

USMC Chest Rig PD Clarification Letter dtd 5 May 2010

The USMC Chest Rig PD, also known as the Modular Lightweight Load-Carrying Equipment (MOLLE) Purchase Description CO/PD-02-02G dtd April 14, 2010, includes Drawing #2-6-0801. This PD provides detailed Scope, Applicable Documents, Requirements, Verification, Packaging, Notes, Drawings, and associated Parts Lists for the MOLLE system.

For the purposes of the USMC Chest Rig PD, the USMC Chest Rig is a component of the MOLLE System. As such, the following clarification is provided in the form of "Additions", "Deletions" and "Exceptions". Additions are paragraphs that are additive to the USMC Chest Rig PD as of 5 May 2010. Deletions are paragraphs that no longer apply to the USMC Chest Rig and are removed effective 5 May 2010. Exceptions are published sections of the 14 April 2010 PD that are not applicable to the USMC Chest Rig and are to be replaced with the "Corrected Paragraph".

A. The following paragraphs are "**Additions**" to the USMC Chest Rig PD (also known as Modular Lightweight Load-Carrying Equipment (MOLLE) Purchase Description CO/PD-02-02G dtd April 14, 2010):

- 1) 3.13.7 USMC Chest Rig. The USMC Chest Rig, also known as a Marine Corps Chest Rig, is a Marine Corps specific modified version of the U.S. Army's Tactical Assault Panel. It is capable of internally accommodating six (6) fully loaded M4/M16 magazines, one PRC-148/153, one GPS system (or like size item), and other equipment carried as part of the Marine's basic assault load. It provides the user with an alternate method of carrying the combat load on a body armor system and can also be used in a "stand-alone" configuration with a detachable harness. The Chest Rig allows Marines to rapidly transition fighting loads between the Scalable Plate Carrier (SPC), the Modular Tactical Vest (MTV), or the Full Spectrum Battle Equipment (FSBE). The Chest Rig is compatible with the quick release system of the MTV and FSBE vest, eliminating interference with the quick release function. A single USMC Chest Rig includes the following components: (1) one Marines (USMC) Chest Rig Assembly, (1) one Harness Assembly and (1) one USMC Chest Rig Repair Kit.
- 2) 3.8.2.6 Colorfastness Coyote 498. The finished dyed cloth shall show fastness to: light (after 40 AATCC standard fading hours or 170 Kilojoules); laundering (after 4 cycles); and perspiration (acid and alkaline) and crocking. The colorfastness of the cloth shall be equal to or better than the standard sample, or equal to or better than a rating of "3-4" using the AATCC Gray Scale for Color Change and a rating of "3-4" using the AATCC Gray Scale for Staining for each of the colors. The finished cloth shall show fastness to crocking equal to or better than the standard sample or shall have an AATCC Chromatic Transference Scale Rating not lower than 4.0 for all the colors.

B. The following paragraphs are "**Deletions**" to the USMC Chest Rig PD (also known as Modular Lightweight Load-Carrying Equipment (MOLLE) Purchase Description CO/PD-02-02G dtd April 14, 2010).

- 1) 3.2.1.6 Individual Identification. Each component of the system including the main pack, sleep system carrier, sustainment pouches, radio pouch, patrol pack, and assault pack shall have a non-reflective slide-in name holder for identification.

C. The following paragraphs are "Exceptions" to the USMC Chest Rig PD (also known as Modular Lightweight Load-Carrying Equipment (MOLLE) Purchase Description CO/PD-02-02G dtd April 14, 2010). The "Corrected Paragraph" replaces the Exception as of 5 May 2010.

- 1) **3.2.1.8 Repair Kit.** The repair kit will be required when specified as a CLIN in the contract. The system shall include a buckle repair kit for quick common field repairs that can be accomplished by the individual user without special skills or equipment. The repair kit shall be furnished with each MOLLE. The kit shall contain four (4) one inch side release buckles described in 3.7.12.3, two (2) one inch ladder lock buckles as described in 3.7.12.6 and one (1) two inch center release buckles described in 3.7.12.18 for the waist belt. It shall also contain two 1½" replacement side release buckles as described in 3.7.12.14.1. The kit shall be placed in a reseal-able clear plastic bag and stowed inside the claymore mine pocket of the pack.

Corrected Paragraph 3.2.1.8 Repair Kit.

The repair kit will be required when specified as a CLIN in the contract. The repair kit facilitates quick common field repairs that can be accomplished by the individual user without special skills or equipment. Each USMC Chest Rig shall be issued with one (1) USMC Chest Rig Repair Kit. The USMC Chest Rig Repair Kit shall be packaged in a reseal-able clear plastic bag and stowed in the center mesh administrative pocket. The USMC Chest Rig Repair Kit shall contain the following:

Drawing # 2-6-0792	Attaching Strap, Assembly (Marines)	Qty: 2 U/I: Pair
Drawing # 2-6-0852	IMTV/PC Attaching Strap, Assembly	Qty: 2 U/I: Pair
ITW 810-1076-5679	1" Quick Attach Surface Mount	Qty: 6 U/I: Each
ITW 810-1072-5679	1" Single Bar Repairable, Male	Qty: 2 U/I: Each
ITW 810-1082-5679	1" Waveloc Repairable, Female	Qty: 2 U/I: Each
ITW 810-1083-5679	1" Waveloc Repairable, Male	Qty: 2 U/I: Each

- 2) **3.6 Standard sample.** The finished cloths (Woodland, 3 color Desert, White, MARPAT Woodland, MARPAT Desert, Universal) shall match the standard samples for shade and appearance and shall match the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).

Corrected Paragraph 3.6 Standard Sample

The finished cloth (Coyote 498) shall match the standard samples for shade and appearance and shall match the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).

- 3) **3.7.12 Hardware.** All hardware shall be color Foliage Green 504, for class 6, Table VIIIa, or Tan 498 for class 7, table IVb. All other colors shall be tan 499 unless otherwise specified and shall meet the requirements in Table VIII.

Corrected Paragraph 3.7.12 Hardware.

All hardware shall be color Foliage Green 504, for class 6, Table VIIIa, or Coyote 498 for class 7, table IVb. All other colors shall be tan 499 unless otherwise specified and shall meet the requirements in Table VIII.

- 4) 3.14 Identification and Marking. The size and location of the US marking shall be indicated on the drawings. The letters US printed in dark black ink shall not fade to the point of being illegible after repeated washings and field use. Each component of the MOLLE shall have a combination identification and washing instruction label (exceptions noted) conforming to Mil-Dtl-32075. The labels shall be of sufficient strength to withstand repeated field use and laundering. The color of the label shall be foliage green 504 and the marking medium shall be Black. The printing shall be legible and shall not show off-setting, smearing or bleeding. All printing shall be in capitals except where otherwise indicated on the instruction label. Size of characters shall be approximately 1/8 inch for capitals and 3/32 inch for lower case. The identification portion of label shall contain item description, National Stock Number (NSN), contract number, lot number, and contractor's name. The item descriptions shall be as follows:

Corrected Paragraph 3.14 Identification and Marking.

The USMC Chest Rig SHALL NOT include printed "US" markings on any component. The USMC Chest Rig shall have a combination identification and washing instruction label (exceptions noted) conforming to Mil-Dtl-32075. The labels shall be of sufficient strength to withstand repeated field use and laundering. The color of the label shall be Coyote 498, and the marking medium shall be Black. The printing shall be legible and shall not show off-setting, smearing or bleeding. All printing shall be in capitals except where otherwise indicated on the instruction label. Size of characters shall be approximately 1/8 inch for capitals and 3/32 inch for lower case. The identification portion of label shall contain item description, National Stock Number (NSN), contract number, lot number, and contractor's name. The item descriptions shall be as follows:

INCH POUNDS
CO/PD-02-02G
April 14, 2010

PURCHASE DESCRIPTION
MODULAR LIGHTWEIGHT LOAD-CARRYING EQUIPMENT
(MOLLE)

This document is approved for use by all Departments and Agencies of the Department of Defense (DoD).

1. SCOPE

1.1 Scope. This specification covers the Modular Lightweight Load-carrying Equipment (MOLLE). The system is needed to increase the mobility of the fighting force by providing an ergonomically designed individual load-carrying system that will minimize the burdens of weight, improve overall system compatibility, and minimize physiological threats to the marine/soldier such as fatigue and heat stress.

1.2 Classification. The MOLLE shall be of the following classes:

- Class 1 – Woodland Camouflage
- Class 2 – 3 color Desert Camouflage
- Class 3 - Arctic White
- Class 4 – Marine Pattern (MARPAT) Woodland
- Class 5 - Marine Pattern (MARPAT) Desert
- Class 6 – Universal Pattern
- Class 7 – Coyote 498
- Class 8 - MultiCam

2. APPLICABLE DOCUMENTS

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: Defense Supply Center Philadelphia, ATTN: DSCP-COET BLDG 6, 700 Robbins Avenue, Philadelphia, PA 19111 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8465

DISTRIBUTION STATEMENT A. Approved for public release, distribution is unlimited.

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 the 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 section 3 and 4 of this specification, whether or not they are listed.

2.2 Government drawings. The following drawings form a part of this specification to the extent specified herein.

DRAWINGS

U.S. Army Natick Research, Development and Engineering Center

2-1-1516 - WOODLAND CAMOUFLAGE PATTERN
2-1-2240 - 3 COLOR DESERT PATTERN 48 AND 60
2-1-2525 - MARPAT WOODLAND
2-1-2529 - MARPAT DESERT
2-1-2519 - Universal Camouflage Pattern 60 inches
2-1-2519-1 - ARPAT Universal Camouflage Desert Sand 500
2-1-2519-2 - ARPAT Universal Camouflage Urban Gray 501
2-1-2519-3 - ARPAT Universal Camouflage Foliage Green 502

2-1-2242 - 40 MM PYROTECHNIC GRENADE GAUGE
2-1-2243 - 40 MM HIGH EXPLOSIVE GRENADE GAUGE
2-6-110 - M16 30 ROUND MAGAZINE GAUGE
2-6-111 - GRENADE GAUGE ASSEMBLY
PL 2-6-111 - PARTS LIST GRENADE GAUGE ASSEMBLY
2-6-112 - GRENADE GAUGE
2-6-113 - STEM
2-6-114 - LEVER
2-6-101 - LADDERLOCK, ONE INCH
2-6-102 - SLIDE, ONE INCH
2-4-0101 - FASTENER, ONE INCH
2-4-0102 - MOLDED LOCKING CARIBEENER

MOLLE DRAWINGS

2-6-300 MODULAR LIGHTWEIGHT LOAD CARRYING EQUIP.
2-6-153 SUSTAINMENT POUCH ASSY
2-6-171 RADIO POCKET ASSY
2-6-197 100 ROUND UTILITY POUCH ASSY
2-6-192 BLADDER, HYDRATION SYSTEM
ALTERNATE CONSTRUCTION ALLOWED, SEE 2-6-0460
2-6-200 200 ROUND SAW GUNNER POUCH ASSY

2-6-206	KEEPER W/SLIDE ADAPTOR ASSY
2-6-203	K BAR HOLDER ASSY
2-6-214	40MM HIGH EXPLOSIVE POUCH, SINGLE, ASSY
2-6-216	40MM HIGH EXPLOSIVE POUCH, DOUBLE, ASSY
2-6-219	40MM PYROTECHNIC POUCH, DOUBLE, ASSY
2-6-382	HOLSTER, LEG EXTENDER
2-6- 222	9MM MAGAZINE POUCH, SINGLE, ASSY
2-6-226	HANDGRENADE POUCH ASSY
2-6-229	BANDOLEER AMMUNITION POUCH, 6 MAG, ASSY
2-6-232	LASHING STRAP ASSY
2-6-234	IDENTIFICATION/ INSTRUCTION LABEL
2-6-253	SYSTEM REPAIR KIT
2-6-280	FIGHTING LOAD CARRIER VEST
2-6-283	WAISTBELT, F.L.C., ASSY
2-6-289	WAISTPACK (BUTT PACK) ASSY
2-6-299	PACK FRAME
2-6-301	CANTEEN POUCH ASSY
2-6-390	MOLDED WAISTBELT ASSY
2-6-310	HYDRATION SYSTEM CARRIER ASSY
2-6-0460	ALTERNATE HYDRATION SYSTEM
2-6-311	ATTACHING STRAP ASSY, PATROL PACK
2-6-329	POCKET ATTACHMENT
2-6-381	ATTACHING STRAP ASSY
2-6-0473	ENHANCED SUSPENDER ASSY
2-6-417	ASSAULT PACK ASSY
2-6-412	M4 TWO MAGAZINE POCKET ASSY
2-6-437	RUCKSACK, LARGE ASSY
2-6-0541	M4 THREE MAG SIDE x SIDE POUCH
2-6-800	TACTICAL ASSAULT PANEL (TAP)
2-6-801	MARINE CHEST RIG
2-6-0850	MEDIUM RUCKSACK
2-6-0840	MEDIUM RUCKSACK FRAME
2-6-0841	MEDIUM RUCKSACK WAISTBELT
2-6-0844	MEDIUM RUCKSACK SHOULDER STRAPS

(Copies of specifications, standards and drawings required by contractors in connection with specification procurement functions should be obtained from the procuring activity or as directed by the Contracting Officer.

2.3 Non-government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are Department of Defense Specifications and Standards (DoDISS) adopted, are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of the documents not listed in the DoDISS are the issues of the documents cited in the solicitation.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

- AATCC METHOD 8-1989 - Colorfastness to Crocking: AATCC Crockmeter Method
- AATCC METHOD 16-1993 - Colorfastness to Light
- AATCC METHOD 22-1989 - Water Repellency: Spray Test
- AATCC METHOD 61-1994 - Colorfastness to Laundering, Home and Commercial: Accelerated
- AATCC METHOD 70-1994 - Water Repellency: Tumble Jar Dynamic Absorption Test
- AATCC METHOD 119 - Color Change Due to Flat Abrasion (frosting) Screen Wire Method

(Applications for copies should be addressed to the American Association of Textile Chemists and Colorists, PO Box 122215, Research Triangle Park, NC 27709-2215).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D 2207 - Test Method for Bursting Strength of Leather by the Ball Method
- ASTM D 3776 - Mass per unit area (weight) of Woven Fabric
- ASTM D 5034 - Breaking Force and Elongation of Textile Fabrics (Grab test)

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

ANSI/ASQC Z1.4 SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY ATTRIBUTES

(Applications for copies should be obtained from: American Society for Quality Control, 611 West Wisconsin Ave., Milwaukee, WI 53202).

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 First Article Inspection When specified in the contract or purchase order, a sample shall be subjected to a first article inspection.

3.2 System Salient Characteristics

3.2.1 System Requirements.

3.2.1.1 Fit. The system shall fit the 5th - 95th percentile anthropometrics for male and female marines and soldiers.

3.2.1.2 Straps. The system shall come with at least two lashing straps for mounting to the following vehicles: Amphibious Assault Vehicle, Advanced Amphibious Assault Vehicle, M998 5-Ton Truck, HMMWV, Light Armored Vehicle, M1-A1 Main Battle Tank.

3.2.1.3 Empty Weight. The entire system including the pack (without bandoleer, radio pouch or sustainment pouches), frame and vest with three M-4 two magazine pockets and two grenade pockets shall weigh no more than 8.25 pounds empty.

3.2.1.4 Resistance. The pack and vest will be resistant to petroleum, oils and lubricants (POL's), corrosion, fungus, insect repellent, and saltwater.

3.2.1.5 Service Life. The system shall have a service life of a minimum 120 continuous days of field use.

3.2.1.6 Individual Identification. Each component of the system including the main pack, sleep system carrier, sustainment pouches, radio pouch, patrol pack, and assault pack shall have a non-reflective slide-in name holder for identification.

3.2.1.7 Load Weight. The pack and vest systems shall be capable of carrying a maximum combined load of 120 lb.

3.2.1.8 Repair Kit. The repair kit will be required when specified as a CLIN in the contract. The system shall include a buckle repair kit for quick common field repairs that can be accomplished by the individual user without special skills or equipment. The repair kit shall be furnished with each MOLLE. The kit shall contain four (4) one inch side release buckles described in 3.7.12.3, two (2) one inch ladderlock buckles as described in 3.7.12.6 and one (1) two inch center release buckles described in 3.7.12.18 for the waistbelt. It shall also contain two 1 1/2" replacement side release buckles as described in 3.7.12.14.1. The kit shall be placed in a reseal-able clear plastic bag and stowed inside the claymore mine pocket of the pack.

3.2.9.1 Deleted

3.2.10 Care and Use Manual. The system shall include an Instruction Manual. The Instruction Manual shall be furnished with each MOLLE Rifleman System. A double sided, color, instruction shall be packaged with each TAP. The instructions shall be provided electronically by the Government. See Para 3.14.3.

3.2.11 Check List. The system shall include a checklist. A checklist shall be included with each MOLLE. It shall be placed inside the main pack. See Para 3.14.4

3.3.1 Pack and Large Rucksack

3.3.1.1 Volume. The internal volume of the Large Ruck shall be 2900 cu inches in the top compartment and 830 cu inches in the lower compartment

3.3.1.2 Deleted

3.3.1.3 Deleted

3.3.1.4 Sustainment Pouch. Two detachable large side pouches will be included with the pack each having internal volume of approximately 500 cu in.

3.3.1.5 Collar and Handle. The main pack shall have an extendable collar made of water resistant nylon material that extends approximately 12 inches, and a handle to aid in carrying when not worn on back.

3.3.1.6 Deleted

3.3.1.7 Radio Pouch. The pack shall be capable of internally carrying a detachable radio pouch. The radio pouch shall be able to accommodate the Single Channel Ground Airborne Radio System (SINCGARS) Radio, and Advanced Lightweight SINCGARS Improved Program (ASIP) Radio.

3.3.2 Assault Pack.

3.3.2.1 Deleted

3.3.2.2 Volume/Capacity of the Assault Pack. An Assault Pack that attaches to the pack frame on top of the main pack, in lieu of a Patrol Pack, shall have an approximate internal volume of 1525 cubic inches in the main compartment and 825 cubic inches in the large front pocket.

3.3.3 Frame.

3.3.3.1 Anatomical Fit. The external pack frame shall be contoured to comfortably fit closely to the body to prevent swaying of the load and to reduce the pack load moment arm length in relation to the users center of gravity.

3.3.3.2 Helmet Compatibility. The frame shall allow proper head rotation while wearing the PASGT helmet when the pack is fully loaded and when the individual Marine/Soldier is in the prone position.

3.3.3.3 Suspension. The suspension system (shoulder straps) mounted to the frame shall be removable and shall be adjustable to fit torsos ranging in size from the 5th to 95th percentile Marine/soldier anthropometrics.

3.3.4 Vest.

3.3.4.1 Pockets/Pouches. The vest shall have removable pockets or pouches that when attached to the vests are as stable as when permanently sewn.

3.3.4.2 Compatibility. The vest shall be compatible with Interceptor body armor.

3.3.5 Waist Pack. The waist pack shall have an approximate volume of 350 cubic inches. It shall be worn with a strap around the waist or attached directly to the Assault Pack, Large Ruck or FLC. When worn with the waist strap it shall be compatible with the FLC.

3.3.6 Hydration System. The hydration system shall provide a marine/soldier with the capability to drink while road marching with a loaded Main Pack without the need to stop. The hydration system shall have a separate carrier that can be worn with thin 1.5" wide shoulder straps. For class 6 a low luster Foliage Green 504 tube from the hydration system shall provide a means of getting liquid from a bladder container to the marine/soldiers' mouth. It shall be a 100-ounce reservoir with a Foliage Green 504 screw top, smoke gray color low reflective surface with a Foliage Green 504 bite valve, and Foliage Green 504 on/off valve (see 3.13.5).

The alternate hydration system shall be a 100-ounce reservoir with a Foliage Green 504 screw cap, FG 504 film with low reflectance and a Foliage Green 504 bite valve with Foliage Green 504 on/off valve. For all other classes the color of the film, bite valve, on/off valve, tube, and screw cap shall be Tan 499. (see 3.7.17, and 3.13.5).

3.4 Labels and Markings, Video Tape, Care and Use Manual and Checklist. See paragraph 3.14.

3.5 First article. When specified (see 6.2), a sample representing a complete MOLLE shall be subjected to first article inspection in accordance with 4.2.

3.6 Standard sample. The finished cloths (Woodland, 3 color Desert, White, MARPAT Woodland, MARPAT Desert, Universal) shall match the standard samples for shade and appearance and shall match the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).

3.7 Materials and Components. The contractor shall select the materials that meet all applicable requirements specified herein. Use of recycled material is encouraged when practical, provided the requirements of this specification are met.

3.7.1 Thread. The thread used to fabricate all components of the MOLLE with lockstitch (301) seaming, shall be either soft or bonded finished nylon treated with an approved water repellent finish (see 6.7), at size tex no 101 (nominally) (also identified as size F) at 12.0 lb min. breaking strength and length per pound at 4,000-5,800 yds. The finished treated thread shall resist the wicking of water for a period of not less than 6 hours after three launderings. Testing shall be as specified in 4.3.4. **Color: class 1 – CG 483, class 2 – tan 380, class 3 – white, class 4 and 5 – coyote 476, class 6- Foliage Green 504, class 7 – Coyote 498, class 8 – tan 499.** See 6.8.1.

3.7.2 Thread. The thread used for bartacks and lockstitch binding tape attachment shall be either soft or bonded finished nylon with an approved water repellent treatment (see 6.7) at size tex no.

68 (nominal) (also identified as Size E) at 9.0 lb min breaking strength and length per pound at 5,800-8,700 yds. The finished treated thread shall resist the wicking of water for a period of not less than 6 hours after three launderings. Testing shall be as specified in 4.3.4. **Color shall be class 1 – CG 483, class 2 – tan 380, class 3 – white, class 4 and 5 – coyote 476, class 6- Foliage Green 504, class 7 – Coyote 498, class 8 – tan 499 . See 6.8.2**

3.7.2.1 Thread. The thread shall be V-T-295, type I or II, Class B, Size FF, 3 ply, with min. break strength of 17.5 lbs. The finished treated thread shall resist the wicking of water for a period of not less than 6 hours after three launderings. Testing shall be as specified in 4.3.4. **Color: class 1 - CG 483, class 2 - tan 380, class 3 -white, class 4 and 5 - coyote 476, class 6- Foliage Green 504, class 7 – Coyote 498, class 8 – tan 499. See 6.8.2.1**

3.7.3 Base fabric. The fabric shall be MIL-C-43734 Class III textured nylon (color as required) duck, coated on the back side with clear polyurethane and shall be water repellent treated. Color: class 1 – Woodland Camouflage, class 2 – 3 color Desert, class 3 –white, class 4 MARPAT Woodland, Class 5 MARPAT Desert, Class 6 Universal Camouflage, Class 7 Coyote 498, Class 8 Multicam(RothN130F). The fabric shall weight 11.0 to 12.0 ounces per square yard and have a minimum breaking strength of 500 pounds warp and 300 pounds filling. The four colors of Woodland camouflage are: Light Green 354, Dark Green 355, Brown 356 and Black 357. The ground shade should approximate Light Green 354 (see 6.4). The colors for the 3-color desert are Light Tan 492, Light Brown 493, and Light Khaki 494. The color for Arctic White is 488. The four colors for MARPAT Woodland are Green 474, Khaki 475, Coyote 476, and Black 477. The four colors of the MARPAT Desert are Urban Tan 478, Light Tan 479, Highland 480, and Light Coyote 481. The three colors of the Universal Camouflage are Desert Sand 500, Urban Gray 501, and Foliage Green 502. The cloth shall be dyed to a ground shade either matching or approximating Desert Sand 500 and then overprinted with the camouflage pattern by roller or screen printing. When the ground shade is dyed to match Desert Sand 500, the remaining colors shall be obtained by subsequent printing using two rollers or rotary screens as appropriate for the Urban Gray 501 and Foliage Green 502 areas of the pattern. When the ground shade is dyed to approximate Desert Sand 500, all three colors of the camouflage pattern shall be obtained by subsequent printing using three rollers or rotary screens to match all three colors. The six colors for Multicam are Dark Brown 530, Brown 529, Dark Green 528, Olive 527, Pale Green 526, Tan 525, Cream 524. Resin bonded pigments are not permitted.
See 6.8.3

“3.7.3.1 Base Fabric Infrared reflectance requirements. Class 1 shall conform to the infrared reflectance requirements specified in Table 1 and classes 2, 4 and 5 shall conform to the infrared reflectance requirements specified in Tables 2, 3, and 4 respectively both initially and after 3 accelerated launderings when tested as specified in 4.4.

The spectral reflectance values for each color in the class 6 Universal Camouflage printed cloth shall conform to the requirements specified in Table IVa when tested as specified in 4.4. Color for class 7 shall conform to table IVb when tested as specified in 4.4. Class 8 shall conform to table IVc.

Table I Infrared Spectral reflectance requirements for Class 1 Woodland Camouflage

Wavelengths (Nanometers)	Lt Green 354		Dk Green 355 & Brown 356		Black 357
	Min	Max	Min	Max	Max
600	8	20	3	9	--
620	8	20	3	9	--
640	8	20	3	9	--
660	8	20	3	12	--
680	10	30	3	14	--
700	18	50	5	28	20
720	22	54	7	44	30
740	30	56	12	52	33
760	35	58	18	56	33
780	40	62	26	56	34
800	55	80	34	56	34
820	55	80	42	60	35
840	55	82	44	60	35
860	60	82	44	60	35

**Table II. Near Infrared Spectral Reflectance (percent) Requirements
Three-Color Desert Camouflage Pattern - 500 and 1000 Denier Nylon**

Wavelengths (Nanometers)	Lt Tan 492		Lt Brown 493		Lt Khaki 494	
	Min	Max	Min	Max	Min	Max
700	38	52	30	50	28	42
720	38	54	30	50	30	46
740	38	54	34	54	32	50
760	40	54	36	54	34	54
780	42	56	36	54	38	56
800	42	58	38	56	40	58
820	42	58	38	56	40	58
840	42	58	38	56	42	58
860	44	58	38	56	42	58

Table III.

1000 Denier Nylon Cordura
MARPAT Woodland Camouflage Pattern Infrared Reflectance Requirements

Wavelength (Nanometers)	Lt Green 354		Dk Green 355 & Brown 356		Black 357	
	Min.	Max.	Min.	Max.	Min.	Max.
600	8	20	3	9	---	---
620	8	20	3	9	---	---
640	8	20	3	9	---	---
660	8	20	3	12	---	---
680	10	30	3	14	---	---
700	18	50	5	28	---	20
720	22	54	7	44	---	30
740	30	56	12	52	---	33
760	35	58	18	56	---	33
780	40	62	26	56	---	34
800	55	80	34	56	---	34
820	55	80	42	60	---	35
840	55	82	44	60	---	35
860	60	82	44	60	---	35

Table IV

1000 Denier Textured Nylon
Marpat Desert Camouflage Pattern Infrared Reflectance Requirements

Wavelength (Nanometers)	Lt. Tan 479		Lt. Coyote 476 & Highland		480Urban Tan 478	
	Min.	Max.	Min.	Max.	Min.	Max.
700	38	53	19	36	25	48
720	38	58	20	36	25	52
740	39	62	20	36	25	54
760	40	66	21	36	26	56
780	41	72	21	38	27	57
800	43	76	22	43	28	58
820	45	76	23	45	30	58
840	48	78	24	46	33	58
860	50	78	25	46	36	59

**TABLE IVa. 1000 Denier Textured Nylon
Universal Camouflage Pattern Spectral Reflectance Requirements**

Wavelength, Nanometers (nm)	Desert Sand 500		Urban Gray 501		Foliage Green 502	
	Min.	Max.	Min.	Max.	Min.	Max.
600	28	40	12	26	8	18
620	30	42	14	26	8	18
640	34	48	14	28	8	20
660	38	56	14	30	10	26
680	44	60	18	34	10	26
700	46	66	24	38	12	28
720	48	68	26	42	16	30
740	48	72	30	46	16	30
760	50	74	32	48	18	32
780	54	76	34	48	18	34
800	54	76	34	50	20	36
820	54	76	36	54	22	38
840	56	78	38	54	24	40
860	56	78	40	56	26	42

Table IVb. Coyote 498, Tan 499 Infrared Reflectance Requirements

Wavelength (nm)	Coyote 498/Tan 499 nylon	
	MIN	MAX
600	8	20
620	8	20
640	8	22
660	8	24
680	12	24
700	12	34
720	16	42
740	22	46
760	30	50
780	34	54
800	36	56
820	38	58
840	38	58
860	40	60

Table IVc. Multicam IR values for Cloth, Duck, Textured Nylon Fabric

Wavelength, Nanometers (nm)	Cream 524 & Tan 525		Pale Green 526, Olive 527 and Brown 529		Dark Green 528 and Dark Brown 530	
	Min.	Max.	Min.	Max.	Min.	Max.
600	22	44	10	30	3	12
620	24	45	11	30	3	12
640	24	45	11	32	4	12
660	25	45	12	32	4	13
680	28	48	14	35	4	18
700	28	54	19	40	6	25
720	30	58	22	43	6	27
740	32	60	25	46	10	29
760	36	61	27	48	14	33
780	38	62	28	50	18	36
800	40	62	29	50	20	37
820	44	65	30	51	20	38
840	46	66	32	51	21	39
860	48	67	33	52	21	40

3.7.4 500 Denier Textured Nylon. The cloth shall be textured nylon duck, MIL-C-43734 Class IV color as required. The cloth shall weigh 7.0 to 8.0 ounces per square yard, contain a minimum of 48 warp yarns and 35 filling yarns per inch, and have a minimum breaking strength of 325 pounds warp and 250 pounds filling. Color: class 1 – Woodland Camouflage, class 2 – 3 color Desert, class 3 – white, class 4 MARPAT Woodland, Class 5 MARPAT Desert, class 6- Foliage Green 504, class 7 Coyote 498, Class 8 Multicam. The cloth shall be printed with the required pattern using a roller or screen-printing process. The colors for woodland camouflage shall be Light Green 354, Dark Green 355, Brown 356, and Black 357. The colors for the 3-color desert are Light Tan 492, Light Brown 493, and Light Khaki 494. The color for Arctic White is 488. The four colors for MARPAT Woodland are Green 474, Khaki 475, Coyote 476, and Black 477. The four colors of the MARPAT Desert are Urban Tan 478, Light Tan 479, Highland 480, and Light Coyote 481. . The six colors for Multicam are Dark Brown 530, Brown 529, Dark Green 528, Olive 527, Pale Green 526, Tan 525, Cream 524. The three colors of the Universal Camouflage are Desert Sand 500, Urban Gray 501, and Foliage Green 502. The cloth shall be dyed to a ground shade either matching or approximating Desert Sand 500 and then overprinted with the camouflage pattern by roller or screen printing. When the ground shade is dyed to match Desert Sand 500, the remaining colors shall be obtained by subsequent printing using two rollers or rotary screens as appropriate for the Urban Gray 501 and Foliage Green 502 areas of the pattern. When the ground shade is dyed to approximate Desert Sand 500, all three colors of the camouflage pattern shall be obtained by subsequent printing using three rollers or rotary screens

to match all three colors. Resin bonded pigments are not permitted. When a standard sample is supplied, the cloth shall reproduce the standard sample with respect to design, colors, and registration of the respective areas. The warp wise pattern repeat of the cloth shall be 36.00 inches (+1.25, - 2.50 inches). The pattern of the cloth shall match the pattern on the specified drawing for that camouflage, 2-1-1516, 2-1-2240, 2-1-2519. The dyed and printed finished cloth shall show fastness to laundering (after 3 cycles), light, and crocking equal to or better than the standard sample, or, for laundering and light, equal to or better than the adjective rating of good. When no standard sample has been established or designated as applicable to colorfastness, except for Black 357, the printed cloth shall show "good" fastness to laundering (after 3 cycles) and light after 40 hours and shall show an AATCC Chromatic Transference Scale rating for crocking not less than 3.5. Black 357 shall show "fair" colorfastness to laundering (after 3 cycles) and light after 40 hours and shall show an AATCC Chromatic Transference Scale rating for crocking not less than 1.0. If carbon black is used for Black 357, the resistance to frosting of the dyed cloth shall be equal to or better than the standard sample. The cloth shall be water repellent treated on the face side with an approved fluorocarbon and a fluorocarbon extender after being scoured, dyed, and heat set. The cloth shall be coated on the backside only with a suitable clear polyurethane coating compound. If plasticizers are used in the coating, only phosphate or phthalate ester Type plasticizers shall be used. The spectral reflectance of the camouflage printed finish cloth shall conform to the requirements of paragraph 3.7.3.1. See 6.8.4.

3.7.5 Mesh Fabric. The mesh cloth shall be a nylon Rachel knit cloth, MIL-C-8061 Type II. The cloth shall weigh not more than 11.5 ounces per square yard; have a thickness of not more than 0.05 inch, a minimum bursting strength of 325 pounds, a minimum breaking strength of 315 pounds in the wale direction and 200 pounds in the course direction, and a minimum tearing strength of 25 pounds in both directions. The cloth shall have a maximum shrinkage of 7.5 percent in both directions, a maximum ultimate elongation of 95 percent in the wale direction and 140 percent in the course direction, and a minimum stiffness (load-pounds) of 0.010 in the wale direction and 0.010 in the course direction. A non-durable acrylic finish shall be used to meet the stiffness requirements. The color of the cloth shall be class 1 - CG 483, class 2 - tan 380 (Std595b chip 33446), class 3 - Arctic White 488, class 4 and 5 - coyote 476, class 6 - Foliage Green 504, class 7 Coyote 498, Class 8 Tan 499. The finished cloth shall show "good" fastness to light, laundering, and crocking. See 6.8.5.

3.7.6 Nylon Fabric. The coated fabric to be used in the spindrift collar, shall be MIL-C-43128 Cloth Nylon Plain Weave. The color of the cloth shall be class 1 - CG 483, class 2 - tan 380 (Std595b chip 33446), class 3 - Arctic White 488, class 4 and 5 - coyote 476, class 6 - Foliage Green 504, class 7 Coyote 498, Class 8 Tan 499. See Table V for Physical requirements See 6.8.6.

Table V. Nylon Fabric Physical Requirements and Methods of Test.

Characteristic	Requirement	Test Method
Weight, oz/sq. yd (max)	5.0	ASTM D-3776 (Method C)
Breaking strength, lbs, weakest direction (min)		ASTM D-5035 (1C-E or 1C-T)
Warp	275	
Fill	225	
Tearing strength, grams, weakest direction (min)	700	ASTM D-1424
Hydrostatic resistance, psi (min):		
Initial	60	ASTM D-751 <u>1/</u>
After abrasion	35	ASTM D-3386 <u>2/</u> & ASTM D-751 <u>1/</u>
After strength of coating	35	<u>3/</u> & ASTM D-751 <u>1/</u>
After high humidity	40	<u>4/</u> <u>5/</u> & ASTM D-751 <u>1/</u>
Stiffness, cm (warp only)(max):		
At 0°F	10	TAPPI T-451 <u>6/</u>
Adhesion of coating, lbs/2 inch width (min) <u>7/</u>	7	ASTM D-751 <u>8/</u>
Blocking, rating (max)	No. 1	ASTM D-751 <u>9/</u>
Water wicking, inch (max)	1/8	<u>10/</u>
Resistance to leakage	No leakage	ASTM D-751 <u>11/</u>
Resistance to insect repellent	<u>12/</u>	<u>13/</u>
Color & Pattern	As specified	<u>14/</u>
Spectral reflectance	Table III, IV, or VI, as required	<u>15/</u>

1/ Hydrostatic Resistance procedure A, procedure 1 with water pressure applied to the back side of the finished cloth.

2/ Except that a solid rubber diaphragm 0.030 ± 0.010 inches thick shall be used. The abradant shall be the face side of the finished cloth. The face side of the finished cloth specimen shall be abraded 1000 multidirectional cycles. The specimen shall be tested for hydrostatic resistance with the abraded portion centered in the hydrostatic tester.

3/ Five (5) specimens, 6 by 6-inches, shall be cut specimen edges at an angle of 45 degrees to the warp and filling directions of the finished cloth. The testing machine used to stretch the specimen, as required in perpendicular directions, shall be that described in ASTM D-5034 except that the face of each jaw shall be 1 by 2-inches with long dimension perpendicular to the direction of loading. The test specimen shall be centered in the clamps of the testing machine with the edges of the specimen parallel to the edges of the clamps. The clamps shall be separate at a rate of 5 mm/sec until a load of 20 pounds has been applied to the specimen. The load shall be held for 30 seconds, released and the specimen removed from the testing machine. The procedure shall be repeated on the same specimen with the load applied in the direction perpendicular to that of the first loading.

4/ The cloth shall not become stiff and brittle nor soft and tacky and there shall be no evidence of cracking or crazing under visual examination.

5/ Three 4 by 4-inch specimens shall be laid flat, face side up, on a supporting plate and the assembly placed in a desiccator containing water in the lower portion. The water level shall be approximately 1 inch below the specimens. The lid of the desiccator shall be put in place and the desiccators placed in a circulating air oven having a temperature of $180^{\circ} \pm 2^{\circ}\text{F}$ for a period of 14 days. At the end of the aging period, each specimen shall be removed from the desiccator and tested immediately for hydrostatic resistance.

6/ Except that five (5) test specimens with long dimension parallel to the warp direction of the finished cloth shall be tested. The apparatus and test specimens shall be subjected to a temperature of $0^{\circ}\text{F} \pm 2^{\circ}\text{F}$ for a period of 4 hours and the test performed in a still atmosphere at that temperature.

7/ Applicable if a film or coating is applied to the surface of the cloth.

8/ Except that 2-inch wide reinforced coating adhesion specimens, cyanoacrylate (solventless) adhesive, and pulling clamp speed of 5 mm/sec shall be used. Three (3) specimens shall be tested.

9/ Except that only one specimen shall be exposed at an oven temperature of $180^{\circ}\text{F} \pm 2^{\circ}\text{F}$ for 30 minutes.

10/ Three (3), 2 by 7-inch specimens (face side) with long dimension parallel to the filling direction of the finished cloth shall be tested. One end of the each specimen shall be weighted (10 to 20 grams) across the full width of the specimen and immersed to a depth of 2 inches in distilled water at room temperature for 5 minutes. When withdrawn from the water, the height of the

wetted area above the original 2-inch water line of each specimen shall be measured to the nearest 1/32 inch.

11/ Hydrostatic Resistance procedure B; procedure 2 with the hydrostatic head fixed at 50 centimeters and applied to the test specimen for 10 minutes. The back side of the finished cloth shall contact the water. The report shall only include the "measurement of the appearance of water drops". Leakage of any specimen shall be considered a test failure. Leakage is defined as the appearance of water at three or more different places within the 4-1/2 inch diameter test area.

12/ The cloth shall show no lifting, no tackiness, no solution, no pickoff, no adherence to itself greater than scale rating (2) (slight blocking).

13/ The diethyltoluamide for use in this test shall conform to Type II, concentration A of 0-I-503. Three drops of the diethyltoluamide solution shall be placed in the center of a 4 by 8-inch specimen of the finished cloth with the diethyltoluamide solution contacting the face side. The specimen shall be folded to form a 4 by 4-inch Square with the face sides contacting each other. The folded specimen shall then be placed between two 6 by 6-inch glass plates and a 4-pound weight placed on the assembly and left at standard conditions for 16 hours. The specimen shall then be removed from between the glass plates, scale rated for blocking as shown in ASTM D 751, Determination of Blocking Resistance of Fabrics Coated with Rubber or Plastics at Elevated Temperatures, except that the specimen shall not be exposed to elevated temperature, and then immediately examined for conformance to the requirements in table 1.

14/ The color of the face side of the finished cloth shall match the Woodland colors of the standard sample (Roll No.3578) when viewed under filtered tungsten lamps that approximate artificial daylight and that have a correlated color temperature of 7500 ± 200 K with illumination of 100 ± 20 foot candles and shall be a good match to the standard sample under incandescent lamplight at 2300 ± 200 K. The pattern of the cloth shall reproduce that of Drawing 2-1-1516 with respect to design, design registration, color placement and pattern repeat. The pattern repeat of the cloth shall be 27.25 ± 2.00 , -2.50 inches in the warp direction.

15/ Spectral reflectance data shall be determined on the face side and shall be obtained from 600 to 860 nanometers (nm), at a 20 nm intervals on a spectrophotometer relative to a barium sulfate standard, the preferred white standard. Other white reference materials may be used, provided they are calibrated to absolute white, e.g., magnesium oxide, or vitrolite tiles. The spectral band width shall be less than 26 nm at 860 nm. Reflectance measurements may be made by either the monochromatic or polychromatic mode of operation. When the polychromatic mode is used, the spectrophotometer shall operate with the specimen diffusely illuminated with the full emission of a source that simulates either CIE Source A or CIE Source D65. The specimen shall be measured as a single layer, backed with two layers of the same fabric and shade. Measurements shall be taken on a minimum of two different areas and the data averaged. The measurement areas should be at least 6 inches away from the edges of the finished cloth. The specimen shall be viewed at an angle no greater than 10 degrees from normal, with the specular component included. Photometric accuracy of the spectrophotometer shall be within 1 percent and wavelength accuracy within 2 nm. The standard aperture size used in the color measurement device shall be 1.0 to 1.25

inches in diameter. Any color having spectral reflectance values falling outside the limits at four or more of the wavelength specified in the appropriate Table shall be considered a test failure.

TABLE VI. Spectral Reflectance Requirements, Camouflage Green 483

Wavelengths (Nanometers)	Min	Max
600	3	10
620	3	10
640	3	10
660	3	12
680	3	14
700	4	28
720	5	40
740	10	52
760	18	56
780	20	56
800	24	58
820	30	60
840	38	60
860	40	60

For class 2,4 and 5 requirements refer to contract.

TABLE VIa Spectral reflectance requirements reflectance values (percent)

Wavelength	min	max
600	8	26
620	8	26
640	8	28
660	10	30
680	10	34
700	12	38
720	16	42
740	16	46
760	18	48
780	18	48
800	20	50
820	22	54
840	24	54
860	26	56

3.7.6.1 Nylon fabric. The nylon fabric shall conform to MIL-C-7219.

3.7.7 Slide Fasteners. See 6.8.7

3.7.7.1 Slide Fasteners. The slide fastener shall be individual element plastic chain with minimum of 220 lb. crosswise breaking strength, overall closed chain width of 0.435 inch (nominal) and minimum single element pull-off strength of 40 lb. with water repellent treated tape. Class 1,2,4,5 color tan 499, class 6 Foliage Green 504 for sliders, chain and tape. Two locking sliders in throat-to-throat configuration with pulls (short or long) having holes large enough to allow a thong and 1/4" diameter padlock to lock the slider pull together. A 11/32" nylon foliage green 504, or Tan 499 webbing as described in 3.7.11.13 shall be attached to each pull as a thong. A padlock pull that can accommodate a 1/4" diameter padlock is acceptable. (Note: Plastic continuous element coil chain cannot be used in horizontal stress design configuration). Class 7 shall be Coyote 498 for sliders, chain, tape, and thong. Class 8 shall be Tan 499 for sliders, chain, tape and thong.

3.7.7.2 Slide Fasteners. The slide fastener shall be individual element plastic chain with average of 209 lb. crosswise breaking strength, overall closed chain width of 0.270 inch (nominal) and minimum single element pull-off strength of 32.8 lb. with water repellent treated tape. Class 1,2,4,5, Color tan 499, class 6 foliage Green 504 for sliders, chain and tape. Two locking sliders in throat-to-throat configuration with pulls (short or long) having holes large enough to allow a thong. 11/32" nylon black webbing as described in 3.7.11.13 shall be attached to each pull as a thong. A padlock pull that can accommodate a 1/4" diameter padlock is acceptable. (Note: Plastic continuous element coil chain cannot be used in horizontal stress design configuration). Class 7 shall be Coyote 498 for sliders, chain, tape and thong. Class 8 shall be Tan 499 for sliders, chain, tape and thong

3.7.7.3 Slide Fastener. The slide fastener shall be 11", Top Open, One Way Separating, #10 Individual Element Molded Plastic, Autolock Slider, minimum chain crosswise strength of 160 Lbs, P/N VFGOL-106 11/16", tan 499 or foliage green 504. 11/32" tan 499 or foliage green 504 webbing as described in 3.7.11.13 shall be attached to each pull as a thong. Class 8 shall be Tan 499 for sliders, chain, tape and thong

3.7.7.4 Slide Fastener.

3.7.8 Plastic Stiffeners. See 6.8.8

3.7.8.1 Attachment Strap Stiffener. Sewn to the one inch webbing attaching straps for the interlocking attachment system shall be high-density polyethylene, .030" thick, natural color.

3.7.8.2 100 Round Pouch Stiffener. Material shall be high-density polyethylene, .030" thick x 2" wide, natural color.

3.7.8.3 200 Round Pouch Stiffener. Material shall be high-density polyethylene, .030" thick x 2.5" wide, natural color.

3.7.8.4 Stiffener. Material shall be high-density polyethylene, .045" or .050" thick, natural color.

3.7.8.5 Hydration system carrier, and Assault Pack antenna opening stiffener. Material shall be high-density polyethylene, .030" thick, natural color. See 3.7.17.

3.7.9 Fastener tape, hook and loop. See 6.8.9

3.7.9.1 1" Wide fastener tape hook and loop. The hook and loop shall be A-A-55126 Type II Class 1. The color of the hook and loop pile tapes shall be class 1 – CG 483, class 2 – tan 380, class 3 – Arctic White 488, class 4 and 5 – Coyote 476, class 6 foliage green 504, Class 7 coyote 498, Class 8 Tan 499.

3.7.9.2 Fastener tape hook and loop. Shall conform to A-A-55126 Type II Class 1. Color shall be class 1 – CG 483, class 2 – tan 380 (Std595b chip 33446), class 3 – Arctic White 488, class 4 and 5 – Coyote 476, class 6 foliage green 504, Class 7 Coyote 498, Class 8 Tan 499.

3.7.10 DELETED

3.7.11 Webbing, cord and tape.

3.7.11.1 Webbing, 1 inch. The 1-inch webbing shall be A-A-55301, Type III, made from textured warp and fill yarn and shall weigh a minimum of 0.5 ounces per linear yard and have a breaking strength of 1000 pounds minimum. The color shall be class 1 – CG 483, class 2 – Tan 380 (Std595b chip 33446), class 3 – Arctic White 488, class 4, 5, and 7 – Coyote 498, class 6 foliage green 504, Class 8 tan 499. The dyed webbing shall show fastness to light and laundering equal to or better than a rating of "good". The dyed webbing shall show fastness to crocking and have an AATCC Chromatic Transference Scale rating of not lower than 3.5. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2 and 3 see contract requirements, for class 6 see table VIIa, class 4,5, 7 and 8 see table IVb. Testing shall be as specified in 4.3.6. Alternate construction not acceptable. See 6.8.11.

Table VII. Infrared reflectance requirements (percent) for Camouflage Green 483, class 1

Wavelengths (Nanometers)	Min	Max
601	3	10
620	3	10
640	3	10
660	3	12
680	3	14
700	4	28
720	5	40
740	10	52
760	18	56
780	20	56
800	24	58
820	30	60
840	38	60
860	40	60

For class 2,3,4, 5 requirements refer to contract.

TABLE VIIa Spectral reflectance requirements reflectance values (percent)

Wavelength	min	max
600	8	26
620	8	26
640	8	28
660	10	30
680	10	34
700	12	38
720	16	42
740	16	46
760	18	48
780	18	48
800	20	50
820	22	54
840	24	54
860	26	56

3.7.11.2 Elastic Webbing. The 1" elastic webbing shall conform to MIL-W-5664 Type II Class 1 or equal. Webbing shall be 1" wide. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4 and 5 – Coyote 476, class 6 foliage green 504, class 7 coyote 498, Class 8 tan 499. See 6.8.12.

3.7.11.3 Tape, Binding. The 1-inch tape for binding, shall be MIL-T-5038 Type III Class 2. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5, 7 – Coyote 498, class 6 foliage green 504 and shall show fastness to laundering and light equal to or better than a rating of "good". Class 8 tan 499. Testing shall be as specified in 4.3.4. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2,3,4, and 5 see contract requirements, for class 6 see table VIIa, class 7 see table IVb, class 8 table VIb. See 6.8.13.

3.7.11.4 Webbing 1 1/2 inch. The webbing shall be MIL-W-17337 Class 2. All 1-1/2" in width, thickness .036(min), yarn count (min.) 145 warp, 48 fill or 96 (shuttleless), 34 binders, weight 1.07 oz per ln yard (min), Break strength 1800 lb (min). Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 6 - foliage green 504, Class 4,5, 7 coyote 498, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2,3, see contract requirements for class 6 see table VIIa, class 4, 5, 7 and 8 see table IVb. See 6.8.14.

3.7.11.5 Webbing 3 1/2". The webbing shall be 3 1/2" in width, thickness .036 (min), Fabric count (min.) 420 warp, 48 fill, 20 binders, weight 1.90 oz per ln yard (min), Break strength (min) 5,000 lb. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 6 - foliage green 504, Class 4,5,7 coyote 498, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2 and 3, see contract requirements, for class 6 see table VIIa, class 4,5, 7 and 8 see table IVb. See 6.8.15.

3.7.11.6 Webbing 2". The 2 inch webbing shall conform to MIL-W-17337 Class 2. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4 and 5 – Coyote 498, class 6 - foliage green 504, Class 7 coyote 498, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2,3, see contract requirements, for class 6 see table VIIa, class 4, 5, 7 and 8 see table IVb. See 6.8.16.

3.7.11.7 Webbing 2". The 2" webbing shall conform to MIL-W-4088 Type VIII B Class 2. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4 and 5 – Coyote 498, class 6 - foliage green 504, Class 7 coyote 498, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2, 3, see contract requirements, for class 6 see table VIIa, class 4, 5, 7 and 8 see table IVb. See 6.8.17

3.7.11.8 Webbing 2 1/4". The 2 1/4" webbing shall conform to MIL-W-4088 Type VIIIc, Class 2, Class R finish per MIL-W-27265. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 6 - foliage green 504, class 4,5, 7 coyote 498, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2,3, see contract requirements,

for class 6 see table VIIa, class 4, 5, 7 and 8 see table IVb. See 6.8.18.

3.7.11.9 Webbing 9/16". The 9/16" webbing shall conform to MIL-W-4088 Type I Class 2. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5 and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2 and 3 see contract requirements, for class 6 see table VIIa, class 4,5, 7 and 8 see table IVb. See 6.8.19.

3.7.11.10 Webbing 3/4". The 3/4" webbing shall conform to MIL-W-4088 Type IA Class 2. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5 and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2 and 3 see contract requirements, for class 6 see table VIIa, class 4,5,7 and 8 see table IVb. See 6.8.20.

3.7.11.11 Webbing 3". The 3" webbing shall conform to MIL-W-4088 Type VIIIA Class 2. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5, and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499. Spectral reflectance requirements for class 1, CG483 see table VII, for class 2 and 3 see contract requirements, for class 6 see table VIIa, class 4,5, 7 and 8 see table IVb. See 6.8.21.

3.7.11.12 Webbing 1 23/32". The 1 23/32" webbing shall conform to MIL-W-4088 Type XIII Class 1 or 2. The color of the webbing shall be natural (white) for all classes. See 6.8.22.

3.7.11.12.1 Webbing 1 23/32". The 1 23/32" webbing for the lowering line loop shall conform to MIL-W-4088, Type VIII, Class 2. The color of the webbing shall be Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5, and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499.

3.7.11.13 Braid, tubular 11/32". The 11/32" tubular braid shall conform to MIL-B-371 Type VII Class 2. The color of the braid shall be coyote 498 for class 4, 5 and 7. For class 8 the color shall be Tan 499, class 6 foliage green 504, class 1 CG 483, class 2 tan 380, class 3 arctic white 488.. See 6.8.23.

3.7.11.14 Elastic cord. The 1/8" elastic cord shall conform to Hope webbing style 2831 round cord or equal. The color of the cord shall be coyote 498 for class 4,5 and 7, class 6 foliage green 504, class 1 CG 483, class 2 tan 380, class 3 arctic white 488, class 8 Tan 499. See 6.8.24.

3.7.11.15 Round Cord. The round cord shall conform to MIL-C-5040 Type II. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5, and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499. See 6.8.25.

3.7.11.16 Flat cord. The cord shall conform to MIL-C-5040 Type IIA. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5 and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499. See 6.8.26.

3.7.11.17 Elastic Webbing 1 1/2". The 1 1/2" elastic webbing shall conform to Mil-W-5564, type

2, Class 1. Color shall be class 1 – CG 483, class 2 – Tan 380, class 3 – Arctic White 488, class 4, 5 and 7 – Coyote 498, class 6 - foliage green 504, class 8 tan 499 .

3.7.11.18 Webbing, 1 inch. The 1-inch webbing shall be A-A-55301, Type III, made from textured warp and fill yarn and shall weigh a minimum of 0.5 ounces per linear yard and have a breaking strength of 1000 pounds minimum. The color shall be Class 8 multicam. The printed webbing shall show fastness to light and laundering equal to or better than a rating of "good". The printed webbing shall show fastness to crocking and have an AATCC Chromatic Transference Scale rating of not lower than 3.5. Spectral reflectance requirements for class 8 see table IVc. Testing shall be as specified in 4.3.6. Alternate construction not acceptable. See 6.8.11.

3.7.12 Hardware. All hardware shall be color Foliage Green 504, for class 6, Table VIIIa, or Tan 498 for class 7, table IVb. All other colors shall be tan 499 unless otherwise specified and shall meet the requirements in Table VIII.

Table VIII. Near infrared spectral reflectance requirements for Tan 499

Wavelength s (Nanometers)	Min	Max
600	16	26
620	18	26
640	20	30
660	22	34
680	26	38
700	30	40
720	32	46
740	36	50
760	36	54
780	38	58
800	40	59
820	42	60
840	44	60
860	48	60

Table VIIIa Near infrared spectral reflectance requirements for Foliage Green 504 Acetal Hardware

Wavelength	min	max
600	8	26
620	8	26
640	8	28
660	10	30
680	10	34
700	12	38
720	16	42
740	16	46
760	18	48
780	18	48
800	20	50
820	22	54
840	24	54
860	26	56

3.7.12.1 One-inch side release buckles. 1" inch side release buckles shall conform to drawing 2-4-0101. See 6.8.27.

3.7.12.2 One-inch side release buckles, Canteen/General Purpose Pouch. 1" side release buckles for the Canteen/General Purpose Pouch shall be Duraflex part numbers 5000, 5707, 5709 or ITW Nexus part no. 101-6100-5674 or equal. See 6.8.28.

3.7.12.3 One-inch side release buckles, Repair Kit. 1" side release buckles for the Repair Kit shall be ITW Nexus part no. 101-3100-5674 or equal. See 6.8.29.

3.7.12.4 Barrel lock, single cord. All barrel locks shall conform to ITW Nexus part no. 350-2000-5674 or equal. See 6.8.30.

3.7.12.5 One inch Ladderlock buckles. 1" ladderlocks shall conform to drawing 2-6-101 where applicable. See 6.8.31.

3.7.12.6 One inch Ladderlock buckles, Repair Kit. 1" ladderlocks shall be ITW Nexus part no. 104-3100-5674 or Duraflex 5564 or equal. See 6.8.32.

3.7.12.7 One inch tension lock buckles, Rucksack. 1" tension locks for the Large Rucksack shall be Duraflex part no. 5425 or ITW Nexus part no. 154-2100 or equal. See 6.8.33.

3.7.12.8 One inch tension lock buckles, Waistbelt. 1" tension locks for the waistbelt shall be Duraflex part no. 6637 or equal. See 6.8.34.

3.7.12.9 One inch D-Ring. All Acetal 1" D-rings shall be ITW Nexus Buckle part no 110-0100-5674 or equal. See 6.8.35.

3.7.12.9.1 One and 1/2 inch D-Ring. The 1 ½ " D-rings used on the Hydration System Carrier shall be drawing 2-6-0468. See 6.8.35.1

3.7.12.10 One inch slide buckles. One-inch slide buckles shall conform to drawing 2-6-102 where applicable. See 6.8.36.

3.7.12.11 One-inch brass loop. All one-inch brass loops shall be ITW Waterbury Buckle part no 01004-20(welded) or equal. See 6.8.37.

3.7.12.12 Double Bar, nonslip buckles. 1" quick release nonslip buckles shall conform to MIL-B-543 Type V Class 3 (ITW Waterbury part no 00648-09) or equal. See 6.8.38.

3.7.12.13 One inch slide buckles. 1" slide buckles shall be ITW Nexus part no. 08090-22 or equal. See 6.8.39.

3.7.12.14 One and one-half inch side release buckles, Sleep System Carrier. 1 1/2" side release buckles shall be ITW Nexus part no.101-0150-5674 or equal. See 6.8.40.

3.7.12.14.1 One and one-half inch replacement side release buckles, repair kit. The 1 ½" replacement side release buckles shall conform to ITW Nexus part no 101-3150-5674.

3.7.12.15 One and one-half inch side release buckles, Fighting Load Carrier (FLC). 1 1/2" side release buckles shall be ITW Nexus part no.101-1150-5674 or equal. See 6.8.41.

3.7.12.16 One and one-half inch Ladderlock buckles. 1 1/2" Ladderlock buckles shall be ITW Nexus part no.154-0150-5674 or equal. See 6.8.42.

3.7.12.17 One and one-half inch slide buckles. 1 1/2" slide buckles shall be ITW Nexus Part no.105-2150-5674 or equal. See 6.8.43.

3.7.12.18 Two-inch center release buckles. 2" center release buckle shall conform to ITW 102-5050-5674 or equal See 6.8.44.

3.7.12.19 Quick-Release Buckle. The quick release buckles for the backpack frame shoulder straps shall conform to Down East Inc. part no.1584 or equal. See 6.8.45.

3.7.12.20 Pack Frame. The Pack Frame shall conform to Down East Inc. part no.1603 or equal. See 3.13.2 and 6.8.46.

3.7.12.21 Clothing clip. The Clothing clip for the hydration system shall be Duraflex part no. 6887 or equal. See 6.8.47.

3.7.12.22 Sternum Strap buckles. Shall be ITW Nexus part no. 642-0100-5674 or equal. See 6.8.48.

3.7.12.23 Grommets. The grommets shall conform to MIL-G-16491 Type III Class 3 size 0 or equal. See 6.8.49

3.7.12.24 Eyelets. The metal eyelets with washers shall be MIL-E-20652/1B dash numbers BBE-114, BBW101, brass and have a dull chemical finish suitable for copper alloys. The brass for the eyelets shall be annealed suitable for forming. Brass for the flat washers shall be tempered, minimum half-hard. The finished eyelets and washers shall be free from fracture, malformation, burrs and rough or sharp edges. Washers shall be smooth and free of any bend. The finish shall be free of foreign imbedded matter and discoloration, and provide complete coverage of the eyelets and washers. Eyelet metal shall not crack when clinched. The eyelet size in inches shall be as follows: 0.200 ± 0.004 bottom outside diameter, 0.403 ± 0.007 overall outside diameter, 0.143 ± 0.008 or 0.210 ± 0.008 (to be determined by the contractor) effective shank length, and 0.013 ± 0.0015 thickness. The washer size in inches shall be as follows: $.220 \pm .002$ diameter of hole, $.450 \pm .003$ overall diameter, and $.020 \pm .004 - .002$ thickness. See 6.8.50

3.7.12.25 Eyelets drain holes. Drain hole eyelets shall conform to MIL-E-20652/1B dash no. ABE-131, aluminum with chemical finish. See 6.8.51.

3.7.12.26 Snap fasteners. The snap fasteners shall be MIL-F-10884 style 2, constructed in accordance with drawings 4-1-176, or 4-1-178 at the option of the contractor. The snap fasteners shall have a black chemical finish, except the button cap shells shall be color as specified in 3.7.12, baked-on enamel finish. The enamel shall be uniformly coated over the top surface of the shell including the visible portion of the edge. The gloss for the black chemical finish and the enamel finish shall be no more than 40. The enamel shall be capable of withstanding attachment operations without removal of any enamel. The enamel coating shall be smooth and free of sags, runs, and streaks. See 6.8.52.

3.7.12.27 Snap fasteners. The small snap fasteners shall conform to MIL-F-10884 style 2A. Physical requirements per 3.7.12.26. See 6.8.53.

3.7.12.28 D-Ring, metal. The D-ring shall be shall be ITW Waterbury Buckle part no 01047-20, Brass or Steel, welded, or equal. See 6.8.61.

3.7.12.29 Sternum Strap Adjuster Buckle. The 1" to $\frac{3}{4}$ " Sternum Strap Adjuster buckle for the hydration system carrier shall be ITW Nexus part no 646-2025-5674 or equal. See 6.8.62

3.7.12.30 The $\frac{3}{4}$ inch side release buckle shall be ITW Nexus part no 101-0075-5674 or equal see 6.8.63

3.7.12.31 The molded carabineer used on the FLC shall conform to drawing 2-4-0102

3.7.12.32 The dual adjust side-release buckle shall be ITW Nexus part no 101-1100.

3.7.12.33 The 2" dual adjust side-release buckle shall be National Molding part no 5433/5432.

3.7.12.34 See 3.7.12.39.

3.7.12.35 The female side release shall be National Molding part number 9379.

3.7.12.36 Quick attach surface mount female hardware shall conform to 2-6-0798.

3.7.12.37 Friction side-release conforming to drawing 2-6-0799

3.7.12.38 Frame, Medium Rucksack shall conform to drawing 2-6-0840

3.7.12.39 Single bar side release, drawing 2-3-0632, National Molding part number 8761/8762, or ITW Nexus 810-1071/810-1057.

3.7.13 Foam Padding, 1/2". The foam used for padding in the Patrol Pack shoulder straps and Suspenders shall be 1/2" thick and conform to MIL-R-6130 Type II, grade C, condition soft, color black or equal. See 6.8.54.

3.7.14 Foam Padding, 1/4". The foam used for padding in the Patrol Pack and Fighting Load Carrier, and Assault Pack shoulder straps, and back panel shall be 1/4" thick and conform to MIL-R-6130 Type II, grade C, condition soft, color black or equal. See 6.8.54.

As an alternate construction on the Assault Pack shoulder straps, a textured nylon laminate is acceptable. Laminate shall be 500d textured nylon, Mil-C-43734, on the face and back laminated to 2 lb cross-link polyethelyne, .26" thick. Color: class 1 - Woodland Camouflage, class 2 - 3 color Desert, class 3 - white, class 4 MARPAT Woodland, Class 5 MARPAT Desert, class 6 - Universal Camouflage, Class 7- Tan 498, Class 8 - Multicam. See 6.8.54.

3.7.15 Clear Film for ID Windows. Shall conform to L-P-378, 0.020 inch thick, Type I, Class 1, grade A, B or C, finish 1. See 6.8.55.

3.7.16 Clear Film for Map case. Shall be JPS Elastomerics #ST-1522CL-85, 15 MIL thick, clear with U.V. protection or equal. See 6.8.56.

3.7.17 Hydration System Carrier Material. The material used to construct the main body of the Hydration System Carrier shall be 500 denier textured nylon, Mil-C-43734 class IV. Color for class 1 shall be CG 483, for class 2 color shall be Tan 380, for class 3 color shall be Arctic White 488, for Class 4, 5 and 7 color shall be Coyote 498, class 6 - foliage green 504, class 8 - Multicam. The material used on the top, front of the carrier shall conform to 3.7.3. The foam material shall conform to 3.7.14. See 3.3.6. See 6.8.57.

The nylon/foam laminate used to construct the main body of the alternate Hydration System Carrier shall be face 500 denier textured nylon, Mil-C-43734 class V, laminated to .140" 2 lb. Black cross-link polyethelene, with a 70 D black polyester interlock backing. For class 1 color shall be woodland camouflage, for class 2 color shall be 3 color desert, for class 3 color shall be

Arctic White 488, for Class 4, 5, and 7 color shall be Coyote 498, class 6 - foliage green 504, class 8 – Multicam. See 3.7.8.5, and 6.8.57.

3.7.18 Deleted.

3.7.19 Use and Care Manual. The Use and Care Manual is a staple bound 5 ½" X 8 ½" booklet and is 40 pages in length. It is color, and black and white, text and images. Copies shall be clear, legible, and in permanent ink. The copies shall be duplicated to match the quality of the Master Manual. See Para 3.14.3

3.7.20 Check List. The Check List is 5 ½ X 8 ½" and is 1 page in length. Copies shall be clear legible and in permanent black ink. The Check List shall be in accordance with Figure 1 of this document.

3.8 Physical requirements of cloth.

3.8.1 Matching. The color of the finished cloth (Woodland) shall match the standard sample when viewed under filtered tungsten lamps and approximate artificial daylight and that has a correlated color temperature of 7500 ± 200K, with illumination of 100 ± 20 foot-candles, and shall be a good match to the standard sample under incandescent lamplight at 2300 ± 200K.

3.8.2 Colorfastness.

3.8.2.1 Colorfastness Woodland Camouflage. The dyed and printed finished cloth in Woodland camouflage pattern, shall meet the following colorfastness requirements when tested in accordance with 4.3.4 for the characteristics listed below:

Colorfastness characteristics

Requirements

Fastness to laundering
(after 3 launderings)

Equal to or better than "3-4" rating on AATCC Gray Scale for Color Change and Staining when compared to the

Fastness to Accelerated laundering
(Black print only)

Equal to or better than "3-4" rating on AATCC Gray Scale for Color Change when compared to the unlaundered sample.

Fastness to light (after 40 hours)

Equal to or better than "3-4" rating on AATCC Gray Scale for Color Change.

Fastness to Crocking

Equal to or better than "3-4" rating on AATCC Gray Scale for Staining.

Blocking Rating

Number 2 Maximum rating.

Frosting Rating

Equal to or better than "4.0" rating on AATCC Gray Scale for Color Change.

The finished white cloth shall show fastness to laundering (after 3 cycles) and light (after 30 standard fading hours) equal to or better than a rating of "3-4" on AATCC Gray Scale for Color Change. Testing shall be as specified in 4.3.4.

3.8.2.2 Colorfastness Desert Camouflage The finished camouflage printed cloth shall show fastness to: light (after 40 AATCC standard fading hours or 170 Kilojoules); laundering (after 3 cycles); and perspiration (acid and alkaline). The colorfastness of the cloth shall be equal to or better than the standard sample, or equal to or better than a rating of "4" using the AATCC Gray Scale for Color Change and a rating of "3-4" using the AATCC Gray Scale for Staining for each of the colors. The finished cloth shall show fastness to crocking equal to or better than the standard sample or shall have an AATCC Chromatic Transference Scale Rating not lower than 4.0 for all the colors.

3.8.2.3 Colorfastness Woodland MARPAT The finished camouflage printed cloth shall show fastness to: light (after 40 AATCC standard fading hours or 170 Kilojoules); laundering (after 3 cycles); and perspiration (acid and alkaline). The colorfastness of the cloth shall be equal to or better than the standard sample, or equal to or better than a rating of "4" using the AATCC Gray Scale for Color Change and a rating of "3-4" using the AATCC Gray Scale for Staining for each of the colors. The finished cloth shall show fastness to crocking equal to or better than the standard sample or shall have an AATCC Chromatic Transference Scale Rating not lower than 4.0 for all the colors.

3.8.2.4 Colorfastness Desert MARPAT The finished camouflage printed cloth shall show fastness to: light (after 40 AATCC standard fading hours or 170 Kilojoules); laundering (after 3 cycles); and perspiration (acid and alkaline). The colorfastness of the cloth shall be equal to or better than the standard sample, or equal to or better than a rating of "4" using the AATCC Gray Scale for Color Change and a rating of "3-4" using the AATCC Gray Scale for Staining for each of the colors. The finished cloth shall show fastness to crocking equal to or better than the standard sample or shall have an AATCC Chromatic Transference Scale Rating not lower than 4.0 for all the colors.

3.8.2.5 Color Fastness Universal Camouflage The printed finished cloth shall show fastness to laundering (after 3 cycles), light (after 40 standard fading hours or 170 kilojoules), and perspiration equal to or better than the standard sample or equal to or better than a rating of "good" or 3-4 of the AATCC Gray Scale for Color Change and Color Transfer for each of the pattern areas, except fastness to light shall be equal to or better than a rating of 3 for Color Change. The finished cloth shall show fastness to crocking equal to or better than the standard sample or shall have an AATCC Chromatic Transference Scale rating of not lower than 3.5 for all the pattern areas. Testing shall be as specified in Table VIII.

3.8.3 Pattern execution. The pattern of the finished camouflage pattern cloth shall reproduce the standard sample with respect to design, colors, and registration of the respective areas. The warpwise pattern repeat of the dyed, printed and finished camouflage cloth shall be 27.25 inches (+ 1.25, - 2.50 inches). Each pattern area shall show solid coverage. The various areas of the pattern shall be properly registered in relation to each other and shall present definite sharp

demarcation with a minimum of feathering or spew. Skitteriness exceeding that shown by the standard sample in any of the printed areas will not be acceptable. When the standard sample is not referenced for pattern execution or design, the pattern on the base cloth shall match the standard drawing, as applicable. (See 6.3).

3.8.4 Infrared reflectance. The infrared reflectance of the printed, finished cloth in the 4-color Woodland Camouflage, GC 483, 3 Color Desert, MARPAT Woodland, and MARPAT Desert shall conform to the requirements specified in Tables I, II, III, IV, VI, VII when tested as specified in 4.4.1.

3.9 Design. The MOLLE system consists of the following primary components; A Fighting Load Carrier, a Large Rucksack, Assault Pack, a Pack Frame, Hydration System and modular pouches/pockets. The modular pouches/pockets shall be capable of carrying 30 round ammunition magazines, squad automatic weapon (100 and 200 round) magazines, fragmentation grenades, 40mm grenades, 9 mm magazines, and 1 quart canteens. The system shall allow for rapid reconfiguration from complete system loads to individual light fighting loads by the simple removal or addition of the system modular components. Natick drawings 2-6-111 through 2-6-114 are provided to determine size of pouches for grenades and Natick drawing 2-6-110 to determine size of pouches for 30 round ammunition magazines.

3.10 Physical characteristics. The MOLLE shall provide a stable platform for carrying the marine/soldiers' load and except for the frame and pouches/pockets; each component shall have straps/carry handles to facilitate movement. All fabric components unless otherwise specified shall be in the color specified for the appropriate class. (See 3.8).

3.11 Interface requirements. The MOLLE shall be compatible with the clothing and equipment commonly worn, carried and used by the individual marine/soldier, to include the personnel armor system for ground troops (PASGT) vest and helmet, Interceptor Body Armor, Improved Outer Tactical Vest, Plate carriers, Advanced Combat Helmet, MITCH Helmet, and must be compatible with the load plan for the Bradley Fighting Vehicle. The MOLLE shall be deliverable by both the harness, single point release and the all purpose weapon and equipment container system used by parachutists, and be compatible with all individual airborne equipment items and rigging procedures. All components of the system shall be compatible with each other. Integration of the components shall be accomplished with minimum use of straps/belts or hardware.

3.11.1 MOLLE Pocket Attachment. The Interlocking Attachment System shall be used to attach pockets to the Fighting Load Carrier, packs, and waist belt. Drawing 2-6-329 illustrates the method in which it is employed. This system is a patented design and is not allowed for commercial sale without a license. There are no restrictions on the sale of this system under signed contracts with Federal agencies.

3.12 Performance.

3.12.1 Function. The MOLLE shall be easily and quickly donned and doffed. Donning or doffing of the total system must be accomplished in less than 30 seconds. When in use, the entire

system or individual components, shall not impede proper head rotation and flexation of the user, while standing or in a prone position, or carrying and shouldering of weapons in all firing positions. The MOLLE shall be adjustable to fit the 5th through 95th percentile male marine/soldier (5th through 95th percentile male/female marine/soldier desired).

3.12.2 Reliability. The 7 primary components of the MOLLE shall have a service life of 120 days field use, and be easily field repairable with a minimal need for tools and spare parts. Additionally, the fabric used for the primary components shall be rot and Mildew resistant and non-fabric parts of primary components shall be salt water-resistant. Components shall have a shelf life of not less than five years. The Large Rucksack with frame and straps, uniformly loaded with sand bags and cloth ballast to a capacity of 120 lbs, shall be capable of withstanding an 8 foot free fall drop (3 times) with impact on the frame. The same item shall be dropped an additional 3 times with impact on the Large Rucksack. There shall be no rupture of seams or visual damage to frame or fabric or components. An airdrop slide impact test final velocity of 31 to 34 fps at 45 degrees from vertical (3 times) shall be conducted with impact on the frame. An additional three drops shall be conducted with impact on the Main Pack or Large Rucksack. There shall be no rupture of seams or visual damage to frame or fabric or components. Both drop tests shall be conducted on asphalt or concrete surfaces. Two separate items shall be used for the 8ft drop test and slide impact test. Verification drop tests may be performed by the government.

3.12.3 Environment. The MOLLE will be used in all climatic categories during day and night time operations, therefore, operation of all hardware components shall be easily operable when wearing heavy gloves in darkness, and provide a secure connection of the components.

3.13 Components of MOLLE.

3.13.1 Fighting Load Carrier (FLC) description. The FLC shall be made from fabric and thread specified in this document and shall be a vest design. The FLC shall be designed so that pouches/pockets and other individual equipment items/carriers can be easily attached/detached and securely held in place. The FLC and frame waistbelt shall not interfere with each other when worn together. See 3.3.3.

3.13.2 Lightweight frame. The frame shall weigh no more than 2.3 lbs. The frame shall have a method of attaching the M122 tripod and ancillary equipment, light anti-tank weapons, and bulk items (e.g., 5 gallon cans, cases of items, etc.) to the frame in a manner to hold items securely in place. See 3.7.12.20.

3.13.3 Patrol pack. The patrol pack shall be made from fabric and thread specified in this document and is capable of carrying at least a 40-pound load to include the current family of field radios including SINCGARS and ASIP. The patrol pack shall be quickly and easily donned and doffed over the FLC. The exterior sides and outermost surface of the patrol pack shall contain a means to accomplish secure attachment/detachment of the modular pouches/pockets and other individual equipment items/carriers i.e., mattax, entrenching tool, two-quart canteen, etc. The patrol pack should be accessible through the top and have a flap covering the opening and providing water resistance. There shall be a non-reflective slide in name holder for name identification on the exterior of the pack. The Patrol Pack will have front pocket that is specifically sized to house a standard protective mask, and allow quick and easy access to it. The

pack has two 30" type 8 webbing for direct attachment to the parachutist snaphook described in FM 3-21-220 pg 12-5, item #17, for integration with the T-10 Harness Assembly described on pg 2-2 item #14. The patrol pack shall have drain holes.

3.13.3.1 Assault Pack. The Assault Pack shall be made from fabric and thread specified in this document and is capable of carrying at least a 60-pound load to include the current family of field radios including SINCGARS and ASIP. The Assault Pack shall be quickly and easily donned and doffed over the FLC. The exterior sides and outermost surface of the Assault Pack shall contain a means to accomplish secure attachment/detachment of the modular pouches/pockets and other individual equipment items/carriers i.e., mattax, entrenching tool, two-quart canteen, etc. The Assault Pack should be accessible through the top with a slide fastener closure and have a flap covering the opening and providing water resistance. There shall be a non-reflective slide in name holder for name identification on the exterior of the pack. The Assault Pack will have front pocket that is specifically sized to house a standard protective mask, and allow quick and easy access to it. The pack has two 30" type 8 webbing for direct attachment to the parachutist snaphook described in FM 3-21-220 pg 12-5, item #17, for integration with the T-10 Harness Assembly described on pg 2-2 item #14. The Assault Pack will have a sewn in lowering line attachment point. The Assault Pack shall have drain holes.

3.13.4 Deleted

3.13.4.1 Large Rucksack. The Large Rucksack shall be made from fabric and thread specified in this document and is capable of carrying a 120-pound load. The Large Ruck shall be quickly and easily attached/detached to/from the frame. The Large Ruck shall have an internal pouch to the side of the Ruck nearest the back of the wearer to accommodate the current family of field radios including SINCGARS and ASIP. The Large Ruck shall have a dual-purpose flap and map case covering the opening. The lower compartment shall provide storage of readily available mission items, e.g., poncho liner, modular sleeping bag system, rain suit, etc.). The rucksack shall incorporate drain holes. Access to the interior of the ruck should be through the top and lower front with the flap covering the top opening providing water resistance. There shall be at least 2 removable pockets on the exterior of the ruck capable of carrying small clothing items such as the poncho, improved rain suit, spare batteries, etc. Additionally, the exterior sides and outermost side of the rucksack shall contain a means to accomplish secure attachment/ detachment of the modular pouches/pockets and other individual equipment items/carriers. There shall be a non-reflective slide-in name holder for Marine/Soldier identification on the exterior of the rucksack.

3.13.5 Hydration System. The hydration system as described in 3.3.6 shall provide a Marine/Soldier with the capability to drink while road marching with a loaded Main Pack without the need to stop. The hydration system shall have a separate carrier that can be worn with thin 1.5" wide shoulder straps. A tube from the hydration system shall provide a means of getting liquid from a bladder container to the Marine/Soldiers' mouth. It shall be a low reflective surface 100-ounce reservoir with a screw top cap, a tube and bite valve. A clip for securing the tube to the users clothing when not drinking shall be provided.

3.13.6 Waist belt. The waist belt shall attach to the pack frame (3.13.2). The waist belt shall have a number of attachment areas that are compatible with MOLLE pockets and pouches. It shall have straps to easily attach it to the frame by the user. The waist belt shall be capable of distributing part of the Main Pack or Large Rucksack load to the hips. See 6.8.58.

3.14 Identification and marking. The size and location of the US marking shall be indicated on the drawings. The letters US printed in dark black ink shall not fade to the point of being illegible after repeated washings and field use. Each component of the MOLLE shall have a combination identification and washing instruction label (exceptions noted) conforming to Mil-Dtl-32075. The labels shall be of sufficient strength to withstand repeated field use and laundering. The color of the label shall be foliage green 504 and the marking medium shall be Black. The printing shall be legible and shall not show off-setting, smearing or bleeding. All printing shall be in capitals except where otherwise indicated on the instruction label. Size of characters shall be approximately 1/8 inch for capitals and 3/32 inch for lower case. The identification portion of label shall contain item description, National Stock Number (NSN), contract number, lot number, and contractor's name. The item descriptions shall be as follows:

"MOLLE II- RUCKSACK, LARGE"
"MOLLE II - ASSAULT PACK"
"MOLLE II - FIGHTING LOAD CARRIER (FLC)"
"MOLLE II - TACTICAL ASSAULT PANEL (TAP)"
"MARINE CHEST RIG"
"MOLLE II - SUSTAINMENT POUCH"
"MOLLE II - RADIO POUCH"
"MOLLE II - BANDOLEER AMMUNITION POUCH"*
"MOLLE II - M-4, TWO MAGAZINE POUCH"*
"MOLLE II - M-4, THREE MAGAZINE SIDE X SIDE POUCH"*
"MOLLE II - 100 ROUND UTILITY POUCH"*
"MOLLE II - 200 ROUND SAW GUNNER POUCH"*
"MOLLE II - HANDGRENADE POUCH"*
"MOLLE II - 40MM GRENADE POUCH (SINGLE)"*
"MOLLE II - 40MM GRENADE POUCH (DOUBLE)"*
"MOLLE II - 40MM PYROTECHNIC POUCH (DOUBLE)"*
"MOLLE II - 9MM MAGAZINE POUCH (SINGLE)"*
"MOLLE II - LASHING STRAP "*
"MOLLE II - WAIST PACK"
"MOLLE II - 1 QUART CANTEEN/GENERAL PURPOSE POUCH"*
"MOLLE II - ALICE CLIP ADAPTER"*
"MOLLE II - K-BAR ADAPTER"*
"MOLLE II - SHOULDER STRAPS (FRAME)"*

"MOLLE II - MOLDED WAISTBELT"*

"MOLLE II - HYDRATION SYSTEM CARRIER"***

*These items do not require washing instructions.

Note: The frame markings shall include Vendor Name, NSN, Lot, Month and Year of manufacture molded into the part.

The washing instructions shall read:

Hand Washing:

1. Scrape dirt/dust from item using a brush that will not cut into fabric.
2. Hose or wash item in a pail of water using Mild detergent or soap.
3. Rinse thoroughly with clean water
4. DO NOT USE CHLORINE BLEACH, YELLOW SOAP, CLEANING FLUIDS OR SOLVENTS WILL DISCOLOR/DETERIORATE THE ITEM.
5. Dry item in shade or indoors
6. DO NOT DRY IN DIRECT SUNLIGHT, DIRECT HEAT OR OPEN FLAME
7. DO NOT LAUNDRER OR DRY ITEM IN FIXED/COMMERCIAL HOME TYPE LAUNDRY EQUIPMENT.
8. DO NOT ATTEMPT TO DYE ITEM OR REPAIR IT. TURN-IN FOR REPAIR/REPLACEMENT.

** The Hydration Bladder/Reservoir does not require any special markings. The Hydration Carrier requires item description; NSN, contract number and prime contractor's name, and the following care and use instructions:

Care and Use:

1. Rinse hydration system with mild soap and hot water before first use and after each use.
2. To freshen, add 2 teaspoons of baking soda to a full system of water and let soak overnight. Rinse well.
3. To sanitize, add 2 teaspoons of bleach to a full system of water and let soak overnight. Rinse well.
4. The use of liquids other than water will accelerate mold growth and will require more frequent cleaning.

3.14.1 Label attachment. The combination labels shall be located as indicated on the patterns.

3.14.2 Video Tape. A master copy of the videotape will be furnished to the successful awardee.

3.14.3 Care and Use Manual. A master copy of the Care and Use Manual will be furnished to the successful awardee. It shall be 5 1/2 X 8 1/2.

Checklist. The check list shall be in accordance with Figure 1.

4. VERIFICATION

4.1 Classification of inspection. The inspection requirements specified herein are as follows:

- a) First article inspection (see 4.2)
- b) Conformance inspection (see 4.3)

4.2 First article inspection. When a first article is required (see 3.1 and 6.2), it shall be examined for the defects specified in 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5 and 4.3.6.

4.3 Conformance inspection. Conformance inspection shall be in accordance with 4.3.1, 4.3.2; 4.3.3; 4.3.4; 4.3.5; and 4.3.6. Unless otherwise specified, sampling for inspection shall be performed in accordance with ANSI/ASQC Z1.4, except where otherwise indicated.

4.3.1 Compatibility. The MOLLE components shall be examined to verify compatibility between components (attaching/detaching).

4.3.2. Visual examination of MOLLE. Each component in the MOLLE shall be examined for the defects listed below. The lot size shall be expressed in units of either MOLLE or the individual component (when the component is purchased separately). The sample unit shall be one completely fabricated MOLLE or individual component.

Examine	Defect	Classification	
		Major	Minor
Fabric	Hole, cut, tear, smash, broken or missing yarn, or open place clearly visible at normal inspection distance (approximately 3 feet). Shade bar or abrasion mark. Defective or partially omitted coating	101	201 202
Webbing or tape	Any hole, cut, tears, or smash. Not firmly and tightly woven, edges frayed or scalloped. Multiple floats. Abrasion mark, slub, or broken end or pick. Cut ends of webbing not fused as specified.	102 103 104 105	203
Fastener tape	Any hole, cut, or tear. Hooks flattened, broken, or missing. impairing function.	106 107	

End Item Visual Defects

Hardware	Broken or malformed, failing to serve intended purpose, corroded area, burr or sharp edge. Finish omitted or not as specified: - on brass or aluminum components - on steel components. Area of partial or no finish. Any required component improperly installed causing failure to serve intended purpose. Not assembled as specified. Size or type not as specified.	108 109 110 111 112	204 205
Snap fasteners	Any fastener not functioning properly i.e. fails to snap closed, provide a secure closure or to open freely. NOTE: The fasteners shall be snapped and un-snapped twice to determine whether parts of fastener separate freely; and also affect a secure closure.	113	

<u>EXAMINE</u>	<u>DEFECT</u>	<u>Major</u>	<u>Minor</u>
Snap Fasteners (Continued)	<p>Clinched excessively tight, cutting adjacent material.</p> <p>Clinched loosely, permitting any component to rotate freely but not to the degree that any component can be expected to become detached during use.</p> <p>Clinched loosely to the degree that components can be expected to become detached during use.</p> <p>NOTE: Incomplete roll of end of button or eyelet barrel is evidence of improper and insecure clinching.</p> <p>Incorrect style. Any splits in eyelet or button barrels.</p>	114	206
		115	
		116	207
Drawstrings	<p>Cut, chafed, or abraded.</p> <p>Ends not fused.</p> <p>Not threaded through grommets or knotted as specified.</p> <p>Omitted.</p>	117	208
		118	209
Barrel Lock	Reversed.		210
Sub-assemblies	Not attached as specified.		211
Brass grommets and eyelets	<p>Clinched excessively tight, cutting adjacent material.</p> <p>Insecurely clinched to a degree that grommet or eyelet may be detached from material.</p> <p>Washer installed on incorrect side of material.</p> <p>Eyelet barrel split.</p>	119	212
		120	213
Slide fastener	<p>Not functioning properly, failing to effect a secure closure or to open freely.</p> <p>Not specified type or size.</p> <p>Slider jams or fails to interlock.</p> <p>Thong omitted.</p> <p>Fastener tape cut or torn.</p>	121	
		122	
		123	
		124	
SEAMS AND STITCHING:			
Open seam	<p>1/2 Inch or less.</p> <p>More than 1/2 inch.</p>	125	214

	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. NOTE: Raw edge not securely caught in stitching shall be classified as an open seam.		215
Run-off (see open seam)			
Seam and stitch type	Wrong seam or stitch type.	126	
Bartacks	Any bartack omitted. Any bartack not as specified or not in specified location. Loose stitching, incomplete or broken.	127	216 217
Stitch tension	Loose, resulting in loose bobbin or top thread. Excessively tight, resulting in puckering of material.		218 219
Stitches per inch	Up to two stitches less than minimum specified. Three or more stitches less than minimum specified. One or more stitches in excess of maximum specified. NOTE: Variation in the number of stitches per inch caused by the operator speeding up the machine and pulling the fabric in order to sew over heavy seams, or in turning corner shall be classified as follows: (a) Within the minor defect classification no defect. (b) Within the major defect classification minor defect.	128	220 221
Stitching ends	Not secured as specified.		222
Thread breaks, skipped stitches, or	Not overstitched as specified.		223

run-offs	NOTE: Thread breaks or two or more consecutive skipped or run-off stitches not overstitched shall be classified as open seams.		
Rows of stitching	Any row missing except on box, and box-x stitching. On box, and box-x stitching: - one row of stitching omitted. - two or more rows of stitching omitted.	129 130	224
Component and assembly	Any component part omitted or not as specified or any operation omitted or not as specified (unless otherwise classified herein). Needle chews. Any mend, darn, patch, splice or other unauthorized repair. Any material pleated or caught in stitching where not specified.	131 132 133	225
Plastic frame; Stiffener or Film	Chip, cut, crack, splinter, broken end or space, failing to serve intended purpose.	134	
Binding	Loosely applied but not exposing raw edge of material. Loosely applied exposing raw edge of material. Ends of binding on pocket flap and on ammunition pockets not caught in seams. Ends of binding on pocket flap and on grenade pockets not caught in seams.	135	226 227 228
Darts (on pouch pocket flaps)	One or more omitted. Not formed and sewn separately on pouch pocket flap as specified	136	229
Ammunition and grenade pocket and flap	Pocket is single ply construction. Pocket or flap not formed as specified. Flaps improperly set or distorted failing to effect a full and smooth closure. Binding tape not securely attached.	137 138	230 231
Cleanness	Grease, oil, dirt or ink stains clearly noticeable. Thread ends not trimmed as specified.		232 233
Location markings	Drilled or Permanent Printed marking more than 1/32 inch in width or not covered by component part.	139	234

Markings: US identification and instructions	Omitted, incorrect, illegible, or misplaced, or size of characters not as specified.		235
Manual and Checklist	Omitted, incorrect, illegible.		236

4.3.3. Dimensional examination. The completed MOLLE or individual components shall be examined for the defects listed below. The sample unit shall be one MOLLE or individual component

End item dimensional examination.

Examine	Defect	Classification	
		Major	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 tolerance.		237
	Smaller than nominal dimensions less twice the applicable minus tolerance.		
	Larger than nominal dimensions and applicable plus tolerance.	140	
Component and location dimensions	Not within specified tolerance.		238
Stitch margin or gage	Not within specified tolerance.		239
Box, box-x and stitching	Dimensions not within specified tolerance.		240
Brass eyelets	Not spaced on equipment within specified dimensions.		241
Grommets	Set off center on hems by more than 1/4 inch.		

4.3.4 End item fit examination. The MOLLE or individual components shall be examined for the defects listed below. The sample unit shall be one complete MOLLE System or one individual component (when components are purchased separately). The gauges used to determine proper fit of the magazine clips and the grenades shall be furnished by the contractor. The gauges shall be constructed in accordance with drawings 2-1-2242, 2-1-2243, 2-6-110, 2-6-111, through 2-6-114 and Paragraph 4.3.4.1 through 4.3.4.8. The pouches shall be examined for the defects listed below. The sample unit shall be one Pouch.

End Item Fit Examination

Examine	Defect	Classification	
		Major	Minor
Gage Fit into Pocket/ Pouches & Closure Of Flaps	Failure of pocket/pouches to fit properly within pocket/pouches without force. Inability to Completely close flap down in order to secure the Strap fastener without applying excessive force.	141	

4.3.4.1 Magazine clip fit. Two magazine gauges shall be inserted into the M-4, Two Magazine pouch. The open ends of the gauges shall face up with the outline of the ammunition at the open end pointing towards the center front of the vest. The gauges shall be inserted into the pouch without effort other than that necessary to overcome reasonable friction between the gauges and the pocket. A defect shall be scored if any gauge must be forced into the pocket. With the gauge(s) in the pocket, the pocket flap shall be closed and the fastener(s) secured. A defect shall be scored if the pocket body or the flap is too short causing inability to secure the fastener without applying excessive force to the flap to secure the fastener(s). The fit test shall be repeated for the individual pockets of the 6 magazine Bandoleer. An single magazine shall be used to determine proper fit of each of the M-4, Three Magazine Side x Side Pouch's.

4.3.4.2 Grenade fit. The grenade gauge shall be inserted into the pouch with the safety pin on top. The gauge shall be fully inserted within each pouch without effort other than that necessary to overcome reasonable friction between the gauge and the pouch. A defect shall be scored if the gauge must be forced into the pouch.

4.3.4.3 SINCGARS/ASIP Radio fit. A wooden block 10 3/4 x 14 1/2 x 3 1/2 shall be inserted lengthwise into the radio pouch to determine proper fit of the radio. The gauge shall be fully inserted within each pouch without effort other than that necessary to overcome reasonable friction between the gauge and the pouch. The ASIP gauge shall measure 5 3/8 x 3 3/8 x 10. The ASIP Block shall be inserted into the webbing cradle without effort other than that necessary to overcome reasonable friction between the gauge and the pouch. A defect shall be scored if the gauge fails fit properly within the pouch.

4.3.4.4 100-round SAW magazine fit. A wooden block 5 9/16" x 4 5/8" x 2 5/8" shall be inserted lengthwise into the 100 round/utility pouch to determine proper fit. The gauge shall be fully inserted within each pocket without effort other than that necessary to overcome reasonable friction between the gauge and the pouch. A defect shall be scored if magazine fails to fit properly within the pouch.

4.3.4.5 200-round SAW magazine fit. A wooden block 7 3/4" x 6 1/2" x 3 1/8" shall be inserted lengthwise into the 200 round SAW magazine pouch to determine proper fit. The gauge shall be fully inserted within each pouch without effort other than that necessary to overcome reasonable friction between the gauge and the pouch. A defect shall be scored if the magazine fails to fit properly within the pocket.

4.3.4.6 40mm high explosive grenade fit. The gauge shall be inserted into each high explosive grenade pouch. The flat ends of the fit gauges shall face towards the tab/flap of the pouch. A defect shall be scored if the gauge must be forced into the pouch(s), or if they extend beyond the bottom of the pouch by more than 1/2 inch.

4.3.4.7 40mm Pyrotechnic grenade fit. The gauge shall be inserted into each 40mm pyrotechnic grenade pouch. The flat ends of the fit gauges shall face towards the tab/flap of the pouch. A defect shall be scored if the gauge must be forced into the pouch(s), or if they extend beyond the bottom of the pouch by more than 1/2 inch.

4.3.4.8 1 quart canteen fit. A 1 quart standard canteen shall be inserted into each 1 quart canteen/general purpose pouch. The webbing straps that form a lid shall be buckled to the female fastener on the front of the pouch. The canteen shall be fully inserted within each pouch without effort other than that necessary to overcome reasonable friction between the canteen and the pouch.

A defect shall be scored if the canteen fails to fit properly within the pouch.

4.3.5 End Item Testing:

4.3.5.1 Frame and Large Rucksack. An Airdrop Slide Impact test shall be performed in accordance with Paragraph 3.12.2. The sample unit shall be one Frame and one Large Rucksack. The Government may perform verification drops.

4.3.5.2 Video Tape: The video tape shall be viewed for clarity, legibility and audibility. The sample unit shall be one tape.

4.3.6 Material tests. The finished cloth, and thread shall be tested for the characteristics listed in Table IX.

TABLE IX - Material Tests

Characteristic	Required Paragraph	Test Method
<u>Fabric</u>		
Textured Nylon		
Weight	3.7.3/3.7.4	ASTM D 3776
Breaking strength	3.7.5	ASTM D 5034
Water repellency	3.7.3/3.7.4	AATCC METHODS
Colorfastness to:		AATCC
Laundering, after 3 cycles	3.7.4	METHOD 61-1994
Laundering (accelerated black print only)	3.7.4	
Light	3.7.4	METHOD 16-1993
Crocking		METHOD 8-1989
Resistance to frosting, for Carbon Black	3.7.4	METHOD 119 1/
Infrared reflectance	3.8.4	4.4.1
Matching Standard Sample	3.6	Visual
Spray Rating		ATCC-22 Direct Transfer
Hydrostatic Resistance		ATCC-127
<u>Mesh</u>		
Meshes/inch	3.7.5	ASTMD 3775
Weight	3.7.5	ASTM 3776
Thickness	3.7.5	ASTM D 1777
Bursting Strength	3.7.5	ASTM D 3787
Breaking Strength	3.7.5 3.13.6	ASTM D 5034
Tearing Strength	3.7.5	ASTM D 2261
Ultimate Elongation	3.7.5	ASTMD 5034
TABLE IX - Continued		
Elongation at 2/3 Breaking Load	3.7.5	ASTM D 5034
Stiffness	3.7.5	ASTM D 1388
Fastness to:		
Laundering	3.7.5	AATCC 61-
1993 1/ Light	3.7.5	AATCC 16-
1993 2/ Crocking	3.7.5	AATCC 8-
1989		

TABLE IX - Material Tests

<u>Thread</u>		
Breaking strength	3.7.1	ASTMD 2207 <u>2/</u>
Water repellency	3.7.1	4.4.4
<u>Webbing and Tape</u>		
<u>1 inch webbing</u>		
Weight	3.7.11.1	ASTM D 3776
Breaking strength	3.7.11.1	<u>3/</u>
Fastness to:		AATCC
Laundering	3.7.11.1	61-1994 <u>4/</u>
Light	3.7.11.1	16-1993 <u>5/</u>
Crocking	3.7.11.1	8-1989
<u>1 inch elastic webbing</u>		
Weight	3.7.11.2	ASTM-D-3776
Load range	3.7.11.2	<u>3/</u>
Tension set	3.7.11.2	<u>3/</u>
Fastness to:		AATCC
Laundering	3.7.11.2	61-1994 <u>4/</u>
Light	3.7.11.2	16-1993 <u>5/</u>
Crocking	3.7.11.2	8-1989
<u>1 1/2 inch webbing</u>		
Weight	3.7.11.4	ASTM D 3776
Breaking strength	3.7.11.4	<u>3/</u>
Fastness to:		AATCC
Laundering	3.7.11.4	61-1994 <u>4/</u>
Light	3.7.11.4	16-1993 <u>5/</u>
Crocking	3.7.11.4	8-1989
Spectral reflectance	3.7.11.4	4.4.1
<u>3 1/2 inch webbing</u>		
Weight	3.7.11.5	ASTM D 3776
Breaking strength	3.7.11.5	<u>3/</u>
Fastness to:		AATCC
Laundering	3.7.11.5	61-1994 <u>4/</u>
Light	3.7.11.5	6-1993 <u>5/</u>
Crocking	3.7.11.5	8-1989
Spectral reflectance	3.7.11.5	4.4.1

TABLE IX - Material Tests

<u>Tape, binding</u>	3.7.11.3	
Weight	3.7.11.3	ASTMD 3776
Breaking strength	3.7.11.3	<u>3/</u>
Fastness to:		AATACC
Laundering	3.7.11.3	61-1994 <u>4/</u>
Light	3.7.11.3	16-1993 <u>5/</u>

1/ Except that the number of abrasion cycles shall be 300.

2/ Single strand method.

3/ As specified in contract.

4/ Use test 1A, Table I with the following changes: temperature = $100 \pm 4^{\circ}\text{F}$, total liquid volume is 100 ml, time = 30 minutes.

5/ Use option "A".

4.4 Method of inspection.

4.4.1 Spectral reflectance measurements in the visible/near infrared. Spectral reflectance data shall be obtained from 600 to 860 nanometers (nm) at 20 nm intervals, for Woodland camouflage on a spectrophotometer (see 6.5) relative to a barium sulfate standard, the preferred white reference standard. Other white reference materials may be used, provided they are calibrated to absolute white; e.g., Halon, magnesium oxide, or vitrolite tiles (see 6.6). The spectral bandwidth shall be less than 26 nm at 860 nm. Reflectance measurements may be made by either the monochromatic or polychromatic mode of operation. When the polychromatic mode is used, the spectrophotometer shall operate with the specimen diffusely illuminated with the full emission of a source that simulates either CIE Source A or CIE Source D65. The specimen shall be measured as a single layer, backed with 8 layers for Light Green 354, 4 layers for Dark Green 355 and Brown 356, and 2 layers for Black 357 of the same fabric and shade. For 3-color desert camouflage a single layer backed up by 8 layers for Light Tan 492, Light Brown 493, and Light Khaki 494. For CG 483 a single layer backed up by 6 layers. For all camouflage patterns, measurements should be taken backed with layers of the same shade so that no light can be detected through the sample.

Measurements will be taken on a minimum of two different areas and the data averaged. The specimen shall be viewed at an angle not greater than 10 degrees from normal with the specular component included. Photometric accuracy of the spectrophotometer shall be within 1 percent and wavelength accuracy within 2 nm. The standard aperture size used in the color measurement device shall be 1.0 to 1.25 inches in diameter. When the measured reflectance values for any color at four or more wavelengths do not meet the limits specified in Tables I, II, III, IV or VI it shall be a test failure.

4.4.2 Determination of fluorescence. One sample of cloth and one specimen from the standard sample shall be compared under ultra-violet light in an otherwise completely dark room. The specimen shall be considered satisfactory if its hue of fluorescence is the same as the standard sample. The result shall be reported as "pass" or "fail".

4.4.3 Verification Tests. Verification field tests may be conducted to verify requirements in Section 3 for which standard test methods are not available. The following requirements shall be verified:

- a. MOLLE- Weight shall be not more than 8.25 pounds empty (Para 3.2.1.3)
- b. MOLLE - All components, except pouches/pockets, shall have straps/carry handles (Para 3.10)
- c. MOLLE - Compatibility with clothing and equipment (Para 3.11)
- d. MOLLE - Successful delivery by harness, single point release and all-purpose weapon and equipment container system (Para 3.11)
- e. MOLLE - Compatible with individual airborne equipment items and rigging procedures (Para 3.11)
- f. MOLLE - Donning of the total system in 30 seconds or less and doffing of the total system in 15 seconds or less (Para 3.12.1)

- h. MOLLE - Individual components - Not impede head rotation while standing or in prone position.
- i. MOLLE - Individual components - Not impede shouldering or firing weapons in all firing position.
- j. MOLLE - Fit 5th through 95th percentile male Soldier/Marine population (5th to 99th percentile female desired) (Para 3.2.1.1).
- k. MOLLE - Easily field repairable (Para 3.2.1.8)
- l. MOLLE - Ease of attaching/detaching components (excluding FLC pockets) using Arctic mittens.
- m. MOLLE - Secure connection of components to vest and frame.
- n. MOLLE - Durability of thread/stitching and fabric (Para 4.3.4)
- o. Frame - Secure attachment of five gallon can, the M122 tripod and ancillary equipment, light anti-tank weapons, and bulk items to lightweight frame (Para 3.13.2)
- p. Main Pack or Large Rucksack and frame shall withstand 120 lb drop tests (Para 3.12.2)

4.4.4 Thread Water Repellency Test. The finished treated thread shall be tested for water repellency in accordance with the vertical rise non-wicking procedure specified in 4.4.4.2 (initial) and the laundering procedure specified in 4.4.4.3 (after three launderings). The test apparatus shall be as specified in 4.4.4.1.

4.4.4.1 Test apparatus. Test apparatus shall be as follows:

Launder-Ometer. Launder-Ometer or similar machine in which tightly capped one-pint glass jars are held with their bases toward a horizontal shaft 2 inches from the center of rotation with the shaft rotating at a speed of 40 to 45 revolutions per minute (r.p.m.). The Launder-Ometer shall be maintained at a temperature of $160 \pm 2F$.

Detergent solution. A 0.25 percent solution of sodium sulfate salt of oleyl methyl tauride (2.5 grams per liter).

Circulating air oven. A circulating air oven capable of maintaining a temperature of 221 to 230.

Twist tester. A twist tester or other suitable device for twisting and cabling skeins.

Water tank. Vessel capable of holding a minimum 6-inch (152 mm) depth of water.

Laboratory stand. Laboratory stand with movable crossbar rising 28 inches (711 mm) or more above the base.

Weight. Weight, nonferrous, 3/4 to 7/8 ounce (21 g to 25 g).

Dye. Dye-Basic Blue 9, color index 52015, salt and wetting agent free.

Blotting Paper. The blotting paper shall be approximately 1 inch (25 mm) square.

Yarn reel. A 54-inch (1.37 m) periphery skein reel or other suitable device for preparing the specimen.

Distilled Water.

Paper clip or similar clamp.

4.4.4.2 Non-wicking procedure (initial). The test specimen shall consist of twenty-strand skein of thread in one continuous 30-yard (27.4m) length made on a 54-inch (1.37m) periphery skein reel. The skein shall be reeled under enough tension to cause the strands in the skein to lie uniformly, side by side, on the reel. The finishing end of the skein shall be tied to the starting end of the skein in such a manner that the knot will not add additional length to the reel skein. The skein shall be hung over the crossbar of the laboratory stand with the other end hanging over the vessel. The weight shall be placed in the lower catenary of the skein to keep it taut and straight. The skein shall be arranged so that the strands are touching each other in flat ribbon form. The vessel shall be filled to a depth of at least 5 inches (127 mm) with distilled water at room temperature, which has been mixed with 0.05 percent dye. A piece of blotting paper shall be attached by means of a paper clip or similar clamp to one full side (twenty strands) of the skein, 3 inches (76 mm) above the lower catenary of the skein. The position of the crossbar shall be so adjusted that when the skein is hung freely in the liquid, two inches of the skein will be immersed in the liquid and the lower edge of the blotter is 1 inch (25 mm) above the liquid surface. The skein shall then be slowly lowered into the dyebath and the time of entry shall be noted. Depending on the dimensions of the vessel and the length of the crossbar, several specimens can be tested at the same time in the same dyebath, by hanging the skeins sufficiently apart of the crossbar. The skein shall be exposed for 6 hours. The blotter shall be examined for wetting or staining at least once every hour. The test shall be terminated whenever staining or wetting of the blotter is observed, within the 6-hour test duration either in initial or laundered state.

4.4.4.3 Launder-Ometer Procedure. (Laundered). The thread shall be tested as specified in AATCC 61-1993 except as prepared below:

The test specimen shall consist of a twenty-strand skein of thread in one continuous 30-yard length made on a 54-inch periphery skein reel. The skein shall be folded flat then twisted around its long axis for a total of 25 turns by use of a twist tester or other suitable device in the same direction as that of the final ply twist of the thread. The two ends shall be brought together and the folded skein allowed to back twist on itself. The ends shall be tied off to prevent untwisting during laundering. The specimen shall be placed in a 1 pint jar containing 100 ml of the 0.25 percent detergent solution at a temperature of $120 \pm 2F$. The jar shall then be sealed and agitated for 45 minutes at a temperature of $120 \pm 2F$ in the Launder-Ometer at a speed of 40 to 45 r.p.m. At the end of the laundering period, the specimen shall be removed from the jar and rinsed thoroughly in running water at a temperature of $104 \pm 9F$ and agitated occasionally during rinsing. Care should be exercised to insure that all traces of detergent are removed. The specimen shall then be extracted or wrung and oven dried at a temperature of 221 to 230 F until thoroughly dry. Repeat procedure two more times, undo the tied ends from the skein, untwist skein and conduct procedure specified in 4.4.4.2 for laundered determination.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order. 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 the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature, which may be helpful, but is not mandatory).

6.1 Intended use. The MOLLE system is intended for use by all Soldiers and Marines for man-transportation of mission essential items.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this document
- b. When a first article is required (see 3.1 and 4.2)
- c. Woodland, Desert or Arctic camouflage pattern drawings, if required (see 3.14)
- d. Packaging (see 5.1)

6.3 Standard samples, specifications/drawings and pattern drawings. For access to the standard samples of finished fabrics and the Woodland camouflage pattern drawings, if applicable, address the contracting activity issuing the invitation for bids or request for proposal.

6.4 Dyestuff formulations.

6.4.1 Woodland camouflage-ground shade. The following dyes have been found acceptable for dyeing the ground shade approximating Light Green 354:

Acid Blue 258
Acid Orange 4R
Acid Yellow 219

6.4.1.1 Printed shades. The printing of the Light Green 354, Dark Green 355 and Brown 356 colors may be accomplished by varying the amount of the following dyes:

Acid Orange 156
Acid Red 266
Acid Blue 158

Shade Black 357 may be satisfactorily printed with the use of carbon black alone or in combination with the above dyes.

6.5 Spectrophotometers. Suitable spectrophotometers for measuring spectral reflectance in the visible/near-infrared are the Diano Hardy, Diano Match Scan, Hunter D54-IR, Hunter VIS/NIR spectrophotometer and Macbeth 1500 with IR option.

6.6 Source of material. Barium sulfate of suitable quality for use as white standard is available from Eastman Kodak Co. The same source has available magnesium reagent (ribbon) and Halo. Suitable tiles can be obtained from the National Bureau of Standards or from the instrument manufacturers.

6.7 Water repellency. Approval of such compounds and combinations is the responsibility of the US Army, Natick Soldier Center, Natick, MA 01760-5014, and is based on more extensive tests, including those for toxicity, which are not set forth in this document. Because of the time necessary to conduct full evaluation (approximately 6 months), only those chemical treatments already approved and so listed in the invitation for bids or request for proposal shall be considered acceptable for the related procurement.

6.8 Material Sources/Specifications

6.8.1 Thread. Suggested source for 3.7.1: V-T-295, Thread, Nylon Type I or II, Class B, size F, color shade Camouflage Green 483 is known to meet the requirements of 3.7.1. Coats American 4135 South Stream Blvd, Charlotte, NC. 28217 Phone 610-927-1571 is a possible source.

6.8.2 Thread. Suggested source for 3.7.2: V-T-295, Thread, Nylon, Type I or II, Class B, Size E is known to meet the requirements of 3.7.2: Coats American, 4135 South Stream Blvd, Charlotte, NC. 28217 Phone 610-927-1571 is a possible source.

6.8.2.1 Thread. Suggested source for 3.7.2.1: Coats American, 4135 South Stream Blvd, Charlotte, NC. 28217 Phone 610-927-1571 is a possible source

6.8.3 Basic Fabric. Suggested source for 3.7.3: Brand & Oppenheimer, 10 Mechanic St., Red Bank, NJ. 07701 Phone 732-224-7400. Or, Duro Industries, Inc. 1 Middle Street, Fall River, MA 02724, 508-675-1136.

6.8.4 Pocket Reinforcing Cloth. Suggested source for 3.7.4: Brand & Oppenheimer, 10 Mechanic St., Red Bank, NJ. 07701 Phone 732-224-7400. Or Duro Industries, Inc. 1 Middle Street, Fall River, MA 02724, 508-675-1136.

6.8.5 Mesh. Suggested source for 3.7.5: SSM Industries, PO Box 602, Spring City, TN. 37381 Phone 423-365-4048.

6.8.6 Nylon Fabric. Suggested source for 3.7.6: Performance Textiles, 3917 Liberty Road, Greensboro, NC. 27406 Phone 336-275-5800.

6.8.7 Slide Fasteners. Suggested source for 3.7.7: Diversified Marketing Group, 109 Forest Ave, Rear Court 2nd Floor, Narberth, PA. 1907 Phone 610-667-5589.

6.8.8 Plastic Stiffener. Suggested source for 3.7.8: Penn Fiber PO Box 160 Church & Snider, Greenwood, DE. 19950 Phone 302-349-4505. Commercial Plastics and Supply, 352 McGrath Highway, Sommerville, MA 02143, phone 617-623-2100

6.8.9 Fastener Tape. Suggested source for 3.7.9: Velcro USA 406 Brown Ave PO Box 5218, Manchester, NH. 03108 Phone 800-225-0180. YKK, c/o Diversified Marketing Group 109 Forrest Ave, Narberth, PA 19072 Phone 610-667-5589.

6.8.10 Coated Webbing. Suggested source for 3.7.10: BioPlastics Co. 34655 Mills Rd, North Ridgeville, OH. 44039 Phone 800-487-2358.

6.8.11 Webbing 1". Suggested source for 3.7.11.1: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.

6.8.12 Elastic Webbing. Suggested source for 3.7.11.2: K & W Webbing Co. 403 Roosevelt Ave. Central Falls, RI. 02863 Phone 401-725-4441.

6.8.13 Tape, Binding. Suggested source for 3.7.11.3: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.

- 6.8.14 Webbing 1 1/2". Suggested source for 3.7.11.4: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.15 Webbing 3 1/2". Suggested source for 3.7.11.5: Narricot Part No 17337-3 1/2. Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.16 Webbing 2". Suggested source for 3.7.11.6: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.17 Webbing 2". Suggested source for 3.7.11.7: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.18 Webbing 2 1/4". Suggested source for 3.7.11.8: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.19 Webbing 9/16". Suggested source for 3.7.11.9: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.20 Webbing 3/4". Suggested source for 3.7.11.10: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.21 Webbing 3". Suggested source for 3.7.11.11: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.22 Webbing 1 23/32". Suggested source for 3.7.11.12: Narricot Industries, 931 Noble St. Suite 801, Anniston, AL. 36201 Phone 215-322-3918.
- 6.8.23 Webbing Tubular. Suggested source for 3.7.11.13: Hope Webbing 1005 Main St., Pawtucket, RI. 02860 Phone 401-333-8990.
- 6.8.24 Elastic Cord. Suggested source for 3.7.11.14: Hope Webbing 1005 Main St., Pawtucket, RI. 02860 Phone 401-333-8990.
- 6.8.25 Round Cord. Suggested source for 3.7.11.15: Hope Webbing 1005 Main St., Pawtucket, RI. 02860 Phone 401-333-8990.
- 6.8.26 Flat Cord. Suggested source for 3.7.11.16: Hope Webbing 1005 Main St., Pawtucket, RI. 02860 Phone 401-333-8990.
- 6.8.27 Side Release Buckle 1". Suggested source for 3.7.12.1: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.
- 6.8.28 Side Release Buckle 1". Suggested source for 3.7.12.2: National Molding Corp., 5 Dubon Court, Farmingdale, NY. 11735 Phone 516-293-8696. or ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709..

6.8.29 Side Release Buckle 1". Suggested source for 3.7.12.3: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.30 Cord Lock. Suggested source for 3.7.12.4: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.31 Ladderlock Buckle 1". Suggested source for 3.7.12.5: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.32 Ladderlock Buckle 1". Suggested source for 3.7.12.6: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.33 Tension Lock Buckle 1". Suggested source for 3.7.12.7: National Molding Corp., 5 Dubon Court, Farmingdale, NY. 11735 Phone 516-293-8696.

6.8.34 Tension Lock Buckle 1". Suggested source for 3.7.12.8: National Molding Corp., 5 Dubon Court, Farmingdale, NY. 11735 Phone 516-293-8696.

6.8.35 D-Ring 1". Suggested source for 3.7.12.9: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.35.1 D-Ring 1 1/2". Suggested source for 3.7.12.9: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.36 Slide Buckle 1". Suggested source for 3.7.12.10: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.37 Brass Loop 1". Suggested source for 3.7.12.11: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.38 Double Bar, Non-Slip Buckle 1". Suggested source for 3.7.12.12: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.39 Slide Buckle 1". Suggested source for 3.7.12.13: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.40 Side Release Buckle 1 1/2". Suggested source for 3.7.12.14: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.41 Side Release Buckle 1 1/2". Suggested source for 3.7.12.15: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.42 Ladderlock Buckle 1 1/2". Suggested source for 3.7.12.16: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.43 Slide Buckle 1 1/2". Suggested source for 3.7.12.17: ITW Nexus 195 Algonquin Ave, Des Planes, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.44 Center Release Buckle 2". Suggested source for 3.7.12.18: ITW Nexus 195 Algonquin Ave, Des Planes, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.45 Quick-Release Buckle. Suggested source for 3.7.12.19: Down East Inc.69 Main St., PO Box 328, Bridgton, ME. 04009 Phone 207-647-5443.

6.8.46 Pack Frame. Suggested source for 3.7.12.20: Down East Inc.69 Main St., PO Box 328, Bridgton, ME. 04009 Phone 207-647-5443.

6.8.47 Clothing Clip. Suggested source for 3.7.12.21: National Molding Corp., 5 Dubon Court, Farmingdale, NY. 11735 Phone 516-293-8696.

6.8.48 Sternum Strap Buckle. Suggested source for 3.7.12.22: ITW Nexus 195 Algonquin Ave, Des Planes, IL 60016. Military Sales (401)-454-4817, or 847-375-6709.

6.8.49 Grommets. Suggested source for 3.7.12.23: Stimpson, 900 Sylvan Ave., Bayport, NY. 11705-1097 Phone 631-472-2000.

6.8.50 Eyelets. Suggested source for 3.7.12.24: Stimpson, 900 Sylvan Ave., Bayport, NY. 11705-1097 Phone 631-472-2000.

6.8.51 Eyelets. Suggested source for 3.7.12.25: Stimpson, 900 Sylvan Ave., Bayport, NY. 11705-1097 Phone 631-472-2000.

6.8.52 Snap Fasteners. Suggested source for 3.7.12.26: Stimpson, 900 Sylvan Ave., Bayport, NY. 11705-1097 Phone 631-472-2000.

6.8.53 Snap Fasteners. Suggested source for 3.7.12.27: Stimpson, 900 Sylvan Ave., Bayport, NY. 11705-1097 Phone 631-472-2000.

6.8.54 Foam. Suggested source for 3.7.13 and 3.7.14: Hi-Tech Products 9900 Westpoint Drive, Suite 124, Indianapolis, IN. 46256 Phone 317-579-7680. Manufacturers Rubber, Merrimack, MA phone 800-727-7763. The suggested source for the alternate construction is UFP Technologies, 172 East Main St. Georgetown, MA. 01833-2107 Phone 978-352-2200.

6.8.55 I.D. Window Plastic Film. Suggested source for 3.7.15: Blue Ridge Films 20307 Unico Rd, McKenney, VA. 23872-0417 Phone 800-677-7234.

6.8.56 Map Case Plastic Film. Suggested source for 3.7.16: JPS Elastomeric, 9 Sullivan Road, Holyoke, MA. Phone 413-552-1043.

6.8.57 Hydration System. Suggested source for 3.7.17: Camelback, 1310 Redwood Way Suite 200, Petaluma, CA 94954; Phone 800-767-8725, x228, or Seattle Lighthouse for the Blind, 2501 South Plum Street, Seattle, WA 14119, Phone 206-322-4200

6.8.58 Waistbelt Pad Insert. Suggested Source for 3.13.6. UFP Technologies, 172 East Main St. Georgetown, MA. 01833-2107 Phone 978-352-2200.

6.8.59. DELETED

6.8.60 DELETED

6.8.61 D-Ring, Metal, 1". Suggested source for 3.7.12.28: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-751-6755, or 847-375-6709.

6.8.62 Sternum Strap Adjuster Buckle. Suggested source for 3.7.12.29 : ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-751-6755, or 847-375-6709.

6.8.63 Three quarter inch side-release buckle. Suggested source for 3.7.12.30: ITW Nexus 195 Algonquin Ave, Des Plaines, IL 60016. Military Sales (401)-751-6755, or 847-375-6709.

Figure 1

MODULAR LIGHTWEIGHT LOAD-CARRYING EQUIPMENT CHECKLIST (Universal Camouflage)

**ENSURE THAT YOU HAVE
RECEIVED THE PROPER
COMPONENTS AND
QUANTITIES OF THE SET
BEING ISSUED**

	NSN (Universal Camo)	QTY
RIFLEMAN SET/BASIC CONFIGURATION SET	8465-01-525-0578	
FIGHTING LOAD CARRIER SET (FLC Set)	8465-01-525-0575	
FIGHTING LOAD CARRIER *	8465-01-525-0577	1
TACTICAL ASSAULT PANEL (TAP)*		1
CANTEEN/GENERAL PURPOSE POUCH	8465-01-525-0585	2
HAND GRENADE POUCH	8465-01-525-0589	2
M4 TWO MAGAZINE POUCH	8465-01-525-0606	3
M4 THREE MAGAZINE SIDE BY SIDE POUCH	8465-01-525-0598	2
HYDRATION SYSTEM (New)or	8465-01-525-5531	1
HYDRATION SYSTEM (100oz Storm)	8465-01-524-8396	1
CARRIER HYDRATION SYSTEM (New)	8465-01-524-5232	1
BLADDER HYDRATION SYSTEM (New)	8465-01-519-2304	1
DRINK TUBE, HYDRATION SYSTEM (New)	8465-01-519-2385	1
BITE VALVE, HYDRATION SYSTEM (New)	8465-01-519-2383	1
CARRIER HYDRATION SYSTEM (100oz Storm)	8465-01-524-8362	1
BLADDER HYDRATION SYSTEM (100oz Storm)	8465-01-465-2096	1
BIG BITE VALVE, HYDRATION SYSTEM (100oz Storm)	8465-01-472-5106	1
ASSAULT PACK, MOLLE	8465-01-524-5250	1
WAIST PACK	8465-01-524-7263	1
CARRIER ENTRENCHING TOOL (PD 05-03)	8465-01-524-8407	1
BANDOLEER AMMUNITION POUCHES (6 mag)	8465-01-524-7309	1
FLASH BANG GRENADE POUCH (PD 05-03)	8465-01-524-7324	1
Large Field Pack Set with Frame and Straps	8465-01-523-6276	
RUCKSACK, LARGE FIELD PACK, MOLLE	8465-01-524-5285	1
SUSTAINMENT POUCH	8465-01-524-7226	2
MOLLE PACK FRAME	8465-01-524-8368	1
MOLDED WAIST BELT	8465-01-524-7232	1
ENHANCED FRAME SHOULDER STRAPS	8465-01-524-7240	1
LOAD LIFTER ATTACHMENT STRAP	8465-01-524-7241	2
BUCKLE, MALE, SHOULDER SUSPENSION	8465-01-524-8415	2
PISTOL SET	8465-01-524-7328	
HOLSTER/LEG EXTENDER	8465-01-524-7345	1
9MM MAGAZINE POUCH (Single)	8465-01-524-7361	4
SAW GUNNER SET	8465-01-524-7362	
100 ROUND UTILITY POUCH	8465-01-524-7365	2
200 ROUND SAW GUNNER POUCH	8465-01-524-7620	2
GRENADIER SET	8465-01-524-7624	
40MM HIGH EXPLOSIVE POUCH (Single)	8465-01-524-7625	10
40MM HIGH EXPLOSIVE POUCH (Double)	8465-01-524-7628	4
40MM PYROTECHNIC POUCH (Double)	8465-01-524-7636	2

Medic Set	8465-01-524-7632	
BAG MEDICAL WITH 4 POCKETS	8465-01-524-7635	1
MEDICAL EXTERNAL MODULAR POCKET	8465-01-524-7638	8
MOLLE SYSTEM COMPONENTS		
BUCKLES SET	8465-01-524-7639	
K-BAR ADAPTER	8465-01-524-7246	
ALICE CLIP ADAPTER	8465-01-524-7253	
LASHING STRAPS	8465-01-524-7689	
RADIO POUCH	8465-01-524-7684	
MOLLE ACCESSORIES (PD 05-03)		
SHOTGUN SHELL POUCH	8465-01-524-7691	
MBITR POUCH	8465-01-524-7692	
300 ROUND 7.62 AMMO BAG	8465-01-524-7694	
LEADERS POUCH	8465-01-538-1523	
MOLLE VEHICLE PANEL (MVP)	8465-01-538-1497	
PVS-14 POUCH	8465-01-538-1514	

***Either a FLC or TAP will be used. The Rifleman set does not include both. See contract to determine which item will be included in the Rifleman set.**

Item Nomenclature	Multi-Cam Pattern
RIFLEMAN SET w/FLC	8465-01-580-0477
RIFLEMAN SET w/TAP	8465-01-580-0481
TACTICAL ASSAULT PANEL	8465-01-580-0689
FIGHTING LOAD CARRIER SET (FLC Set)	8465-01-580-0591
FIGHTING LOAD CARRIER (Buckle or Slide Fastener)	8465-01-580-0573
CANTEEN/GENERAL PURPOSE POUCH	8465-01-580-0693
HAND GRENADE POUCH	8465-01-580-0697
M4 TWO MAGAZINE POUCH	8465-01-580-0701
M4 THREE MAGAZINE SIDE BY SIDE POUCH	8465-01-580-0967
ASSAULT PACK	8465-01-580-0981
WAIST PACK	8465-01-580-1300
CARRIER ENTRENCHING TOOL	8465-01-580-1303
BANDOLEER AMMUNITION POUCHES (6 mag)	8465-01-580-1312
FLASH BANG GRENADE POUCH	8465-01-580-1313
HYDRATION SYSTEM (Hydramax) or	8465-01-580-1316
HYDRATION SYSTEM (100oz Storm®)	8465-01-580-1317
CARRIER HYDRATION SYSTEM (Hydramax)	8465-01-580-1319
BLADDER HYDRATION SYSTEM (Hydramax)	8465-01-519-2304
DRINK TUBE, HYDRATION SYSTEM (Hydramax)	8465-01-519-2385
BITE VALVE, HYDRATION SYSTEM (Hydramax)	8465-01-519-2383
CARRIER HYDRATION SYSTEM (100oz Storm®)	8465-01-580-1537

BLADDER HYDRATION SYSTEM (100oz Storm®)	8465-01-465-2096
HYDROLINK CONVERSION KIT, HYDRATION SYS (Storm®)	8465-01-499-9948
BIG BITE VALVE, HYDRATION SYSTEM (100oz Storm®)	8465-01-472-5106
Large Field Pack Set	8465-01-580-1556
RUCKSACK, LARGE FIELD PACK, MOLLE	8465-01-580-1560
SUSTAINMENT POUCH	8465-01-580-1563
MOLLE PACK FRAME (Tan)	
MOLDED WAIST BELT	8465-01-580-1575
ENHANCED FRAME SHOULDER STRAPS	8465-001-580-1664
LOAD LIFTER ATTACHMENT STRAP	8465-01-580-1666
BUCKLE, MALE, SHOULDER SUSPENSION	8465-01-580-1672
PISTOLMAN SET	8465-01-580-1680
HOLSTER/LEG EXTENDER	8465-01-580-2582
9MM MAGAZINE POUCH (Single)	8465-01-580-2610
SAW GUNNER SET	8465-01-580-2618
100 ROUND UTILITY POUCH	8465-01-580-2621
200 ROUND SAW GUNNER POUCH	8465-01-580-2628
GRENADIER SET	8465-01-580-2743
40MM HIGH EXPLOSIVE POUCH (Single)	8465-01-580-2756
40MM HIGH EXPLOSIVE POUCH (Double)	8465-01-580-2763
40MM PYROTECHNIC POUCH (Double)	8465-01-580-2768
Medic Set (w 4 Int. & 8 Ext. Mod. Pockets)	8465-01-580-2774
BAG MEDICAL WITH 4 INTERNAL POCKETS	8465-01-580-2779
MEDICAL EXTERNAL MODULAR POCKET	8465-01-580-2781
BAG, MEDICAL, IV BANDOLEER	8465-01-580-2783
PANEL, MEDICAL BAG	8465-01-580-2792