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SUPERSEDING
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## DETAIL SPECIFICATION

## COVERALLS, FLYERS, ANTI-EXPOSURE, CWU-62B/P, CWU-74/P, AND CWU-62C/P

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

1. SCOPE
1.1 Scope. This specification lists the requirements for three types of men's and women's continuous wear, anti-exposure coveralls.
1.2 Classification. The coveralls will be one of the following types as specified (see 6.2).

### 1.2.1 Types. The types of coveralls are as follows:

Type I - CWU-62B/P, without pockets, wrist seals, and socks, Naval Air Systems Command application

Type II - CWU-74/P, with pockets, wrist seals, and socks, U.S. Air Force application
Type III - CWU-62C/P, without pockets, wrist seals, and socks, Naval Air Systems Command application

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should addressed to: Commander, Naval Air Warfare Center Aircraft Division, Code 414100B120-3, Highway 547, Lakehurst, NJ 08733-5100, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.
1.2.2 Sizes. The anti-exposure coverall are available in the following sizes:

Types I and II:
Size 1 (32-36) - Small-Short
Size 2 (32-36) - Small-Regular
Size 3 (32-36) - Small-Long
Size 4 (37-40) - Medium-Short
Size 5 (37-40) - Medium-Regular
Size 6 (37-40) - Medium-Long
Size 7 (41-44) - Large-Short
Size 8 (41-44) - Large-Regular
Size 9 (41-44) - Large-Long
Size 10 (45-47) - Extra Large-Short
Size 11 (45-47) - Extra Large-Regular
Size 12 (45-47) - Extra Large-Long

Type III:<br>Small - Short<br>Small - Regular<br>Small - Long<br>Medium - Short<br>Medium - Regular<br>Medium - Long<br>Large - Short<br>Large - Regular<br>Large - Long

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

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## SPECIFICATIONS

## FEDERAL

| A-A-50195 | - | Thread, Aramid |
| :--- | :--- | :--- |
| A-A-55126 | - | Fastener Tapes, Hook and Loop, Synthetic |

## DEPARTMENT OF DEFENSE

| MIL-DTL-5624 | - | Turbine Fuel, Aviation, Grades JP-4, JP-5, and JP-5/JP-8ST |
| :--- | :--- | :--- |
| MIL-A-8243 | - | Anti-Icing and Deicing - Defrosting Fluid |
| MIL-C-83429 | - | Cloth, Plain and Basket Weave, Aramid |
| MIL-C-85101 | - | Cloth, Warp Knit, Aramid, High Temperature Resistant |
| MIL-S-85634 | - | Sealer, Heat, Seam Tape and Patch, Anti-Exposure Coverall |
| MIL-W-85635 | - | Water Test Device, Anti-Exposure Coverall |
| MIL-C-85636 | - | Cloth, Knit, Jersey, Aramid |

## STANDARDS

## FEDERAL

FED-STD-191 - Textile Test Methods (Inactive for New Design)
(Unless otherwise indicated, copies of the above specifications and standards are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)
2.2.2 Other Government drawings. The following other Government drawings form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS - Type I (CWU-62B/P COVERALLS)
NAVAL AIR SYSTEMS COMMAND

| 1370AS502 | - | Seam Tape and Patches |
| :--- | :--- | :--- |
| 1725AS102 | - | Neck Seal, Anti-Exposure Coverall, CWU-62B/P |
| 3324AS103 | - | Coveralls Subassembly, Anti-Exposure, Flyer's, Basic, PTFE, <br> Constant Wear |
| 3324AS104 | - | Slide Fastener, Omni-Environment Barrier |

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DRAWINGS - Type II (CWU-74/P COVERALLS)

## NAVAL AIR SYSTEMS COMMAND

| 1370AS403 | - | Coveralls, Flyer's, Anti-Exposure, CWU-74/P |
| ---: | :--- | :--- |
| 1370AS404 | - | Coveralls, Subassembly, Anti-Exposure, Flyer's PTFE, |
|  |  | Constant Wear |
| 1370AS502 | - | Seam Tape and Patches, Heat Sealable Anti-Exposure <br> Coverall, CWU-74/P |
| 1370AS706 | - | Wrist and Neck Seal Pattern, Sizes 1 thru 12, CWU-74/P <br>  <br> Anti-Exposure Coverall |
| DRAWINGS |  | Type III (CWU-62C/P COVERALLS) |

NAVAL AIR SYSTEMS COMMAND
1370AS502 - Seam Tape and Patches
1725AS102 - Neck Seal, Anti-Exposure Coverall, CWU-62B/P
3653AS100 - Coveralls, Anti-Exposure, CWU-62C/P
(Copies of these drawings are available from Commander, Naval Air Systems Command, Aviation Life Support Systems, Code 4.6.2.2, Building 2187, Suite 1242, 48110 Shaw Road, Unit 5, Patuxent River, MD 20670-1906.)
2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

## AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ASQC-Z1.4 - Procedures, Sampling and Tables for Inspection by Attributes (DoD adopted)
(Applications for copies should be addressed to the American Society for Quality Control, 611 E. Wisconsin Ave., Milwaukee, WI, 53201-4606.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
ASTM-E96 - Water Vapor Transmission of Materials (DoD adopted)
ASTM-D751 - Fabrics, Coated (DoD adopted)
ASTM-D2097 - Flex Testing of Finish on Upholstery Leather, Methods of
ASTM-D2582 - Film, Plastic, and Thin Sheeting, Puncture-Propagation Tear Resistance of (DoD adopted)

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ASTM-D3135 - Performance of Bonded and Laminated Apparel Fabrics, Specification for
ASTM-D3776 - Fabric, Mass per Unit Area (Weight) of (DoD adopted)
ASTM-D5034 - Fabrics, Textile (Grab Test), Breaking Strength and Elongation of (DoD adopted)
ASTM-D6193 - Stitches and Seams (DoD adopted)
(Applications for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)
2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Qualification. The anti-exposure coveralls furnished under this specification shall be products that are authorized by the qualifying activity for listing on the applicable qualified products list before contract award (see 4.2 and 6.3). Qualification of any one type and size of coverall under this specification shall automatically qualify a supplier for all types and all sizes specified herein.
3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.3 and 6.4.
3.3 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

### 3.4 Materials and components.

3.4.1 Laminated cloth. The base cloth for the coverall shall be a three layer laminated package consisting of a woven aramid face cloth, a plastic film, and a tricot knit. The package shall conform to the requirements of 3.4.1.1 through 3.4.1.4 and table I when tested in accordance with 4.5.1. Unless otherwise specified, the materials and components shall have been manufactured not greater than eighteen months prior to the date of delivery of the anti-exposure coverall.
3.4.1.1 Face cloth. The top layer face cloth shall be a fire resistant, high strength aramid fiber blend conforming to Type II, Class 6 of MIL-C-83429. The color shall be Sage Green 1590.
3.4.1.2 Plastic film. The middle layer, plastic film shall be a microporous, expanded polytetrafluoroethylene (PTFE). The film weight shall be $0.7 \pm 0.3$ ounces per square yard.
3.4.1.3 Backing cloth. The backing cloth shall be an aramid jersey knit conforming to MIL-C-85636. The color shall be natural.
3.4.1.4 Adhesive. The adhesive shall produce no health hazards when used for laminating the layers together.

Table I. Laminated cloth requirements.

| Characteristics | Requirement |
| :--- | :---: |
| Weight (oz/yd ${ }^{2}$ ) | $7.5 \pm 1.0$ |
|  |  |
| Breaking strength (pounds, minimum) | 190 |
| Warp | 105 |
| Filling | No delamination |
|  |  |
| Delamination after agitation (wet flexing) | 150 |
|  |  |
| Hydrostatic resistance (psig, minimum) |  |
|  |  |
| Flame resistance, maximum | 2 |
| After flame time (seconds) | 5 |
| Char length (inches) |  |
|  |  |
| Moisture vapor transmission rate (gm/m ${ }^{2} / 24$ hours, minimum) |  |
| Water method | 4,500 |
| Inverted water method |  |
|  | No failures |
| Leakage, maximum: | 2 failures max. |
| Initial | No failures |
| After flexing | No failures |
| After synthetic perspiration |  |
| After exposure to aircraft fluids |  |
|  | 4.3 |
| Puncture-propagation (kilograms, minimum) | 2.8 |
| Warp |  |
| Filling |  |

3.4.2 Raschel knit cloth. The knit cloth for the expansion panel shall be a high temperature resistant aramid, two-bar raschel warp knit conforming to MIL-C-85101. The color shall be Sage Green 1565 (see 4.5.1).

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### 3.4.3 Slide fasteners (type III only).

3.4.3.1 Slide fasteners. The slide fastener shall be an omni-environmental type (see 6.6.1) that provides a full seal, pressurized from either side against air, dust, moisture, light, liquid, and gases. Flexing, twisting, or bending shall not impede function. The slide fastener shall be made from two identical stringers each consisting of neoprene coated fabric tape, metal inner locking elements that hold the stringers together to compress the sealing surfaces, and the outer clamps that provide a metal to metal surface for the operation molded bottom stop. The minimum opening from the end of the seal block to the edge of the slider for each size shall be as specified in table II.

Table II. Slide fastener lengths.

| Coverall Size | Slide Fastener Length <br> (inches) |
| :--- | :---: |
| Small-Short | 36 |
| Small-Regular | 38 |
| Small-Long | 40 |
| Medium-Short | 38 |
| Medium-Regular | 40 |
| Medium-Long | 42 |
| Large-Short | 40 |
| Large-Regular | 42 |
| Large-Long | 44 |

3.4.3.2. Slide fastener thong. The slide fastener shall have a thong attached. The thong shall be cut from the laminated cloth specified in 3.4.1. The ends shall be finished to prevent raveling or fraying and shall finish $3 / 8$ to $1 / 2$ inch wide and 42 inches long (folded and put in little pocket, see figure 2) when attached to the slide fastener pull.
3.4.4 Fastener tapes.(type III only). The hook and loop fastener tape for the pocket shall be Type II, Class 1, 3/4 inch wide of A-A-55126. The color of the hook and loop tape shall approximate the laminated cloth and the cut length shall be one inch.
3.4.5 Thread. The thread for stitching the coverall shall be a 60 tex, aramid thread conforming to A-A-50195. The color shall be Sage Green 1590, matching the laminated cloth (see 3.4.1).

### 3.5 Tag/label.

3.5.1 Barcode tag. Each item shall be individually bar-coded with a tag for personal clothing items. The tags shall be clearly legible and readable by a scanner. Tags shall not be attached to the coverall in a manner that puts a hole into the material that compromises the waterproof integrity of the suit or by using an adhesive that leaves a residue upon removal. The bar coding element shall be a 13 digit national stock number (NSN). The barcode type shall be a medium to high code density and shall be located so that it is completely visible on the item when it is folded or packaged as specified (see 3.15).
3.5.2 Identification label. Each coverall shall have a commercial type label combining size, identification, fiber content, and laundering instructions. The label shall show fastness to laundering and last the life of the garment. The label can be in one or two pieces. If two pieces are used the warning and caution statements shall be placed on the second label and the second label shall be located directly below the first label. The label(s) shall include the following information. The point size of the font shall be 8 unless indicated otherwise.

CWU-XX/P (XX will be 62B for Type I or 62C for Type III or 74 for Type II)
Anti-Exposure Flyers Coverall (Font size 10 point)
Size (Types I and II only)
Size (see 3.5.3) Height (see 3.5.3) Hip Size (see 3.5.3)(Type III only)
Name of Manufacturer and/or CAGE Code
Contract or Order Number
NSN (see 6.2)
Date of manufacture (month/year)
Serial Number (see 3.5.4)
WARNING. (10 pt) Machine wash cold with powdered detergent. Drip or tumble dry low.

DO NOT DRY CLEAN (10 pt)
CAUTION. (10 pt) Coverall cloth can be damaged. Sharp instruments can puncture or abrade surfaces. Use care when donning or doffing. Ensure slide fasteners are securely closed after donning.
3.5.3 Size markings (Type III only). The size information in table III shall be used on the identification label (see 3.5.2).

Table III. Size marking chart.

| Size | Height (inches) | Hip Size (inches) |
| :--- | :---: | :---: |
| Small-Short | $<64.5$ | $<36$ |
| Small-Regular | $64.5-67.5$ | $<36$ |
| Small-Long | $>67.5$ | $<36$ |
| Medium-Short | $<64.5$ | $36-40$ |
| Medium-Regular | $64.5-67.5$ | $36-40$ |
| Medium-Long | $>67.5$ | $36-40$ |
| Large-Short | $<64.5$ | $>40$ |
| Large-Regular | $64.5-67.5$ | $>40$ |
| Large-Long | $>67.5$ | $>40$ |

3.5.4 Serial numbers. The coveralls shall be identified by individual serial numbers which shall be assigned by the manufacturer. Serialization shall be by a block of consecutive numbers to cover the entire acquisition document quantity.

### 3.6 Design.

3.6.1 Type I (CWU-62B/P). The design of the Type I coveralls shall conform to the requirements of applicable drawings (see 2.2.2). The coveralls shall be one piece garments containing neck seals (see 6.6.2) and omni-environmental barrier entry and relief portal slide fasteners (see figure 1).
3.6.2 Type II (CWU-74/P). The design of the Type II coveralls shall conform to the requirements of applicable drawings (see 2.2.2). The coveralls shall be one piece garments containing neck seals, wrist seals, pockets, and omni-environmental barrier entry and relief portal slide fasteners (see figure 6).
3.6.3 Type III (CWU-62C/P). The design of the Type III coveralls shall conform to the requirements of applicable drawings (see 2.2.2). The coveralls shall be one piece garments containing neck seals and omni-environmental barrier entry slide fastener. The slide fastener shall have a thong to enable the wearer to pull it open and close up and down the back (see figures 2 and 3).
3.7 Construction. The coveralls shall be constructed in accordance with drawings 3324AS103 for Type I; 1370AS403 and 1370AS404 for Type II; and 3653AS100 for Type III using sewn seams covered on the inside of the coverall by heat sealed tapes. The neck seal for the Types I and III coveralls shall be constructed in accordance with drawing 1725AS102 (see 6.6.2). The wrist and neck seals for Type II coveralls shall be constructed in accordance with drawing 1370AS706.
3.8 Patterns. Standard patterns shall be furnished to the contractor for use in cutting working patterns (see 6.5). The standard patterns shall not be altered in any way and shall be used for the contractor's working patterns. Minor modifications are permitted when using

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automated equipment but the alterations shall not affect the serviceability, dimensions, or appearance of the coverall.
3.8.1 Pattern parts and cutting quantities. The pattern parts and cutting quantities for the coverall shall be as listed in table IV (see 6.5.1).

Table IV. Pattern parts and cutting quantities.

| Basic Material | Nomenclature |  | Cutting quantity per coverall |
| :---: | :---: | :---: | :---: |
| Laminated Cloth (Type I and II) | Back Torso |  | 1 |
|  | Top Sleeve |  | 2 |
|  | Under Sleeve |  | 2 |
|  | Back Leg |  | 2 |
|  | Front Torso |  | 2 |
| Laminated Cloth (Type II) | Pencil Pocket Flap |  | 1 |
|  | Breast Pocket |  | 2 |
|  | Pencil Pocket |  | 1 |
|  | Right Thigh Pocket |  | 1 |
|  | Lower Leg Pocket |  | 2 |
|  | Breast Pocket Cover |  | 2 |
|  | Lower Thigh Pocket Cover |  | 1 |
|  | Right Leg Pocket Cover |  | 2 |
| Raschel Knit (Type I and II) | Expansion Panel |  | 1 |
|  | Computer Nomenclature | Pattern Nomenclature |  |
| Laminated Cloth (Type III) | FRT_TOP | Front Top | 1 |
|  | BK_TOP | Back Top | 1 |
|  | SLEEVE | Sleeve | 2 |
|  | FRT_LEG | Front Leg | 2 |
|  | BK_LEG | Back Leg | 2 |
|  | GUSSET_INR | Inner Gusset | 2 |
|  | POCKET | Pocket | 1 |
| Warp Knit (Type III) | GUSSET_OTR | Outer Gusset | 2 |

3.9 Cutting. All fabric pieces shall be cut in accordance with the patterns. If no directional line is given on the pattern the long dimension of the pieces shall be cut in the direction of the fabric warp.
3.10 Marking. Cut parts shall be marked, ticketed, or bundled to ensure a uniform size throughout the coverall. Any method of marking shall be used except metal fastening devices, sewn on tickets, or adhesive type tickets that leave traces of adhesive on the material after
removal of the ticket. Drill holes may be used to mark the lay only in areas where the drill marks will be buried within a seam and covered by seam tape.
3.11 Stitches, seam allowance, and stitching. Stitch Types 301 and 401 of ASTM-D6193 with 8 to 10 stitches per inch shall be used in the construction of the coveralls. Seam allowances shall be as specified on the construction drawings (see 3.7).
3.12 Heat sealing. All sewn seams and stitching shall be covered on the inside of the coverall and sealed with the seam tape. The entire width of the seam tape shall be hot air sealed over the seams and stitching. Tape crossover areas and ends left unsealed by the hot air sealing machine with the MIL-S-85634 sealer. All seam tapes shall be applied to the coverall and seal seams without tension. In order to maintain a tape overlap, sealed sewn seams shall contain not greater than two layers of tape per seam except the crotch seam which has three layers of seam tape. At no point shall the tape lift from the seam. The neck and wrist seals attaching seams to coverall shall be covered on the inside of the coveralls. Avoid tape end joints where the tape passes over taped seams on the coveralls. Splicings and tape ends shall overlap not less than $3 / 4$ inch.
3.12.1 Patching. The coverall shall contain no more than three patches. Patching of fabrication defects shall be permitted by a 2 inch diameter patch (see drawing 1370AS502) on the inside of the coverall and of a color to match the color of the backing cloth. Patches should be applied using the MIL-S-85634 sealer at a temperature of 149 degrees C ( 300 degrees F) for 20 seconds. When patching is used it shall be noted on the inspection form (see figures 4 and 5 ). The patched area shall not leak (see 3.14).
3.13 Finished garment measurements. The finished garment measurements shall be as shown in tables V and VI. When measuring a garment it shall lie flat with the slide fastener fully closed. (See figures 1, 2, and 3 for locations A through J.) Do not stretch knit at any time during garment measurement.

Table V. Type I -CWU-62B/P finished garment measurements (inches).

| Size | Chest Width <br> A | Sleeve Length <br> B | Front Torso Length <br> C | Inseam Length <br> D |
| :---: | :---: | :---: | :---: | :---: |
| $1(32-36)$ | $21^{1 / 4}$ | 20 | $27^{1 / 2}$ | 27 |
| $2(32-36)$ | $21^{1 / 4}$ | $21^{1 / 2}$ | $29^{1 / 2}$ | $29^{1 / 2}$ |
| $3(32-36)$ | $21^{1 / 4}$ | $22^{1 / 2}$ | 31 | 31 |
| $4(37-40)$ | 23 | 20 | $27^{1 / 2}$ | 27 |
| $5(37-40)$ | 23 | $21^{1 / 2} 2$ | $29^{1 / 2}$ | $29^{1 / 2}$ |
| $6(37-40)$ | 23 | $22^{1 / 2}$ | 31 | 31 |
| $7(41-44)$ | 25 | 20 | $271 / 2$ | 29 |
| $8(41-44)$ | 25 | $21^{1 / 2} 2$ | $291 / 2$ | $291 / 2$ |
| $9(41-44)$ | 25 | $22^{1 / 2}$ | 31 | 31 |

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Table V. Type I -CWU-62B/P finished garment measurements (inches) - Continued.

| Size | Chest Width <br> A | Sleeve Length <br> B | Front Torso Length <br> C | Inseam Length <br> D |
| :---: | :---: | :---: | :---: | :---: |
| $10(45-47)$ | $27^{1 / 2}$ | 20 | $27^{1 / 2}$ | 29 |
| $11(45-47)$ | $27^{1 / 2}$ | $211 / 2$ | $291 / 2$ | $293 / 4$ |
| $12(45-47)$ | $27^{1 / 2}$ | $22^{1 / 2}$ | 31 | 31 |
|  |  |  |  |  |
| Tolerance | $\pm 1$ | $\pm 5 / 8$ | $\pm 1$ | $\pm 1$ |

A The chest width shall be measured above the slide fastener from edge to edge at the underarm seam.
B The sleeve length shall be measured along the top seam of the back sleeve from the top of the armscye to the edge of the sleeve.
C The front torso length shall be measured along the center front seam from the edge of the neck seal seam to the edge of the material at the crotch. The measuring tape shall be placed to the right side of the relief portal slide fastener.
D The inseam shall be measured along the seam from the edge of the crotch seam to the bottom edge of the leg.

Table VI. Type III - CWU-62C/P finished garment measurements (inches).

|  | LOCATION |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Size | $\begin{gathered} \mathrm{E} \\ \text { Chest } \end{gathered}$ | $\begin{gathered} \mathrm{F} \\ \mathrm{Hip} \end{gathered}$ | G <br> Center <br> Back <br> Length |  |  |
| Small/Short | $401 / 2$ | 38 | 17 | 24 | 27 |
| Small/Regular | $40^{1 / 2}$ | 38 | 18 | $25^{1 / 2}$ | 28 |
| Small/Long | $401 / 2$ | 38 | 19 | 27 | 29 |
| Medium/Short | $44^{1 / 2}$ | 42 | 18 | $241 / 2$ | 27 |
| Medium/Regular | $441 / 2$ | 42 | 19 | 26 | 28 |
| Medium/Long | $441 / 2$ | 42 | 20 | $271 / 2$ | 29 |
| Large/Short | $48^{1 / 2}$ | 46 | 19 | 25 | 27 |
| Large/Regular | $48^{1 / 2}$ | 46 | 20 | $26^{1 / 2}$ | 28 |
| Large/Long | $481 / 2$ | 46 | 21 | 28 | 29 |
| Tolerances | $\pm 1$ | $\pm 1$ | $\pm 1 / 2$ | $\pm 1 / 2$ | $\pm 1 / 2$ |

E Chest - Measure from folded edge to folded edge at underarm seam including knit inserts.
F Hip - Measure from folded edge to folded edge at bottom of knit inserts.
G Center back length - Measure from center back neck edge to waist seam along edge of slide fastener.

H Sleeve length - Measure along folded edge from neck edge of the garment to sleeve bottom. (Does not include the neck seal.)

J Leg inseam length - Measure along inner leg seam from middle of slide fastener to bottom of leg.

### 3.14 Performance requirements.

3.14.1 End item coverall leakage. The anti-exposure coveralls, when inspected as specified in 4.3 and 4.4 , shall not leak and there shall not be any evidence of construction or material failure in any respect when tested as specified in 4.5.5. The inspection form shall be filled out (see figures 4 and 5).

### 3.15 Finished garment requirements.

3.15.1 Coverall folding. Each coverall shall be neatly folded in accordance with figures 7 and 8 , as applicable, using tissue paper in the fold areas to preclude sharp creases from forming. The folded coverall shall be inserted into a waterproof bag that is double folded at the end and sealed using two inch general purpose masking tape. The bag shall not be heat sealed.
3.16 Workmanship. The finished coveralls shall conform to the requirements and quality of the product established by this specification.

## 4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:
a. Qualification inspection (see 4.2).
b. First article inspection (see 4.3).
c. Conformance inspection (see 4.4).
4.2 Qualification inspection. The qualification inspection of the coveralls shall consist of the requirements and inspection methods in table VII. The qualification samples shall consist of the three coveralls of Types I or II (see 3.1); one each of Size 1, 6, and 12 or three coveralls of Type III; one each size Small-Regular, Medium-Short, Large-Long.

The samples shall be forwarded to the test facility set forth in the letter of authorization to submit samples (see 6.3). The samples shall be plainly identified by securely attached durable tags marked with the following information:
a. Samples for qualification inspection.
b. Coveralls, Flyer's, Anti-Exposure (Type as applicable).
c. Manufacturer's designation or number
d. Name of manufacturer
e. Submitted by (name) (date) for qualification inspection in accordance with the requirements of this document under authorization (reference authorizing letter and number) (see 6.3).

Table VII. Qualification and first article inspections.

| Inspection | Requirement | Inspection Method |
| :--- | :---: | :---: |
| Component and Material Inspection | $3.4 .1,3.4 .2$ | 4.5 .1 |
| Visual Inspection | $3.5 .1,3.5 .2,3.6,3.7$, | 4.5 .3 |
|  | $3.11,3.12 .1$ |  |
| Dimensional Inspection | 3.13 | 4.5 .4 |
| Leak Testing | 3.14 .1 | 4.5 .5 |

4.2.1 Retention of qualification. Retention of qualification shall be by certification unless otherwise specified by the activity responsible for the Qualified Products List and shall be at intervals of not greater than two years.
4.3 First article inspection. When a first article is required (see 3.2 and 6.4), it shall be examined for the requirements in table VII.
4.3.1 First article units. The coveralls selected as first article units shall be thoroughly checked for conformance to this specification. The sample size of the first article units shall be specified by the procuring activity. The manufacturer shall submit the following:
a. One coverall for each size specified.
b. Two additional coveralls of any size.
4.4 Conformance inspection. Unless otherwise specified, conformance testing shall be performed on production lot articles for the requirements in table VIII. Sampling for inspection shall be performed in accordance with ASQC-Z1.4 (see 6.2).

Table VIII. Conformance inspection examinations and tests.

| Inspection | Requirement | Inspection Method |
| :--- | :---: | :---: |
| Visual Examination | $3.5 .1,3.5 .2,3.6,3.7$, <br> $3.11,3.12 .1$ | 4.5 .3 |
| Dimensional Examination | 3.13 | 4.5 .4 |
| Leak Testing | 3.14 .1 | 4.5 .5 |

4.4.1 Certificate of compliance. Where certificates of compliance are submitted, they shall contain verifiable actual test and inspection data. The Government reserves the right to inspect and test the validity of the certification.

### 4.5 Inspection methods.

4.5.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with the characteristics of table IX.

Table IX. Component parts.

| Material | Characteristic | Reference | Test Method |
| :---: | :---: | :---: | :---: |
| Laminated <br> Cloth <br> Components | Aramid Face Cloth | 3.4.1.1 | MIL-C-83429, 1 / |
|  | Plastic Film <br> Material Identification Weight | $\begin{aligned} & 3.4 .1 .2 \\ & 3.4 .1 .2 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Visual 1/ } \\ & \text { ASTM-D3776 2/ 1/ } \end{aligned}$ |
|  | Jersey Knit Backing Cloth | 3.4.1.3 | 3/ 1/ |
| Finished Laminated Cloth | Material Identification | 3.4.1 | Visual 4/ |
|  | Weight | 3.4.1 | ASTM-D3776 2/ |
|  | Break Strength | 3.4.1 | ASTM-D5034 5/ |
|  | Delamination after agitation | 3.4.1 | 6/ |
|  | Hydrostatic Resistance | 3.4.1 | ASTM-D751 7 / |
|  | Flame Resistance <br> After Flame Char Length | 3.4.1 | $\begin{aligned} & 5903 \underline{8 /} \\ & 5903 \underline{8} / \end{aligned}$ |
|  | MVTR (Moisture Vapor Transmission Rate) Water Method Inverter | 3.4.1 | $\begin{aligned} & \text { ASTM-E96 9/ } \\ & \underline{10 /} \end{aligned}$ |

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Table IX. Component parts - Continued.

| Material | Characteristic | Reference | Test Method |
| :---: | :---: | :---: | :---: |
|  | Leakage <br> Initial <br> After Flex <br> After Perspiration <br> After Aircraft Fluid | 3.4.1 | $\begin{aligned} & \text { ASTM-D751 } \underline{11 /} \\ & \underline{12 /} \\ & \underline{13 /} \\ & \underline{14 /} \\ & \hline \end{aligned}$ |
|  | Puncture-Propagation | 3.4.1 | ASTM-D2582 15/ |
| Raschel Knit | Material Identification | 3.4.2 | 16/1/ |

1/ A Certificate of Conformance will be accepted.
2/ Use Option C.
3/ Material shall be tested in accordance with MIL-C-85636.
4/ Identify that all three layers are laminated in proper order.
5/ The use of an elongation recording device and tensioning clamp during the performance of this test is not necessary.

6/ One specimen of the laminate, 14 inches by full width, shall be selected from each sample unit and tested for delamination after 24 hours of continuous agitation. The specimens shall be agitated using the "normal" cycle, in an automatic home laundering type machine except that the washing machine shall provide continuous agitation. The water level shall be maintained at $18.0 \pm$ 0.5 gallons, and the water temperature shall be $32^{\circ} \mathrm{C} \pm 9^{\circ} \mathrm{C}$. The wash load shall weigh $2 \pm 0.2$ pounds. Upon completion of 24 hours of continuous agitation, and while still wet, the specimens shall be evaluated for delamination using ASTM-D3135 as a minimum standard for evaluation of delamination. To be considered delamination, the separation between any 2 plies shall be visible as an area of at least 0.25 inches in one direction by at least 0.125 inches in the other direction.

7/ Use Hydrostatic Resistance, Procedure A. The back side of the cloth shall face the water.
8/ Refers to FED-STD-191. Because of the toxicity of the fumes generated by burning laminate, glowing specimens shall not be removed from the cabinet. The cabinet shall not be opened until it has been cleared of fumes and smoke. Any equivalent load may be applied to the charred sample prior to measuring.

9/ Five specimens per sample unit shall be tested for each of the moisture vapor transmission rate (MVTR) methods. The back side of the laminated cloth shall face the water and the specimens shall be sealed by any means which prevents leaking or wicking of water around the specimen. The tests shall be performed in an area with a controlled temperature of $73.4 \pm 1^{\circ} \mathrm{F}$ and a controlled relative humidity of $50 \pm 2$ percent. The water method for determining MVTR shall be

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conducted as specified in ASTM-E96, with the test dish in the upright position (Procedure B). The free stream air velocity shall be $550 \pm 50$ feet per minute (FPM) as measured 2 inches above the cloth specimen. The air flow shall be measured at least 2 inches from any other surface. The test shall run for 24 hours and weight measurements shall be taken only at the start and the completion of the test. At the start of the 24 hour period, the air gap between the water surface and the back of the specimen shall be $3 / 4$ inch. The minimum value shall be obtained by averaging all of the determinations obtained from the individual specimens taken from all of the sample units as a group. No single specimen determination shall be less than 350 grams $/$ meter $^{2} / 24$ hours.

10/ The inverted water method for determining MVTR shall be conducted as specified in ASTM-E96 with the test dish in the inverted position (Procedure BW). The free stream air velocity shall be $550 \pm 50$ FPM as measured 2 inches below the cloth specimen. The air flow shall be measured at least 2 inches from any other surface. The test shall be run for 2 hours and weight measurements shall be taken only at the start and completion of the test. The minimum value shall be obtained by averaging all of the determinations obtained from the individual specimens taken from all of the sample units as a group. No single specimen determination shall be less than 2500 grams/meter ${ }^{2} / 24$ hours.

11/ The test for resistance to leakage shall be conducted in accordance with Procedure B, Procedure 2. The hydrostatic head shall be 30 inches and shall be held for three minutes. The report shall only include the appearance of water. The face of the cloth shall face the water. The test may be performed on any device which tests the same specimen area at equivalent pressure.

12/ Five warp and five filling specimens, 6 by 6 inches, shall be flexed for 10,000 cycles as specified in ASTM-D2097 and as follows: Mark the back of each specimen with two lines 1.7 inches apart and perpendicular to the test direction. The area between the lines is the test area. Fold the edges over the face of the specimen 1.25 inches to create flaps parallel to the test area lines (see figure 2). Tape flaps in place at the edges of the specimen. The tape should not extend into the area that will be checked for leakage. Wrap the specimen around the gully extended pistons with the back side out. The test area lines should meet evenly and should line up with the edges of the pistons. Clamp in place making sure the clamps are not in the test area. Check specimen for smoothness and taughtness. Wrinkles cause improper flexing. After flexing, the flexed area of the specimen shall be tested for leakage as specified in footnote $11 /$ in this table. Results shall be reported as pass or fail.

13/ One specimen per sample unit shall be tested for leakage after exposure to synthetic perspiration. The synthetic perspiration solution shall be made up in a 500 ml glass beaker by combining 3.0 g sodium chloride, 1.0 g trypticase soy broth powder, 1.0 g normal propyl propionate, and 0.5 g of liquid lecithin. Add 500 ml of distilled water, add a magnetic stirring bar, and cover the beaker. Place the beaker on a combination hot plate/magnetic stirrer apparatus. While stirring, heat the solution to $50^{\circ} \mathrm{C}$ until all ingredients are dissolved. While stirring, cool the solution to $35^{\circ} \mathrm{C}$, remove cover, and dispense immediately with a pipet or other measuring device. Dispense 2 ml of perspiration solution at $35^{\circ} \mathrm{C}$ onto the center of an 8 inch by 8 inch glass plate. Place a specimen on the glass plate with the knit side facing the glass. Dispense an additional 2 ml of the synthetic perspiration solution onto the center of the specimen. Place an 8 inch by 8 inch
glass plate on top of the specimen with a 4 pound weight positioned in the center. After 16 hours, remove the specimen (do not rinse) and test immediately for leakage as specified in footnote 11/ in this table. Results shall be reported as pass or fail.

14/ Five 6-inch diameter samples shall be tested for leakage after exposure to aircraft fluids. Specimens shall be placed on a flat surface and 1 ml of JP-4 jet fuel conforming to MIL-DTL-5624 shall be spread over the middle, followed by 1 ml of de-icing fluid conforming to MIL-A-8243. Place the horizontal specimens flat in an air circulating oven at $50^{\circ} \mathrm{C}$ for 30 minutes. Remove from oven and test immediately as specified in footnote 11/ in this table. Results shall be reported as pass or fail.

15/ The test sample shall be 6 by 8 inches with 6 inches in the direction to be tested. The specimen shall be aligned perpendicular to the test direction, with the test direction being defined as the direction of the yarns being torn. The specimen shall be positioned with the face side toward the probe. The test shall be conducted using carriage \#6 $(0.9072 \mathrm{KG})$ and only one tear shall be made on a single specimen. If the tear is not straight, the results shall be considered invalid and another specimen tested.

16/ The material shall be tested in accordance with MIL-C-85101.
4.5.2 In-process inspection. Inspection of any sub-assemblies shall be made to ascertain that construction details which cannot be examined in the finished product are in accordance with the specified requirements. The Government reserves the right to exclude from consideration for acceptance any material or service for which in-process inspection has indicated nonconformance.
4.5.3 End item visual inspection. The end items shall be examined for the defects listed in table X. The lot size shall be expressed in units of coveralls. The sample unit shall be one coverall.
4.5.4 End item dimensional examination. The end item shall be examined for conformance to the dimensions specified in Table V and VI and 3.13. Any finished garment dimensions not within the specified tolerance shall be classified as a major defect. The lot size shall be expressed in units of coveralls. The sample shall be one coverall. Any construction dimensions that affect form, fit, or function shall be classified as major. Any construction dimensions that do not affect form, fit, or function shall be classified as minor defects.

Table X. Classification of end item visual defects.

| Examine | Defect | Classification |  |
| :---: | :---: | :---: | :---: |
|  |  | Major | Minor |
| GENERAL | Any hole, scissor or knife tear, mend, burn, or weakening defect such as multiple floats, slubs, skips, needle chew or abraded area | 101 |  |
|  | Any evidence of fabric delamination | 102 |  |
|  | Any spot or stain (compound, oil, dirt, including marks) clearly visible. 1/ |  | 201 |
|  | Color of any component not as specified. |  | 202 |
|  | Any thread not trimmed to $1 / 16$ inch and not covered by heat sealed seam tape. | 103 |  |
|  | Any thread not trimmed to $1 / 16$ inch or thread scraps not removed. |  | 203 |
|  | Any neck seal attachment seam not covered with the specified tape. | 104 |  |
|  | Slide fastener not covered properly or not covered with the specified tape. | 105 |  |
|  | Any damage to tape edges greater than $1 / 16$ inch from the outside edge. |  | 204 |
|  | More than three, two-inch diameter patches per coverall. | 106 |  |
|  | Inspection form missing or not completely filled out. | 107 |  |
|  | Marking of inside of suit with utensil other than a wax marking pencil. | 108 |  |
| SLIDE FASTENERS | Any part of a slide fastener bent, broken, or otherwise defective. | 109 |  |
|  | Slide fastener not closing as specified $2 /$. |  |  |
|  | Length of slide fastener not as specified. | 111 |  |
|  | Slide fastener excessively lubricated or not lubricated. |  | 205 |

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Table X. Classification of end item visual defects - Continued.

| Examine | Defect | Classification |  |
| :---: | :---: | :---: | :---: |
|  |  | Major | Minor |
| COMPONENTS AND ASSEMBLY | Any defective component or defect that will affect the life saving characteristics of the assembly. | 112 |  |
|  | Any component part not as specified, operation improperly performed that affects form, fit, or function. | 113 |  |
|  | Any component part not as specified, operation improperly performed that does not affect form, fit, or function |  | 206 |
|  | Any component part not cut in accordance with the patterns. | 114 |  |
| HOT AIR SEALING | Any seam tape not located as specified. | 115 |  |
|  | Any stitching not covered by seam tape. | 116 |  |
|  | Any splice taping not overlapped 3/4 inch. | 117 |  |
| SEAMS AND STITCHING | Any seam or attachment of any component twisted, puckered, pleated or caught in any unrelated operation or stitching that is not properly forced out or contained in a fold more than $1 / 8$ inch. | 118 |  |
|  | End of stitching not securely backstitched for at least $1 / 2$ inch when not caught in other seams or stitching. | 119 |  |
|  | Thread breaks, skips, and runoffs not securely overstitched for at least $1 / 2$ inch. | 120 |  |
|  | Any stitching irregular or unevenly gauged (greater than $50 \%$ of the seam length or 4 inches, whichever is less). | 121 |  |
|  | Not specified seam or stitch type. | 122 |  |

Table X. Classification of end item visual defects - Continued.

| Examine | Defect | Classification |  |
| :---: | :---: | :---: | :---: |
|  |  | Major | Minor |
|  | Loose tension resulting in a loose seam or tight tension resulting in breaking of stitches when normal pull is applied $3 /$. | 123 |  |
|  | Stitches per inch - one or two stitches more or less than specified (to be scored only when condition exists on $25 \%$ of the seam or more). |  | 207 |
|  | Stitches per inch more than two stitches more or less than specified (to be scored only when condition exists on $1 / 4$ of the seam or more). | 124 |  |
|  | Any open seam 4/. |  |  |
| LABEL AND TAG | Label/tag missing or insecurely attached. | 126 |  |
|  | Size/information on label missing, incorrect or illegible. | 127 |  |
|  | Point size on label incorrect. |  | 210 |
| FINISHED GARMET | Coverall not properly folded. |  | 212 |
|  | Waterproof bag not preserved as specified. |  | 213 |
| POCKET SLIDE FASTENER COVERINGS (Type II only) | Edges of slide fastener coverings overlapping more than $1 / 16$ inch or gapped more than $1 / 16$ inch, when slide fastener is closed. |  | 214 |
|  | Beading omitted in slide fastener covering. | 128 |  |
|  | Beading not sewn taut in slide fastener covering. |  | 215 |
| BARTACK (Type II only) | Any bartack omitted, loose, misplaced or not serving intended purpose. | 129 |  |
|  | Bartack missing, loose, misplaced or not serving intended purpose on multiple pencil compartment pocket. <br> - one bartack <br> - two or more bartacks | 130 | 216 |

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Table X. Classification of end item visual defects - Continued.

| Examine | Defect | Classification |  |
| :---: | :---: | :---: | :---: |
|  |  | Major | Minor |
|  | Length of any bartack on multiple pencil compartment pocket not as specified. |  | 217 |
| POCKET (Type II only) | Any breast, thigh, or lower leg pocket out of horizontal or vertical alignment: <br> - more then $3 / 8$ inch, but not more than $1 / 2$ inch <br> - more than $1 / 2$ inch | 131 | 218 |
|  | Any breast, thigh, or lower leg pocket poorly shaped or not uniform in size and shape. |  | 219 |
|  | Pencil compartment pocket not on left sleeve. | 132 |  |
|  | Pencil pocket protective flap missing. | 133 |  |
|  | One pencil compartment missing. |  | 220 |
|  | Missing, misplaced, incorrect size. | 134 |  |
|  | Missing, does not align. | 135 |  |
| POCKET (Type III only) | Missing | 136 |  |
| HOOK AND LOOP FASTENER TAPE (Type III only) | Missing, does not align | 137 |  |
| SLIDE FASTENER THONG (Type III only) | Missing | 138 |  |
|  | Shorter than specified by more than 2 inches | 139 |  |

1/ Clearly visible shall be interpreted as meaning clearly visible at an examination distance of approximately 3 feet under an overhead illumination or spots and stains which appear only while water testing coveralls for leakage.

2/ The slide fasteners shall be checked for proper function by opening and closing each slide fastener not less than three times along its full length.

3/ Puckering is evidence of tight tension or gathering of the material. When puckering is evident and is caused by the gathering of the material, the stitching shall be inspected for tight
tension and breaking of stitches by exerting normal pull in the lengthwise direction of the stitching, by pulling the material taut to straighten out the seam. Puckering due to the gathering of the material shall be classified and scored as a seam defect.

4/ A seam shall be considered open whether one side or both sides are open.
4.5.5 Coverall leakage. Each of the assembled coveralls shall be tested for conformance to the requirements of 3.14. The water leakage test shall be accomplished in one complete cycle from start to finish without interruption using the apparatus specified in MIL-W-85635 and the following procedures:
a. Fill the reservoir with approximately 30 gallons of clean, fresh water and add 60 ml ( $1 / 4$ cup) of chlorine bleach. The bleach shall be added at the initial filling of the reservoir and at each subsequent refilling. Do not add more than 60 ml of bleach for each reservoir full of water. The reservoir shall be drained and the water replaced at least monthly or more often if the water becomes dirty, slimy, dank, or odoriferous.
b. Secure the water leakage inspection apparatus in the horizontal position with the platform open.
c. The garment to be inspected shall be turned inside out with the entrance and relief slide fasteners, as applicable, fully closed. Lay the coverall on the bottom half of the platform, positioning the neck opening to the left and the entrance slide fastener facing up. Care should be taken while inserting the coverall in the test apparatus to ensure that the garment is not pinched.
d. Close off the left wrist, neck and each leg opening with a clamp. The openings should be folded prior to clamping to avoid leakage at the openings.
e. Extend the right sleeve of the coverall through the opening provided in the side of the inspection apparatus and close the top gate. Secure all four latches.
f. While holding the fill hose and right arm, turn the pump on and fill the coverall to within 6 inches of the right sleeve wrist opening. Allow the trapped air to escape through the wrist opening. If the water does not flow from the filling hose within 5 seconds from the time the switch is turned to the "on" position, prime the pump by clicking the switch "off" and "on" several times.
g. Turn the pump off and rotate the inspection apparatus to a vertical position and secure the platform. If necessary, turn the pump on again and refill the coverall to within 6 inches of the right sleeve wrist opening.
h. Turn pump off, remove hose and clamp off right sleeve wrist opening in a similar manner as described in 4.5.5d.
i. While the inspection apparatus is in the vertical position and locked in place, visually inspect the coverall front and back for leakage. If water appears on the coverall surface, blot area dry with an absorbent material (paper towel, etc.) and observe whether the water reappears. If water does not reappear within 10 seconds, it will not be considered a leak.
j. If the water reappears, mark the suspect area with a wax marking pencil for repair. Do not use any other kind of pencil for marking. If minor leakage is attributable to the stitched seams exposed on the outside perimeter of the slide fastener area, it is acceptable to apply a thin layer of a neoprene base adhesive to the inside of the rubber covered slide fastener tape.
k. Rotate the lower end of the inspection platform forward until the lower slidebolt is aligned with the lower edge of the inspection frame. Move slidebolt over to rest on lower edge of inspection frame as an aid in holding this position. Inspect the lower side seam area and inseam area of the uppermost leg for leaks. Mark suspect areas as described in 4.5.5i and 4.5.5j.

1. Rotate the upper end of the inspection platform forward 180 degrees until upper slidebolt is aligned with the lower edge of the inspection frame. Move slidebolt over to rest on the lower edge of inspection frame as an aid in holding this position. Inspect and mark lower side seam area and inseam area of uppermost leg as described in 4.5.5i and 4.5.5j.
m. After marking all suspect areas for repair, rotate platform back to original horizontal position and lock in place. Remove sleeve clamp from right wrist and slowly drain water from garment.
n. Open platform, remove clamps, and drain any remaining water.
o. Turn coverall right side out.
p. Fully dry coverall. When using a clothes dryer, set dryer at lowest temperature setting and dry coverall for a maximum of 20 minutes. When air drying, hang the coverall on a wooden hanger and allow to air dry. Drying time shall be 4 hours.
q. Ensure that all areas requiring patching are clearly marked.
r. Refer to 3.12 .1 for determining repairability of a coverall.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by Inventory Control Point's packaging activity within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

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(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)
6.1 Intended use. The coveralls covered by this document are intended for continuous wear by military aircrew members on overwater flights to protect the wearer from exposure to cold water, wind, spray, and rain while in a life raft at sea. The coveralls are intended to be used in conjunction with waterproof wrist seals and socks fitted on an individual basis as applicable (see 3.6.1, 3.6.2 and 3.6.3).
6.2 Acquisition requirements. Acquisition documents must specify the following:
a. Title, number, and date of this specification, including any amendments.
b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1, 2.2.2 and 2.3).
c. Type, quantity desired (see 1.2.1).
d. National stock number (see 3.5.1).
e. Applicable Government patterns and drawings, including revisions.
f. Whether first article inspection is required (see 4.3).
g. Name and address of the first article inspection facility; and the name and address of the Government activity responsible for conducting the first article inspection program.
h. Certificate of compliance (see 4.5.1) for:
(1) Materials and components conforming to applicable specifications, standards, and drawings.
(2) The age of materials.
i. Packaging requirements (see 5.1).
6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List QPL-85633 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the
products covered by this specification. Information pertaining to qualification of products may be obtained from: Commander, Naval Air Systems Command, Aviation Life Support Systems, Code 4.6.2.2, Building 2187 Suite 1242, 48110 Shaw Road, Unit 5, Patuxent River, MD 20670-1906.
6.4 First article. When first article inspection (see 3.2) is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a first article sample, a first production item, or a standard production item from the contractor's current inventory, and the number of items to be tested as specified in 4.3.1. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or tests, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.
6.5 Patterns. For access to patterns, write to the procuring activity issuing the invitation for bids.
6.5.1 Pattern numbers. The patterns listed in 3.8.1, table IV, have been assigned NAVAIR drawing numbers for the purpose of configuration control and tracking of pattern changes. These numbers range from 3324AS181 - 3324AS192 for the Type I coverall and 1370AS481 1370AS493 for the Type II coverall. These numbers do not have any effect on manufacturing.

### 6.6 Sources of supply (Type III only).

6.6.1 Slide fasteners. Omni-environmental barrier slide fasteners meeting the requirements of 3.4.3 are available from the following sources:
a. OEB, Inc., 134 Roechling Drive, Dallas, NC 28034-9517. Vendor part number: Talon OEB Style 1731
b. YKK (USA) Inc., 7 Neshaminy Interplex Suite 209, Trevose, PA 19047.
6.6.2 Neck seals. Neck seals meeting the requirements of 3.7 are available from Formco Inc., 5250 Mayfair Road, N. Canton, OH 44720. Vendor Part Number: TAB III
6.7 Subject term (key word) listing.

Dry-Suit
Flight Clothing
Neck Seal
Sealing Machine, Heat

## Water Immersion <br> Wrist Seal

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

## CONCLUDING MATERIAL

Custodians:
Navy - AS
Air Force - 99

Preparing activity:
Navy - AS
(Project 8475-0011)

Review Activity:
Navy - NU
DLA - CT


FIGURE 1. CWU-62B/P


FIGURE 2. CWU-62C/P front.


FIGURE 3. CWU-62C/P back.

Name of Contractor: $\qquad$ Date: $\qquad$
Contract Number: $\qquad$ Coverall Serial Number: $\qquad$

No Leaks $\qquad$

Leaks (number) $\qquad$ Repaired (Date) $\qquad$

Passed: Yes $\qquad$ No $\qquad$ Inspected by: $\qquad$
Mark repair location on diagram below (suit is shown inside out):


FRONT


BACK

FIGURE 4. CWU-62B/P Anti-exposure coverall, patch location, and test information.

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## Name of Contractor: Date:

Contract Number: $\qquad$ Coverall Serial Number: $\qquad$

No Leaks $\qquad$

Leaks $\qquad$ Repaired (Date) $\qquad$

Ready For Issue: $\qquad$ Inspected by: $\qquad$
Mark repair location on diagram below:


FRONT


BACK

FIGURE 5. CWU-62C/P Anti-exposure coverall, patch location, and test information.


FIGURE 6. CWU-74/P with pockets, wrist seals and socks.


FIGURE 7. CWU-62/P and CWU-74/P folding procedures.


FIGURE 8. CWU-62C/P folding procedure.

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks $1,2,3$, and 8 . In block 1 , both the document number and revision letter should be given.
2. The submitter of this form must complete blocks $4,5,6$, and 7 , and send to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.


