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MILITARY STANDARD

LAUNDERING OF CLOTHING AND EQUIPAGE

AMSC N/A

FSC 84GP

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DEPARTMENT OF DEFENSE
WASHINGTON, DC 20301

Laundering of Clothing and Equipage

1. This Military Standard is approved for use by all Departments and Agencies of the Department of Defense.

2. This standard has been developed to provide a document for use by posts, camps and stations as a basis for procuring laundering services.

3. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development and Engineering Center, Natick, MA, 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1. SCOPE

1.1 Purpose. This standard establishes the criteria and procedures which shall govern the laundering of clothing and equipage by contract service.

1.2 Classification. This standard covers 6 types and 6 classes of laundering service.

1.2.1 Types. The following types of service are based upon specific finishing operations:

Type I - Laundering, drying, and folding.
Type II - Laundering, drying, ironing, and folding.
Type III - Laundering, starching, drying, ironing, and folding.
Type IV - Laundering, applying water repellent, drying. ironing, and folding.
Type V - Laundering (hand shampooing), drying and folding.
Type VI - Other as specified in contract (mothproofing and insect repellent treatments).

1.2.2 Classes. The following classes of service are based on the washing and drying processes required by various fabric materials:

Class 1 - For white cottons.
Class 2 - For colored cottons.
Class 3 - For articles containing wool or synthetic fibers.
Class 4 - For coated fabrics.
Class 5 - For durable press clothing.
Class 6 - For Battle Dress Uniform (BDU) and Extended Cold Weather Clothing System (ECWCS)

2. REFERENCED DOCUMENTS

2.1 Government documents.

2.1.1 Documents. Unless otherwise specified, the following documents 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 standard to the extent specified herein.

STANDARDS

FEDERAL

FED-STD-191 - Textile Test Methods

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

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2.2 Order of precedence. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.

3. DEFINITIONS

3.1 Laundering. Laundering is the process by which soiled clothing and other fabric items are cleaned with the aid of mechanical action in water solutions of detergents and other additives. The laundering process also includes repellent treating, ironing, or pressing as may be required.

3.2 Unserviceable articles. Items of clothing and equipage which would not be considered economically launderable in normal commercial practice. (This definition may be modified by agreement between the contractor and the contracting officer.)

3.3 Synthetic detergent. Synthetic detergents are cleaning compounds produced by chemical synthesis and comprising an organic composition other than soap. They are usually stable in the presence of acids and alkalies and do not form insoluble salts in hard water.

3.3.1 Neutral synthetic detergent. A neutral synthetic detergent is essentially an unbuilt synthetic detergent substantially free from uncombined alkali.

3.3.2 Low temperature detergent. Low temperature detergent is a product containing a surfactant builder used for washing woolens and various synthetic items. (Washing temperature ranges from 90° to 120°F.) This procedure is used to protect the color of the fabric. Low temperature is used when colored items are washed.

3.4 Bleaching agent. Compounds which are added to washing solutions to decolorize certain stains, whiten cotton and linen fabrics, and kill germs.

3.5 Sour. An acidic compound used in rinse water to neutralize residual alkali in the washed fabric and the natural alkalinity of the water, to remove slight rust stains and prevent discoloration during pressing.

3.6 Ironing. The pressing of clothes or cloth with a heated device, usually made of iron and having a flat, smooth undersurface.

3.7 Flatwork ironing. A machine process for pressing and smoothing cloth, especially sheets and other flat pieces, between rollers.

3.8 Pressing. Pressing is the process for the insertion of creases, if required, and the removal of undesired wrinkles from freshly laundered or cleaned garments or items. Pressing also includes stretching, shrinking, and reshaping the cleaned garment or item to its original shape and dimensions. The Battle Dress Uniform (BDU) should be pressed on a hot head press (300°F) only long enough to dry the garment. The Extended Cold Weather Clothing System (ECWCS) should not be pressed.

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3.9 Durable press items. Name for new group of garments which come from the washer and dryer ready to wear without ironing.

4. GENERAL REQUIREMENTS

4.1 Classification. The articles received by the contractor shall be individually inspected for condition of serviceability and classified as to class of service required in accordance with 1.2. The contractor shall be responsible that good judgment, consistent with accepted commercial laundry practice, is exercised in classifying items for washing, drying and finishing.

4.2 Unserviceable articles. All articles received at the contractor's plant which cannot be restored to a serviceable condition by the mending of minor rips and tears and by the replacement of missing and broken buttons shall be returned by the contractor laundered and rough dried.

4.3 Mildew prevention. All articles received at the contractor's plant in a moist or damp condition shall be immediately dried or promptly processed in order to prevent the development of mildew.

4.4 Labels. All labels required by the Department of Health of the state in which the work is performed must be furnished by the contractor.

4.5 Test pieces. During the period of the contract, the contracting officer may, at his discretion, elect to supply test pieces to the contractor to be processed as directed in order to determine average tensile strength loss or other properties during washing. Control of untreated test pieces will be retained by the contracting officer, who in turn, will forward both laundered and unlaundered test pieces to a testing laboratory for analysis. The test pieces shall be laundered in the same classification at least 20 times and shall be witnessed by the contracting officers representatives when considered appropriate by the contracting officer. The completed test pieces shall be provided to the contracting officers representative for analysis to determine whiteness retention and tensile strength loss.

4.6 Bleaching. Bleaching agents employed in washing formulas should be on white cotton and blended fabrics as appropriate. The concentration of liquid chlorine bleach shall not exceed the equivalent of a two-quart solution containing one percent available chlorine per 100 pounds of cloth (dry weight). Chlorine bleach used on polyester type fabrics shall be followed with an antichlorine.

4.7 Sour. Where applicable, the water rinses shall be followed by a chemical rinse (sour) having a pH value of 4.5 to 6.5 based on the classification of the garments or items being processed.

4.8 Starching. Outer garments manufactured of 100 percent cotton shall be classified as light, medium, or heavy. The starched articles, after pressing, shall have adequate body with the desired stiffness. The required starch and

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the desired stiffness shall be included in the contract. Do not starch the Battle Dress Uniform (BDU) and the Extended Cold Weather Clothing System (ECWCS).

4.9 Pressing. All outer wearing apparel, except durable press garments, Battle Dress Uniform and Extended Cold Weather Clothing System shall be pressed on commercial pressing equipment set at a temperature of not more then 320°F. Durable press garments and Battle Dress Uniforms shall be finished in steam tunnels or other suitable equipment. All garments shall be returned on hangers unless otherwise specified by the contracting officer.

NOTE: The insignias and nylon name tapes should never be pressed with a hand iron set at higher than top of "Synthetic".

4.10 Water repellency. Articles which have been given a water-repellent treatment during laundering, when subjected to the spray test as specified in Method 5526 of FED-STD-191, shall have a water repellency rating equal to or better than 90.

4.11 Cleanliness. Each finished item shall be clean, dry and free of lint and objectionable odors. Spots and stains shall have been removed where it is practical to do so without damage to the fabric.

4.12 Injury to laundered items. Articles shall retain their original shape and dimensions allowing for normal shrinkage for the specified treatment. Articles shall be laundered in such a manner so as to avoid excessive shrinkage, fading of colors, and loss in strength.

4.13 Repairs. The contractor shall repair all minor rips, tears, and open seams using thread and materials of the same quality, compatible color, colorfastness, and texture as that used in the manufacture of the articles and shall replace all broken or missing buttons with buttons of similar appearance, quality, and of matching color.

4.14 Smoothness. Articles which have been ironed or pressed shall have surfaces which are smooth and without "rough-dry" spots, wrinkles, or tails.

4.15 Workmanship. All workmanship shall be in accordance with the best practices of the laundry industry. It is intended that services shall include all processes necessary for the laundering of the articles even though every step involved is not specifically mentioned. All work shall be performed under sanitary conditions. Plants in which the work is done shall be open to inspection of sanitary conditions by the Government representatives. The laundered articles when delivered shall be in serviceable and sanitary condition.

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5. DETAILED REQUIREMENTS

5.1 Services.

5.1.1 Types. Types I, II, III, IV, V and VI shall comply with the general laundering requirements specified in 4.1 through 4.15 where applicable.

5.1.2 Classes.

5.1.2.1 Class 1. For white cottons. Through the proper use of detergents, bleach and sour, the finished white cotton articles shall present a uniform, bright white appearance.

5.1.2.2 Class 2. For colored cottons. Colored cottons shall be laundered without the use of any bleach. The temperatures of the wash solutions employed and the alkalies selected shall be such as to minimize color fading. When required, items shall be machine impregnated with approved insect repellents for protection against mites, fleas, ticks and mosquitoes.

5.1.2.3 Class 3. For articles containing wool and synthetic fibers. When required, items shall be machine impregnated with approved insect repellents for protection against mites, fleas, ticks and mosquitoes.

5.1.2.3.1 Washing. The temperature of all washes and rinses shall be held below 100°F. Neutral synthetic low temperature detergent shall be used in a minimum of two suds. Water levels in all washes and rinses shall be high and the washes shall be stopped during the adding and discharging of water in order to reduce mechanical action and avoid felting or other damage to the articles.

5.1.2.3.2 Drying. When drying woolens or silks, the temperature of the dryer shall be not greater than 120°F to prevent injury or damage to the fabrics.

5.1.2.3.3 Blankets. No mechanical renapping of blanket shall be undertaken without previous written authority from the contracting officer.

5.1.2.4 Class 4. For coated fabrics.

5.1.2.4.1 Washing. Coated fabric items shall be thoroughly shampooed by hand with a soft bristled brush using a warm solution of neutral low titer soap or a neutral synthetic detergent. The items shall then be thoroughly rinsed free of soap or detergent and hung on racks to dry at temperatures not exceeding 110°F.

5.1.2.4.2 Spotting. Extreme care shall be exercised in the removal of spots by the use of any organic solvents, such as dry cleaning solvents or any other spotting agent containing solvents.

5.1.2.5 Class 5. For durable press clothing.

5.1.2.5.1 Washing. These items should be washed in accordance with the latest laundry wash formulas currently specified by laundry manager. Do not use starch or bleach.

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5.1.2.5.2 Drying. The items (2/3 capacity) should be removed from the dryer as soon as possible to avoid wrinkles. Garments should be put on coat hangers immediately.

5.1.2.5.3 Stains. Stains should be removed as soon as possible.

5.1.2.6 Class 6. For Battle Dress Uniform (BDU) and Extended Cold Weather Clothing System (ECWCS).

5.1.2.6.1 Washing. These items should be washed (2/3 capacity) in accordance with the low temperature wash formulas specified by laundry manager. Do not use starch or bleach.

5.1.2.6.2 Drying. These items should be dried according to the drying instructions specified by the laundry manager.

5.1.2.6.3 Stains. Stains should be removed as soon as possible.

6. NOTES

6.1 Intended use. This standard is used for laundering of clothing and equipage items.

6.2 Subject term (key word) listing.

Cleaner
Laundering for clothing
Laundering for equipage

6.3 Changes from previous issue. Vertical lines or asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL
Navy - NU
Air Force - 99

Review activities:

Army - MD
Air Force - 11

User activity:

Navy - MC

Preparing activity:

Army - GL

Project No. 84GP-0020

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1 DOCUMENT NUMBER	2 DOCUMENT TITLE
MIL-STD-665D	Laundering of Clothing and Equipage

3a. NAME OF SUBMITTING ORGANIZATION	4 TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
	☐ USER
b ADDRESS *(Street, City State, ZIP Code)*	☐ MANUFACTURER
	☐ OTHER *(Specify)* _____

5 PROBLEM AREAS

a. Paragraph Number and Wording

b. Recommended Wording

c Reason/Rationale for Recommendation

6 REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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