is more or less than specified.

1/ For this defect, one pair from each container shall be examined.

4.4 Tests

4.4.1 Test for vinyl welting The testing of the vinyl welting shall be performed as specified in Table V and 4.4.1.1 through 4.4.1.4.

4.4.1.1 Solvent resistance

4.4.1.1 Hardness A specimen of vinyl welting, a minimum length of 3 inches of the full width and thickness of the welting, shall be immersed at a temperature of 23 (± 2) degrees Celsius (73.4 ± 3.6 degrees Fahrenheit) for 24 (± 1/4) hours in type III fluid of TT-S-735. The specimen shall be completely immersed in the fluid and the container shall be fitted with an air or reflux condenser so as to maintain a constant volume. At the end of the immersion period, the specimen shall be removed from the fluid, blotted dry with filter paper or other absorbent material, and tested immediately for hardness as specified in Table V.

4.4.1.1.2 Elongation and tensile strength A specimen of the vinyl welting, 6 by 0.45 by 0.125 (± 3 percent) inches shall be completely immersed at a temperature of 23 (± 2) degrees Celsius (73.4 ± 3.6 degrees Fahrenheit) for 24 (± 1/4) hours in type III fluid of TT-S-735. The container shall be fitted with an air or reflux condenser so as to maintain a constant volume. At the end of the immersion period, the specimen shall be removed from the fluid, blotted dry with filter paper or other absorbent material and hung up in a temperature of 23 (± 2) degrees Celsuis (73.4 ± 3.6 degrees Fahrenheit) for 24 (± 1/4) hours and then tested for elongation and tensile strength as specified in Table V.

4.4.1.1.3 Volume swell A 50 ml. burette calibrated 0.1 ml. shall be filled with 30 ml. (VI) of methanol. The test specimen shall be 1/4 (± 1/16) inch in length which shall be immersed in the methanol, and the increase volume shall be recorded as V2. The specimen shall then be removed, dried and immersed in fluid III of TT-S-735 for a period of 24 (± 1/4) hours. The treated sample shall then be removed, dried and inserted in the burette filled with 30 ml. (V1b) of methanol, and the increased volume shall be recorded as V2b. The percent of volume swell shall be calucated from the following formula:

Volume swell percent - V2-V1 = VA

V2b-V1b = VB

$$\frac{VB-VA}{VA} \times 100$$

4.4.1.2 Specific gravity The specific gravity of the vinyl welting shall be determined by a Fisher Young Gravitometer using a specimen from 2 to 3 inches in length.

4.4.1.3 Water absorption A specimen of vinyl welting shall be cut to a length of 4 (± 0.05) inches weighed to the nearest 0.001 gram (W1), immersed in a beaker of distilled water and maintained for seven days in an oven, at a temperature of 70° (± 2°)C. The beaker shall then be removed from the oven, cooled to a room temperature. The test specimen shall then be washed in methanol, dried for one minute and reweighed (W2). The top of the beaker

shall be sealed during the test to prevent evaporation of the distilled water. The percentage of water absorbed shall be calculated from the following formula:

$$\text{Water absorption percent} = \frac{W2-W1}{W1} \times 100$$

4.4.1.4 Brittle point after ageing A sample of vinyl welting shall be placed in an oven and maintained at a temperature of 100° (± 2°)C for seven days. The sample shall then be removed and allowed to remain at room temperature for 24 hours prior to testing as specified in Table V.

* 4.4.2 Test for water resistance of bellows wing leather Prior to testing, the grain surface of the test specimen shall be buffed ten times, lightly by hand using a No. 180 silicone carbide paper, in random direction under a 1/2 pound load.

4.4.3 Test for impact resistance of steel box toe The impact test shall be performed in accordance with the following procedure: A falling weight of steel or other suitable material, weighing not less than 49 1/2 pounds nor more than 50 1/2 pounds 1 inch (± 0.020 inch) in diameter and with a striking face made hemispherical in shape by rounding on a 1 inch radius, equipped to drop freely in a tube or other suitable guide, shall be used. The weight shall be dropped from a distance of 18 inches, (± 1/4) inch above the top of the box toe. As an alternate, a falling weight of 25 (± 1/4) pounds shall be dropped from a distance of 36 (± 1/2) inch. The equipment shall be assembled so that the center of the striking face of the falling weight will strike the shoe at midwidth 1/2 inch in front of the back edge of the box toe. The shoe (or toe section) shall be mounted on an anvil (or rigidly mounted bed-plate) of steel or other suitable material weighing not less than 500 pounds equipped with suitable guides (or clamps to hold the shoe specimen in place. In performing the test, the minimum inside clearance of 1/2 inch may be determined instantaneously by placing a lump of moldable material such as wax or modeling clay inside the shoe directly below the point of impact. The moldable material should be compressed with the fingers so that it contacts both upper and lower inside surfaces of the shoe before the test is made. When in place, the greatest horizontal dimension of the lumps should not exceed 1 inch. The moldable material shall be removed after impact and measured. The steel box toe shall be considered a failure if the moldable material is compressed to a point less than 1/2 inch in thickness. An approved method for impact testing is contained in American National Standard ANSI Z41.1-1976.

4.4.4 Total solids of seam sealant

4.4.4.1 Apparatus

a. Flat bottom dishes, 70mm in diameter made of aluminum, such as milk analysis or equal
b. Analytical balance
c. Laboratory oven, forced draft

4.4.4.2 Procedure Place a portion of the thoroughly mixed sample in a dropping bottle and weigh to the nearest .001 mg. Weigh aluminum dishes with fourth-decimal accuracy. Transfer a sample weight of two grams to a dish, determine the exact weight by loss in weight of the bottle. Place dish in a oven at 150°C for two hours. Upon cooling in a desicator, reweigh the dish to the nearest .001 mg. From the weight of the residue in the dish and the weight of the sample taken, caluclate the percent of total solids.

* 4.4.5 Test for water absorption of upper leather The upper leather shall be sampled and conditioned in accordance with ASTM standards D-2813 and D-1610. Three 4 by 4 inch test specimens shall be completely immersed in 1000 ml beaker of distilled water 23° (± 1°)C in such a manner that the surfaces of the specimens do not tough each other. After one hour (± 1) minute immersion, the specimens shall be withdrawn from the beaker and the surface water of each removed by lightly blotting the specimen with blotting paper prior to weighing. Each specimen shall then be weighed immediately and the weight recorded as W_2. The amount of water absorbed by each specimen shall be calculated as follows:

$$\text{Water absorbed, percent} = \frac{W_2 - W_1}{W_1} \times 100$$

Where: W_1 = weight of the original specimen, grams and W_2 = weight of specimen after immersion in water, grams.

5. PACKAGING

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

5.1.1 Level A Each pair of properly mated shoes shall be tied together by the ends of the laces which shall be inserted through the top eyelet of the quarter of each shoe.

5.1.2 Level C (Commercial packaging) Shoes shall be packaged to afford adequate protection against physical damage during shipment from the supply source to the first receiving activity. The package and quantity per package shall be the same as that normally used by the contractor for retail distribution.

5.1 Packing

* 5.2.1 Level A Twelve pairs of shoes of one size and width only, packaged as specified in 5.1.1, shall be arranged as specified in 5.2.3.1 and packed in a fiberboard shipping container conforming to type CF, class weather-resistant, variety DW, style FOL-L, grade V15c of PPP-B-636. The liner shall conform to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Each container shall have the contents completely covered on the top and bottom with a sheet of commercial grade kraft paper. Each container shall be closed in accordance with Method III, waterproofed in accordance with Method V, and

reinforced in accordance with the appendix of PPP-B-636. Toward the end of the contract or when there are less than the required amount per container of the same size and width, mixed sizes and widths may be packed within the same container. The approximate inside dimensions of the shipping container shall be as specified in 5.2.3.

* 5.2.2 Level B Twelve pairs of shoes of one size and width only, packaged as specified in 5.1.1 shall be arranged as specified in 5.2.3.1 and packed in a fiberboard shipping container conforming to type CF, class domestic, variety DW, grade 275, style FOL-L of PPP-B-636. The liner shall conform to type CF, class domestic, variety DW, grade 275 of PPP-B-636. Each container shall have the contents completly covered on the top and bottom with a sheet of commercial grade kraft paper and shall be closed in accordance with Method II as specified in the appendix of PPP-B-636. Toward the end of the contract or when there are less than the required amount per container of the same size and width, mixed sizes and widths may be packed within the same container. The approximate inside dimensions of the shipping container shall be as specified in 5.2.3.

* 5.2.3 Shipping container dimensions The approximate inside dimensions for shipping containers are as follows and are furnished as a guide only.

Shoe size, all widths 1/	Length	Width	Depth
5 through 8 1/2	23 1/2	15	13 1/2
9 through 12	23 1/2	15	15

1/ For shoe sizes below 5 and above 12, the contractor shall determine the size container to use. The dimensions of the container shall be such that it will result in a snug fit of the shoes to be packed therein. The use of blocking materials to accommodate small size boots in an oversize container will not be permitted.

* 5.2.3.1 Packing arrangement Arrangement of shoes within the shipping container shall be in four layers of three pairs per layer on their sides with the first layer started by placing the left shoe in the left-hand end of the container with the heel toward the front and the sole facing left, and the right shoe laid over the quarter of the left shoe in the same manner. Two more pairs shall be placed in a like manner to complete the first layer. Care shall be taken that the first layer is properly spaced in order to facilitate the packing of the other three layers. The second layer shall start at the left by placing the right shoe with the heel toward the rear, the top facing left, and the sole face to face with the heel of the second shoe in the first layer, and so on to complete the layer. The third layer shall be placed exactly as the first and fourth layer shall be the same as the second. (see figure 2).

5.2.4 Level C (Commercial packing) The shoes preserved-packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The quantity per shipping container shall be the same as that normally used by the contractor for retail distribution. Containers shall comply with the US Postal Service Manual, Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

5.3 Marking In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129.

5.3.1 Width marking Following the nomenclature and size designation, in the same size lettering, the width shall be spelled out, i.e., "EXTRA NARROW", "NARROW", "REGULAR", "WIDE", or "EXTRA WIDE".

5.3.2 Labels, mixed sizes Each shipping container packed with mixed sizes only, shall have securely attached to the end and size, directly under the printing or stenciling, a white paper label 5 by 4 inches with the words "MIXED SIZES" plainly stamped or printed thereon, and under these words shall be legibly stamped or printed the correct quantity of pairs and sizes contained therein.

6. NOTES

6.1 Intended use The safety shoes covered by this specification are intended for use by personnel of the Department of Defense.

6.2 Ordering data Procurement documents should specify the following:

a. Title, number and date of this specification.
b. Sizes and widths required (see 1.2).
c. Whether first article sample is required (see 3.2).
d. Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

6.3 Samples For access to samples, address the procuring officer issuing the invitation for bids.

6.4 Satra scale The Satra scale may be obtained from the British shoe and Allied Trade Research Association, Satra House, Kettering, Northants England or may be obtained from Bata Engineering, Batawa, Ontario, Canada.

* 6.5 Suppliers of component parts To obtain a list of approved component parts suppliers write to: Navy Clothing and Textile Research Facility, 21 Strathmore Road, Natick, MA 01760. The list is available only to indicate a possible source of supply. Any unlisted supplier with a similar item that is equal to or better than the approved supplier's item will also be acceptable.

* 6.6 Fiberglass shank A fiberglass shank manufactured by American Shoe Machinery Co., 30 Nashua Street, Woburn, MA. 01801, under their designation "TRU-FIT", has been found to meet the requirements of 3.3.16.2.

6.7 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 inacuracies 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.

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Air Force - 99

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Navy - AS
Air Force - 11
DLA - CT

User activities:
Navy - YD, CG, MC, OS, MS

Preparing activity:
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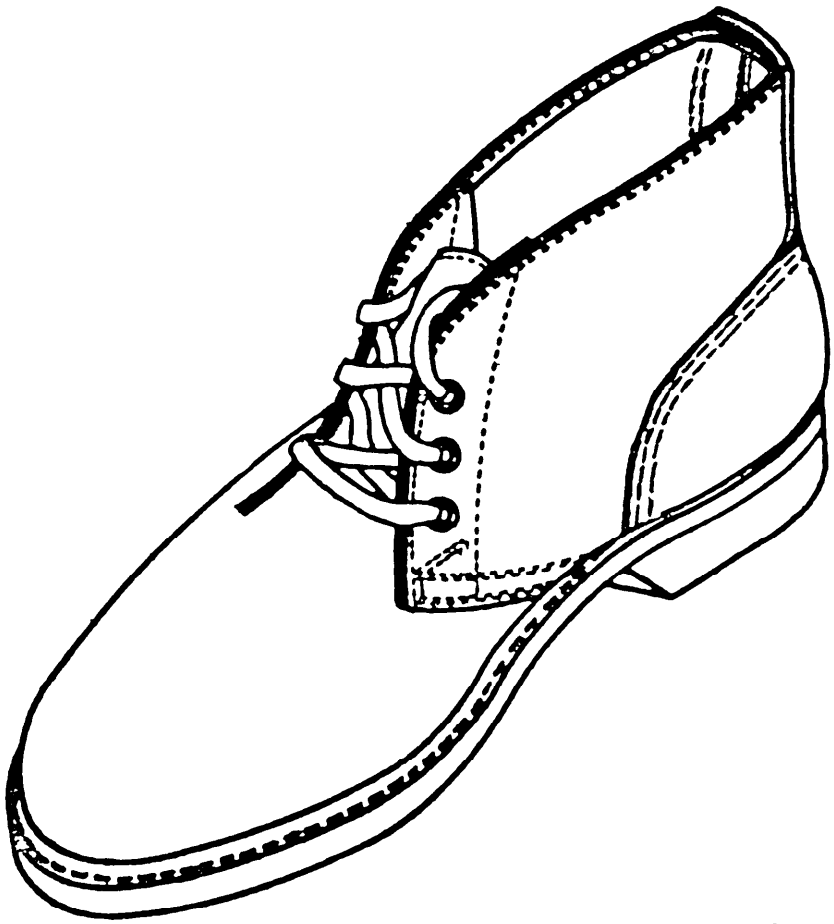

NOTE: specified option permits top edge of quarter and eyelet row edge of quarter to be an unfolded edge.

FIGURE 1 - SHOES, SAFETY, CHUKKA

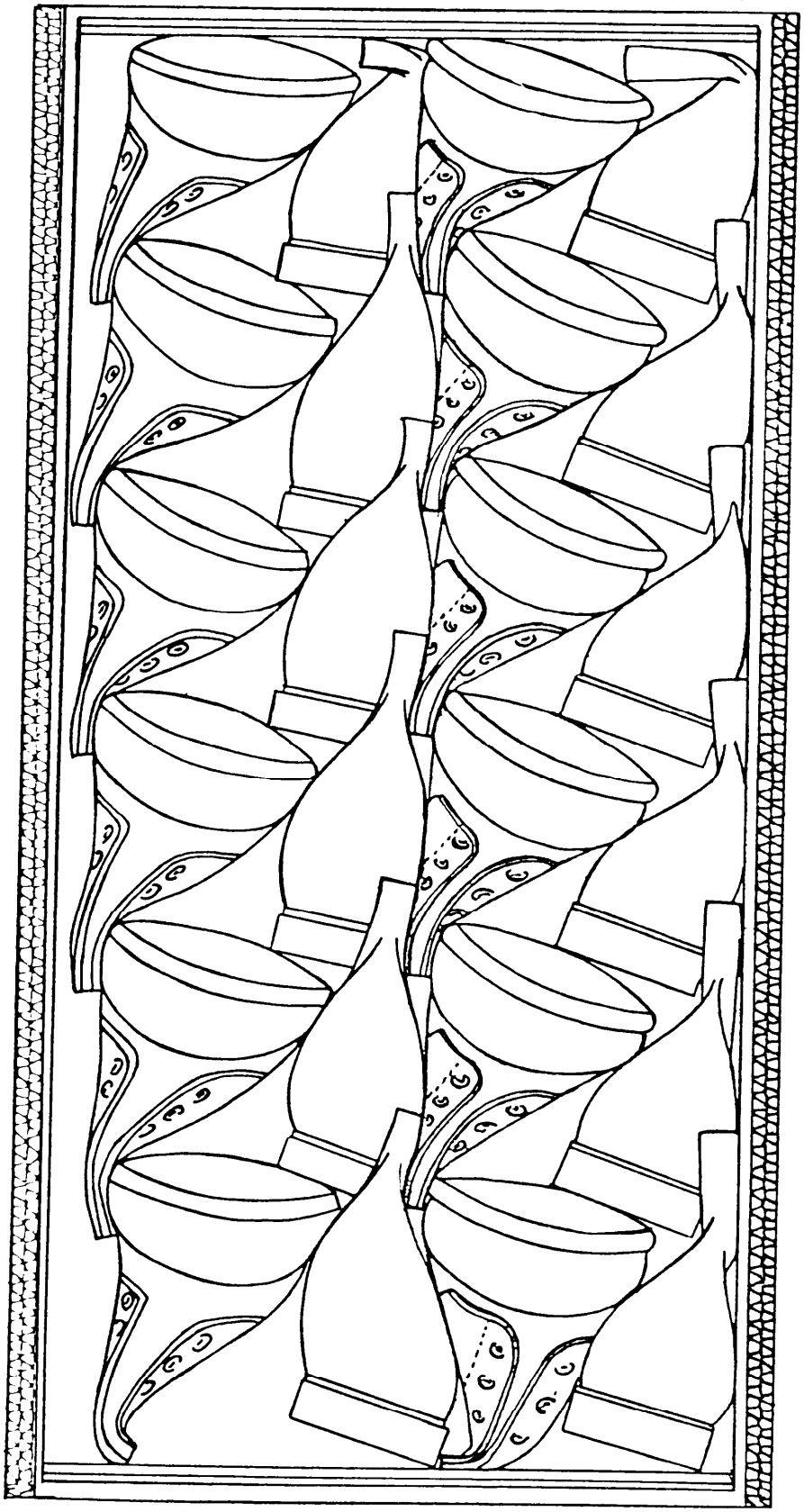

FIG. 2 - SHOE ARRANGEMENT WITHIN SHIPPING CONTAINER (SIDE REMOVED)

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NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

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