



National Technology & Development Program

# Specification 5100-605C PACK, FIRELINE

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Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be used in improving this document should be addressed by contacting the NTDP Equipment Specialists at (406) 329-3900 or using the address in 6.8 Preparing Activity.

**Record of Revisions.** This is a record of changes made to this revision only.

| Change                                                                                                                                                                                                                     | Reason                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| NFPA 1977 changed to:<br><br>NFPA 1950 (1977) – Standard on Personal Protective Equipment for Technical Rescue Incidents, Emergency Medical Operations, and Wildland and Urban Interface Firefighting, revision in effect. | Improve alignment with NFPA 1950 (1977) revision cycles. |
| Labels changed to:<br><br>THIS WILDLAND FIRE FIGHTING AND URBAN INTERFACE FIREFIGHTING PROTECTIVE LOAD-CARRYING EQUIPMENT MEETS THE REQUIREMENTS OF NFPA 1950 (1977), (1/) EDITION.                                        | Currency with NFPA labeling requirements.                |
| Updated formatting, correct grammatical and typographical errors.                                                                                                                                                          | Correctness and improved readable to reading software    |

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## **1. SCOPE**

### **1.1. Scope.**

This specification covers the requirements of the wildland firefighter's fireline pack, canteen case, and stuff sack, fabricated from black coated nylon duck.

### **1.2. Interpretations and Definitions.**

#### **1.2.1. Interpretation.**

To carry out the provisions of this document, the word "shall" is understood to be mandatory.

#### **1.2.2. Definitions.**

Nonconformity: A departure of a quality characteristic from its intended level or state that occurs with severity sufficient to cause an associated product or service not to meet a specification requirement (per ANSI/ASQ Z1.4).

#### **1.2.3. Classification.**

The fireline pack, canteen case and stuff sack are classified by the following types:

Type 1 – Fireline Pack Ensemble (Fireline Pack, 2 Canteen Cases, and 1 Stuff Sack)

Type 2 - Fireline Pack only

Type 3 - Canteen Case (Fireline Pack) only

Type 4 - Stuff Sack (Fireline Pack) only

## **2. APPLICABLE DOCUMENTS**

### **2.1. Government documents.**

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

Unless otherwise indicated, copies of federal and military specifications and standards are available online at <https://quicksearch.dla.mil/qsSearch.aspx>. Copies of USDA Forest Service specifications are available from the preparing activity, 6.8.

#### **2.1.1. Government specifications and standards.**

##### **2.1.1.1. Federal**

A-A-55126 – Fastener Tapes, Hook and Loop, Synthetic

A-A-55301 – Webbing, Textile, Textured or Multifilament Nylon

A-A-55634 – Zippers (Interlocking Slide Fasteners)

A-A-59826 – Thread, Nylon

2.1.1.2. Military

MIL-DTL-4088 – Webbing, Textile, Woven Nylon

MIL-DTL-5038 – Tape, Textile and Webbing, Textile, Reinforcing, Nylon

MIL-C-7219 – Cloth, Duck, Nylon

MIL-H-9890 – Hardware, Individual Load Carrying Equipment, and Hardware, Misc.

MIL-DTL-10884 – Fasteners, Snap

MIL-PRF-17337 – Webbing, Textile, Nylon, Woven

MIL-DTL-27265 – Webbing, Textile, Woven Nylon, Impregnated

MIL-DTL-32075 – Label: For Clothing, Equipage, and Tentage (General Use)

MIL-DTL-43204 – Cloth, Spacer (Olefin)

MIL-STD-129 – Marking and Labeling Requirements for Department of Defense (DoD)  
Shipments

2.1.1.3. USDA FOREST SERVICE

5100-86 - Cloth, Duck, Nylon (Polyurethane Coated)

2.1.2. Government drawings.

The following form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the solicitation or agreement.

2.1.2.1. USDA Forest Service Drawings

Copies are available from the preparing activity, 6.8.

NTDP-996 – Fireline Pack

NTDP-1011 – Stuff Sack (Fireline Pack)

NTDP-1072 – Canteen Case (Fireline pack)

2.2. Non-Government publications.

The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the solicitation or agreement. Non-Government standards and other publications normally are available from the organizations that prepare and distribute the documents. These documents also may be available in or through libraries or other informational services.

#### 2.2.1. AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA (AIA)

Copies are available from Aerospace Industries Association of America, 1250 Eye Street, N.W., Suite 1200, Washington, D.C., 20005-3924, [www.aia-aerospace.org](http://www.aia-aerospace.org), 202-371-8400.

NASM27980 – Fastener, Snap, Style 2 (Regular Wire Spring Clamp Type)

NASM16491 – Grommet, Metallic

#### 2.2.2. AMERICAN SOCIETY FOR QUALITY (ASQ)

Copies are available from the American Society for Quality, PO Box 3005, Milwaukee, WI 53201-3005.

Z1.4 – Sampling Procedures and Tables for Inspection by Attributes

#### 2.2.3. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

Copies are available from ASTM, 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959, Website: <http://www.astm.org/>.

D 1056 – Flexible Cellular Materials--Sponge or Expanded Rubber

D 1974 – Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers

D 3575 – Flexible Cellular Materials Made from Olefin Polymers

D 3576 – Cell Size of Rigid Cellular Plastics

D 3951 – Standard Practice for Commercial Packaging

D 5118 – Standard Practice for Fabrication of Fiberboard Shipping Boxes

D 6193 – Standard Practice for Stitches and Seams

SI-10 – Standard for Use of the International System of Units (SI): The Modern Metric System

#### 2.2.4. NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

Copies are available from the American Trucking Associations, Inc., 2200 Mill Rd., Alexandria, VA 22314.

National Motor Freight Classification

#### 2.2.5. NATIONAL FIRE PROTECTION ASSOCIATION

1950 – Standard on Personal Protective Equipment for Technical Rescue Incidents, Emergency Medical Operations, and Wildland and Urban Interface Firefighting, revision in effect.

(Address requests for copies to National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, [www.nfpa.org](http://www.nfpa.org).)

#### 2.2.6. PARACHUTE INDUSTRY ASSOCIATION

Copies are available from The Parachute Industry Association, 6499 S. Kings Ranch Rd #6-12, Gold Canyon, AZ 85118, <https://www.pia.com/>

PIA-C-5040 – Cord, Fibrous, Nylon

#### 2.3. 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, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

#### 3.1. First article.

Unless otherwise specified (see 6.2), samples shall be subjected to first article inspection in accordance with 4.3. During the term of the contract, the contractor shall be required to notify the contracting officer in writing when a component, or the component supplier, changes in any way; when a major manufacturing process changes in any way; or when a manufacturing location changes. The contracting officer may at any time require the contractor to submit a new first article sample when substantive changes occur during the term of the contract.

#### 3.2. NFPA 1950 (1977).

The Fireline Pack and Canteen Case (Fireline Pack) shall be third party certified as being in compliance with National Fire Protection Association (NFPA) Standard 1950 (1977) - Personal Protective Equipment for Technical Rescue Incidents, Emergency Medical Operations, and Wildland and Urban Interface Fire Fighting. Proof of this certification shall be presented at the time of First Article submission.

#### 3.3. Materials and components.

Materials and components shall be as specified herein and in the applicable drawings. In addition, the materials and components shall comply with NFPA 1950 (1977).

##### 3.3.1. Cloth, duck, nylon (polyurethane coated).

The nylon duck shall conform to type II of Forest Service specification 5100-86 and shall be black to match the standard shade sample (see 6.3).

- Fireline Pack, see NTDP-966, parts 1 through 16
- Canteen Case (Fireline Pack), see MTDC-1072, part 1

## 3.3.2. Cloth, duck, nylon.

The nylon duck shall be type III, class 3 of MIL-C- 7219 (before coating) or be a 400 denier 5.6 ounce per square yard (before coating) pack cloth. The finished cloth shall have a 3/4 to 1 ounce per square yard urethane coating. The color shall be black to match the standard shade sample (see 6.3) for the following:

- Fireline Pack, see NTDP-966, parts 17 through 22
- Stuff Sack (Fireline Pack), see MTDC-1011, parts 1 and 2

## 3.3.3. Cloth, spacer (olefin).

The spacer cloth shall be type III of MIL-DTL-43204. Suggested source: Lumite, Inc.

## 3.3.3.1. MIL-DTL-43204 exceptions.

The following exceptions apply to MIL-DTL-43204D dated April 29, 2024.

- a. Page 4, paragraph 3.2.2, line 2, delete "0.010 inch" and replace with "0.012 inch".
- b. Page 4, table I, under type I, for Texture, Warp No. 3, polypropylene, delete "27 ends/inch" and replace with "16 ends/inch".
- c. Page 4, table I, under type III, for Weight oz/yd, delete "8.25 min" and "10.25 max", and replace with "9.25 min" and "11.50 max".

## 3.3.4. Mesh.

The mesh shall be style No. 8885F with No. 3 finish, and No. 8 Fire Resistant (FR) treatment. Color black. Suggested Source: Milco Industries Inc.

## 3.3.5. Nylon webbing.

## 3.3.5.1. 1-15/16 inch.

The 1-15/16 inch webbing shall be class 2, type XXIV (1-15/16 inch width) of MIL-DTL-4088; or class 2 (2 inch width) of MIL-PRF-17337. The color shall be black.

## 3.3.5.1.1. Treatment.

The webbing specified by 3.2.5.1 shall be resin impregnated in accordance with class R treatment of MIL-DTL-27265.

## 3.3.5.2. 1 inch.

The 1 inch webbing shall be type III or type III (alternate) of A-A-55301. The color shall be black.

## 3.3.5.3. 2-1/4 inch.

The 2-1/4 inch webbing for the canteen case (part 2, Hanger, of NTDP-1072), shall be type VIILc, Class 2 of MIL-DTL-4088. The color shall be black.

## 3.3.5.4. 3/4 inch.

The 3/4 inch webbing shall be class 2 of MIL-PRF-17337. The color shall be black.

## 3.3.6. Tape, binding, 1 inch.

The binding tape shall be in accordance with Type III, class 2, size 1 inch width of MIL-DTL- 5038.

## 3.3.7. Tape, reflective.

The reflective tape shall be 1 inch wide and shall be 3M Scotchlite Reflective Material style no. 8935 or 8940 (see 6.6), color silver.

## 3.3.8. Padding.

The padding for the shoulder harness and the hip pad shall be soft, flexible, 3/8 inch thick, closed cell, expanded ethylene vinyl acetate copolymer foam with the characteristics listed in table 1.

| Table 1. Physical characteristics of padding |                      |             |
|----------------------------------------------|----------------------|-------------|
| Characteristic                               | Requirement          | Test Method |
| Density                                      | 2.2 lb/cu ft minimum | ASTM D 3575 |
| Water absorption                             | 5% maximum           | ASTM D 1056 |
| Cell size                                    | 0.025 inch maximum   | ASTM D 3576 |

## 3.3.9. Cord, nylon.

The nylon cord shall be PIA-C-5040, type IIa (see 6.6). The color shall be black.

## 3.3.10. Thread, nylon.

The thread shall be type II, class A of A-A-59826. The color shall be black. For bartacking, the thread shall be size E. Size "E" may also be used as an alternative for attaching labels and reflective tape. All other stitching shall be size "FF" thread unless otherwise specified.

## 3.3.11. Zipper.

The zipper shall be type I, style 2, size 7 of A-A-55634, nonlocking slider. The chain shall be nylon or polyester continuous monofilament in a coil type configuration conforming to the following requirements:

## 3.3.11.1. Zipper chain.

The diameter of the chain filament shall be 0.028 to 0.040 inch. The width of the chain when closed shall be 0.220 to 0.300 inch. The chain shall be sewn to the tapes. Color of the chain shall be black. All performance requirements governing the crosswise strength of the chain are not applicable except the crosswise breaking strength requirement, which

shall be 155 pounds minimum. The crosswise breaking strength shall be performed as specified in A-A-55634 except the fastener shall be preconditioned.

#### 3.3.11.2. Zipper tape.

The zipper tape shall be  $3/4 \pm 1/16$  inch wide, dyed black, and shall be water repellent treated. The tape shall show good fastness to laundering.

#### 3.3.11.3. Slider and pull.

The zipper shall have sliders conforming to the standard long tab pull nonlocking type as specified in A-A-55634. The sliders shall properly fit the chain and shall be brass, aluminum, or other noncorroding metal. The color shall be black.

#### 3.3.11.4. Zipper components.

All components of the zipper shall be manufactured by the same company to ensure compatibility of components

#### 3.3.12. Fasteners, snap.

The snap fasteners shall be style 2, finish 2, 24 line, size 1 of MIL-DTL-10884, and shall be part numbers -1B (button), -6B (socket), -7B (stud), and -8B (eyelet) of NASM27980.

#### 3.3.13. Grommets, metallic.

The grommets shall be brass, bright finish conforming to type III, class 1, size 0 of NASM16491.

#### 3.3.14. Plastic hardware.

The plastic items specified by 3.3.14.1 through 3.3.14.7 shall be black nylon 6,6. Mating components shall be manufactured by the same company to ensure compatibility of the components (see 6.6).

##### 3.3.14.1. Buckles.

###### 3.3.14.1.1. 3/4 inch.

The 3/4 inch buckle shall be black nylon. Suggested sources: ITW Nexus Side Release Buckle, part no. 810-1001-2099/810- 1002-2099 (body/latch), National Molding Corp. Mojave Side Squeeze Buckle, part nos. 5179/5180 (male/female); or American Cord & Webbing part no. BSR-A, or equivalent.

###### 3.3.14.1.2. 1 inch.

The 1 inch buckle shall be black nylon. Suggested sources: ITW Nexus Side Release Buckle, part no. 810-1003-2099/810-1004- 2099(body/latch), National Molding Corp. Mojave Side Squeeze Buckle, part nos. 5129/5130 (male/female); or American Cord & Webbing part no. BSR-A, or equivalent.

3.3.14.1.3. 2 inch.

The 2 inch buckle shall be black nylon. Suggested sources: ITW Nexus Side Release Buckle, part no. 815-0017-2099/815-0007- 2099 (body/latch); or National Molding Corp. Lock Monster Buckle, Dual adjust part nos. 5436/5435 (male/female), or equivalent.

3.3.14.2. Loop.

The 1-inch loop shall be black nylon. Suggested sources: ITW Nexus Loop, part no. 111-0100-2099, National Molding Corp. Uniloop, part no. 5358; or American Cord & Webbing part no. LP Simple Loop, or equivalent.

3.3.14.3. Double-bar buckle.

The 1 inch double-bar buckle shall be black nylon. Suggested sources: ITW Nexus Trovato Ladderloc, part no. 154-0100-2099, National Molding Corp. Standard Tensionlock Buckle, part no. 5060; or American Cord & Webbing Double Bar Single Lock, part no. DB Single Lock or equivalent.

3.3.14.4. Triangle.

The triangle shall be black nylon. Suggested sources: ITW Nexus Triangle, part no. 109-0100-2099; or National Molding Corp. Triangle, part no. 4999, or equivalent.

3.3.14.5. Cord lock.

The spring cord lock shall be black nylon. Suggested source: ITW Waterbury GhilliTex Self Plunging (GTSP) Toaster, part no. 350-6000-0753, or equivalent.

3.3.14.6. Sternum adjuster.

The sternum adjuster strap buckle shall be black nylon. Suggested sources: National Molding Corp. Sternum Adjuster Sliplock Buckle, part no. N-0514-NY001-BLK, part no. 10426 Quick Attach Repair Sternum/Snap On Sternum Adjust 1" x  $\frac{3}{4}$ "; part no. 6042 Dual Sternum Strap Adjuster 1" x  $\frac{3}{4}$ "; part no. 10530 Sternum Strap Adjuster 1" x  $\frac{3}{4}$ ", or equivalent.

3.3.14.7. D-Ring.

The D-Ring shall be black nylon. Suggested sources: ITW Nexus D-Ring part no. 110-0100-2099, or National Molding Corp. D- Ring part no. 5354., or equivalent.

3.3.15. Keeper with slide.

The keeper with slide shall be type X of MIL-H-9890. The color shall be black.

3.3.16. Fastener tape.

The  $\frac{3}{4}$  inch, 1 inch and 2 inch fastener tape shall conform to type II, class 1 of A-A-55126, color shall be black.

## 3.3.17. Identification label.

## 3.3.17.1. Fireline Pack.

The fireline pack combination identification and cleaning label shall be a sewn-on coated cloth label conforming to type VI, class 5 of MIL-DTL-32075. The label shall meet the requirements of NFPA 1950 (1977). The size of inscription characters shall be 1/4 (-0, +1/16) inch for the identification part and 1/8 (-0, +1/32) inch for the cleaning part. The contents shall dictate label size and shall be in the following format:

THIS WILDLAND FIRE FIGHTING AND URBAN INTERFACE PROTECTIVE LOAD-CARRYING EQUIPMENT MEETS THE REQUIREMENTS OF NFPA 1950 (1977), 2025 EDITION (1/)

DO NOT REMOVE THIS LABEL! (3/)

[Manufacturer's name] (2/)

[Manufacturer's address] (2/)

[Country of manufacture] (2/)

[Manufacturer's garment identification number, lot number, or serial number] (2/)

DATE OF MANUFACTURE: [mm/yy] (2/)

USDA FOREST SERVICE SPECIFICATION 5100-605B

CONTRACT NUMBER: (2/)

NSN 8465-01-503-4488

MATERIALS CONTENT: (2/)

[Authorized mark of certifying organization] (2/)

DATE OF CERTIFICATION [mm/yy (as a minimum)] (2/)

- a. Machine wash, cold water, gentle cycle
- b. Air dried only
- c. Dirt – Let dry; Remove with stiff bristle brush
- d. DO NOT BLEACH
- e. Light oil – Brush with warm water detergent solution
- f. Do not use fabric softener

1/ Or more current edition as applicable.

2/ The manufacturer shall insert the applicable information.

3/ When a split label is used, this legend shall appear on both labels.

## 3.3.17.2. Canteen Case.

The canteen case label shall be a sewn-on coated cloth label conforming to type VI, class 5 of MIL-DTL-32075. The label shall meet the requirements of NFPA 1950 (1977). The size of inscription characters shall be 1/8 (-0, +1/32) inch. The contents shall dictate label size and shall be in the following format:

THIS WILDLAND FIRE FIGHTING AND URBAN INTERFACE PROTECTIVE LOAD-CARRYING EQUIPMENT MEETS THE REQUIREMENTS OF NFPA 1950 (1977), 2025 EDITION (1/)

DO NOT REMOVE THIS LABEL! (3/)

[Manufacturer's name] (2/)

[Manufacturer's address] (2/)

[Country of manufacture] (2/)

[Manufacturer's garment identification number, lot number, or serial number] (2/)

DATE OF MANUFACTURE: [mm/yy] (2/)

USDA FOREST SERVICE SPECIFICATION 5100-605B

CONTRACT NUMBER: (2/)

NSN 8465-01-503-4479

MATERIALS CONTENT: (2/)

[Authorized mark of certifying organization] (2/)

DATE OF CERTIFICATION [mm/yy (as a minimum)] (2/)

- a. Machine wash, cold water, gentle cycle
- b. Air dried only
- c. Dirt – Let dry; Remove with stiff bristle brush
- d. DO NOT BLEACH
- e. Light oil – Brush with warm water detergent solution
- f. Do not use fabric softener

1/ Or more current edition as applicable.

2/ The manufacturer shall insert the applicable information.

3/ When a split label is used, this legend shall appear on both labels.

### 3.3.17.3. Stuff Sack.

The fireline stuff sack label shall be a sewn-on coated cloth label conforming to type VI, class 5 of MIL-DTL-32075. The size of inscription characters shall be 1/8 (-0, +1/32) inch. The contents shall dictate label size and shall be in the following format:

STUFF SACK, FIRELINE PACK

NSN 8465-01-503-4482

USFS SPEC. 5100-605C

CONTRACT No. [Contract No.]1/

[Manufacturer's name]1/

DATE OF MANUFACTURE: [mm/yy]1/

CLEANING

DIRT - LET DRY; REMOVE WITH STIFF BRISTLE BRUSH.

LIGHT OIL - BRUSH WITH WARM WATER DETERGENT SOLUTION; RINSE THEN DRY. MAY BE MACHINE WASHED; COLD WATER, GENTLE CYCLE ONLY AND AIR DRIED. DO NOT BLEACH!

1/ The contractor shall insert the applicable information indicated. Construction.

#### 3.3.17.4. Label margins.

All labels shall be provided with a  $1/4 \pm 1/16$  inch blank margin on all four sides to facilitate sewing.

#### 3.3.17.5. Date of manufacture.

The date of manufacture shall be the month and year manufacturing starts for the contract in force.

#### 3.3.18. User instructions.

A camera-ready copy of the user instructions (0451-2804-MTDC) will be supplied to the contractor upon request. The contractor shall utilize the camera-ready copy to develop the copies to be supplied with the fireline pack. User instructions shall be printed on 8-1/2 by 11-inch sheets of white, 60 pound offset paper stock, 2-sided printing. Printing shall be with black ink. All half tone photographs shall be reproduced in 100 line screen ruling or better. The user instructions shall be inserted into the main pack (see 5.2.1 and 6.4).

#### 3.4. Construction.

The construction of the fireline pack shall conform in all respects to drawing NTDP-996 and as specified herein. The construction of the canteen case shall conform in all respects to drawing NTDP-1072 and as specified herein. The stuff sack shall conform in all respects to drawing NTDP-1011 and as specified herein.

##### 3.4.1. Stitches, seams, and stitchings.

All stitching, except bartacking, shall conform to type 301 of ASTM D 6193, 6 to 8 stitches per inch. As an alternative for attaching the zipper tape, a 1/4-inch gauge double lock stitch may be used.

##### 3.4.1.1. Type 301 stitching.

Ends of stitching shall be backstitched or overstitched not less than 1 inch (1/2 inch for box-x) except where ends are turned under or caught in other seams or stitching. Thread tension shall be maintained so there will be no loose bobbin or top thread or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be imbedded in the materials sewn.

##### 3.4.1.1.1. Repairs of type 301 stitching.

Repairs of type 301 stitching shall be as follows (when making the following repairs, the ends of the stitching are not required to be backstitched):

- a. When thread breaks or bobbin runouts occur during stitching, except presewing, the stitching shall be repaired by restarting the stitching a minimum of 1 inch (1/2 inch for box-x) back of the end of the stitching.
- b. Except for presewing, thread breaks or two or more consecutive skipped or runoff stitches noted during an inspection of the item (inprocess or end item) shall be repaired by overstitching. The stitching shall start a minimum of 1 inch in back of the nonconforming area (1/2 inch on box-x), continue over the nonconforming area to a minimum of 1 inch into existing stitching. Loose or excessively tight stitching shall be repaired by removing the nonconforming stitching, without damaging the materials, and restitching in the required manner.

#### 3.4.1.2. Bartacking.

Bartacking shall be free from thread breaks and loose stitching. Unless otherwise specified, bartacks shall be as follows:

| Length                   | Width                    | Stitches Per Bartack |
|--------------------------|--------------------------|----------------------|
| 1/2 inch $\pm 1/16$ inch | 1/8 inch $\pm 1/32$ inch | 28                   |
| 3/4 inch $\pm 1/16$ inch | 1/8 inch $\pm 1/32$ inch | 42                   |

#### 3.4.1.3. Automatic stitching.

Automatic machines may be used to perform any of the stitch patterns provided the requirements for the stitch pattern, stitches per inch, and size and type of thread are met; and at least three or more tying, overlapping, or backstitches are used to secure the ends of the stitching.

#### 3.4.1.4. Thread ends.

All thread ends shall be trimmed to 1/4 inch maximum length.

#### 3.4.1.5. Lubrication of thread.

There shall be no lubrication of the thread by any means, before or during sewing (see 4.2.3.1).

#### 3.4.1.6. Stitching margins.

Unless otherwise specified, all stitching margins shall be 1/8 inch.

#### 3.4.1.7. Box-x stitches.

Where two or more box-x stitches are required side by side or end to end, one may be used to encompass the entire area specified.

#### 3.4.2. Setting of grommets.

Holes shall be prepunched to receive the grommets. Holes prepunched to receive the grommets shall be smaller than the outside diameter of the grommet barrel so that the barrel must be forced through the hole. The grommet shall be securely clinched without cutting the adjacent material.

#### 3.4.3. Setting of snap fasteners.

A hole shall be prepunched to receive the button and eyelet components of the snap fasteners. The hole shall be smaller than the outside diameter of the button and eyelet barrels so that the barrel must be forced through the hole. The hole shall not be punched in the setting operation with the button or eyelet barrel. The fasteners shall be securely clinched without cutting the adjacent materials and no more than three splits shall occur in the button or eyelet barrels.

#### 3.4.4. Fusing of ends of nylon cord and webbing.

All webbing and cord ends shall be fused before being assembled for stitching. The apparatus used to fuse the webbing and cord ends shall provide enough heat to create a smooth edge with the cut ends of all webbing and cord yarns fused together.

#### 3.4.5. Location marks.

Location marks may be drilled, providing the drill diameter does not exceed 0.076 inch. All drill holes shall be covered on the finished item. Printed markings shall be no more than 1/32 inch in width.

#### 3.4.6. Repairs.

Repairs such as mends, darns, patches, or splices are not permitted on any component of the fireline pack, canteen case or stuff sack.

#### 3.4.7. Piecing.

No piecing or splicing of materials is allowed.

#### 3.4.8. Replacement of nonconforming components.

During the spreading, cutting, and manufacturing process, components having material nonconformities or damages that are classified as nonconformities in 4.3.4.1 or 4.3.4.2 shall be removed from production and replaced with conforming and properly matched components.

#### 3.4.9. Coated cloth surface.

The coated side of the cloth shall face the inside of the completed items.

#### 3.4.10. Repairs.

Repairs such as mends, darns, patches, or splices are not permitted.

3.5. Dimensions.

Unless otherwise specified, all dimensions except pattern sizes are finished dimensions.

3.6. Patterns.

Standard patterns for textile components other than tape or webbing are shown full scale on drawings and provide allowances for all seams and shall be used for making working patterns. The working patterns shall be identical to Government standard patterns, which shall not be altered in any way. All parts shall be within 1/8 inch of the location(s) shown on the pattern(s).

3.7. Workmanship.

All items shall conform to the quality of product established by this document. The occurrence of nonconformities shall not exceed the applicable acceptable quality levels. There shall be no nonconformities that affect use, appearance, or serviceability. The finished fireline pack and canteen case shall conform to NFPA 1950 (1977).

3.8. Metric products.

Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch/pound units, provided they fall within the tolerances specified using conversion tables contained in the latest revision of IEEE/ASTM SI-10, and all other requirements of this specification are met.

3.9. Recovered materials.

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

## **4. QUALITY ASSURANCE PROVISIONS**

4.1. Responsibility for inspection.

Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations or tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his/her own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements. Inspection records of the examination and tests shall be kept complete and available to the Government.

#### 4.1.1. Responsibility for compliance.

All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection as part of manufacturing operations is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known nonconforming material, either indicated or actual nor does it commit the Government to accept nonconforming material.

##### 4.1.1.1. Responsibility for certification.

An approved Certification Organization shall certify that the fireline pack and canteen case meets the requirements of NFPA 1950 (1977). The contractor shall provide all required materials, garments, and information to the Certification Organization to permit such certification.

#### 4.1.2. Responsibility for dimensional requirements.

Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspections shall be made at any point or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

#### 4.1.3. Certification of compliance.

Unless otherwise specified, certificates of compliance supplied by the manufacturer of the item, component, or material, listing the specified test method and test results obtained, may be furnished in lieu of actual lot by lot testing performed by the contractor (see 4.3.2). When certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification. Inspection and tests.

#### 4.2. Sampling for inspections and tests.

Sampling for inspections and tests shall be made in accordance with ASQ Z1.4. The inspection level and acceptable quality level (AQL) shall be as specified. All fireline packs, canteen cases, stuff sacks, or combination, manufactured at one time shall be considered a lot for purposes of acceptance inspection and test. A sample unit shall be one complete fireline pack, canteen case, stuff sack, or combination.

#### 4.3. Quality conformance inspection.

Each end item lot shall be sampled and inspected as specified in 4.3.4.1 and 4.3.4.2. The packaging shall be sampled as specified in 4.4. Unless otherwise specified (see 6.2), first articles submitted in accordance with 3.1 shall be inspected as specified in 4.3.4.1 and 4.3.4.2. Packing and packaging is not part of the first article inspection. The presence of any nonconformity or failure to pass any test shall be cause for rejection of the first article.

#### 4.3.1. Component and material inspection.

In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

#### 4.3.2. Certificates of compliance (COC).

Unless otherwise specified (see 6.2), as part of first article presentations and lot inspections, it shall be acceptable for the contractor to provide certificates of compliance for all materials and components in lieu of actual lot by lot testing, except as specified in 4.3.2.1. In addition, when the contractor changes component or material suppliers, a new certification based on actual test results shall be required. All certificates shall include as a minimum:

- Specification, type, class, form where applicable
- Quantity purchased
- Purchase source, address, and telephone number
- Purchase date
- Lot number traceable to materials used in production
- Contract number

##### 4.3.2.1. COCs required.

The following COCs shall be provided for each item.

##### 4.3.2.1.1. Fireline pack.

- Cloth, duck, nylon (9.25 oz/sq yd) (3.3.1)
- Cloth, duck, nylon (5.55 oz/sq yd) (3.3.2)
- Cloth, spacer (olefin) (3.3.3)
- Mesh (3.3.4)
- 1-15/16 inch nylon webbing (3.3.5.1, 3.3.5.1.1)
- 1 inch nylon webbing (3.3.5.2)
- 3/4 inch nylon webbing (3.3.5.4)
- 1 inch binding tape (3.3.6)
- Tape, reflective (3.3.7)
- Padding (3.3.8)
- Cord, nylon (3.3.9)
- Thread, nylon (3.3.10)
- Zipper (3.3.11)
- Grommets, metallic (3.3.13)
- 3/4 inch buckle (3.3.14.1.1)
- 1 inch buckle (3.3.14.1.2)
- 2 inch buckle (3.3.14.1.3)
- 1 inch loop (3.3.14.2)
- 1 inch double-bar buckle (3.3.14.3)

- Triangle (3.3.14.4)
- Cord lock (3.3.14.5)
- Sternum adjuster (3.3.14.6)
- D-Ring (3.3.14.7)
- Fastener tape (3.2.16)
- Label (3.3.17)
- User Instructions (3.3.18)
- No thread lubricant (3.4.1.5)

#### 4.3.2.1.2. Canteen case.

- Cloth, duck, nylon (9.25 oz/sq yd) (3.3.1)
- 2-1/4 inch nylon webbing (3.3.5.1)
- 3/4 inch nylon webbing (3.3.5.4)
- Thread, nylon (3.3.10)
- Fastener, snap (3.3.12)
- Keeper with slide (3.3.15)
- Label (3.3.17)
- No thread lubricant (3.4.1.5)

#### 4.3.2.1.3. Stuff sack.

- Cloth, duck, nylon (5.55 oz/sq yd) (3.3.2)
- Cord, nylon (3.3.9)
- Thread, nylon (3.3.10)
- Cord lock (3.3.14.5)
- Label (3.3.17)
- No thread lubricant (3.4.1.5)

#### 4.3.2.2. Test results.

The contractor shall provide actual test results for the characteristics of the nylon cloths (3.3.1 and 3.3.2), spacer cloth (3.3.3), webbing (3.3.5), and thread (3.3.10) for every new lot of each type of cloth purchased. Such test reports, traceable to each lot of component materials used in production of the fireline pack or the canteen, shall be maintained at the inspection point specified in the contract. Copies of these test reports shall be made available to the Government representative upon request. Unless otherwise specified, test results supplied by the component manufacturer are acceptable.

#### 4.3.2.3. NFPA 1950 (1977).

As a part of first article submission, the contractor shall provide copies of the third party certification to NFPA 1950 (1977).

#### 4.3.3. In-process inspection.

Inspection shall be made at any point or during any phase of the manufacturing process to determine whether cut lengths, cut parts, markings for location of components, and location

of assembled component parts are in accordance with specified requirements. Inspection shall be made to determine that holes drilled for location marking do not exceed 0.076 inch diameter and are placed in such a manner that each shall be covered in the finished item (see 3.4.5). In addition, inspection shall be made to determine that prepunched holes for receiving grommets and snap fasteners are smaller than the outside diameter of the hardware barrel. Whenever nonconformance is noted, corrections shall be made to the parts affected and lot in process. Components that cannot be corrected shall be removed from production.

#### 4.3.4. End item examination.

##### 4.3.4.1. End item visual examination.

The end items shall be examined for the nonconformities list in table 2 on a lot by lot basis. The lot size shall be expressed in units of complete fireline packs, canteen cases, stuff sacks, or combination. The inspection level shall be S-3, and the acceptable quality level (AQL), expressed in terms of nonconformities per hundred units, shall be 4.0 for major nonconformities and 15.0 for combined major and minor nonconformities. Unless otherwise specified, nonconformities shall be scored on an individual basis, i.e., each seam, each stitching end, each dimension, etc.

**TABLE 2. End item visual nonconformities**

| Examine                                   | Nonconformity                                                                                                                                                                                                  | Classification<br>Major | Classification<br>on<br>Minor |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------|
| Nylon cloth,<br>mesh, and<br>spacer cloth | Hole, cut, or tear                                                                                                                                                                                             | X                       |                               |
|                                           | Any abrasion mark, smash, large slub, broken or missing yarn, multiple float, or open place, clearly visible at normal inspection distance (3 feet)                                                            | -                       | X                             |
|                                           | Improper positioning                                                                                                                                                                                           | X                       | -                             |
|                                           | Needle chew                                                                                                                                                                                                    | X                       | -                             |
|                                           | NOTE: Needle holes visible as the result of broken or skipped stitching or stitching that has been removed shall not be considered as needle chews providing that the holes are spaced as in normal stitching. |                         |                               |
|                                           | Color not as specified                                                                                                                                                                                         | X                       | -                             |
|                                           | Shade bar, fine or coarse filling bar                                                                                                                                                                          | -                       | X                             |
|                                           | Coating nonconforming or partially omitted on nylon cloth                                                                                                                                                      | -                       | X                             |
|                                           | Smooth side of spacer cloth not facing to inside of pack                                                                                                                                                       | -                       | X                             |

|                 |                                                                                                                                               |   |   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| Webbing         | Size or type not as specified                                                                                                                 | X | - |
|                 | Color not as specified                                                                                                                        | X | - |
|                 | Any hole, cut, tear, or smash                                                                                                                 | X | - |
|                 | Abrasion mark, slub, broken end or pick                                                                                                       | - | X |
|                 | Cut ends not fused as specified                                                                                                               | X | - |
|                 | Treatment not as specified                                                                                                                    | - | X |
|                 | Not firmly and tightly woven                                                                                                                  | X | - |
|                 | Edges frayed or scalloped                                                                                                                     | X | - |
|                 | Multiple floats                                                                                                                               | - | X |
| Reflective tape | Size or type not as specified                                                                                                                 | X | - |
|                 | Location not as specified                                                                                                                     | X | - |
|                 | Color not as specified                                                                                                                        | - | X |
|                 | Coating nonconforming or partially omitted                                                                                                    | - | X |
| Nylon tape      | Size or type not as specified                                                                                                                 | X | - |
|                 | Color not as specified                                                                                                                        | X | - |
| Fastener tape   | Size or type not as specified                                                                                                                 | X | - |
|                 | Location not as specified                                                                                                                     | X | - |
|                 | Color not as specified                                                                                                                        | X | - |
| Zipper          | Not specified type, size, or color                                                                                                            | X | - |
|                 | Does not provide a smooth and secure closure full length of pocket opening                                                                    | X | - |
|                 | Slider jams or fails to interlock chain scoops                                                                                                | X | - |
|                 | Any portion of fastener broken, bent, missing, or not aligned making fastener unusable                                                        | X | - |
|                 | Fastener tape not specified width                                                                                                             | X | - |
|                 | Slider not specified type                                                                                                                     | X | - |
|                 | Slider not attached as specified                                                                                                              | X | - |
|                 | Chain not material or configuration specified                                                                                                 | X | - |
|                 | NOTE: Each zipper shall be fully closed and opened three times to determine whether fastener operates smoothly and provides a secure closure. |   |   |
|                 | Length not as specified                                                                                                                       | X | - |

|                |                                                                                                                                                             |   |   |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
|                | Components not all manufactured by same company                                                                                                             | X | - |
| Thread         | Type, class, subclass, or size not as specified                                                                                                             | X | - |
|                | Any thread lubricated                                                                                                                                       | - | X |
|                | Color not as specified                                                                                                                                      | - | X |
| Hardware       | Finish of the keeper slide totally or partially omitted, corroded area, burr, or sharp edge                                                                 | X | - |
|                | Orange peel, wrinkles, drops, streaks, thin film or no film on keeper                                                                                       | X | - |
|                | Any part broken, cracked, chipped, distorted, twisted or out of shape                                                                                       | X | - |
|                | Any dirt or flash                                                                                                                                           | - | X |
|                | Any deep scratch or gouge                                                                                                                                   | - | X |
|                | Gates not trimmed                                                                                                                                           | - | X |
|                | Surface not smooth                                                                                                                                          | - | X |
|                | Any pit, void, crazing, air pocket, blister, or imbedded foreign matter that will affect serviceability                                                     | X | - |
|                | Evidence of spray or jetting marks                                                                                                                          | X | - |
|                | Latch and latch receptacle do not mate                                                                                                                      | X | - |
|                | NOTE: Each plastic quick-release buckle shall be latched and unlatched three times to determine whether it operates smoothly and provides a secure closure. |   |   |
| Snap fasteners | Any fastener not functioning properly, i.e., fails to snap closed, provide a secure closure, or open freely                                                 | X | - |
|                | NOTE: The fasteners shall be snapped and unsnapped twice to determine whether parts of fastener separate freely and also effect a secure closure.           |   |   |
|                | Clinched excessively tight, cutting adjacent material                                                                                                       | X | - |
|                | Clinched loosely, permitting any component to rotate freely but not to the degree that any component can be expected to become detached during use          | - | X |

|                  |                                                                                                                              |   |   |
|------------------|------------------------------------------------------------------------------------------------------------------------------|---|---|
|                  | Clinched loosely to the degree that components can be expected to become detached during use                                 | X | - |
|                  | NOTE: Incomplete roll of end of button or eyelet barrel is evidence of improper and insecure clinching.                      |   |   |
|                  | Incorrect style                                                                                                              | X | - |
|                  | More than three splits in eyelet or button barrels                                                                           | X | - |
| Nylon cord       | Cut, chafed, or abraded                                                                                                      | X | - |
|                  | Color not as specified                                                                                                       | X | - |
|                  | Ends not fused                                                                                                               | - | X |
|                  | Ends not knotted as specified                                                                                                | - | X |
|                  | Not threaded through grommets as specified                                                                                   | - | X |
|                  | Triangle not threaded in specified location or missing                                                                       | X | - |
|                  | Omitted                                                                                                                      | X | - |
| Spring cord lock | Not type specified or missing                                                                                                | X | - |
| Brass grommets   | Clinched excessively tight, cutting adjacent material                                                                        | X | - |
|                  | Insecurely clinched to a degree that grommet may be detached from material                                                   | X | - |
|                  | Clinched loosely, allowing grommet to rotate in hole but not to degree that it can be expected to become detached during use | - | X |
|                  | Washer installed on incorrect side of material                                                                               | - | X |
|                  | Eyelet barrel split                                                                                                          | - | X |
| Harness padding  | Wrong type or thickness                                                                                                      | X | - |
|                  | Wrong color                                                                                                                  | X | - |
| Open seam        | 1/2 inch or less                                                                                                             | - | X |
|                  | More than 1/2 inch                                                                                                           | X | - |
| Seam and         | Seam or stitch type not as specified                                                                                         | X | - |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| stitch type                                | NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more consecutive skipped or run-off stitches occur. On double stitched seams, a seam shall be considered open when either one or both sides of the seam are open.                                                                                                                                                                                                                                                                           |   |   |
| Raw edge (on edge required to be finished) | More than 1/2 inch when securely caught in stitching                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | X | - |
|                                            | NOTE: Raw edge not securely caught in stitching shall be classified as an open seam.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |
| Run-off (see open seam)                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |
| Bartacks                                   | Any bartack omitted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | X | - |
|                                            | Any bartack not as specified or not in specified location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | - | X |
|                                            | Loose stitching, incomplete or broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | - | X |
| Stitch tension                             | Loose, resulting in a loose bobbin or top thread                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | - | X |
|                                            | Excessively tight, resulting in puckering of material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | - | X |
|                                            | NOTE: Nonconformities to be scored only when the condition exists for a continuous 4 inches or more, or in several areas with an accumulated distance of 8 inches or more. Applicable to individual seams.                                                                                                                                                                                                                                                                                                                                              |   |   |
| Stitches per inch                          | Up to two stitches less than minimum specified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | - | X |
|                                            | Three or more stitches less than minimum specified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | X | - |
|                                            | Two or more stitches in excess of maximum specified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | - | X |
|                                            | NOTE: Variation in the number of stitches per inch caused by the operator speeding up the machine and pulling the cloth in order to sew over heavy places or in turning corners shall be classified as follows:<br><br>(a) Within the minor nonconformity classification - no nonconformity;<br><br>(b) Within the major nonconformity classification - minor nonconformity A nonconformity shall be scored only when condition exists on any one seam for a length of 6 inches or more or when the combined length of several areas exceeds 10 inches. |   |   |
| Stitch margin (not otherwise)              | Exceeds specified tolerance, up to 1/16 inch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | - | X |
|                                            | Exceeds specified tolerance over 1/16 inch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | X | - |

|                                            |                                                                                                                                                                                              |   |   |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| classified herein)                         | NOTE: Nonconformities to be scored only when the condition exists for 4 inches or more or in several areas with an accumulated distance of 8 inches or more. Applicable to individual seams. |   |   |
| Stitching ends                             | Not secured as specified                                                                                                                                                                     | - | X |
| Thread breaks, skipped stitches or runoffs | Not overstitched as specified                                                                                                                                                                | - | X |
|                                            | NOTE: Thread breaks or two or more consecutive skipped or runoff stitches not overstitched shall be classified as open seams.                                                                |   |   |
| Rows of stitching                          | Any row missing except on box-x stitching                                                                                                                                                    | X | - |
|                                            | On box-x stitching                                                                                                                                                                           | - | - |
|                                            | - One row of stitching omitted                                                                                                                                                               | - | X |
|                                            | - Two or more rows of stitching omitted                                                                                                                                                      | X | - |
| Components and assembly                    | Any component part omitted or not as specified or any operation omitted or not as specified (unless otherwise classified herein)                                                             | X | - |
|                                            | Needle chews                                                                                                                                                                                 | X | - |
|                                            | Any mend, darn, patch, splice, or other unauthorized repair                                                                                                                                  | X | - |
|                                            | Any material pleated or caught in stitch line where not specified                                                                                                                            | - | X |
| Male buckle and webbing                    | Webbing incorrectly threaded through male buckle                                                                                                                                             | X | - |
|                                            | Male buckle upside down                                                                                                                                                                      | X | - |
| Piecing                                    | Any piecing or splicing                                                                                                                                                                      | X | - |
| Canteen hangers                            | Ends of webbing not caught inside seams where required                                                                                                                                       | X | - |
| Keeper with slide                          | Slide portion of keeper jams failing to effect a secure closure                                                                                                                              | - | X |
|                                            | Not inserted through channels in hanger as indicated on drawings                                                                                                                             | - | X |
| Reinforcements, webbing                    | Missing or not located as specified                                                                                                                                                          | X | - |
| Pocket flap                                | Pocket flap not formed as specified                                                                                                                                                          | - | X |

|                   |                                                                                     |   |   |
|-------------------|-------------------------------------------------------------------------------------|---|---|
|                   | Pocket flap improperly set or distorted failing to effect a full and smooth closure | X | - |
| Cleanness         | Grease, oil, dirt or ink stains, clearly noticeable                                 | X | - |
|                   | Thread ends not trimmed as specified                                                | - | X |
| Label             | Wrong type or class                                                                 | X | - |
|                   | Incorrect type size or information                                                  | X | - |
|                   | Not in location specified                                                           | X | - |
|                   | Incorrect label margins                                                             | X | - |
| Location markings | Drill mark exceeding size specified                                                 | - | X |
|                   | Drill mark not covered on finished item                                             | - | X |
|                   | Printed marking more than 1/32 inch in width or not covered by component part       | - | X |
| User instructions | Not as specified                                                                    | X | - |
|                   | Missing from pocket flap of main pack                                               | X | - |
| Markings: "NFES"  | Omitted, incorrect, illegible, misplaced, or size of characters not as specified    | X | - |
|                   | Cloth color visible under NFES marking                                              | - | X |

#### 4.3.4.2. End item dimensional examination.

End items shall be examined for the nonconformities listed in table 3 on a lot by lot basis. Only those dimensions that can be evaluated without damaging or disassembling the end items shall be examined. The inspection level shall be S-3. An AQL, expressed in terms of nonconformities per hundred units, shall be 6.5 major nonconformities and 15.0 for combined major and minor nonconformities.

| TABLE 3. End item dimensional nonconformities |                                                                                                                                                                           |                      |                      |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|
| Examine                                       | Nonconformities                                                                                                                                                           | Classification Major | Classification Minor |
| Dimensions (overall)                          | Smaller than nominal dimensions less applicable minus tolerance indicated on drawings, but not smaller than nominal dimensions less twice the applicable minus tolerances | -                    | X                    |

|                                                                     |                                                                           |   |   |
|---------------------------------------------------------------------|---------------------------------------------------------------------------|---|---|
|                                                                     | Smaller than nominal dimensions less twice the applicable minus tolerance | X | - |
|                                                                     | Larger than nominal dimensions and applicable plus tolerance              | - | X |
| Component and location dimensions (not otherwise classified herein) | Not within specified tolerance                                            | - | X |
| Box-x stitching                                                     | Dimensions not as specified                                               | - | X |
| Stitch margin and gauge                                             | Not within specified tolerance                                            | - | X |
| Side pockets                                                        | Not parallel to each other by more than 1/4 inch                          | X | - |
| Grommets                                                            | Set off center on hems by more than 1/4 inch                              | X | - |

#### 4.4. Packaging examination.

An examination shall be made to determine that packing and marking comply with the section 5 requirements. Non-conformities shall be scored in accordance with Table 2. The sample unit shall be one shipping container fully packaged except that it shall not be palletized and it need not be closed. Shipping containers fully packaged that have not been palletized shall be examined for non-conformities in closure.

| Examine     | Nonconformity                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Markings    | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.                                                                               |
| Materials   | Any component missing or not as specified.                                                                                                                                   |
|             | Any component damaged, affecting serviceability.                                                                                                                             |
| Workmanship | Inadequate application of components, such as incomplete closure of container flaps, improper taping, loose strapping, inadequate stapling or bulged or distorted container. |
| Contents    | Number of items per container is more or less than required.                                                                                                                 |

## 5. PACKAGING

### 5.1. Preservation.

Preservation shall be in accordance with ASTM D 3951 and as specified in the contract or purchase order.

### 5.2. Folding.

#### 5.2.1. Fireline pack.

A copy of the "User Instructions" (see 3.3.18) shall be inserted into the main compartment of each fireline pack. With pack facing down, tighten shoulder strap adjustments snug, fold both sides inward, one side over the other, and fold the shoulder harness over the top. With the pack lying flat and back down, close all flap pocket zippers and mate fire shelter pocket hook and loop fasteners. Fold flap pocket down and engage buckles. Fold the fire shelter pocket up and the side pockets towards the center of the fireline pack.

#### 5.2.2. Canteen case.

Fasten snaps, insert two slide keepers onto hanger and close slides. Press flat.

#### 5.2.3. Stuff sack.

The stuff sack cord lock shall be run to the ends of the cord. Press flat.

### 5.3. Packaging.

#### 5.3.1. Type 1, Fireline pack, canteen cases and stuff sack (NSN 8465-01-503-4484, NFES 0674)

Prior to folding in accordance with 5.2.1 two (2) canteen cases and one (1) stuff sack shall be inserted into main compartment of each Fireline Pack. Individual packaging of the canteen case and stuff sack into plastic bags is at the manufacturer's option. The fireline pack, with canteen cases and stuff sack inside and otherwise prepared as specified in 5.2.1, shall be inserted into a snug-fitting clear polyethylene film bag. A MIL-STD-129 compliant label with the type I NSN (8465-01-503-4484) and information on it shall be inserted before closure. Bag closure shall be affected by heat-sealing with the seal made as close as possible to the open end, with excess air within the bag being expelled during the final heat-sealing closure operation.

#### 5.3.2. Type 3, Fireline pack only (NSN 8465-01-503-4488, NFES 0678)

When the pack is supplied individually each fireline pack shall be prepared in accordance with 5.2.1 and inserted into a snug-fitting clear polyethylene film bag. Bag closure shall be affected by heat-sealing with the seal made as close as possible to the open end, with excess air within the bag being expelled during the final heat-sealing closure operation.

#### 5.3.3. Type 3, Canteen case only (NSN 8465-01-503-4479, NFES 0675)

When the canteen case is supplied individually each canteen case shall be prepared in accordance with 5.2.2 and be inserted into a snug-fitting clear polyethylene film bag. Bag closure shall be affected by heat-sealing with the seal made as close as possible to the open end, with excess air within the bag being expelled during the final heat-sealing closure operation.

#### 5.3.4. Type 4, Stuff sack only (NSN 8465-01-503-4482, NFES 0677)

When the stuff sack is supplied individually each stuff sack shall be prepared in accordance with 5.2.3 and be inserted in to a snug-fitting clear polyethylene film bag. Bag closure shall be affected by heat-sealing with the seal made as close as possible to the open end, with excess air within the bag being expelled during the final heat-sealing closure operation.

### 5.4. Packing.

#### 5.4.1. Type 1.

Ten (10) fireline packs with canteen cases and stuff sack, packaged as specified (5.3.1), shall be packed into a 24"L x 20"W x 15"D fiberboard box, minimum burst strength 275 psi (ECT 44), meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.4.

#### 5.4.2. Type 2.

Ten (10) fireline packs, packaged as specified (5.3.2), shall be packed into a 24"L x 20"W x 15"D fiberboard box, minimum burst strength 275 psi (ECT 44), meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.4.

#### 5.4.3. Type 3.

Two-hundred (200) canteen cases, packaged as specified (5.3.3), shall be packed into a 24"L x 16"W x 12"D fiberboard box, minimum burst strength 275 psi (ECT 44), meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.4.

#### 5.4.4. Type 4.

Two-hundred (200) stuff sacks, packaged as specified (5.3.4), shall be packed into a 24"L x 20"W x 15"D fiberboard box, minimum burst strength 275 psi (ECT 44), meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.4.

### 5.5. Marking.

In addition to any special marking required by the contract or purchase order, shipping containers and unit packs shall be marked in accordance with MIL-STD-129. Bar code marking is required. All items and shipping containers shall be marked with their individual NSN. Note that the complete fireline pack with two canteen cases and a stuff sack has a separate NSN from the components (8465-01-503-4484). This NSN shall be marked on a MIL-STD-129 compliant label inserted into plastic bag for the unit pack bag prior to closing, and on the shipping container; each individual component shall have its own NSN on it (see 5.3). When packaged individually, the individual component's NSN shall appear on the item and on the shipping container. The NFES number shall be added to the last line of the MIL-STD-129 label.

## 6. NOTES

### 6.1. Intended use.

The fireline pack with canteen case and stuff sack is designed to carry equipment, food, water, and personal items while suppressing wildland fires or carrying out prescribed burning operations.

### 6.2. Acquisition requirements.

Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. Type.
- c. When first article samples are not required (see 3.1, 4.3, and 6.5).
- d. When lot by lot testing is required in lieu of certificates of compliance (see 4.3.2).
- e. Preservation, packing, and marking required in addition to specification requirements (see section 5).

### 6.3. Standard shade sample.

Color shade samples for the black cloth may be obtained from the preparing activity (see 6.8).

### 6.4. User instructions.

Camera ready copies from which the user instructions are to be prepared are available from the preparing activity (6.8). Materials which are supplied to the contractor to prepare the user instructions remain the property of the Government and shall be returned to the preparing activity upon completion of the contract.

### 6.5. First article.

When first articles are required, they shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulation 52.209. The first article shall

consist of three completely assembled fireline packs, canteen cases, stuff sacks, or combination covered under this specification and shall be preproduction samples. The contracting officer should include specific instructions regarding arrangements for selection, inspection, and approval of the first article.

6.6. Suggested sources of supply.

Reflective Tape

3M Safety & Security System Div.  
3M Center  
Bldg. 225-4N-14  
St. Paul, MN 55144-1000  
1-800-553-1380

Plastic Hardware

American Cord & Webbing Co., Inc.  
88 Century Dr. #1  
Woonsocket, RI 02895 acw1.com  
401-762-5500

ITW Nexus  
195 Algonquin Road  
Des Plaines, IL 60016-6197  
[www.itwnexus.com](http://www.itwnexus.com)  
(708) 720-3025

National Molding Corp.  
14427 Northwest 60th Ave  
Miami Lakes, FL 33014  
nationalmolding.com  
305-823-5440

Cloth, spacer (olefin)

Lumite, Inc.  
1515 North County Line Road  
Alto, Georgia USA 30510  
800-241-7566  
<https://lumite.com>

Mesh

MILCO Industries Inc. (formerly Fabloc Mills, Inc.)  
140 Spring Street  
New Providence, NJ 07974  
908-464-1950

Nylon Cord

EL Wood Braiding Co.  
542 Route 11 South  
Marathon, NY 13803  
[www.elwoodbraiding.com](http://www.elwoodbraiding.com)

607-849-9663

6.7. Notice.

When Government drawings, documents, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever.

6.8. Preparing Activity.

USDA Forest Service, National Technology and Development Program (NTDP), 5785 Highway 10 West, Montana 59808.