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 SUPERSEDING
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MILITARY SPECIFICATION

LAST, FOOTWEAR (SHOE, WOMEN'S, OXFORD)

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 plastic footwear lasts used in the manufacture of footwear for female personnel.

*1.2 Classification. The lasts shall be of one type in the following sizes and widths as specified (see 6.2).

Schedule of sizes and widths

Widths	SIZES															
	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½
AAAAA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAAA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
D	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
EE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

2. APPLICABLE DOCUMENTS

*2.1 Issues of documents. The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Officer in Charge, Navy Clothing and Textile Research Facility, 21 Strathmore Road, Natick, MA 01760, or by using the self-addressed standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-L-21635D

SPECIFICATIONS

FEDERAL

- V-T-276 - Thread, Cotton
- CCC-C-467 - Cloth, Burlap, Jute (or Kenaf)

STANDARDS

FEDERAL

- FED-STD-751 - Stitches, Seams, and Stitchings

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection
by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-130 - Identification Marking of US Military Property

(Copies of specifications, standards, drawings and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed the 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 identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD

- D1248-74 - Polyethylene Plastics Molding and Extrusion Materials
- E18-74 - Rockwell Hardness and Rockwell Superficial Hardness of
Metallic Materials

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

MIL-L-21635D

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Attn: Traffic Department, 1616 P Street, NW, 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 samples. Samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variations from this specification may appear in the sample, in which case this specification shall govern.

3.2 First article. When specified (see 6.2), the contractor shall furnish sample unit(s) for the first article inspection and approval (see 4.2).

3.3 Material.

*3.3.1 Polyethylene blocks. The lasts shall be made from polyethylene blocks. The polyethylene blocks shall be made from solid high density polyethylene without fillers, conforming to types III or IV (except that the density of type IV shall not exceed 0.965), category 4 or 5 of ASTM D1248-74. The color shall be the standard color used by the contractor. The blocks shall be made from virgin material or reground scrap material of the same composition produced by regrinding clean unburned scrap produced in the fabrication of last blocks, finished lasts, and imperfect lasts. Scrap containing dirt or other foreign material shall not be used.

3.3.2 Metal hinges. The metal hinges shall be a commercial type, made of steel, and zinc chromated to resist moisture.

*3.3.3 Hinge pins. The hinge pins shall be made of steel wire and shall be heat treated to a hardness value of 45 to 50 Rockwell C scale when tested as specified in 4.3.1. The pins shall be not less than 15/64 inch nor more than 19/64 inch in diameter. The pins shall be countersunk under the surface of the sides of the lasts. The pins shall be zinc chromated to resist moisture and shall be mechanically peened.

MIL-L-21635D

3.3.4 Thimbles The thimbles shall be manufactured from steel sheet or tubing stock, and shall be heat treated to a hardness value of 55 to 88 Rockwell B scale when tested as specified in 4.3.1. The thimbles shall be either drawn, split, or swaged tubing types. All thimbles shall be full-flanged with a closed or a partially closed bottom, and shall be the lock-in type. Dimensions for last thimbles shall correspond to the following when tested as specified in 4.3.1.

Inside diameter - 0.500 (+ 0.046) inch
 Overall length - 1.625 (+ 0.063) inches
 Depth of hole - 1.500 (+ 0.063) inches
 Wall thickness - 0.0475 to 0.950 inch
 Flange diameter - 0.750 (+ 0.063) inch

3.3.5 Heelplates The heelplates shall be not less than 2 9/16 inches long on size 4 1/2 B and shall measure proportionate to normal grade on other sizes, and shall have a 1/2 (+ 1/32) inch hole in the center for insole tacking and five countersunk nail holes as specified in 3.5.3. The heelplates shall be made from either hot-galvanized or electrogalvanized sheet steel, 0.050 (+ 0.005) inch thick and shall be treated to a hardness value of 48 to 67 Rockwell B scale when tested as specified in 4.3.1.

3.3.6 Heelplate attaching nails. The nails for attaching the heelplate on lasts shall be 15 or 16 gage, 5/8 to 3/4 inch long barbed, iron wire nails with 1/8 (+ 1/32) inch diameter flat heads; shall have a ringed chisel points; and shall not be cement coated when tested as specified in 4.3.1.

3.3.7 Ink. Ink for marking the lasts shall be black, shall not blur, shall meet the marking adhesion requirements in 3.9.1, and shall be set permanently into the plastic by heat.

3.4 Models, patterns, and templates.

3.4.1 Turning models. Turning models for each size and width required will be furnished by the Government (see 6.4). Turning models shall be in whole sizes and widths specified in the schedule of sizes, with the final measurement for the last of that size plainly marked on each model. Sizes 4 to 5 1/2 shall be turned on size 4 model; sizes 6 to 8 1/2 shall be turned on size 7 model; sizes 9 to 11 1/2 shall be turned on size 10 model. No last shall be turned from a model of a different width.

3.4.2 Replacement of turning models. Models worn to the point of un-serviceability in the production of properly graded lasts will be replaced by the Government. All models shall be returned to the Government at the close of the contract. Worn models that need replacement shall be marked "Unserviceable".

MIL-L-21635D

*3.4.3 Last bottom patterns. Necessary turning bottom patterns and finished bottom patterns will be loaned to the contractor by the Government (see 6.4). When prehinging method is used, the turning bottom patterns do not apply.

3.4.4 Templates. Templates for use in checking the lasts will be loaned to the contractor by the Government. (see 6.4).

3.5 Construction.

*3.5.1 Hinge cutting, slotting, and assembly. The hinge V-cut and circle sawcut shall correspond to the hinge pin holes so that the last, with a correctly inserted hinge, will open and close in a satisfactory manner. All inside sharp corners on the plastic lasts shall have a slight radius made by running over the edge with a hot wire to eliminate stress risers made by cutters during the hinge cutting operation. The use of a radius ground cutter to eliminate stress risers shall be permitted. As an alternate, the equipment and method used for prehinging is permitted.

3.5.2 Thimble hole. The thimble hole shall be bored to such a size that when the thimble is inserted in the plastic last, it shall be locked into the plastic. Thimbles shall be countersunk on plastic lasts. On sizes 7 1/2 through 11 1/2 (all widths), the thimble holes shall be centered 1 1/2 (+ 1/16) inches from the back of the last top. On sizes below 7 1/2 (all widths) the holes shall be centered 1 3/8 (+ 1/16) inches from the back of the last top.

3.5.3 Heelplating. The heelplate on the finished last shall be flush with, but not overlaying, the outside edge of the last. A narrow margin of plastic, having a maximum width of not more than 1/16 inch in the curved area beginning 3/8 inch from the breast line of the plate, is acceptable. The margin of plastic in the area 3/8 inch from the breast line on each side of the plate is not limited. The breast of the heelplate shall butt up to the plastic. The heelplate shall be attached with five nails of the type specified in 3.3.6. The position of the heel nails shall be according to industry practice with countersunk nail holes punched not less than 3/8 inch or more than 5/8 inch from the edge of the plate, except that the two front nail holes shall be not less than 3/16 inch nor more than 3/8 inch from the breast of the heelplate. The side nails shall be located equidistant between the breast nails and the back nail. The heelplate shall be punched with a 1/2 (+ 1/32) inch tack hole located approximately in the center of the heelplate, measuring both from the breast to the end of the heelplate and from side to side. The heelplate shall be cupped to conform to the contour of the heel seat of the last.

3.5.4 Heel and toe making. The heel and toe shall be shaped following the heel and toe profile templates.

MIL-L-21635D

3.6 Measurements and grading. The contractor shall check the turning models but shall make no modifications except for slight adjustments to fit the turning model bottom to the paper last bottom patterns furnished by the Government. The finished lasts shall conform to the measurements specified in Table I. Bottoms for size 4 lasts shall grade the same from width AAAAAA to B; the length of C shall be $1/24$ inch longer than B; the length of D shall be $1/12$ inch longer than B; and the length of E to EE shall be $3/24$ inch longer than B. There shall be a $1/4$ inch size break on size 10. Ball, waist and instep girths shall grade $1/4$ inch between whole sizes, $1/4$ inch between widths AA to D, $3/16$ inch between widths AAAAAA to AA, and E to EE. Heel girths shall grade $1/8$ inch between widths and $13/32$ inch between whole sizes. Thickness of the toes shall grade $1/64$ inch between widths and $1/64$ inch between whole sizes. The stick lengths shall be as specified in Table I. The ball widths shall grade $1/16$ inch between widths.

Table I - Table of measurements 1/

Size	Width	Ball girth	Waist girth	Instep girth	Heel girth	Size stick length measurement
4	AAAAAA	6 9/16	6 3/8	6 15/16	11 1/16	2 1/4
	AAAA	6 3/4	6 9/16	7 1/8	11 3/16	2 1/4
	AAA	6 15/16	6 3/4	7 5/16	11 5/16	2 1/4
	AA	7 1/8	6 15/16	7 1/2	11 7/16	2 1/4
	A	7 3/8	7 3/16	7 3/4	11 9/16	2 1/4
	B	7 5/8	7 7/16	8	11 11/16	2 1/4
	C	7 7/8	7 11/16	8 1/4	11 13/16	2 3/8
	D	8 1/16	7 7/8	8 7/16	11 15/16	2 1/2
	E	8 1/4	8 1/16	8 5/8	12 1/16	2 5/8
	EE	8 7/16	8 1/4	8 13/16	12 3/16	2 5/8
7	AAAAAA	7 5/16	7 1/8	7 11/16	12 1/4	5 1/4
	AAAA	7 1/2	7 5/16	7 7/8	12 3/8	5 1/4
	AAA	7 11/16	7 1/2	8 1/16	12 1/2	5 1/4
	AA	7 7/8	7 11/16	8 1/4	12 5/8	5 1/4
	A	8 1/8	7 15/16	8 1/2	12 3/4	5 1/4
	B	8 3/8	8 3/16	8 3/4	12 7/8	5 1/4
	C	8 5/8	8 7/16	9	13	5 3/8
	D	8 13/16	8 5/8	9 3/16	13 1/8	5 1/2
	E	9	8 13/16	9 3/8	13 1/4	5 5/8
	EE	9 3/16	9	9 9/16	13 3/8	5 5/8
10	AAAAAA	8 1/16	7 7/8	8 7/16	13 1/2	8 1/4
	AAAA	8 1/4	8 1/16	8 5/8	13 5/8	8 1/4
	AAA	8 7/16	8 1/4	8 13/16	13 3/4	8 1/4
	AA	8 5/8	8 7/16	9	13 7/8	8 1/4
	A	8 7/8	8 11/16	9 1/4	14	8 1/4

MIL-L-21635D

Table I - Table of measurements 1/ (cont'd)

Size	Width	Ball girth	Waist girth	Instep girth	Heel girth	Size stick length measurement
10 (cont'd)	B	9 1/8	8 15/16	9 1/2	14 1/8	8 1/4
	C	9 3/8	9 3/16	9 3/4	14 1/4	8 3/8
	D	9 9/16	9 3/8	9 15/16	14 3/8	8 1/2
	E	9 3/4	9 9/16	10 1/8	14 1/2	8 5/8
	EE	9 15/16	9 3/4	10 5/16	14 5/8	8 5/8

1/ The tolerance for the finished stick length, ball, waist, instep and heel girth shall be ($\pm 1/32$) inch. Finished last bottoms shall conform to measurements of finished last bottom patterns furnished by the Government with a tolerance of ($\pm 1/32$) inch in length and a ($\pm 1/48$) inch in width.

3.7 Marking.

3.7.1 Size and width stamping. The sawcut of the heel part shall be clearly and legibly rubber-stamped with the proper size of the last, using ink specified in 3.3.7. The numerical size shall be stamped on the left of the hinge cut and start no more than 3/16 inch from the bottom of the sawcut. The width shall be stamped on the heel part of the sawcut at the right side of the available space and placed so that bottoms of letters are within 1/16 inch of the top of last. On five-letter and four-letter width, the stamping may be done using 5A and 4A in lieu of AAAAA and AAAA. Characters for sawcut stamping shall be not less than 1/2 inch nor more than 3/4 inch in height and not less than 1/4 inch nor more than 3/8 inch in width. All sawcut stamping shall be readable when viewed from directly above the thimble. In addition to the stamping on the sawcut, the size and width designations shall be plainly rubber-stamped on the outside of the last, just ahead of the sawcut, 1 1/2 ($\pm 1/2$) inches from the top of the cone, to read horizontally. Characters for this stamping shall be same size as for sawcut stamping. The width designation shall be on a line with the size designation. The size and width shall be clearly and legibly die stamped (incised) on the forepart of the last in the hollow area at the lowest point on profile line from cone to toe. Ink marking on last shall be permanently set into the plastic by heat (see 3.3.7).

MIL-L-21635D.

3.7.2 Marking for identification. In accordance with MIL-STD-130, an identifying inscription shall be marked (incised) with a die stamp on the outside surface of each last, using not less than 1/2 inch nor more than 3/4 inch characters. The inscription shall be as follows: "US MIL-W-1." In addition, the name or symbol of the contractor shall be plainly rubber-stamped on the inside surface of the back part of each last using ink specified in 3.3.7.

3.8 Finish. The lasts shall be clean, free of plastic hairs, strings, flash or sprues and shall have no prominent turning gouges of any kind on the surface. All sharp edges in V-cut or sawcut shall be given a noticeable radius. Depressions, bumps or holes of any kind arising from improper turning or interior voids in the block which appear on the surface of the last shall be cause for rejection.

3.9 Physical requirements.

3.9.1 Resistance to acetone. The marking on finished plastic lasts shall show no change in appearance when tested as specified in 4.3.5.

3.9.2 Resistance to impact. The finished plastic last shall show no chipping or cracking, or be deformed so as to be unserviceable when tested as specified in 4.3.5.

3.9.3 Hinge performance. The finished plastic lasts shall show no cracking, breaking, chipping or other defect which would make the last unserviceable when the last is broken and reclosed 100 times as specified in 4.3.5.

3.9.4 Tack resistance. The finished plastic last shall show no splitting, chipping, cracking or other defects which would render the last unserviceable when tested with insole tacks as specified in 4.3.5.

* 3.10 Replacement of defective components. During the manufacturing process, components having material defects or damages that are classified as defects in 4.3.3.1 shall be removed from production and replaced with non-defective and properly matched components.

3.11 Workmanship. The finished lasts 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

MIL-L-21635D

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. When 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. When required (see 6.2), the first article submitted in accordance with 3.2 shall be visually inspected as specified in 4.3.3.1 and 4.3.3.2 for compliance with design, construction, workmanship and dimensional requirements. The first article shall consist of two finished pairs of lasts (one pair from sizes 5 1/2 thru 8 and one pair from sizes 10 and over) in any width. The contracting officer shall include specific instructions in all procurement instruments regarding arrangements for examination, test, and approval of the first article.

4.3 Quality conformance inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated herein.

*4.3.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be inspected in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document. In addition, testing shall be performed on components and materials listed in Table II. All test reports shall contain the individual values utilized in expressing the final result. All requirements are applicable to the sample unit. The lot shall be unacceptable if one or more sample units fail to meet any requirement specified. The sample size shall be as follows:

<u>Lot size</u>	<u>Sample size</u>
800 or less	2
801 thru 22,000	3
22,001 and over	5

MIL-L-21635D

Table II - Testing of components

Component and lot size expressed in terms of	Characteristic	Requirement paragraph	Test method	No. of determinations per sample unit	Results reported as		Sample unit
					Pass or fail	Numerically	
Plastic block	Material identification	3.3.1	1/	-	-	-	-
	Density	3.3.1	D1248-74 1/2/	-	-	-	-
Hinge metal	Material identification	3.3.2	1/	-	-	-	-
	Zinc chromated	3.3.2	1/	-	-	-	-
Hinge pin (1 gross)	Material identification	3.3.3	1/	-	-	-	(1 pin)
	Hardness value	3.3.3	E 18-74 2/ 1/gage 1/	3	-	Avg. hardness No.	
	Diameter	3.3.3		-	-	-	
	Zinc chromated	3.3.3		-	-	-	
Thimble (1 gross)	Material identification	3.3.4	1/	-	-	-	(1 thimble)
	Hardness value	3.3.4	E 18-74 2/ Gage Gage Gage Gage Gage	3	-	Avg. hardness No.	
	Inside diameter	3.3.4		1	X	-	
	Overall length	3.3.4		1	X	-	
	Depth of hole	3.3.4		1	X	-	
	Wall thickness	3.3.4		1	X	-	
	Flange diameter	3.3.4		1	X	-	

Table II - Testing of components (cont'd)

Component and lot size expressed in terms of	Characteristic	Requirement paragraph	Test method	No. of determinations per sample unit	Results reported as	
					Pass or fail	Numerically
Heelplate (1 gross)	Material identification	3.3.5	1/	-	-	-
	Hardness value	3.3.5	E 18-74	3	-	Avg. hardness No.
	Thickness	3.3.5	2/ 1/	-	-	-
	Galvanized	3.3.5	1/	-	-	-
Nails (1 lb.)	Material identification	3.3.7	1/	-	-	-
	Finish	3.3.7	1/	-	-	-
	Length and head diameter	3.3.7	Gage	2	X	-

1/ A certificate of compliance shall be submitted and will be acceptable for the stated requirement.
 2/ Refers to ASTM Standard.

MIL-L-21635D

4.3.2 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 accomplished as specified. The Government reserves the right to exclude from consideration for acceptance any material or services for which in-process inspection has indicated non-conformance.

4.3.3 Examination of the end item. The defects found during examinations shall be classified in accordance with 4.3.3.1 and 4.3.3.2. The inspection levels and acceptable quality levels shall be as indicated in 4.3.3.3. The sample unit shall be one completely fabricated last and selection shall be made by pairs. The lot size shall be expressed in units of one last.

* 4.3.3.1 Visual examination

<u>Examine</u>	<u>Defect</u>
I Finish	<ol style="list-style-type: none"> 1. Contains plastic hairs, strings, flash or sprues. 2. Prominent turning gouge on surface. 3. Depression, bump, hole or void.
II Construction and workmanship	<ol style="list-style-type: none"> 1. Surface of last that will come in contact with the footwear, not smoothly finished, i.e., protrusion or rough area. 2. Part misplaced or out of alignment. 3. Heel end and forepart of last not joined flush, i.e., any step or ridge over 1/64 inch in the outside joint area that will come in contact with the footwear. 4. Part not a good flush fit where required, i.e., the breast of heelplate to plastic. 5. Part not recessed in plastic where required, or not recessed to the specified dimension. 6. Operation omitted or not properly performed. 7. Functioning part that will not operate as required or requires abnormal force to operate. 8. Nail missing, head bent over, or protruding. 9. Nail misplaced. 10. Sharp edge. 11. Margin of plastic along back and side edge of heelplate beginning 3/8 inch from breastline, is more than 1/16 inch. 12. Part missing or damaged.
III Marking	Omitted, incorrect, illegible, incomplete, not accomplished in specified manner, size of characters not as specified, or not in proper location.

4.3.3.2 Dimensional examination. The last shall be examined for defects in dimensions. Any dimension that is not within the specified tolerance shall be classified as a defect.

MIL-L-21635D

4.3.3.3 Inspection level and acceptable quality level (AQL). The inspection levels and the AQL's expressed in defects per hundred units shall be as follows:

	<u>Inspection level</u>	<u>AQL</u>
Visual examination in 4.3.3.1	II	4.0
Dimensional examination in 4.3.3.2	S-3	4.0

4.3.4 Packaging inspection. An examination shall be made to determine that the packing and marking comply with the Section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping bag fully packaged, except that it need not be closed. Defects of closure listed below shall be examined on shipping bags fully packaged. The lot size shall be the number of shipping bags in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per hundred units.

<u>Examine</u>	<u>Defect</u>
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing, damaged or not as specified.
Workmanship	Seams and stitchings of bags not as specified. Inadequate application of components such as: closure of bags not as specified or incomplete.
Content	Number of pairs of lasts per bag is more or less than required. Wrong size or width of pairs of lasts included in bag.

*4.3.5 Testing of the end item. The end product shall be tested for the characteristics indicated in Table III. All test reports shall contain the individual values utilized in expressing the final results. For each test characteristic, one test determination shall be made and the results shall be reported as pass or fail. The requirements are applicable to the sample unit for all test characteristics. The sample unit shall be four lasts. The lot size shall be expressed in units of one last. The lot shall be unacceptable if one or more sample units fail to meet any requirement specified. The sample size shall be as follows:

<u>Lot size</u>	<u>Sample size</u>
800 or less	2
801 thru 22,000	3
22,001 and over	5

MIL-L-21635D

Table III - Testing of the end item

End item	Characteristic	Requirement paragraph	Test method
Finished last	Resistance to acetone	3.9.1	4.4.1
	Resistance to impact	3.9.2	4.4.2
	Hinge performance	3.9.3	4.4.3
	Tack resistance	3.9.4	4.4.4

*4.4 Tests.

4.4.1 Test for resistance to acetone. The finished last shall be wet in a test area including marking, with acetone for 5 minutes (e.g., using soaked cotton wad). The finish shall be tested by attempting to scrape through the test area with the thumbnail. The last shall be examined for softening of the finish, change in marking, and change in appearance from adjacent finish.

4.4.2 Test for resistance to impact. The finished last shall be tested by dropping an eight pound solid iron or steel ball so as to strike the last in the following spots (the ball shall be dropped from a height of two feet, measured between the bottom of the ball and the point of impact on the last):

(a) With the last resting on its side, the ball shall strike over the rear hinge pin hole, over the front hinge hole, and at the edge of the ball line midway between the hinge and the toe.

(b) With the last resting on the heel end, the ball shall strike the last on the tip of the toe.

Tests shall be repeated three times in each spot. In the (a) position, repeat on both the outside and inside of the last. The last shall be inspected for breaking, splitting, cracking or other defects rendering the last unserviceable other than directly at the impact area.

NOTE: The last may conveniently be held by a large C-clamp between the thimble and the heelplate and shall be placed on a concrete floor.

4.4.3 Test for hinge performance. The last shall be placed on a regular last spindle and shall be broken and reclosed 100 times. This may be done by an appropriate hydraulic or mechanical mechanism. Examination shall be made for defects developed by this test.

MIL-L-21635D

4.4.4 Test for resistance to tacks. The finished last shall be tested by driving insole tacks into the bottom surface of the last, 1/4 inch in from the edge, around the periphery from inside to outside ball area. The tacks shall be driven 1/4 inch deep and shall be spaced 1/2 inch apart.

5. PACKAGING

5.1 Packing. Packing shall be level B or C as specified (see 6.2).

5.1.1 Level B. Twenty-four pairs of lasts, of one size and width only, shall be packed in a bag fabricated from jute, kenaf or burlap cloth conforming to class 4 of CCC-C-467. The sides and bottoms of the bags shall be seamed with seam type SSd-1 or SSn-1 and with stitch type 101 or 401 conforming to FED-STD-751. The edges of the material shall be turned 3/8 to 1/2 inch and the stitching placed 3/16 to 5/16 inch from the turned edge of the bag. The thread for seaming the bags shall be cotton thread conforming to type IIIA of V-T-276. Ticket No. 10, five ply thread shall be used as the needle thread for stitching type 101 and 401. Ticket No. 10, three ply thread shall be used as the looper thread for stitch type 401. The seam shall be sewn with 3 to 6 stitches per inch. Each bag shall be closed with two wire ties. Five inches of surplus covering shall be gathered together to form an ear with the first wire tie applied as close to the ear base as possible. The second wire tie shall be approximately one inch from the first wire tie, with the twisted ends positioned opposite to the ends of the first wire tie. The wire ties shall be not less than six inches long and made of 0.072 inch diameter soft iron or steel wire with a 1/2 inch diameter formed eye at each end.

5.1.2 Level C (Commercial). Lasts shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The container and quantity per container may 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.

5.2 Marking. In addition to any special marking required by the contract, shipments shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The lasts are intended for use as a base over which oxford dress shoes for female military personnel of the Department of Defense may be manufactured.

MIL-L-21635D

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. When a first article is required (see 3.2 and 4.2).
- d. Selection of applicable level of packing (see 5.1).

6.3 Sample. For access to guide sample, address the procuring activity issuing the invitation for bids.

6.4 Government furnished property. (To be loaned by the Government to the contractor for life of contract in sizes necessary for performance of contract).

- a. Last turning models.
- b. Bottom patterns, turning.
- c. Bottom patterns, finished.
- d. Heel curve templates.
- e. Toe curve templates.

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

Custodians:

Army - GL
Navy - NU
Air Force - 99

Preparing activity:

Navy - NU

Project No. 8335-0128

Review activity:

Air Force - 11

User activity:

Navy - MC

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DOCUMENT IDENTIFIER (Number) AND TITLE

MIL-L-21635D LAST, FOOTWEAR (SHOE, WOMEN'S, OXFORD)

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

☐ VENDOR ☐ USER ☐ MANUFACTURER

1. ☐ HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? ☐ IS ANY PART OF IT TOO RIGID, RESTRICTIVE, LOOSE OR AMBIGUOUS? PLEASE EXPLAIN BELOW.

A. GIVE PARAGRAPH NUMBER AND WORDING

B. RECOMMENDED WORDING CHANGE

C. REASON FOR RECOMMENDED CHANGE(S)

2. REMARKS

SUBMITTED BY (Printed or typed name and address — Optional)

TELEPHONE NO.

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DD FORM 1426

1 OCT 76

Replaces edition of 1 Jan 72 which may be used.

S/N 0102-LF-001-4260

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