

[INCH-POUND]  
A-A-59520  
November 30, 1999  
SUPERSEDING  
MIL-O-43995C  
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## COMMERCIAL ITEM DESCRIPTION

### OVERSHOES, MEN'S AND WOMEN'S, BOOT, COMBAT

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 a slip resistance, fuel resistant, chemical protective, molded vinyl plastisol overshoe.
2. **CLASSIFICATION.** The overshoe shall be available in the following sizes:

#### Schedule of sizes

3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

### 3. SALIENT CHARACTERISTICS

3.1 Description. The overshoe shall be a vinyl plastisol, slush or injection molded, pull-on type with a folded gusset and three buttons on each side of the gusset. Closure shall be accomplished with three fastening loops. The design of the overshoe shall be as shown on Drawing 2-1-1371.

#### 3.2 Materials.

3.2.1 Vinyl. The molding compound shall consist of virgin vinyl resins, plasticizers, stabilizers, and pigments which are suitable for either slush or injection molded overshoes. The requirements shall be as specified in Table I.

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 Textile Directorate, Bldg 6D, ATTN: DSCP-CRFD, 700 Robbins Avenue, Philadelphia, PA 19111-5092.
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TABLE I. Physical Requirements (End Item)

Characteristic	Requirements	Test method
Tensile strength:		
100% elongation	250 psi (min.) 500 psi (max.)	ASTM-D-638 <u>1/</u>
At break	900 psi (min.)	ASTM-D-638 <u>1/</u> <u>2/</u>
100% elongation after immersion in Medium No. 6	125% (max.)	see para. 3.3.4
Elongation at break, percent	300 (min.)	ASTM-D-638 <u>1/</u>
Tear strength, lb./in.	110 (min.)	ASTM-D-1004 <u>1/</u> <u>3/</u>
Hardness (Shore A Durometer)	65 (max.)	ASTM-D-2240
Brittleness temperature	-40°C or lower	ASTM-D-746
Leakage	no evidence	see para. 3.3.5
Mustard (HB), break time in minutes	210 (min.)	T204 or T209 <u>4/</u> <u>5/</u>
GB resistance, break time in minutes	360 (min.)	T206 or T208 <u>4/</u> <u>5/</u>

1/ The speed of the machine shall be 12 inches per minute

2/ No individual test value shall be less 750 psi.

3/ No individual tear strength value shall be less than 95 lbs per inch of thickness.

4/ Refers to test methods in MIL-STD-282, "Filter Units, Protective Clothing, Gas-Mask Components and Related Products: Performance-Test Methods".

5/ Acceptance testing to be performed by the US Government.

3.2.2 Button assembly. The button assembly shall consist of a 27 line, open top, brass button, Universal Style UB 807 or equal; and an 18 line, two prong, capped fastener, Universal Style UB 878 or equal (see para.7.3). The two components shall have a black chemical finish. The assembly of the components shall be as shown on Drawing 2-1-1371. The button assembly, after being secured to the overshoe, shall withstand a minimum pull of 35 pounds without separation of the button from fastener or the fastener pulling through the overshoe as specified in Table II.

TABLE II. Component Requirements.

Component	Characteristic	Test method
Button assembly (one Button and fastener)	Material identification	see para.3.3.2
	Dimension	gage <u>1/</u>
Fastening loop (one fastener)	Material identification	Visual
	Breaking strength	see para. 3.3.1
	Dimension	gage <u>1/</u>

1/ Results shall be reported to the nearest 0.001 inch or 1/32 inch as applicable.

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3.2.3 Fastening loop assembly. The fastening loop assembly consists of a black nylon braid with an elastic core, a vinyl coated tricot weave fabric tab and a corrosion-resistant, black metal clip suitable for forming around the braid without fracturing. The fastening loop assembly construction and dimensions shall be as shown on Drawing 2-1-1371. The completed fastening loop assembly of 25 pounds for not less than 30 minutes without breaking when tested as specified in para. 3.3.1.

3.2.3.1 Tab material. The tab material shall be a vinyl coated tricot weave fabric. The overall thickness of the finished tab is 30 mils consisting of 10 mils of vinyl and 4 mils of fabric per layer before bonding. The tab material shall weigh  $7.7 \pm .5$  ounces per square yard with the vinyl weighing a minimum of 6.5 ounces per square yard and the fabric weighing a minimum of one ounce per square yard. The tear strength shall be 6.0 lb. in the cross machine direction and 2.5 lb. in the machine direction when tested in accordance to ASTM-D-1682. The minimum breaking strength shall be 68.0 lb. in the machine direction and 38.0 lb. in the cross machine direction when tested in accordance with ASTM-D-1424. To insure the maximum tear and breaking strength, the tabs should be cut parallel to the machine direction.

3.2.3.2 Tab stitch. The vinyl coating tricot fabric shall be bartacked at 1/8 inch with black nylon thread with twisted multiple cord, soft or bonded finish, Tex size 50. The minimum breaking strength shall be 6.0 lb. and the maximum elongation for the thread shall be 30 percent respectively when tested in accordance with ASTM-D-2256. Colorfastness shall be consistent with the end item. The stitch shall begin just below the black nylon braid in the middle of the tab to approximately 1/4 inch from the outside perimeter of the tab.

3.3 End item testing. The overshoes shall be tested as specified in paragraphs 3.2.1 through 3.3.5. The sample unit shall be one overshoe for each test method and the lot size shall be expressed in units of one overshoe. Requirements are applicable to the individual unit. The thickness shall be expressed as an average of three measurements taken as close as possible to the specific points indicated on the drawing. The micrometer (B.C. Ames Micrometer Model Nos. 56122 or 56182) shall be firmly mounted on a table vice so that only the overboot is manipulated when taking the thickness measurements.

3.3.1 Breaking strength of fastening loop. One loop of the fastening loop shall be placed over a fixed suspension hook. A suitable clamp shall be attached through the center of the tab and weights applied in increments not exceeding 10 pounds until a total load of 25 pounds has been applied. The weights shall hang freely exerting a 25-pound load on the fastening loop for a period of 30 minutes. Any loop that breaks during the 30-minute period shall be a test failure.

3.3.2 Pull test. The vinyl specimen shall be 4 inches long and 1-1/2 inches wide and shall be cut from the overshoe so that the middle of the button is in the center of the specimen. The specimen shall be mounted in the button pull test fixture as shown on Drawing 2-1-1371 and the test conducted using a tensile testing machine operating at a speed of 12 inches per minute. A test failure shall be reported if either the button and fastener separate or if the fastener pulls through the vinyl upper at a pull of 35 pounds or less.

3.3.3 Uniform molding and curing test. The sole from an overshoe from each sample unit shall be cut with a sharp knife along the center line from the toe to the heel. Evidence of any blister, peeling, delamination, or separation of material shall be a test failure.

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3.3.4 Tensile strength test at 100 percent elongation after immersion in Medium No. 6. The dumbbell-shaped specimen shall be as specified in ASTM-D-638 except that the specimen shall be 4-3/8 inches long. The specimen shall be immersed in fuel conforming to Medium No. 6 as specified in Method 6001 of FED-STD-601. The temperature of the medium shall be  $23^{\circ} \pm 2^{\circ}\text{C}$  and the time of immersion shall be 16 hours. At the end of the required immersion time, the specimen shall be removed from the medium, dried with a soft absorbent cloth and allowed to air dry for 4 hours. The specimen shall then be tested for tensile strength of 100 percent elongation in accordance with ASTM-D-638 except that the speed shall be 12 inches per minute. The thickness of the specimen shall be determined after the specimen has been air dried for 4 hours.

3.3.5 Leakage test. The specimen shall be an overshoe with all fastening loops in place so as to keep the gusset closed. The overshoe shall be filled with water at  $23^{\circ} \pm 2^{\circ}\text{C}$  to within 1/2 to 1/4 inch of the middle button assembly. After 15 minutes, the outside of the water filled overshoe shall be examined. Any evidence of leakage shall be a test failure.

3.4 Molds. The molds used for slush or injection molding the overshoe shall be furnished by the contractor and fabricated to conform to the design shown on Drawing 2-1-1371.

### 3.5 Construction.

3.5.1 Molding. The overshoe shall be slush or injection molded in such a manner that the dimensions, including the thickness shall conform to Drawing 2-1-1371. The molding process shall be performed in a single feed/cure operation so that the vinyl plastisol formulation is uniformly cured throughout the thickness of the overshoe. Testing shall be in accordance with para. 3.3.3.

3.5.2 Attachment of fastening loops. Three fastening loops, one per button, shall be attached to the three buttons on the inward side of each overshoe by passing the smaller of the two formed loops over the button.

3.5.3 Extra fastening loop. One extra fastening loop shall be placed inside the right overshoe of each pair of overshoes prior to packaging.

3.5.4 Color and finish. The color of the overshoe shall be Black 375. The outer surface of the overshoe shall be sprayed with a lacquer so as to produce a uniform, lusterless appearance. The inside of the overshoe shall be coated with a slip finish to permit easy donning and doffing. The overshoe shall not have any tacky or sticky areas.

3.6 Marking and identification. The size and the contractor's name shall be embossed in raised lettering 1/4 to 1/2 inch in height on the outside of the overshoes.

3.6.1 Instruction sheet. A paper instruction sheet shall be placed inside each unit package of overshoes so as to be readily visible. The size of the characters shall be 1/14 inch for the heading and 1/8 inch for instructions. The instruction sheet shall contain the following information:

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OVERSHOES, MEN'S AND WOMEN'S  
BOOT, COMBAT

1. THESE OVERSHOES MAY BE WORN IN THE EVENT CHEMICAL PROTECTION (CB PROTECTION) IS REQUIRED.
2. ALWAYS WEAR THE OVERSHOES UNDER YOUR OUTER TROUSERS FOR CHEMICAL PROTECTION.
2. PERIODICALLY, INSPECT YOUR CHEMICAL PROTECTIVE OVERSHOES FOR HOLES OR PUNCTURES. IN THE EVENT THEY DO DEVELOP HOLES OR PUNCTURES, DISCARD IMMEDIATELY AND USE A SERVICEABLE PAIR.
4. SHOULD YOUR OVERSHOES BECOME CONTAMINATED WITH GASOLINE, OIL CONTAMINATED WITH GASOLINE, OIL, GREASE, OR CLEANING FLUIDS, WIPE OFF AND AIR DRY WITHIN TWO MINUTES.

DONNING INSTRUCTIONS

1. SELECT AN OVERSHOE SIZE THAT WILL PERMIT EASE OF DONNING/DOFFING.
2. INSERT BOOT INTO OVERSHOE. MAKE SURE THE FIT IS NEITHER TOO TIGHT NOR TOO LOOSE.
3. CLOSE OVERSHOE WITH LOOP CLOSURES AND SEE THAT OVERSHOE COMPLETELY COVERS THE FOOTWEAR AND FUNCTIONS DURING LOCOMOTION.

3.6.2 Marking and identification (for Navy procurements only). Each overshoe shall have the following inscription marked in indelible white ink on the outer leg portion of the overshoe, centered to the left of the bottom button. The size of the lettering shall be 3/8 inch in height.

FOR CHEMICAL WARFARE PROTECTION ONLY

3.6.2.1 Identification. The size and contractor's name shall be embossed in raised lettering 1/4 to 1/2 inch in height in the shank area on the outside of the overshoe. The identification sheet shall be on white paper (4 inches by 5 inches) with the following information printed in black ink. The lettering size shall be no less than 1/8 inch in height.

NOMENCLATURE  
SIZE  
CONTRACT NO.  
NATIONAL STOCK NO.  
MANUFACTURER  
DATE MANUFACTURED

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3.6.2.2 Wearing instructions. Each pair of overshoes shall contain an 8-1/2 by 11 inch sheet of white paper with the following instructions printed in black ink. The lettering size shall be no less than 1/8 inch in height.

#### OVERSHOES, CHEMICAL PROTECTIVE, SIZES 3 TO 14

##### WEARING INSTRUCTIONS

1. THE OVESHoes MAY BE WORN IN THE EVENT CHEMICAL PROTECTION (CB PROTECTION) IS REQUIRED. THE SIZE RANGE IS 3 TO 14 SELECT AN OVERSHOE SIZE THAT WILL PERMIT EASE OF DONNING/DOFFING.
2. ALWAYS WEAR THE OVERSHoes UNDER YOUR OUTER TROUSERS.
3. PERIODICALLY, INSPECT YOUR CHEMICAL PROTECTIVE OVERSHoes FOR HOLES OR PUNCTURES. IN THE EVENT THEY DO DEVELOP HOLES, ARE PUNCTURED, DISCARD IMMEDIATELY AND USE A SERVICEABLE PAIR.
4. SHOULD YOUR OVERSHoes BECOME CONTAMINATED WITH GASOLINE, OIL, GREASE OR CLEANING FLUIDS, WIPE AND AIR DRY WITHIN TWO MINUTES. IF THEY CANNOT BE WIPED OFF AND DRIED WITHIN TWO MINUTES THEY SHOULD BE REPLACED IMMEDIATELY.

3.7 Finished measurements. The boots shall meet the finished measurements as specified on Drawing 2-1-1371.

#### 4. REGULATORY REQUIREMENTS

4.1 Recycled, recovered materials. 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 drawing, specifications, standards, and quality assurance practices. The Government reserves the right to require proof of such conformance.

5.2. Visual examination. Each pair of overshoes shall be examined for the defects listed below.

##### 5.2.1 Defects.

- |           |   |   |
|-----------|---|---|
| Pairing   | - | not properly mated; not right and left of same size               |
| Cleanness | - | any spot, stain, or foreign matter seriously affecting appearance |
| Design    | - | any characteristic not in accordance with specified requirements. |

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Color and finish (applicable to all components)	-	color not uniform or not as specified; outside finish glossy; finish tacky or sticky.
Fastening loop	-	braid cut or frayed; fastener missing or not attached as specified; clip missing, mispositioned, or not securely attached; extra fastening loops not in overshoe.
Vinyl	-	any hole, cut, tear, rupture or crack; any blister, weak or thin spot; bubble or similar defective condition which does not result in a thickness at the defect less than the minimum allowed thickness; any repair or patch.
Construction and workmanship	-	any part of button malformed, broken, missing, or otherwise defective; any button clinched too tightly; any component or assembly omitted or misplaced; any operation omitted or not properly performed.
Marking (identifi- cation and size)	-	missing, incorrect, illegible, or misplaced; chemical warfare inscription not indelible (for Navy procurements only).

5.3 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 19111-5096

7.1.1 Drawing. Copies of Drawing 2-4-1371 on Overshoes, Boot, Combat are available through the contracting activities.

## 7.2 Source of non-Government documents

### ASTM Test Methods

ASTM-D-638	-	Tensile Properties of Plastics
ASTM-D-746	-	Brittleness Temperature of Plastics and Elastomers by Impact
ASTM-D-1004	-	Initial Tear Resistance of Plastic Film and Sheeting
ASTM-D-1424	-	Tear Resistance of Woven Fabrics by Falling Pendulum (Elmendorf) Apparatus
ASTM-D-1682	-	Breaking Load and Elongation of Textile Fabrics

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- ASTM-D-2240 - Rubber Property – Durometer Hardness  
 ASTM-D-2256 - Breaking Load (Strength) and Elongation of Yarn by the Single-Strand Method

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

7.3 Or equal information. Prior to the use of “or equal”, the contractor shall furnish a sample of the button assembly with the supporting data to the contracting officer for subsequent evaluation by the responsible Military Agency.

7.4 Suggested source. A suggested source for the fastening loop assembly is: (Part No. GS 100), A&G Manufacturers, Inc., 94 Ninth Street, PO. Box 159-091, Brooklyn, NY 11215.

7.5 Micrometer. Model No. 56122 or Model No. 56182 may be obtained from: B. C. Ames Company, 131 Lexington Street, Waltham, MA 02254.

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

Altama Delta Corporation, Lexington, TN 38351  
 Bata Company, Belcamp, MD 21017  
 LaCrosse Footwear, Inc., LaCrosse, WI 54602  
 Norcross Safety Products, Rock Island, IL 61204

#### MILITARY INTERESTS:

##### Custodians

Army - GL  
 Navy - NU  
 Air Force – 99

##### Review Activities

Army – MD  
 Navy - MC  
 Air Force – 11, 45, 82

##### CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

##### PREPARING ACTIVITY:

DLA - CT

Project 8430-0453