

INCH-POUNDMIL-K-25594D
14 December 1988
SUPERSEDING
MIL-K-25594C
3 APRIL 1975**MILITARY SPECIFICATION****KNIFE, POCKET, HOOK BLADE AND SNAP BLADE MC-1**

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

1. SCOPE.

1.1 Scope. This specification covers one type of emergency usage knife designated MC-1.

2. APPLICABLE DOCUMENTS.**2.1 Government documents.**

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS**Federal**

UU-P-553	Paper, Wrapping, Tissue.
PPP-B-566	Boxes, Folding, Paperboard.
PPP-B-576	Box, Wood, Cleated, Veneer, Paper Overlaid.
PPP-B-585	Boxes Wirebound.
PPP-B-591	Boxes, Shipping, Fiberboard, Wood-cleated.
PPP-B-601	Boxes, Wood, Cleated-Plywood.
PPP-B-621	Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636	Boxes, Shipping, Fiberboard.
PPP-B-676	Boxes, Setup.
PPP-T-45	Tape, Gummed, Paper, Reinforced and Plain, for Sealing and Securing.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: WR-ALC/MMIRFW, Robins AFB, GA 31098-5609 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 5110

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

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PPP-T-60 Tape, Packaging, Waterproof.
 PPP-T-97 Tape, Pressure-Sensitive Adhesive, Filament Reinforced.

Military

MIL-C-5040 Cord Nylon.
 MIL-L-10547 Liners, Case and Sheet, Overwrap; Water-Vaporproof or Waterproof, Flexible.

STANDARDS**Military**

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes.
 MIL-STD-129 Marking for Shipment and Storage.
 MIL-STD-130 Identification Marking of U.S. Military Property
 MIL-STD-143 Specifications and Standards Order of Precedence

(Copies of specifications, standards, handbooks, drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 **Other publications.** The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

UNIFORM CLASSIFICATION COMMITTEE (UCC)**UNIFORM FREIGHT CLASSIFICATION RULES**

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Sta., 516 W. Jackson Blvd., Chicago Ill. 60606).

Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal Agencies.

2.3 **Order of precedence.** In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS.

3.1 **First Article Testing.** This specification makes provisions for first article inspection and testing.

3.2 **Selection of Specifications and Standards.** Specifications and standards for necessary commodities and services not specified herein shall be selected in accordance with MIL-STD-143.

3.3 **Materials.** Materials used in the construction of the knife shall be as specified in Table I. When a hardness range is specified in Table I, the steel used shall be heat treated and tempered to meet the requirements specified therein. Further requirements for hardness testing of the knife's components are specified in 3.9 through 3.9.2.

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TABLE I - MATERIALS

Item	Material	Rockwell C Hardness
Snap blade (finished)	AISI Steel Alloy 440C	56 to 61 (from blade point to within approximately 1/4-inch of the tang of finished blade).
Hook blade (finished)	AISI Steel Alloy 440C	56 to 61 (from and including the hook to within approximately 1/4-inch of the tang of finished blade).
Tang	AISI Steel Alloy 440C	40 to 50 (average of three readings).
Back	AISI Steel Alloy 440C or 420	
Linings	AISI Steel Alloy 440C or 430	
Pivot	AISI Steel Alloy 440C or 416	
Springs ^{1/}	Plain carbon spring steel with a carbon range of 0.80 to 0.90 percent	45 to 50
Release button	Approximately 0.230-inch diameter, 1/2 hard brass or nickel silver rod	
Lock lever	AISI Steel Alloy 420	45 to 55
Safety lock	0.030-inch thick, 1/2 hard brass or nickel silver sheet or strip	

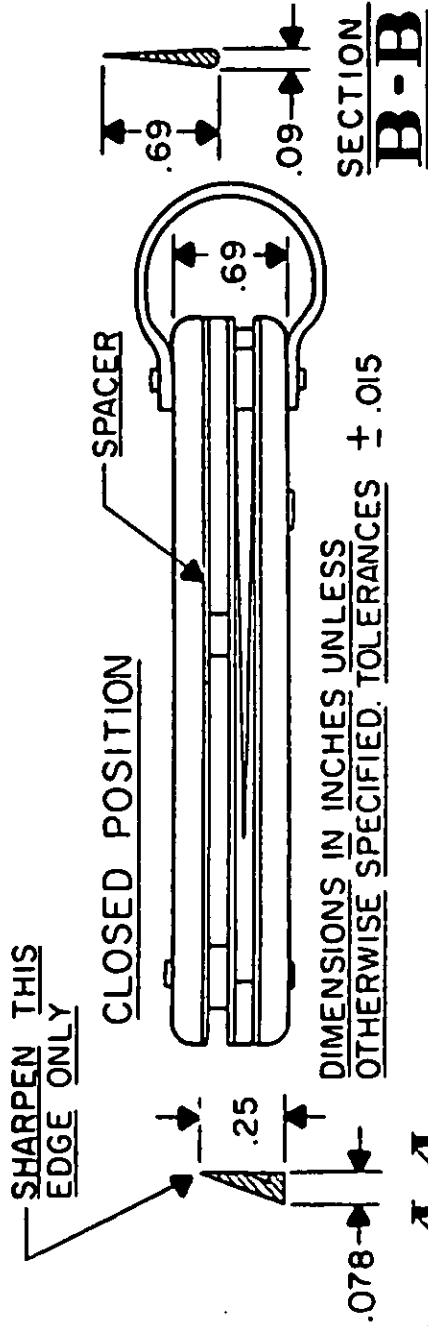
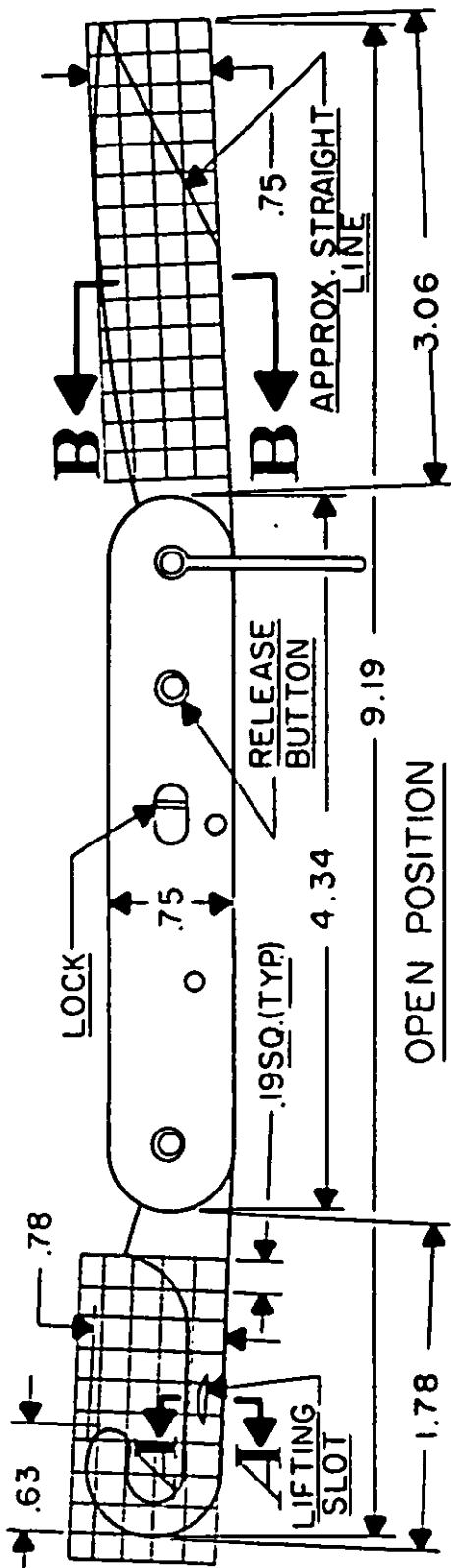
^{1/} The retaining pin for the fly spring may be 1/2 hard brass.

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TABLE I - MATERIALS (Continued)

Item	Material	Rockwell C Hardness
Thumbpiece	0.050-inch thick, 1/2 hard brass or nickel silver sheet or strip	
Handle	bone (animal), cellulose acetate sheet or molded phenolformaldehyde resin impregnated cellulose board (finished material shall imitate stag)	
Clevis	approximately 0.080-inch diameter, corrosion-resistant steel (cres), rod or wire	
Pins	0.066-inch diameter, cres, rod or wire	

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SECT. A-A

FIGURE 1 - KNIFE

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3.3.1 **Recovered materials.** The manufacturer shall utilize recovered materials to the maximum extent practicable.

3.4 **Design.** The knife shall have two blades, a hook blade on one end of the knife and a snap blade with a clip point (see 6.3 and Figure 1) on the other end. A clevis shall be located on the end of the knife opposite the hook blade. A fly spring shall be provided to extend the snap blade to the fully open position when the release button is depressed with the knife held in the horizontal plane with the back of the knife in the up position and the back of the closed blade toward the floor or down position. The knife shall be equipped with a spring-loaded release button and a safety lock. A fully opened snap blade shall only be capable of being closed if the release button is depressed, and a closed snap blade shall automatically open to fully open position when the release button is depressed. Depressing the release button shall be a necessary operation to accomplish either opening or closing the snap blade. The safety lock shall secure the release button in its outward position which shall prevent a closed snap blade from being opened and prevent an open snap blade from being closed. The release button with its safety lock shall be located so it is operable by the right thumb when the knife is held in the right hand. The hook blade shall be held in the opened or closed position by a spring and shall open and close like a conventional pocket knife.

3.5 **Construction.**

3.5.1 **Snap blade.** The snap blade shall be approximately 0.625 inch in width at the tang, 3-3/4 inches in overall length and not less than 0.110 inch in thickness (finished). The blade shall be uniformly ground on both sides and sharpened to a keen edge.

3.5.2 **Hook blade.** The approximate size of the hook blade shall be 2-3/8 inches long, 5/64-inch thick, and 25/32-inch wide. The blade shall be uniformly ground, sharpened, and polished to a keen cutting edge on the inside edge of the hook. The taper on the edge caused by grinding and sharpening shall be on one side of the blade and the lifting slot shall be on the opposite side.

3.5.3 **Linings and pins.** The knife shall be equipped with linings and any projection of pins to the outside shall give a smooth surface without any sharp edges.

3.5.4 **Fly spring for the snap blade.** The fly spring shall be equal in width, within a tolerance of plus 0 and minus 0.020 inch, to the thickness of the tang of the snap blade and shall be approximately 0.055 inch in thickness and approximately 2-1/4 inches in length. At one end only the fly spring shall be secured with a snug fit by a retaining pin, and the free end shall be taper-ground to ensure ready action.

3.5.5 **Snap Blade Latch Features.** Snap blade latching features shall consist of a spring loaded release button and a safety lock. The release button shall be approximately 1/4-inch in length, shall be approximately 1-inch from the end of the snap blade, shall be securely fastened to the lock lever, and shall have a machined recess for engagement of the safety lock. The lock lever shall be not less than 0.032-inch in thickness at any point, approximately 1/8-inch in width, and not less than 9/16-inch in length.

3.5.6 **Safety lock.** The safety lock shall be approximately 3/16-inch in width and 3/16-inch in length. A thumbpiece with a suitable tenon extending through the body shall be riveted to and become a part of the safety lock, or the safety lock and the thumbpiece may be of one-piece construction. When assembled within the handle, the thumb piece shall be approximately perpendicular to and crosswise of, the handle. The safety lock shall be designed to require sufficient force to move the safety lock to prevent accidental opening of the blade.

3.5.7 **Clevis.** The ends of the clevis shall be flattened and shall contain holes centered in the flattened area for receiving the assembly pins. The assembled clevis shall extend approximately 9/16-inch from the end of the knife. The clevis when assembled on the knife shall rotate or swivel around the end of the knife and shall be capable of swiveling from the front of the knife to the back.

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3.6 Performance.

3.6.1 Operation. The blades shall open smoothly and positively. The safety lock when engaged into the release button shall be a positive lock to prevent a change in the position of the release button; furthermore, it shall not be possible to open or close the snap blade manually when the safety lock is engaged in the lock position.

3.6.2 Pivot. The fit of the snap blade, when extended, shall limit to a maximum of 1/16-inch the free movement of the point of the blade. The fit of the hook blade, when extended, shall be the same as for the snap blade.

3.6.3 Hook blade spring capabilities. A pull of not more than 2-3/4 pounds, applied in the lifting slot area, shall cause the hook blade to be opened from a fully closed position. A push of not more than 3-1/2 pounds against the back of the hook blade shall cause it to close from an opened position.

3.6.4 Snap blade release button. A pressure of 4 to 9 pounds on the release button shall be required to actuate the snap blade. The snap blade shall snap completely open when tested as specified in 4.5.6. It shall not be possible to close the snap blade manually without depressing the release button.

3.7 Dimensions. The mean dimensions of the finished knife (with both blades closed) shall approximate the following: 3/4-inch high, 11/16-inch wide and 4-11/32 inches long (without the clevis being in the extended position).

3.8 Tolerances. Unless otherwise specified, the tolerances of all dimensions shall be plus or minus 5 percent.

3.9 Hardness testing of components. Before the knives are assembled, a representative sample of each heat treated or hardened lot of snap blades, hook blades, springs, and lock levers shall be tested for hardness compliance as specified in Table I. Failures of those representative samples to comply with the specified hardness shall be considered as failure of the lot until corrective action has been taken.

3.9.1 Blade hardness. Hardness testing of tapered sections of blades shall be accomplished by use of an inclined surface support back-up block designed to keep the knife blade from slipping and so that the hardness testers penetrator will be applied approximately perpendicular to the surface being tested.

3.9.2 Tang hardness. The hardness of tangs of snap blades and hook blades, as specified in Table I, may be the average of any three hardness tests made on the tang areas.

3.10 Color. The color of the handle shall be equal to and interchangeable with "Day-Glo, fire orange" finish coated with switzer Fileray, brush or spray application (Day-Glo Color Corp., 4372 St. Claire Ave., Cleveland, Ohio 44103) or the color may be molded into the handle.

3.11 Finish. The back, the sides adjacent to the blades, and all exposed edges shall be completely polished before assembling the knife. All pins or rivets shall be finished with round, smooth or flush heads. The two blades of the knife shall be fully polished to a glazed finish. The handle shall be finished as specified in 3.10. Cutting edges of knives shall be sharp, uniformly ground, and free of burred edges.

3.12 Identification of products. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

3.12.1 Additional marking. The manufacturer's name or trademark shall be indented or etched in the tang of the snap blade. The marking shall be visible when the blade is fully extended.

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3.13 Instruction sheet. Within the package of each knife assembly delivered (as referenced in 5.1.1), there shall be a note, typed on plain white paper, and worded as follows:

"Warning: This knife may be issued only to the Armed Forces, and is intended solely for use in emergency survival conditions. Unauthorized possession of this knife may constitute serious criminal offenses against Federal, State and Local Law."

3.14 Workmanship. The finished knife shall be clean, well-made, and free from rust, burrs, or any defects that might affect appearance, serviceability, or durability.

4. QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Preassembly component testing. Prior to assembly, testing requirements as specified in 3.9, 3.9.1, 3.9.2 and Table I shall be complied with.

4.3 Quality Conformance Inspection.

4.3.1 Lot. A lot shall consist of all knives manufactured under essentially the same conditions for acceptance inspection.

4.3.2 Sampling plan. Sampling shall be in accordance with MIL-STD-105, inspection level II with an AQL of 0.65 expressed in percent defective.

4.3.3 Rejection and retest. For a lot that is considered to have failed due to the sampling tests, corrective action must be taken and the sampling tests must be repeated.

4.4 Testing.

4.4.1 First article inspection and testing. Unless otherwise specified (see 6.2) the producer shall subject two assembled first article sample knives to all tests specified under 4.5. Unassembled components of two sample knives shall be tested for hardness as specified in Table I and dimensional examination in Figure 1. The unassembled and assembled knives shall be examined and tested for all applicable requirement paragraphs under 3. "Requirements." that are not specified under 4.5. "Tests." The complete and signed test report when submitted by the producer to the Administrative Contracting Officer (ACO) shall indicate numerical values where appropriate and all testing and inspections shall specify paragraphs by name and number and indicate whether the samples passed or failed. The samples shall be retained when specified in the contract.

4.4.2 Lot acceptance inspection and testing. Unless otherwise specified (See 6.2) a random sampling of knives shall be selected in accordance with 4.3.2. Each sample knife shall be examined in accordance with 4.5.1

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through 4.5.8. This does not preclude additional testing of the samples if it is determined by the Government inspector that additional testing is in the best interest of the Government.

4.5 Tests.

4.5.1 Examination of product. Each knife shall be examined to determine conformance to the requirements of this specification with respect to design, construction, operation, finish, marking and workmanship .

4.5.2 Operation. Each blade of the sample knife shall be manually opened and closed two times without the use of tools. With the snap blade in the open position, it shall not be possible to close the blade with a calibrated 8 pound pull applied at right angles to the longitudinal axis of the blade, 2.4 inches from the centerline of the blade's hinge pin for 5 seconds. This test shall be performed with the safety lock in both the open and closed positions. With the snap blade in the closed position, the safety lock shall be engaged in the lock position, and it shall not be possible to manually open the blade.

4.5.3 Pivots. Each sample knife, with both blades fully extended shall be securely fastened in a holding fixture or similar holding device with the pressure points applied to the ends of the pivots. The pressure exerted by the holding device shall be applied in a manner that will not depress the release button or prevent the normal closing of the blade. While mounted in this position, the outermost extremities of the blades shall not have a free movement from normal location in excess of that specified in 3.6.2 without deflection of the blades.

4.5.4 Side pressure blade test. The sample knives shall be secured in a holding fixture or other similar device with its pressure points applied along the sides of the knife handles with both blades in the open position. A calibrated tension device shall be attached within 1/2-inch of the tip end extremity of the snap blade and not less than 20 pounds of force applied in a perpendicular direction to the longitudinal axis of the knife and perpendicular to the plane of normal blade movement for a duration of 10 seconds. The same test shall be applied to the hook blade with the device attached within 1/4-inch of the end of the hook. These tests shall be applied in both directions, to both blades without evidence of snapping or fracturing the blades. In the event of failure of this test, corrective action must be taken and these tests shall be conducted on another knife.

4.5.5 Hook blade operation. A closed knife in a horizontal plane with the back of the knife in an upward position shall be placed into a holding fixture. A 2-3/4 pound weight shall be attached to the lifting slot of the hook blade. Failure of the blade of the knife to open 45 degrees shall be cause for rejection. The knife shall then be placed in a vertical plane with the hook blade open 90 degrees and the clevis end of the knife in the downward position and the same test shall be repeated. Failure of the hook blade of the knife to close shall be cause for rejection. The hook blade of the knife shall then be fully opened and using a 3-1/2 pound weight the same tests shall be repeated. Failure of the blade of the knife to close shall be cause for rejection.

4.5.6 Release button. The lock lever shall be placed in the unlocked position and pressure shall be applied to the release button. Failure of the snap blade to snap all the way open to a pressure of not less than 4 pounds nor more than 9 pounds or if it is possible to close the snap blade manually without depressing the release button shall be cause for rejection.

4.5.7 Drop test. The knife shall be dropped from a height of not less than 6 feet onto a concrete floor, a minimum of 3 times with both blades closed, and a minimum of 3 times with both blades open. After this drop test, the testing specified in 4.5.2 through 4.5.6 shall be rerun. Failure of any of these tests shall be cause for rejection.

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4.5.8 **Blade Cutting.** The snap blade shall cut not less than three 550 pound test lines in accordance with MIL-C-5040 (one at a time) with not more than 5 pounds of pressure applied. The hook blade shall cut through not less than three 550 pound test lines in accordance with MIL-C-5040 (one at a time) by using a force application of a two and one-half pound weight falling a distance of 6 inches. In this test, on the hook blade, the test line must be restrained in a manner to prevent sagging but not interfere with the impact load due to dropping the weight. After conclusion of these tests, neither blade shall show any evidence of edge turning or dulling. Failure of this test shall be cause for rejection.

4.6 **Retesting.** In the event of rejection because of a failure of a test, corrective action shall be taken and all of the testing rerun and passed before item can be acceptable for delivery.

5. PACKAGING.

5.1 **Preservation and packaging.** Preservation and packaging shall be level A or C as specified (see 6.2).

5.1.1 **Level A.** Each knife with clevis folded against its body shall be placed approximately in the center of the instruction sheet; otherwise, each knife shall be wrapped in tissue paper conforming to UU-P-553. The ends of the knife shall be placed diagonally toward the two corners of the instruction sheet or tissue paper. The knife shall be rolled in the paper, with one end only folded securely to the inside. After completely rolling the knife in the paper, the paper on the other end shall be twisted to form a snug wrap.

5.1.1.1 **Intermediate packaging.** Twelve knives wrapped as specified in 5.1.1 shall be packaged in a snug-fitting set-up box or a folding carton conforming to PPP-B-566 or PPP-B-676. The knives shall be alternately reversed end for end and staggered slightly so that they will fit compactly in the box. Each box or carton shall be securely taped with tape that is a minimum of 2 inches in width and that conforms to class 1 of PP-T-45.

5.1.2 **Level C.** Knives shall be packaged in accordance with the manufacturer's commercial practice.

5.2 **Packing.** Packaging shall be level A, B, or C specified (see 6.2).

5.2.1 **Level A.** Knives shall be packed in overseas type or class boxes conforming to class 3 of PPP-B-585; PPP-B-591; PPP-B-601; PPP-B-621; compliance symbol V3c or V3s of PPP-B-636; or PPP-B-576. Quantity per shipping container shall be as specified in the contract or order. In the absence of specified quantities, the weight limitation shall be in accordance with 5.2.1.1. Box closures and strappings shall conform to the box specification and the appendix thereto. In lieu of steel strapping, fiber boxes may be reinforced with pressure-sensitive filament tape conforming to Type IV of PPP-T-97, applied in accordance with the appendix thereto. Boxes shall be provided with case liners conforming to MIL-L-10547, sealed, in accordance with the appendix thereto. Case liners for fiberboard boxes will not be required when all joints and seams of fiber-board boxes are covered with minimum 1-1/2 inch wide tape conforming to Type II, class 1 of PPP-T-60.

5.2.1.1 **Weight Limitations.** The gross weight shall not exceed 200 pounds for wood containers conforming to PPP-B-621 and wood-cleated containers conforming to PPP-B-601 and shall not exceed the weight limitations of the applicable specifications for fiberboard containers and all other containers.

5.2.2 **Level B.** Except that in domestic type or class boxes, case liners will not be required, level B packing shall be the same as level A packing.

5.2.3 **Level C.** Knives shall be packed in containers of the type, size and kind commonly used for the purpose, in a manner that will ensure acceptance by common carriers and safe delivery at destination. Shipping containers shall comply with the Uniform Freight Classification Rules or regulations of carriers as applicable to the mode of transportation.

5.3 **Marking.** Intermediate and shipping containers shall be marked in accordance with MIL-STD-129.

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6. NOTES.

6.1. Intended use. The knife covered by this specification is intended for use in emergency survival conditions. This includes the quick-cutting of parachute shroud lines by use of the hook blade.

6.2. Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. When preproduction testing is not required (see 3.1 and 4.4).
- c. Levels of preservation, packaging, packing and marking required (see Section 5).

6.3. Definition. For purposes of this specification a "clip point" is defined as being the outermost extremity (point) of the snap blade with an approximate straight line or a slightly concave edge surface to describe the back of the blade from the blade tip to the blade back that is on the opposite edge from the rest of the cutting edge.

6.4. Item identification. In orders for the item applicable to this specification the part number should be identified as M25594 and its National Stock Number is 5110-00-526-8740.

6.5. Subject term (Key Word) listing.

Hook Blade
Knife, Pocket
Snap Blade

6.6. Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:
Army - GL
Air Force - 99

Preparing Activity
Air Force - 84

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