

INTERIM FEDERAL SPECIFICATION

KNIFE, POCKET, (HEAVY DUTY)

This Interim Federal Specification was developed by the Standardization Division, Federal Supply Service, General Services Administration, Washington, D. C. 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized the use of this Interim Federal Specification as a valid exception to Federal Specification GOG-K-484c, dated July 31, 1963.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers heavy-duty pocket knives having from one to four blades and various kinds of handle materials.

1.1.1 Federal specification coverage. Federal specifications do not cover all types, classes, sizes, and grades of the commodities as implied by the specification titles but are intended to cover only those generally used by the Federal Government.

1.2 CLASSIFICATION

1.2.1 Types, classes, and styles. Knives covered by this specification shall be of the following types, classes, and styles:

Type I. Single-blade

Class 1. Electrician's or pruning knife (fig. 14).

Style A. With 0.105 inch (minimum) thickness master blade.
Style B. With 0.080 inch (minimum) thickness master blade.

Type II. Two-blade.

Class 1. Electrician's knife (figure 15).

Style A. With 0.109 [±].0025 thickness master blade.
Style B. With 0.080 inch (minimum) thickness master blade.

Class 2. Jack knife (fig. 16).

Class 3. Barlow knife (fig. 17).

Type III. Three-blade.

Class 1. Carpenter's knife (fig. 18).

Class 2. Premium stock knife (fig. 19).

Style A. With 0.090 inch (minimum) thickness master blade.
Style B. With 0.080 inch (minimum) thickness master blade.

Type IV. Four-blade.

Class 1. Camper's knife (fig. 20).

Style A. With 0.080 inch (minimum) thickness tool blades.
Style B. With 0.069 inch (minimum) thickness tool blades.

1.2.2 Grades. Knives covered by this specification shall be of the following grades as specified (see 6.2):

Grade A. High polished finish after assembly (see 3.1.11.1).

Grade B. Ground and polished finish prior to assembly (see 3.1.11.2)

2. APPLICABLE DOCUMENTS.

2.1 Specifications and standards. The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification to the extent specified herein:

Federal Specifications:

- L-P-397 - Plastic Molding Material, Cellulose Acetate
- PPP-B-636 - Box, Fiberboard
- QQ-B-613 - Brass, Leaded and Non-Leaded Plate, Rolled Bar, Sheet and Strip.
- QQ-B-626 - Brass, Leaded and Non-Leaded Rods, Shapes, Forging and flat products with finished edges (Bars, Flat Wire and Strips).
- QQ-S-700 - Steel, Sheet and Strip, Medium and High Carbon.

Federal Standards:

- Fed. Std. No. 123 - Marking for Domestic Shipment (Civilian Agencies).
- Fed. Test Method Std. No. 151 - Metals, Test Methods.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, and Seattle, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specification:

- MIL-H-15424 - Hand Tools, Packaging of.

Military Standards:

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following publications of the issue in effect on date of invitation for bids, forms a part of this specification.

American Society for Testing and Materials (ASTM) Publications:

- ASTM Standard D-635, Method of Test for flammability of rigid plastics over 0.050 inch in thickness.

(Copies of ASTM Standard D-635 may be obtained from American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19106).

3. REQUIREMENTS.

3.1 Design and construction. The pocket knives covered by this specification shall be of heavy-duty design and construction.

3.1.1 Illustrations. The illustrations shown herein are for the purpose of identification and are not intended to preclude any knife which otherwise meets the requirements of this specification.

3.1.1.1 Figure 1. Figure 1 illustrates in general the components of a pocket knife and nomenclature used in this specification for the various knife parts.

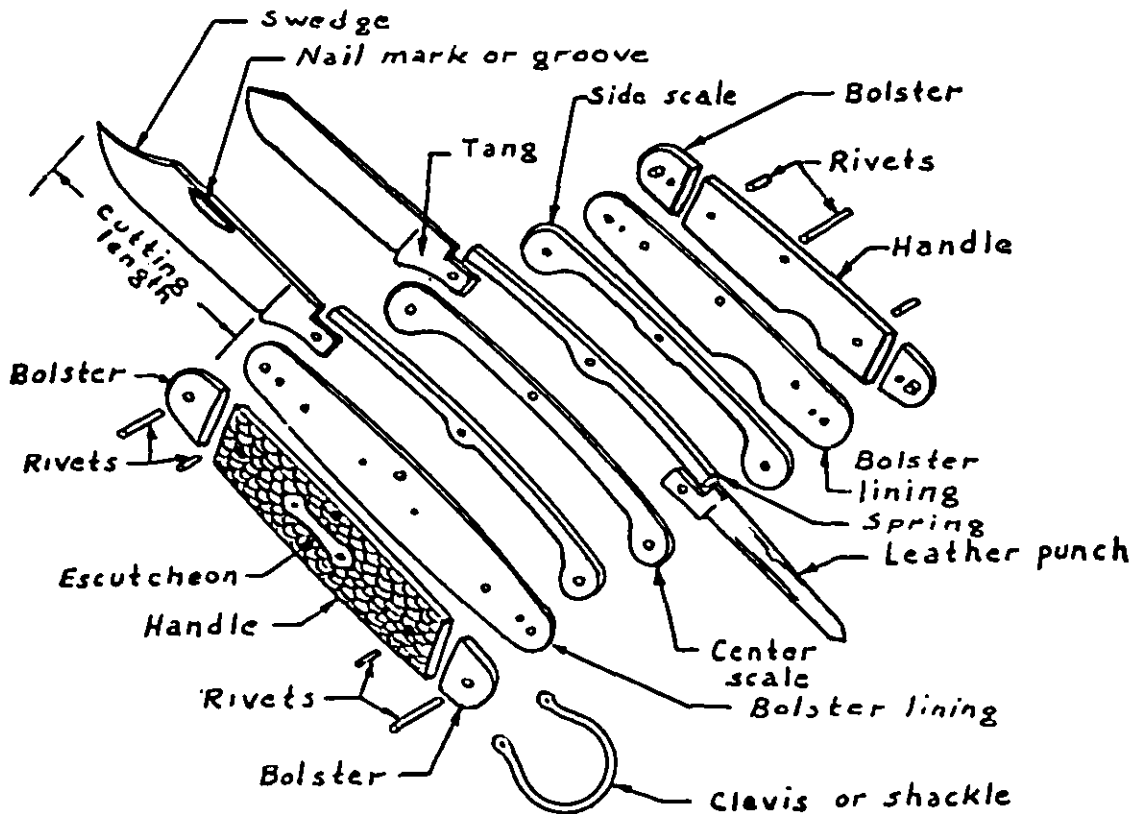


Figure 1. Knife nomenclature.

3.1.1.2 Figures 2 to 13. Figures 2 to 13, inclusive, illustrate various kinds of knife blades.

3.1.2 Handles. Unless otherwise specified (see 6.1) all handles shall be of solid plastic. At the option of the supplier, the underside of the solid handles may be slightly recessed to provide a tight fit. "Wrap around" and "shell type" handles are not acceptable. The exposed edges of the handle shall be smoothly finished. The handles shall fit flush against the linings and bolsters without gapping or other misfit. Unless otherwise specified (see 6.1) the handle materials shall conform to 3.1.2.3.

3.1.2.1 Genuine stag. Genuine stag handles shall be of either genuine bone stag or genuine deer-horn stag and shall meet the drop test (4.5.1).

3.1.2.2 Simulated stag. Simulated stag handles shall be of plastic, so fabricated as to simulate genuine stag handles. The handles shall meet the drop test and flammability tests (4.5.1 and 4.5.4). Simulated stag handles shall be either black or dark brown in color.

3.1.2.3 Smooth plastic. Smooth plastic handles shall be of smooth finished plastic as specified in Fed. Spec. L-P-397, except that the type II, class 3 Barlow knives may have scored handles. Unless otherwise specified (6.2), the handles may be of any color, except that Barlow knife handles shall be either dark brown or black in color. The handles shall meet the drop test and flammability tests (see 4.5.1 and 4.5.4).



Figure 2.
Hawkbill, electrician's
or pruning blade

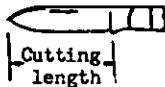


Figure 3.
Spear blade.



Figure 4.
Clip blade.

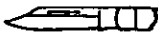


Figure 5.
Saber clip blade.



Figure 6.
Pen blade.



Figure 7.
Coping blade.

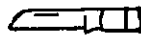


Figure 8.
Sheepfoot blade.



Figure 9.
Spey blade.



Figure 10.
Leather punch blade.



Figure 11.
Screwdriver caplifter blade.



Figure 12.
Screwdriver and wire
scraper blade.



Figure 13.
Can opener blades.

Figures 2 thru 13.

3.1.2.4 Wood handles. When wood handles are specified, the handle material shall be rosewood, coco bolo American walnut, or other equally hard and tough wood suitable for knife handles.

3.1.3 Blades. Unless otherwise specified (see 3.3.1.1) each blade shall be either of high-carbon steel or alloy steel of a high-quality cutlery grade. Each blade shall be provided with a nail-mark groove, or other suitable means for ease in opening the knife. Each blade shall open and close with a snap. Each blade shall close into the knife without the cutting edge striking any component of the knife. Blades shall be housed in such a manner that the points are not exposed. Each blade shall remain in the closed and opened positions without loose play.

3.1.3.1 Cutting blades. Cutting blades (figures 2 to 9) shall be uniformly finished and honed from point to tang so as to provide a keen-cutting edge, free from nicks, wire edges, and other imperfections which can be detected by visual inspection. The cutting blades shall have a hardness value of not less than 54 nor more than 61 Rockwell C (4.5.3). Each cutting blade shall meet the wood-cutting test (4.5.2). The length of cutting edges shall be the distance from the point of the blade to the tang.

3.1.3.2 Special blades. When applicable, special blades or tools (figures 10 to 13) shall be suitable for the duties implied by their titles. Special blades shall have the following Rockwell C hardness values: leather punch blades (fig. 10) 45 to 56, screwdriver caplifter (fig. 11) and can-opener blades (fig. 13) 48 to 56, and screwdriver and wire-scraper blades (fig. 12) 48 to 58, (4.5.3). Can-opener blades shall be of the downward cutting type so that the sharp edges of the cans will be depressed inwardly. Leather punches shall be sharpened on the point and cutting edges in a manner that clean holes can be cut in thick leather, as specified in 4.5.7.

3.1.4 Springs. Springs shall be of high-quality steel, hardened and tempered to a hardness value of not less than 44 nor more than 50 Rockwell C (4.5.3). The springs shall meet the deflection test (4.5.5). The springs shall hold the blades in their applicable positions without loose play.

3.1.5 Bolsters. Unless otherwise specified, the bolsters shall be of 15 to 18 percent nickel brass.

3.1.6 Linings and scales. Unless otherwise specified, the linings and scales, shall be either of solid brass or solid nickel brass. When steel linings and scales are specified, they may be brass plated at the option of the supplier.

3.1.7 Rivets. Rivets shall be firmly and neatly set, and shall be free from burrs, olivers, and other defects. Except for clevis rivets, the rivets passing through the bolsters shall be securely set and polished flush with the bolsters. When a riveted clevis is specified, the clevis rivet shall be securely riveted, either a separate rivet or the knife rivet may be used to fasten the clevis. Rivets of adequate size and quantity shall be assembled in each knife to insure the following: (1) Handles to fit tightly, (2) blades to be held firmly and still permit ease in opening the knife, (3) knife components such as handles, linings, scales, blades, and springs shall be practically tight, (when the knife is held up to a bright light, it will be permissible to see narrow lines of light between portions of the components, except at the ends of the knife no light shall be visible), (4) when applicable, the clevis shall swing freely after being pinned in position and headed over, and (5) when applicable, the escutcheon shall be held firmly in place. All rivets shall be of such material and so fabricated as to be corrosion resisting to the extent that they will not corrode prior to the bolsters or linings of the knife. Other means of fastening will be acceptable, provided strength, neatness and other characteristics equivalent to riveting are provided.

3.1.8 Clevis. When a clevis (or shackle) is specified herein or in the procurement documents, it shall be of such size as to permit at least a 3/8 inch diameter rod to pass through the eye of the assembled knife. The clevis on grade A knives shall be of nickel-brass wire, or nickel-plated steel wire. The clevis on grade B knives shall be of steel wire, nickel-brass wire, or nickel-plated steel wire. Unless otherwise specified (see 3.3.1.1 and 6.2), the clevis may be either of the riveted-on type or the snap-on type (see 4.5.6).

3.1.9 Escutcheon. When specified (6.2), the knife shall be furnished with an escutcheon. The escutcheon shall be of any plain design such as a shield, bow, oval, or other shape. The escutcheon shall be of 15 to 18 percent nickel brass. The escutcheons shall be imbedded in the handle and riveted or otherwise securely fastened so as not to loosen in service.

3.1.10 Marking. Each knife shall be legibly and permanently marked with the manufacturer's name or trademark or such known character that the source of manufacture may be readily identified.

3.1.11 Finish. All blades on the large visible surfaces shall be mirror polished. Backs of blades shall be at least full polished. Bolsters, and escutcheons, when applicable, shall be fine buffed.

3.1.11.1 Grade A. The backs and ends of grade A knives shall be ground and highly polished after assembly so that all mating components are flush, where applicable. The springs shall be fully polished on the inside prior to assembly, the inside of the spring being that portion which is visible on the inside of the open knife, except type I, class 1, and type II, class 3 knives the inside of the springs may be finished in accordance with grade B knives (3.1.11.2). Each blade shall be full polished on the edge of the tang that is visible when the knife is open, the remaining edges of the blade tang shall be at least ground, except type II, class 3 knives, the tang edges may be finished the same as grade B knives. The master blade on grade A knives shall be svedged.

3.1.11.2 Grade B. The backs and ends of grade B knives shall be ground and polished. These operations shall be performed prior to assembly of the knife. The springs shall be fine ground or glazed at all points of contact with the blades, the balance of the spring on the inside shall be ground or painted with aluminum paint, or plated to afford corrosion resistance. Tang edges on grade B knife blades need not be ground but shall afford smooth opening and closing. Mismatching of the assembled knife components will be permissible up to a maximum step of 1/64 inch. The master blade on grade B knives may be either plain or swedged at the option of the supplier.

3.2 Type 1. Each type I knife shall be furnished with one blade.

3.2.1 Class 1. Each type I, class 1 electrician's or pruning knife (fig. 1b) shall be furnished with a hawkbill blade (fig. 2), suitable for wire skinning or pruning purposes. Unless otherwise specified (6.2), the knife shall have either polished steel bolsters and linings, or bolsters and linings in accordance with 3.1.5 and 3.1.6. The knife shall be of the swell end shape, that is, the blade end shall be slightly smaller than the opposite end. Size shall be in accordance with table I. The thickest portion of each bolster shall be at least 0.125 inch. When specified (6.2) a hole approximately 3/16 inch in diameter shall be provided in the unbladed end of the knife, for the purpose of carrying the knife on a cord, thong, or lanyard.

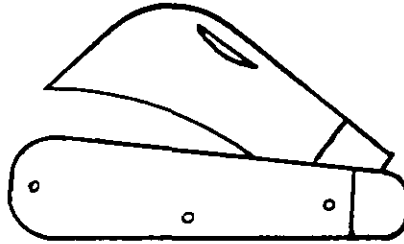


Figure 14. Type I, class 1, single-blade electricians or pruning knife.

Table I. Requirements for type 1, class 1 electrician's or pruning knives

Size	Overall length, closed		Length of blade, Minimum
	Minimum	Maximum	
Number 4-1/4	Inches 4	Inches 4-5/8	Inches 2-1/2

3.2.1.1 Style A. The blade tang and spring shall be at least 0.105 inch in thickness.

3.2.1.2 Style B. The blade tang and spring shall be at least 0.080 inch in thickness.

3.3 Type II. Each type II knife shall be furnished with two blades.

3.3.1 Class 1. The type II, class 1, two-blade electrician's knife (fig. 15) shall be furnished with one spear blade (figure 3) and one screwdriver blade (figure 12). The screwdriver blade shall have one edge sharpened for wire-skinning purposes. The knife shall have a means of unlocking the screwdriver blade. The knife shall be furnished with a clevis (or shackle). Solid bolsters shall be provided at least on the blade end of the knife. The thickest portion of each bolster shall be at least 0.143 inch. The knife shape shall be of the "swell end" pattern as illustrated in figure 15. Sizes shall be in accordance with table II.

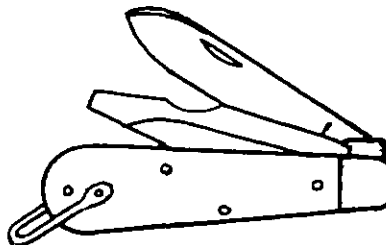


Figure 15. Type II, class 1, two-blade electrician's knife.

Table II. Requirements for type II, class 1
two-blade electrician's knife

Size	Overall length, closed		Cutting length of master blade Minimum	Length of screwdriver blade Minimum*
	Minimum Inches	Maximum Inches		
No.			Inches	Inches
3-3/4	3-5/8	3-7/8	2-3/8	2-3/8

* The minimum length of the screwdriver blade shall be determined with the knife open and measured from the screwdriver tip to the knife bolster.

3.3.1.1 Style A. The spear blade tang and spring, and the screwdriver blade and spring shall be 0.109 / .0025 inch in finished thickness. Both blades shall be of steel, PS 1095, any condition or temper QQ-S-700. Linings and scales shall be of brass. Rivets shall be of brass conforming to composition 2, hard, QQ-B-613. The clevis shall be riveted to the knife. The handle shall be of plastic as specified in 3.1.2.3.

3.3.1.1 Screwdriver blade. After assembly, the screwdriver blade shall conform to the requirements in table IIA and shall not exhibit a permanent set, fracture, or any other deformity which may affect appearance or serviceability when tested as specified in 4.5.

Table IIA Physical requirements

	Side play (maximum)	End play (maximum)
After assembly	1/32 inch	1/16 inch
After torsional moment test (see 4.5.7).	5/64 inch	1/16 inch
After bending moment test (see 4.5.8).	3/32 inch	1/16 inch

3.3.1.2 Style B. The blade tang and spring shall be at least 0.080 inch in finished thickness.

3.3.2 Class 2. The type II, class 2, two-blade jack knife (fig. 16) shall be furnished with one master blade and one pen blade, both assembled on the same end of the knife. The master (largest) blade shall be one of the following, as specified (6.2): spear blade (fig. 3), or clip blade (fig. 4 or 5). The blade end of the knife shall have solid bolsters and the opposite end solid caps or bolsters. The thickest portion of each bolster shall be at least 0.100 inch. Unless otherwise specified (6.2), the shape of the knife shall be any of the following: (1) Equal-end jack, (2) swell-end jack, or (3) serpentine pattern on which the handle turns one way and then the other. Sizes shall be in accordance with table III.

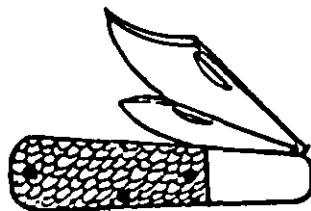


Figure 16. Type II, class 2, two-blade jack knife.

Table III. Dimensional requirements for type II, class 2, two-blade jack knives

Size	Overall length, closed		Cutting length of master blade minimum	Cutting length of pen blade, minimum	Blade tang thickness	
	Minimum	Maximum			Master Minimum	Pen Minimum
No.	Inches	Inches	Inches	Inches	Inch	Inch
3-3/8	3-1/4	3-31/64	2-1/4	1-1/4	0.069	0.069
3-5/8	3-1/2	3-47/64	2-3/8	1-3/8	.069	.069
3-7/8	3-3/4	3-63/64	2-3/8	1-1/2	.090	.069
4-1/8	4	4-1/4	2-1/2	1-1/2	.090	.069
4-1/2	4-3/8	4-5/8	3	1-7/8	.090	.069

3.3.3 **Class 3.** The type II, class 3, two-blade Barlow knife (fig. 17) shall be furnished with one master blade and one pen blade, both on the same end of the knife. The master blade shall be one of the following, as specified (6.2): spear blade (fig. 3), or clip blade (fig. 4) or saber clip blade (fig. 5). The bolsters shall be of the solid heavy duty type, extending at least one-quarter the distance of the overall length of the closed knife. Only the blade end of the knife shall be bolstered. The thickest portion of each bolster shall be at least 0.125 inch. Unless otherwise specified (6.2), the bolsters and linings shall be either of polished steel or of the materials as specified in 3.1.5 and 3.1.6, as applicable. Sizes shall be in accordance with table IV. The thickness of the master blade at the tang shall be at least 0.090 inch, the thickness of the pen blade at the tang shall be at least 0.069 inch.

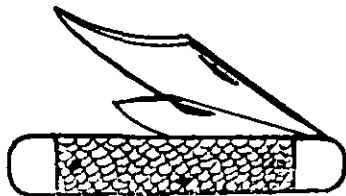


Figure 17. Type II, class 3, two blade Barlow knife.

Table IV. Dimensional requirements for type II, class 3, two-blade Barlow knives

Size	Overall length, Closed		Cutting length of master blade, minimum	Cutting length of pen blade, minimum
	Minimum	Maximum		
No.	Inches	Inches	Inches	Inches
3-3/8	3-1/4	3-9/16	2-1/8	1-3/8

3.4 **Type III.** Each type III knife shall be furnished with three blades.

3.4.1 **Class 1.** Each type III, class 1, three-blade carpenter's knife (fig. 18) shall be furnished with one clip blade (fig. 4) or sabre clip blade (fig. 5), one coping blade (fig. 7), and one pen blade (fig. 6), or small clip blade similar in shape to figure 4. Two blades shall be assembled on one end of the knife and one blade on the opposite end, the arrangement of blades to be at the option of the manufacturer. Solid bolsters shall be provided at both ends of the knife. The thickest portion of each bolster shall be at least 0.100 inch. The shape of the knife shall be any conventional pattern. Sizes shall be in accordance with table V. The master-blade tang shall have a minimum thickness of 0.090 inch. Blades other than the master blade shall have a minimum thickness of 0.069 inch.

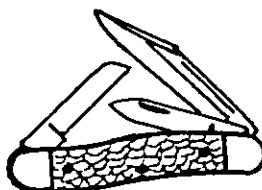


Figure 18. Type III, class 1, three-blade carpenter's knife

Table V. Dimensional requirements for type III, class 1, three-blade carpenter's knives

Size	Overall length, closed		Cutting length of master blade, minimum	Cutting length of coping blade, minimum	Cutting length of third blade, minimum
	Minimum	Maximum			
No.	Inches	Inches	Inches	Inches	Inches
3-5/8	3-3/8	3-7/8	2-1/4	1-3/8	1-3/8

3.4.2 Class 2. Each type III, class 2, three-blade premium stock knife (fig. 19) shall be furnished with one master blade and two small blades. Two blades shall be assembled on one end of the knife and one blade on the opposite end, the blade arrangement to be at the option of the contractor. Solid bolsters shall be provided at both ends of the knife. The thickest portion of each bolster shall be at least 0.100 inch, except for knives 4 inches and larger, the thickest portion shall be at least 0.115 inch. The blade combination shall be one of the following, as specified (6.2):

Combination A. Clip blade (fig. 4), spey blade (fig. 9), and sheepfoot blade (fig. 8).

Combination B. Clip blade (fig. 4), spey blade (fig. 9), and pen blade (fig. 6).

Combination C. Clip blade (fig. 4), spey blade (fig. 9), and leather punch (fig. 10).

The shape of the knife shall be of the serpentine pattern (fig. 19). The sizes shall be in accordance with table VI.

3.4.2.1 Style A. The master blade tang and spring shall be at least 0.090 inch in thickness.

3.4.2.2 Style B. The master blade tang and spring shall be at least 0.080 inch in thickness.

3.5 Type IV. Each type IV knife shall be furnished with four blades.

3.5.1 Class 1. Each type IV, class 1, four blade camper's knife (fig. 20), shall be furnished with one master spear blade at least 0.090 inch in finished thickness at the tang (fig. 3), one leather punch blade (fig. 10), one screwdriver-cap lifter blade (fig. 11), and one can opener blade (fig. 13). Two blades shall be assembled on one end of the knife and two blades on the opposite end, the arrangement of blades to be at the option of the manufacturer. Solid bolsters shall be provided at both ends of the knife. The thickest portion of each bolster shall be at least 0.115 inch. The knife shall be furnished with a clevis. The knife shall be of the equal-end pattern as illustrated in figure 20. Sizes shall be in accordance with table VII.

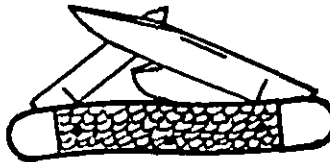


Figure 19. Type III, class 2, three-blade, premium stock knife (serpentine pattern).

Table VI. Dimensional requirements for type III, class 2, three-blade premium stock knife.

Size	Overall length, closed.		Master blade Cutting length minimum	Small blades		Length of leather punch, when applicable minimum
	Minimum	Minimum		Cutting length minimum	Thickness minimum	
No.	Inches	Inches	Inches	Inches	Inch	Inches
3-7/8	3-3/4	4-1/32	2-1/2	1-5/8	.069	1-1/2
4-1/8	4-1/16	4-1/4	2-3/4	1-5/8	.069	1-5/8

3.5.1.1 Style A. Except for the master blade, all tool blades shall be at least 0.080 inch in finished thickness at the tang.

3.5.1.2 Style B. Except for the master blade, all tool blades shall be at least 0.069 inch in finished thickness at the tang.

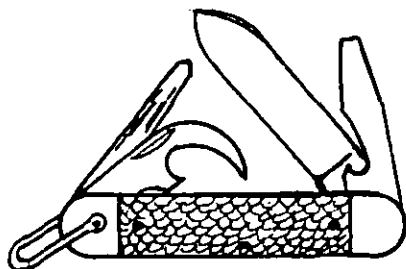


Figure 20. Type IV, class 1, four-blade camper's knife

Table VII. Dimensional requirements for type IV, class 1 camper's knives

Size	Overall length, closed		Cutting length of spear blade, minimum	Length of screwdriver blade*, minimum	Length of leather punch, minimum
	Minimum	Maximum			
No.	Inches	Inches	Inches	Inches	Inches
3-5/8	3-1/2	3-13/16	2-3/8	1-1/8	1-3/8

*The minimum length of screwdriver blade shall be determined with the knife open and measured from the screwdriver tip to the bolster. When specified (see 6.2), the minimum length of the screwdriver blade shall be 1-3/4 inches.

3.6 Workmanship. Each knife shall be well made in accordance with high grade workmanship. The knife shall be free from burrs, cracked handles, and other defects which may affect appearance or serviceability. Rivets shall be neatly set and polished, free from burrs, slivers and other defects.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to 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 that supplies and services conform to prescribed requirements.

4.1.1 Inspection of materials and components. In accordance with 4.1, the supplier is responsible for insuring that materials and components used were manufactured, tested, and inspected in accordance with the requirements of referenced subsidiary specification and standards to the extent specified herein, or, if none, in accordance with this specification.

4.2 Sampling procedures. Sampling procedures shall be in accordance with MIL-STD-105. Data for sampling shall be as stated in table VIII.

Table VIII. Sampling data

Category	Sample Unit	Inspection level	Acceptable quality level	AQL expressed in terms of	Reference
Visual examination	1 each	II	4.0	Defects per hundred units	4.3.1
Dimensional examination	1 each	S-4	1.5	Defects per hundred units	4.3.2
Testing	1 each	S-3	1.0	Percent defective	4.5
Preparation for delivery	One container	S-2	4.0	Defects per hundred units	4.6

4.3 Examination.

4.3.1 Visual examination. Each sample unit shall be examined for any nonconformance in design, material, finish, coating, construction, workmanship, and marking. For packaging and packing defects see table II.

4.3.2 Dimensional examination. Each sample unit shall be examined for any nonconformance with dimensional requirements.

4.3.3 Carbon content examination (certification). The supplier shall furnish certification that the chemical composition of each lot or batch of steel used in the end item meets the applicable carbon requirements as specified in 3.3.1.1.

4.4 Testing. Each sample unit shall be tested in accordance with 4.5.

4.5 Test procedures.

4.5.1 Drop test. Each sample knife shall be dropped three times from a height of three feet onto a thoroughly dry concrete floor in such a manner that the handle strikes the floor. The handle shall not crack, chip or break.

4.5.2 Cutting test. Each cutting blade shall be tested by cutting at least 10 shavings not less than 1/16 inch thick by 1/4 inch wide, by at least 2 inches long from a strip of 1/4 inch thick, kiln dried, finished oak lumber. In cutting the shavings, the blade shall enter into the wood at an angle of not less than 30 degrees. Under this test, the blade shall show no undue wear such as turning over, nicking, or breaking of any part of the cutting edge. Special blades (figures 10 to 13) shall be tested to insure that they are suitable for the duty implied by their respective titles. The can opener blade shall be tested to insure that it cuts inwardly (3.1.3.2).

4.5.2.1 Leather punch test. All knives having a leather punch blade shall be capable of cutting at least 5 different sized holes in a piece of leather .125 \pm .010 inch in thickness.

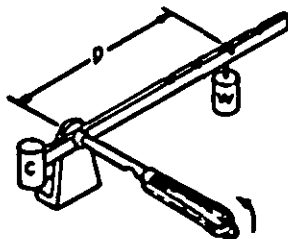
4.5.3 Hardness test. Samples of each type, class and style of knife shall be tested in accordance with method 243.1 of Fed. Test Method Std. No. 151 for determination of compliance with hardness requirements specified in applicable paragraphs of section 3.

4.5.4 Flame resistant test. A sample of the plastic and simulated stag handle material shall be tested for non-burning or self-extinguishing properties in accordance with ASTM Standard D-635.

4.5.5 Spring-deflection test. Sample knife springs shall be capable of withstanding the following test: A test block equipped with steel pins of the same diameter and spaced the same as the rivets used in the knife shall be used. The spring shall be removed from the knife and placed on the test block in the position occupied when in use. The free end of the spring shall then be deflected a distance equal to the normal deflection with the blades closed, plus 1-1/2 times the maximum additional deflection obtained during opening or closing the blade in the assembled knife. This deflection shall be repeated 10 times. The spring shall not break, crack or show any permanent set after the deflecting force is removed.

4.5.6 Shackle test. When snap-on type of shackles are furnished, the shackle shall be tested by applying a direct pull of 5 pounds in a direction tending to remove the shackle. If the shackle pulls out of the hole, the shackle fails to meet the test. Additional load shall be applied until the shackle is removed from the knife. The shackle shall then be reassembled on the knife. If the shackle does not return to its original shape, the shackle fails the test.

4.5.7 Torsional moment test for type II, class 1, style A knives. The screwdriver end of the blade of a completed knife shall be inserted in a fixed slot (see fig. 21) the dimensions of which shall be equivalent to the width and thickness of the blade end. The depth of the slot shall be not greater than twice the thickness of the blade. Any method may be established which will subject the knife to a known torsional stress from the handle and while the blade is inserted in the slot a 27-inch-pound load shall be applied in clockwise and counter-clockwise directions. The knife shall be examined to determine compliance with the requirements specified in 3.3.1.1.1 and table IIA.

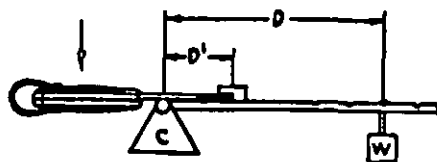


Method of torsion test
 $D \times W =$ inch lbs
 $D =$ distance in inches
 $W =$ weight in lbs
 C is a counterweight used
 to balance beam

Figure 21. Torsional moment test.

4.5.8 Bending moment test. The bending moment test shall be applied as follows:

- (a) A force acting substantially at right angles to the axis of the knife shall be applied to the center of the handle.
- (b) A load shall be supported on the tip end of the screwdriver blade not more than 1/8 inch from the end.
- (c) An acceptable spring balance or other suitable load measuring device may be used in lieu of a dead weight as normally used for applying an inch-pounds bending test.
- (d) A 57 inch pound load shall be applied with the bending moment being computed by multiplying the applied force in pounds by the arm length in inches. The arm length is shown as "D" in figure 22, which is a suggested device for the bending moment test. The knife shall be examined to determine compliance with the specifications specified in 3.3.1.1 and table IIA.



Method of bend test

$D \times W = \text{inch lbs}$

D = distance in inches

W = weight in lbs

D' is a stop for the screw driver point and is located at a distance equal to $\frac{1}{8}$ the blade length

Figure 22. Bending moment test.

4.6 Inspection of preparation for delivery requirements. An inspection shall be made to determine that the preservation, packaging, packing, and marking comply with the requirements in section 5. Defects shall be scored in accordance with table IX. For examination of interior packaging, the sample unit shall be one shipping container fully prepared for delivery, selected at random just prior to the closing operations. Defects of closure listed shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot.

Table IX. Classification of preparation for delivery defects.

Examine	Defects
Markings (exterior and interior)	Omitted; incorrect; illegible; improper size, location, sequence, or method of application.
Materials	Any component missing or damaged
Workmanship	Inadequate application of components such as incomplete closure of container flaps, loose strapping, inadequate stapling. Distortion of container.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.

5.1.1 Level A. Level A cleaning, preservation, and packaging shall be in accordance with level A of MIL-H-15424. As part of the requirements of section 5 of this specification, table IX is considered as part of and used in lieu of that portion of table I of MIL-H-15424 covering knives.

5.1.2 Level B. All surfaces on each knife subject to rust or corrosion shall be cleaned, dried, and coated with a medium grade of preservative oil. After coating, each knife shall be completely wrapped in a suitable greaseproof paper. Wrapped knives shall be individually packaged in either a sealed, transparent bag or envelope, or packaged in a set-up or folding paperboard or chipboard box, sized to fit. Twelve knives of identical type, class, style, size, handle description, and grade shall be packaged in a full-telescope metal edge or chipboard, with box secured to prevent accidental opening. Knives shall be arranged either flat in one layer, or in three layers of four knives each. Box shall snugly fit contents.

5.1.3 Level C. Level C cleaning, preservation and packaging shall be in accordance with the contractor's commercial practice.

5.2 Packing

5.2.1 Level A. Level A packing shall be in accordance with level A of MIL-R-15424.

5.2.2 Level B. Twelve intermediate packages of twelve knives of identical type, class, style, size, handle description, and grade (144 units) shall be packed in a new fiberboard shipping container conforming to type I or II, class 1, style optional, of PPP-B-636, test of fiberboard as required for weight of contents, and closure in accordance with the appendix of the box specification.

5.2.3 Level C. Knives, cleaned, preserved and packaged as specified in 5.1 shall be packed in a manner to insure carrier acceptance and safe delivery of destination. Containers shall be in accordance with the rules and regulations of carriers as applicable to the mode of transportation.

5.3 Marking.

5.3.1 Civil agencies. Marking for civil agencies shall be as follows:

(a) Unit package. Each unit box or plastic envelope shall be marked or labeled with the applicable Federal Stock Number.

(b) Intermediate packages. Intermediate cartons shall be marked or labeled with the following information:

- (1) Applicable Federal Stock Number.
- (2) Federal Item Identification, including specification number, type, class, style when applicable, size, handle description, and grade.
- (3) Quantity of units contained (e.g. 12 each).
- (4) Special marking as follows:
Name and address of contractor, and when specified (see 6.2) the applicable contract and/or purchase order number.

(c) Shipping containers. Shipping containers shall be marked in accordance with Federal Standard No. 123.

5.3.2 Military agencies. Interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Type I, class 1, single-blade electrician's or pruning knife is intended for electrician's use in cutting and scraping wire or by nurserymen in pruning shrubs. Type II, class 1, two-blade electrician's knife is intended for electrician's use in cutting and scraping wire and for driving or removing small screws. Type II, class 2, two-blade jack knife is intended for heavy-duty pocket-knife general use such as whittling wood. Type II, class 3, two-blade Barlow knife is intended for extra-heavy-duty pocket-knife purposes. Type III, class 1, three-blade, carpenter's knife is intended for general use such as whittling and carving wood. Type III, class 2, three-blade premium stock knife is intended for general use such as whittling wood and also for special purposes such as animal-flesh cutting or skinning, depending upon the blade combinations specified. Type IV, class 1, four-blade camper's knife is intended for use by campers, sportsmen, scouts, and others living outdoors; for the purpose of whittling, leather punching, driving screws, and opening bottles and cans. Knives having genuine stag handles are not subjected to the drop test specified in paragraph 4.5.1 because these handles are generally too brittle to withstand the test.

6.2 Ordering data. Purchasers should select the preferred options offered herein and include the following data in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type, class, style when applicable, handle material, and size number of knives required (1.2.1).
- (c) Grade required (1.2.2, 3.1.11.1 and 3.1.11.2).
- (d) If genuine stag (3.1.2.1), simulated stag (3.1.2.2) or wood handles (3.1.2.4).
- (e) If a specific color of smooth plastic handles is required, state the color (3.1.2.3).
- (f) If a specific kind of clevis is required state the kind required (3.1.8).
- (g) If an escutcheon is required, so state (3.1.9).
- (h) If specific materials are required for the linings and bolsters of type I, class 1, electrician's knife, state the kind of material (3.2.1).
- (i) If a hole for cord is required for type I, class 1, electrician's knife, so state (3.2.1).
- (j) State the kind of master blade required for type II, class 2, two blade jack knife, spear or clip (3.3.2).
- (k) If a specific shape is required for type II, class 2 jack knife, state the shape required (3.3.2).
- (l) State the kind of master blade required for type II, class 3 Barlow knife, spear or clip (3.3.3).
- (m) If specific materials are required for the bolsters and linings of knives, state the kind of material (3.3.3).
- (n) State the blade combination required for type III, class 2, three-blade premium-stock knife; combination A, B or C (3.4.2)
- (o) If 1-3/4 inch long screwdriver blade is required for type IV, class 1, camper's knife, so state (footnote table VII).
- (p) State the level of packaging and packing required (5.1 and 5.2).
- (q) Marking, if different (5.3.1).

