

[INCH-POUND]
 A-A-59519
December 7, 1999
 SUPERSEDING
 MIL-L-27885
 November 25, 1985

COMMERCIAL ITEM DESCRIPTION

LAST, FOOTWEAR FWU-5/P

The General Services Administration has authorized the use of this commercial item description for all Federal agencies.

1. SCOPE. This commercial item description covers the requirements for plastic shoe lasts used in the manufacture of quick-donning, lined and insulated flight boots, type FWU-5/P. The lasts are designated as type FWU-5/P plastic.

2. CLASSIFICATION. The lasts shall be furnished in the following sizes and widths:

Schedule of sizes

5	6-1/2	8	9-1/2	11	12-1/2
5-1/2	7	8-1/2	10	11-1/2	13
6	7-1/2	9	10-1/2	12	13-1/2

Schedule of widths

AA A B C D E EE EEE

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP-CR, 700 Robbins Avenue, Bldg. 6D, Philadelphia, PA 19111-5092.

AMSC N/A

FSC 8335

3. SALIENT CHARACTERISTICS

3.1 Materials.

3.1.1 Polyethylene blocks. The lasts shall be made from polyethylene blocks. The polyethylene blocks shall be made from high-density polyethylene without fillers, density 0.941 to 0.965, grade 4 or 5, melt index 1.9 or less when tested as specified in ASTM-D-1248. The color shall be the standard color used by the contractor. The blocks shall be made from virgin material, or a mixture of virgin material and reground scrap material.

3.1.2 Metal hinges. The metal hinges shall be commercial type, zinc-chromated steel, resistant to moisture, and shall be mechanically peened.

3.1.3 Hinge pins. The hinge pins shall be made of steel wire and heat-treated to a hardness value of 45 to 50 Rockwell C when tested as specified in ASTM-E-18. The pins shall be not less than 15/64 inch or more than 19/64 inch in diameter. The pins shall be countersunk $1/4 \pm 1/8$ inch under the surface of the side of the last

3.1.4 Thimbles. The thimbles shall be manufactured from steel sheet, bar, or tubing stock, and shall be treated to a hardness value of 55 to 85 Rockwell B scale when tested as specified in ASTM-E-18. The thimbles may be made of the drawn, split, bored, or swaged tubing type. All thimbles shall be full-flanged with a closed or partially closed button, and shall be the lock-in type. Dimensions for the last thimbles shall be in accordance to the following dimensions and when tested as specified in ASTM-E-18.

Inside diameter	$1/2 \pm 1/64$ inch
Overall length	$1-5/8 \pm 1/16$ inches
Depth of hole	$1-1/2 \pm 1/16$ inches
Wall thickness	0.0475 to 0.095 inch
Flange diameter	$3/4 \pm 1/16$ inch
Flange thickness	75 to 100 percent of wall thickness

3.1.5 Heelplates. The heelplates shall be not less than 3-1/8 inches long on size 8-D, shall measure proportionate to normal grade on other sizes, and shall have a 1/2 inch hole in the center for insole tacking and five countersunk nail holes. The heelplates shall be made from either hot galvanized or electrogalvanized sheet steel, 0.050 ± 0.005 inch thick. The heelplate shall be heat treated to a hardness value of 48 to 57 Rockwell B scale when tested as specified in ASTM-E-18.

A-A-59519

3.1.6 Plastic plugs. The plugs shall be of the same material as the body of the lasts or other plastic material having Shore Durometer hardness value of not less than 60-D scale when tested as specified in ASTM-D-2240. The plugs shall be $1/2 \pm 1/32$ inch in diameter and $3/8 \pm 1/16$ inch long. The heel plug material shall be a force fit in the drilled tack holes and shall show no evidence of splitting. Testing shall be as specified in paragraph. 5.3.1.

3.1.7 Heelplate attaching nails. The nails for attaching the heelplate on the last shall be 15 or 16 gage, 5/8 to 3/4 inch long, barbed, iron wire nails, with a $1/8 \pm 1/32$ inch diameter flat heads and ringed chisel points and shall not be cement-coated finished.

3.1.8 Ink. Ink for marking lasts shall be black, shall not blur, and shall have sufficient permanence to meet specified requirements.

3.2 Finish. The last shall be clean, free of plastic hairs, strings, flash, or sprues, and have no prominent turning gouges of any kind on the surface. All sharp edges in V-cut or saw-cut shall be given a noticeable radius. The marking and writing on finished last shall show no change in appearance when tested as specified in paragraph 5.3.2. The finished last shall show no chipping or cracking, nor be deformed so as to be unserviceable when tested by impacting with the eight-pound ball as specified in paragraph 5.3.3. The finished last shall show no cracking, breaking, chipping or other defect which would make the last unserviceable when the last is broken and reclosed 100 times when tested as specified in paragraph 5.3.4. The finished last shall show no splitting, chipping, cracking or other defects which would render the last unserviceable when tested with insole tacks as specified in paragraph 5.3.5. Depressions, bumps or holes of any kind arising from improper turning or interior voids in the block which appear at last surface shall be cause for rejection.

3.3 Measurements. The finished last shall conform to the measurements specified in Table I. Variations in the girth measurements for the ball, the waist, and the instep shall not exceed 1/16 inch. Finished last bottom shall have a tolerance of $\pm 1/32$ inch in the length and $\pm 1/48$ inch in the width.

TABLE I. Finished measurements (inches)

Size	Width	Ball	Waist	Instep	Stick
8	AA	8-3/8	8-5/16	8-5/8	8-1/8
8	A	8-9/16	8-1/2	8-13/16	8-1/8
8	B	8-3/4	8-11/16	8-11/16	8-1/8
8	C	8-15/16	8-7/8	8-7/8	8-1/8
8	D	9-3/16	9-1/8	9-1/8	8-1/4
8	E	9-7/16	9-3/8	9-3/8	8-3/8
8	EE	9-5/8	9-9/16	9-9/16	8-1/2
8	EEE	9-13/16	9-3/4	9-3/4	8-5/8

A-A-59519

3.4 Grading. The bottom of the lasts shall grade 1/16 inch between widths. The length of the bottoms shall grade up and down from the "E" model as follows: EE model, 1/24 inch longer; EEE model, 2/24 inch longer, D model 1/24 inch shorter; C model; 2/24 inch shorter; B model, 2/24 inch shorter; A model, 2/24 inch shorter, and AA model, 2/24 inch shorter.

3.5 Marking.

3.5.1 Size and width of stamping. The heel part of the saw cut shall be clearly and legibly rubber-stamped with the correct size of the last. The stamping shall be placed on the left side of the hinge cut and shall start not more than 3/16 inch from the bottom saw cut. The correct alphabetic width (AA, A, B, C, D, E, or EEE) of the last shall be clearly and legibly rubber-stamped on the heel part of the saw cut and shall be placed so that the bottoms of the letters are within 1/16 inch of the top of the last. The size and width shall be clearly and legibly die stamped (incised) on the forepart of the last in the tip line area, for example (10-1/2 AA).

3.5.2 Marking for identification. An identifying inscription shall be marked (incised) with a die stamp on the outside surface of the heel of each last using not less than 3/8 inch nor more than 1/2 inch characters. The inscription shall be as follows:

TYPE NO. FWU-5/P
U.S.

In addition, the name or symbol of the manufacturer shall be die stamped on the inside surface of the heel part of each last.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. QUALITY ASSURANCE PROVISIONS

5.1 Product conformance. The contractor shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices. The Government reserves the right to require proof of such conformance.

5.2 Visual examination. Each last shall be examined for the defects listed below.

5.2.1 Defects.

Finish	contains plastic hairs, strings, flash or sprues; depressions, bumps holes or void; prominent turning gouge on surface.
--------	---

A-A-59519

Construction and workmanship	any surface of last that will come in contact with the shoe; any part misplaced or out of alignment; heel end and forepart of last not joined flush; any part not a good flush fit where required; any part loose; any part not recessed in plastic where required, or not recessed to the specified dimension; any operation omitted or not properly performed; any functioning part that will not operate as required; any part missing or damaged; any nail missing; head bent over, or protruding; more than one nail misplaced; margin of plastic along back and side edges of heelplate beginning 3/8 inch from breast line in more than 1/16 inch.
Marking	omitted, incorrect, illegible, incomplete, not accomplished in specified manner, size of characters not as specified; not in proper location.

5.3 Testing.

5.3.1 Test for composition plastic heel plug. The plastic heel plug in the finished last shall be subjected to the insertion of a 2-1/2 ounce shoe tack for at least 1/4 inch. The last shall be examined for evidence of the plastic heel splitting.

5.3.2 Test for resistance to acetone. The finished last shall be wet in a test area including marking with acetone for 5 minutes. 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 the marking and change in appearance from adjacent finish.

5.3.3 Impact on plastic lasts. The finished last shall be tested by dropping an 8-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 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 (3) 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 heel plate and shall be placed on a concrete floor.

5.3.4 Test of hinge. The last shall be placed on a regular last spindle and shall be broken and reclosed 100 times. This may be done by hand or by an appropriate hydraulic or mechanical mechanism.

A-A-59519

5.3.5 Test for resistance to tacks. The finished last shall be tested by driving 2-1/2 ounce 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.

5.4 Acceptance criteria. Acceptance criteria shall be as specified in the contract or purchase order.

6. PACKAGING

6.1 Preservation, packing, and marking. The preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES

7.1 Source of Government documents. Copies of military and Federal documents are available from:

Standardization Documents Order Desk
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

7.2 Source of non-Government documents

ASTM-D-1248	-	Specification for Polyethylene Plastics Molding and Extrusion Materials
ASTM-D-2240	-	Test for Rubber Property – Durometer Hardness
ASTM-E-18	-	Test for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

(Applications for copies should be addressed to American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.)

7.3 Suggested sources. In a limited market search for lasts that meet the salient characteristics of this commercial item description, the following manufacturers are listed below. It must be noted that this list is not all-inclusive and that there may be other manufacturers in the marketplace with a suitable product.

Jones and Vining, Braintree, MA 02184
Seano Custom Lasts, Manchester, NH 03103
Sterling Last Corporation, Rockville, NY 11570
Vulcan Corporation, Cincinnati, OH 45202

A-A-59519

MILITARY INTERESTS:

Custodians

Air Force - 99

Review Activities:

Air Force - 45, 82

CIVIL AGENCY COORDINATING
ACTIVITY:

GSA - FSS

PREPARING ACTIVITY:

DLA - CT

Project 8335-0186