

INCH-POUND

MIL-DTL-2902E
 26 October 2009
 SUPERSEDING
 MIL-W-2902D
 23 December 1988

DETAIL SPECIFICATION

WIRE ROPE LANYARD, SINGLE LEG,
 OXYGEN BREATHING APPARATUS
 SAFETY LINE

Reactivated after 26 October 2009 and may be used for new and existing designs and acquisitions.

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

1. SCOPE

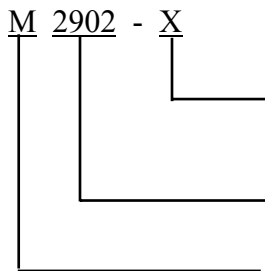
1.1 Scope. This specification covers a safety line between an oxygen breathing apparatus user and his tender.

1.2 Classification. The safety lines are of the following types, as specified (see 6.2):

Type I - Corrosion resistant steel

Type II - Phosphor bronze

1.3 Part or identifying number (PIN). The PIN to be used for safety lines acquired to this specification is created as follows:



Type: 1 - I - Corrosion resistant steel
 2 - II - Phosphor bronze

Specification number

Denotes military specification

Comments, suggestions, or questions on this document should be addressed to Defense Supply Center Richmond, ATTN: DSCR-VEB, 8000 Jefferson Davis Highway, Richmond, VA 23297-5616, or e-mailed to STDZNMGT@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at <http://assist.daps.dla.mil/>.

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2. APPLICABLE DOCUMENTS

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 this 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 of the documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications. The following specifications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL SPECIFICATIONS

FF-T-276	- Thimbles, Rope
RR-W-410	- Wire Rope and Strand

(Copies of these document are available online at <http://assist.daps.dla.mil/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASME INTERNATIONAL

ASME B30.10	- Hooks Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings
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(Copies of this document are available online at <http://www.asme.org/> or from ASME International, Three Park Avenue, New York, NY 10016-5990.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, 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 Material. The material shall be as specified herein. Material not definitely specified shall be material for the purpose intended.

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3.1.1 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and may be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specifically specified.

3.2 Assembly. The safety line shall be a 50-foot wire rope with a self-locking snaphook on each end (see figure 1). Each line shall have the following parts:

- a. One wire rope.
- b. Two self-locking snaphooks.
- c. Two thimbles.
- d. Four wire rope oval sleeves.

3.2.1 Wire rope.

3.2.1.1 Type I. steel. Type I, corrosion resistant steel wire rope shall be 3/16 inch, 7 by 19 preformed cable, type VI, class 3 as specified in RR-W-410.

3.2.1.2 Type II. phosphor bronze. Type II, phosphor bronze wire rope shall be 3/16 inch, 7 by 19 preformed cable, type VI, class 3 as specified in RR-W-410.

3.2.1.3 Weight. The wire rope not including the self-locking snaphooks, thimbles, and wire rope oval sleeves shall weigh 7.4 ± 0.5 pounds per 100 feet.

3.2.1.4 Strength. The safety line completely assembled shall not show any permanent set in the self-locking snaphook, slippage of the wire in the wire rope oval sleeves, or damage to the wire rope when tested in accordance with 4.4.

3.2.1.5 Diameter. The diameter of the wire rope shall not be less than that specified, but may exceed it by a maximum of 10 percent.

3.2.2 Self-locking snaphooks. The snaphooks shall be self-locking in accordance with ASME B30.10 and of a double locking design similar to the snaphooks shown in figure 2. The snaphook shall be sized to slip over and retain a 1/2-inch diameter rod in the snaphook. The gate shall not open unless the latch is manually held in the unlocked position. The latch shall be designed so a semi-rigid rod, capable of a minimum 6 inch bend radius without deforming, cannot simultaneously unlock and open both the latch and gate.

3.2.2.1 Operation. The gate and latch shall be operable by the thumb and forefinger from one gloved hand to admit or release an anchor support. The time required to open the latch shall not exceed five seconds. The gate and latch shall return to the locked closed position when the opening pressure is released. The gate shall not open when a static opening force of 3.5

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+0.25/-0.0 pounds is applied at any point on the gate. The force required to unlock the latch shall be four to nine pounds.

3.2.3 Thimbles. Thimbles shall be in accordance with FF-T-276, type II.

3.3 Assembly. A self-locking snaphook shall be attached to each end of the wire rope using a return eye configuration, which consists of threading the wire rope through two wire rope oval sleeves, the eye of the self-locking snaphook, around the thimble, and back through the two oval sleeves. The oval sleeves shall be swaged in accordance with the oval sleeve manufacture's specifications.

3.4 Length. The length of each completed safety line with a hook fitted on each end and with the line fully extended shall be 50 feet \pm 2 inches, when measured with no tension in the line other than that required to keep the line taut.

3.5 Wire rope oval sleeves. The wire rope oval sleeves shall be compatible with the size, strand type, and material type of wire rope, see 3.2.1.

3.6 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

4. VERIFICATION

4.1 Classification of inspection. The inspection requirement specified herein is classified as conformance inspection (see 4.2).

4.2 Conformance inspection. Conformance inspection shall consist of inspection in 4.3 and test in 4.4. Sampling for inspection shall be performed in accordance with 4.2.2.

4.2.1 Sampling. For the purpose of sampling, a lot shall consist of not more than 2000 hooks, 2000 thimbles, or 2000 oval sleeves offered at one time for assembly into safety lines.

4.2.1.1 Sampling for assemblies. For the purpose of sampling, a lot shall consist of all safety lines made from the lot of hooks, thimbles, and oval sleeves specified in 4.2.1.

4.2.2 Sampling procedure. From each lot as defined in 4.2.1 and 4.2.1.1 samples shall be selected in accordance with table I.

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TABLE I. Sampling plan.

Lot size	Sample size	Allowable defective units
2 to 15	2	0
16 to 25	3	0
26 to 90	5	0
91 to 150	8	0
151 to 280	13	0
281 to 500	20	0
501 to 1200	32	0
1201 to 2000	50	0

4.3 Inspection.

4.3.1 Assemblies. The samples selected in accordance with 4.2.2 shall be subjected to surface inspection to determine compliance with this specification. Particular attention shall be given to the effect on the coatings used on the oval sleeves, when appropriate, and to the overall workmanship of the oval sleeves following the swaging operation. The self-locking snaphook shall be operated to determine conformance to the requirements of 3.2.2.1.

4.4 Test.

4.4.1 Proof tests. All type I assemblies shall be strength tested to a tension of 1500 ± 20 pounds for a period of not less than 5 minutes and all type II assemblies shall be strength tested to a tension of 750 ± 10 pounds for a period of not less than 5 minutes before they are inspected in accordance with 4.3.1.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's 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 that may be helpful, but is not mandatory.)

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6.1 Intended use. The wire rope assemblies covered by this specification are intended for use in facilitating the rescue of an overcome firefighter wearing an oxygen breathing apparatus.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type (see 1.2).
- c. Packaging requirements (see 5.1).

6.3 Sub-contracted material and parts. The packaging requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.4 Subject term (key word) listing.

Self-locking snaphook
Thimble
Oval sleeve

6.5 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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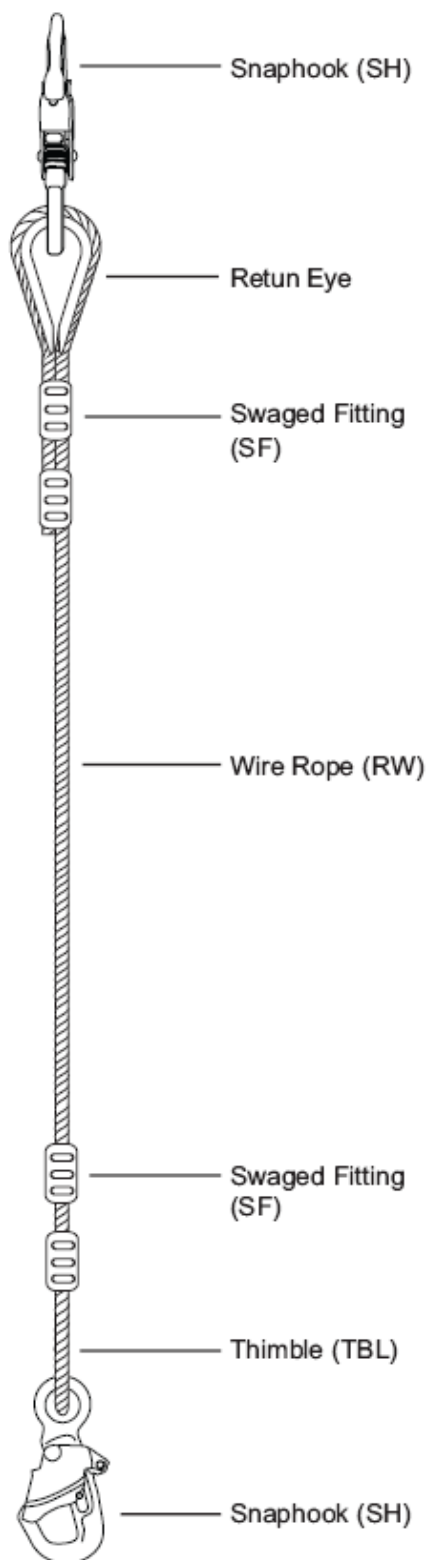
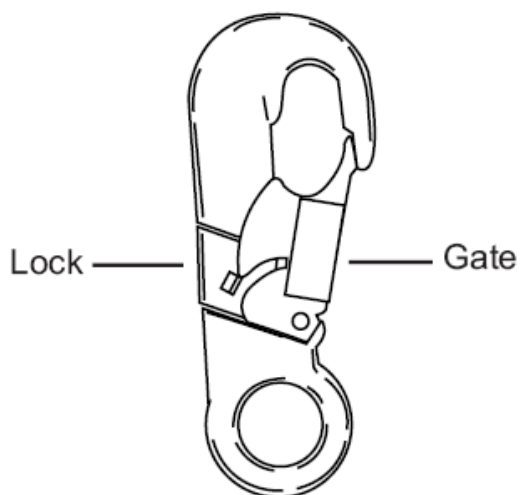
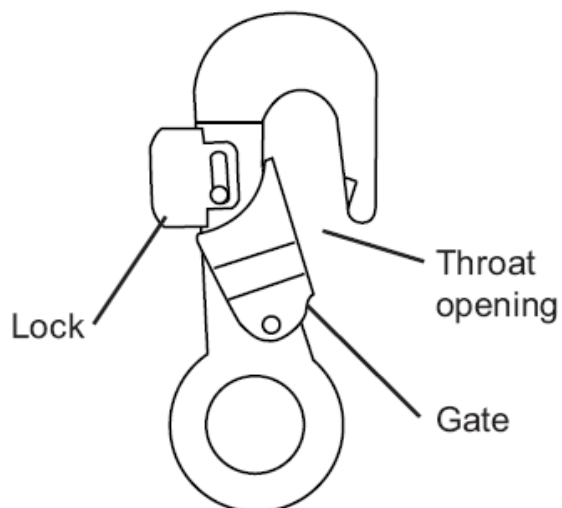


FIGURE 1. Wire rope lanyard.

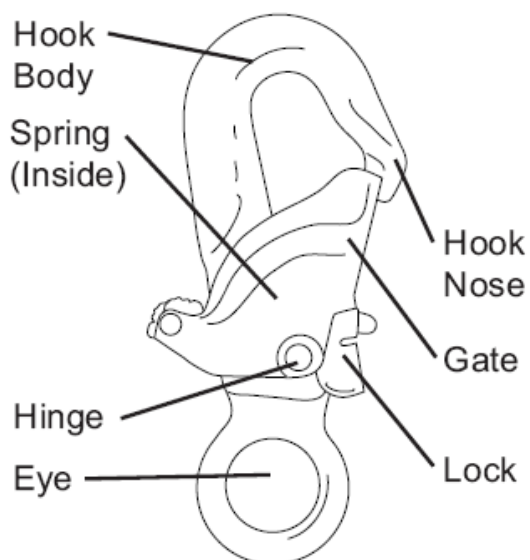
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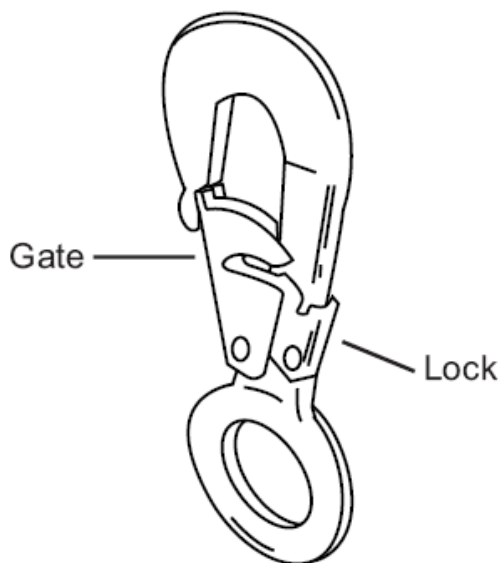
Snaphook, Self-Locking



Snaphook, Self-Locking
(shown unlocked and open)



Snaphook, Self-Locking



Snaphook, Self-Locking

FIGURE 2. Self-locking snaphooks.

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Custodians:

Navy - SH

DLA - GS

Preparing Activity:

DLA - GS5

(Project 4010-2009-001)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST database at <http://assist.daps.dla.mil/>.