

MI-L-36896
15 September 1972

MILITARY SPECIFICATION

LARYNGOSCOPE, FIBER OPTICS (HOLINGER AND JACKSON DESIGNS)

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

1. SCOPE

1.1 This specification covers fiber optic laryngoscopes, of the Holinger and Jackson designs, suitable for surgical procedures involving the larynx.

1.2 Classification.

TYPES

- I - Holinger design
- II - Jackson design

SIZES

- A - Number 17 (14.6 centimeters working length)
- B - Number 18 (15.7 centimeters working length)
- C - Adolescent (12 millimeters inside diameter x 14.5 millimeters outside diameter x 13.5 centimeters working length)
- D - Adult (14.5 millimeters inside diameter x 17.5 millimeters outside diameter x 13.5 centimeters working length)

FSC 6515

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2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Federal

GG-I-526	Instruments, Dental and Surgical; General Specifications
PPP-B-585	Boxes, Wood, Wirebound.
PPP-B-601	Boxes, Wood, Cleated-Plywood.
PPP-B-621	Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636	Box, Fiberboard.
PPP-B-676	Box, Setup.
PPP-T-76	Tape, Pressure-Sensitive Adhesive Paper, (for Carton Sealing).

Military

MIL-P-116	Preservation, Methods of
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.

DRAWINGS

Defense Personnel Support Center (DPSC)
 24305 LARYNGOSCOPE, ADULT, HOLINGER, FIBER OPTIC
 24306 LARYNGOSCOPE, JACKSON, FIBER OPTIC

(Copies of specifications, standards, and drawings required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Material. Laryngoscope handle and light carrier shall be fabricated from class 3, type 302, 303, or 304 material in accordance with Federal specification GG-I-526. Light carrier housing (tubing) shall be fabricated from a suitable nickel-copper alloy (Monel). The main tube, light carrier channel, and top slide (Type II units) shall be fabricated from unplated nickel-silver alloy in accordance with GG-I-526 for class 8, type 752 material. The light carrier shall be filled with suitable glass fibers to disperse illumination. Class 3 material shall be subjected to the boil test as specified in GG-I-526. All other material shall be subjected to the boil test and the salt-spray test as specified in GG-I-526.

3.2 Style, design and dimensions. The fiber optic laryngoscopes specified herein, shall be suitable for use in the introduction of a bronchoscope and surgical procedures of the larynx when used with LIGHT, ENDOSCOPIC INSTRUMENT, FIBER OPTIC, 115 Volt, 60 Hz, AC, and CABLE. FIBER OPTIC, ENDOSCOPIC INSTRUMENT, 72 inches long, Federal Stock Numbers 6515-104-8520 and 6515-104-8434, respectively. The instrument shall be furnished with a fiber optic light carrier that will disperse illumination when assembled into the light carrier channel of the instrument and assembled to the LIGHT and CABLE as specified above. The light carrier shall be completely sealed and be of the bayonet-type. The light carrier channel shall be completely sealed at the outer surface of the distal end main tube. When the light carrier is assembled to the carrier channel, the lumen of the instrument shall not be obstructed. The handle of the laryngoscope and light carrier channel shall be permanently secured to the main tube.

3.2.1 Type I laryngoscopes. Type I laryngoscopes shall be of the Holinger Anterior Commissure design. Instrument shall be furnished complete with one fiber optic bayonet-style light carrier specified in 3.2. The lumen of the main tube shall be oval in configuration. The distal end of the instrument shall be tapered, gradually and smoothly to the outside surfaces of the main tube. The distal working end shall be smooth in all respects, free from sharp edges, burrs, and surface irregularities. The type I laryngoscopes shall be in strict accordance with DPSC Drawing 24305, for appropriate size, Federal Stock Number, and Item Identification.

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3.2.2 Type II laryngoscopes. Type II laryngoscopes shall be of the Jackson design. Instrument shall be furnished complete with one fiber optic bayonet-style light carrier specified in 3.2. The lumen of the main tube shall be circular in configuration. The distal end of instrument shall be tapered downward to form a smooth working end in all respects, free from sharp edges, burrs, and surface irregularities. Type II laryngoscopes shall be furnished with a removable top slide for ease of insertion of bronchoscopes. The top slide shall be readily removed from or inserted onto, the main tube to form a stable enclosed circular configuration. The lumen of the laryngoscopes of type II design shall be capable of accepting bronchoscopes up to and including 7 mm in diameter for size C assemblies, and 9 mm in diameter for size D assemblies. Type II laryngoscopes shall be in strict accordance with DPSC Drawing 24306 for appropriate size, Federal Stock Number, and Item Identification.

3.3 Finish. All laryngoscopes shall have a smooth finish throughout. Burrs, cracks, holes, sharp edges, and evidence of corrosion shall be prohibited. The distal working end of the laryngoscopes shall be smoothly contoured to surfaces of the outer tube.

3.4 Operation of laryngoscopes. When tested as specified in 4.4.1, the light carrier shall be capable of insertion into the light carrier, and illumination shall be readily observed at the distal end of the light carrier.

3.5 Identification marking. The instrument shall be permanently marked with name, or registered trademark, of the manufacturer, size, and country of origin. Further, the light carrier shall be permanently marked with the corresponding size.

3.6 Container. Each instrument shall be furnished in a suitable container, cushioned to prevent damage to instrument during transit.

3.7 Instructions. A detailed instruction sheet for proper use and maintenance of the laryngoscopes shall be furnished with each instrument.

3.8 Workmanship. Workmanship shall be first class throughout. The laryngoscopes shall be free from defects which detract from their appearance or impair their serviceability.

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 in the contract or order, the supplier 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 Records. Records of examinations and tests performed by or for the contractor shall be maintained by the contractor and made available to the Government, upon the Government's request, at any time, or from time to time, during the performance of the contract and for a period of 3 years after delivery of the supplies to which such records relate.

4.1.2 Inspection. Inspection, as used in this specification, is defined as both examination (such as visual or auditory investigation without the use of special laboratory appliances or procedures) and testing (determination by technical means of physical and chemical properties) of the item.

4.1.3 Certificates of quality. Certificates of quality, supplied by the manufacturer of the corrosion-resistant steel, nickel-copper alloy and nickel-silver alloy, may be furnished in lieu of actual performance of such testing by the contractor, provided lot identity has been maintained and can be demonstrated to the Government. The certificate shall include the name of the contractor, the contract number, the name of the manufacturer or supplier, the FSN, the item identification, the name of the component and material, the lot number, the lot size, the sample size, the date of testing, the test method, individual test results, and the specification requirements.

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4.2 Sampling.

4.2.1 For examination. Sampling for examination shall be conducted in accordance with MIL-STD-105, and as indicated in Table I. The unit of product for examination purposes shall be one complete laryngoscope.

Table I. Sampling Criteria for Examination

Type defect	Inspection level	AQL (percent defective)
Critical	100 percent	No defects permitted
Major	II	1.0
Minor	II	2.5

4.2.2 For tests. Sampling for tests shall be conducted in accordance with MIL-STD-105, and as indicated in Table II. The unit of product for testing purposes shall be one complete laryngoscope. Where feasible, the same sample unit shall be used for the determination of two or more test characteristics.

Table II. Sampling Criteria for Tests

Component	Characteristic	Requirement	Test procedure	Inspection level	AQL
Laryngoscope	Composition analysis	3.1 and GG-I-526	GG-I-526	*	—
	Boil test	3.1 and GG-I-526	GG-I-526	S-1	1.0
	Salt-spray test	3.1 and GG-I-526	GG-I-526	S-1	1.0
	Dimensions	3.2	---	S-1	1.5
	Operation test	3.4	4.4.1	100%	**

* Sufficient quantity of each lot of each metal used in the construction of the laryngoscopes shall be selected for chemical analysis.

** No defects permitted.

4.3 Examination. The laryngoscopes shall be examined to determine compliance with all the requirements contained in this specification. Examination shall be conducted as specified in Tables I and III. Examination, however, shall not be restricted to defects listed in Table III. Any laryngoscopes in the sample containing one or more defects shall be rejected and if the number of defective units in any sample exceeds the acceptance number for that sample, the lot represented by that sample shall be rejected.

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Table III. Classification of Defects

Categories	Defects
Critical	
01	Outer surface of instrument proper not free from sharp edges and burrs.
02	Handle and light carrier channel not permanently secured to main tube.
Major	
101	Laryngoscope not of the specified type and size for appropriate stock number and item identification.
102	Light carrier not furnished with unit.
103	Light carrier not of bayonet design.
104	Glass fibers not completely encased and sealed in light carrier housing.
105	Lumen of instrument not oval in cross section for Type I instruments, and not circular in cross section for Type II instruments.
106	Finish of outer surface and lumen not free from cracks, holes, pits, burrs, sharp edges and corrosion.
107	Lumen obstructed when light carrier is assembled to light carrier channel.
108	Components plated.
109	Type II laryngoscopes not furnished with top slide.
110	Top slide (Type II units) not easily removed from, or assembled to, main tube.
111	Light carrier channel not completely sealed at outer surface of main tube (distal end).
112	Size markings not present.
Minor	
201	Manufacturer's name and country of origin not present on instrument.

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4.4 Tests. Tests shall be conducted to determine compliance with specification requirements.

4.4.1 Operation test. This test shall be performed on a 100 percent basis. Insert the light carrier into the light carrier channel and secure the locking pin into the handle. Assemble fiber optic cable with bayonet connection (FSN 6515-104-8434) to bayonet portion of light carrier. Assemble fiber optic cable to endoscopic light source (FSN 6515-104-8520) and connect light source to a 115 volt, 60 Hz, AC power source. Observe the distal end of light carrier for proper illumination. Illumination shall not flicker during the test.

5. PREPARATION FOR DELIVERY

5.1 Packaging.

5.1.1 Unit of issue. One laryngoscope, as specified, constitutes one unit of issue.

5.1.2 Packaging quantities. The number of units of issue indicated in Table IV shall be packaged in each unit, intermediate, and exterior container, as applicable, for the required level of protection specified in the procurement document.

Table IV Packaging Quantities		
Unit package	Intermediate package	Exterior container
1 unit	12 units	24 units

5.1.2.1 Packing variation permitted. If the required number of units in the entire shipment is less than the number of units specified to be overpacked in an exterior container, such units may be packed in an exterior container of suitable size and design, acceptable to a common carrier, which shall insure safe delivery to destination.

5.1.3 Level A.

5.1.3.1 Cleaning and drying. Each unit shall be thoroughly cleaned and dried in accordance with the applicable method as outlined ML-P-116.

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5.1.3.2 Preservative. Not required.

5.1.3.3 Intimate wrap. Each unit shall be wrapped in neutral tissue or other suitable anticorrosive material.

5.1.3.4 Unit package. Each unit shall be packaged in accordance with MIL-P-1116, method IC-2.

5.1.3.5 Intermediate package. Intermediate package shall be a box of appropriate size constructed in accordance with PPP-B-676, except commercial colors will be acceptable, or PPP-B-636, type CF, class domestic. Closure shall be adequate to prevent accidental opening under normal handling.

5.1.4 Level C. Units shall be packaged in standard commercial containers of the size and kind commonly used, which will afford the degree of protection required for shipment and use of the product for its intended purpose.

5.2 Packing.

5.2.1 Level A.

5.2.1.1 Exterior container. Exterior container shall be designed for a type 2 load and constructed in accordance with PPF-B-585, class 3, style 3; PPF-B-601, overseas type; PPF-B-621, class 2; or PPF-B-636, class weather-resistant. Fiberboard boxes shall conform to special requirements specified in PPF-B-636.

5.2.1.2 Case liner. Each level A wood box shall be lined with a waterproof case liner conforming to MIL-L-10547. Closure and sealing shall conform to applicable paragraphs of appendix thereto. Case liner shall not be required for fiberboard boxes.

5.2.1.3 Closure. Closure of wood boxes shall be in accordance with appendix of applicable box specification. Closure of each fiberboard box shall be as specified in the appendix, and waterproofing shall conform with 30.4 of PPF-B-636.

5.2.1.4 Strapping. Strapping, when required, shall be in accordance with appendix of applicable box specification.

NOTE: Strapping shall not be required for shipments forwarded to a receiving activity within the continental limits of the United States for storage and redistribution.

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5.2.2 Level B.

5.2.2.1 Exterior container. Exterior container shall be designed for a type 2 load and constructed in accordance with PPP-B-585, class 1, style 3; PPP-B-601, domestic type; PPP-B-621, class 1; or PPP-B-636, class domestic. Closure of wood boxes shall be as specified in the appendix of the applicable box specification. Closure of fiberboard boxes, shall conform to Method II of PPP-B-636. In addition, fiberboard boxes shall conform to the special requirements specified in PPP-B-636.

5.2.3 Level C. The subject commodity shall be packed in substantial commercial containers of the type, size, and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, at the lowest rate, to point of delivery called for in the contract or purchase order.

5.3 Marking.

5.3.1 Interior packages. Each unit package and each intermediate package shall be marked in accordance with MIL-STD-129. When labels are utilized, waterproofing shall be required only when applicable carton is fabricated of water-resistant material. Contract or purchase order number and name of contractor shall be shown.

5.3.2 Exterior container. Exterior container shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Ordering data. Purchasers should exercise any desired options offered herein, and the procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type and size required (see 1.2).
- (c) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

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6.2 This specification is intended to cover the following items appearing in the Federal Supply Catalog:

Federal Stock No.	Item Identification
6515-104-8654	LARYNGOSCOPE, Adult, Holinger, Fiber Optic, No. 18
6515-104-8656	LARYNGOSCOPE, Adult, Holinger, Fiber Optic, No. 17
6515-104-8668	LARYNGOSCOPE, Adolescent, Jackson, Fiber Optic
6515-104-8678	LARYNGOSCOPE, Adult, Jackson, Fiber Optic

It does not include all types or sizes as indicated by the title nor all types which are commercially available.

Custodians:

Army - MD
Navy - MS
Air Force - 03

Preparing activity:
Defense Supply Agency - DM

Project No. 6515-1668

Review activities:

Army - MD
Navy - MS
Air Force - 03

Review information is current as of the date of this document. For future coordination of changes to this document, draft circulation should be based on the information in the current DODISS.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL		OMB Approval No 22-R255
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