

INCH-POUND

MIL-STD-2003B(SH)

6 October 2020

SUPERSEDING

MIL-STD-2003A

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**DEPARTMENT OF DEFENSE
STANDARD PRACTICE
ELECTRIC PLANT INSTALLATION
STANDARD METHODS FOR
SURFACE SHIPS AND SUBMARINES**



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FOREWORD

1. This standard is approved for use by the Naval Sea Systems Command, Department of the Navy and is available for use by all Departments and Agencies of the Department of Defense.

2. This standard disseminates up-to-date information detailing requirements for standard installation methods (non-fiber optic cable) employed for submarine and surface ship electrical distribution systems. MIL-STD-2042 (Fiber Optic Cable Topology Installation Standard Methods for Naval Ships) should be utilized for detailed information and guidance involving the installation of fiber optic cable on Naval surface ships and submarines.

3. These criteria apply to work on a specific ship or ships only when invoked by the Ship Specifications or similar contractual documents.

4. These criteria are for application to new construction, conversion, repair, and alteration of existing ships.

5. Comments, suggestions, or questions on this document should be addressed to Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to CommandStandards@navy.mil, with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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1. SCOPE

1.1 Scope. This standard covers shipboard installation requirements for electrical cable, equipment, penetrations, cableways, and connectors. This standard consists of this general standard and five parts as follows:

Part 1 (Cable)	Preparation and end-sealing, entry to equipment and connectors, repair and splicing.
Part 2 (Equipment)	Equipment mounting, switchboard mounting, battery equipment, casualty power, and shore power.
Part 3 (Penetrations)	Swage tubes, stuffing tubes, kickpipes, multiple cable penetrations; surface ships and submarines, hull penetration, and general.
Part 4 (Cableways)	General, submarine, surface ship and cable protection.
Part 5 (Connectors)	Cable and conductor preparation in accordance with MIL-C-81511/SAE AS81511, MIL-DTL-5015/SAE-AS50151, MIL-DTL-26482, MIL-DTL-28840, MIL-DTL-27599, MIL-DTL-22992, and MIL-DTL-38999 connectors.

1.2 Application. Electrical plant installation methods parts 1 through 5 are intended to be used by all installing activities as required by contract, ship specifications, or similar implementing documents. These parts do not normally identify ship or type, but do establish standards for electric plant installations in naval ships. The methods in this standard are for new construction as well as for conversions, alterations, and repairs.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this standard. This section does not include documents cited in other sections of this standard 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 documents cited in sections 3, 4, or 5 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks 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.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-2003-1	-	Electric Plant Installation Standard Methods for Surface Ships and Submarines (Cable)
MIL-STD-2003-2	-	Electric Plant Installation Standard Methods for Surface Ships and Submarines (Equipment)
MIL-STD-2003-3	-	Electric Plant Installation Standard Methods for Surface Ships and Submarines (Penetrations)
MIL-STD-2003-4	-	Electric Plant Installation Standard Methods for Surface Ships and Submarines (Cableways)
MIL-STD-2003-5	-	Electric Plant Installation Standard Methods for Surface Ships and Submarines (Connectors)

(Copies of these documents are available online at <https://quicksearch.dla.mil/>.)

2.3 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.

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3. DEFINITIONS

This section is not applicable to this standard.

4. GENERAL REQUIREMENTS

4.1 MIL-STD-2003-1. This part provides general requirements for the selection, use, and installation of cables aboard ships and submarines. Cable slack, bend radius, entrance into equipment, connections, and the use of watertight cable are among the topics for which requirements are established.

4.2 MIL-STD-2003-2. This part provides general requirements for electrical equipment. Mounting, welding, fasteners, batteries, battery service facilities, casualty power, shore power, and grounding are among the topics for which requirements are established.

4.3 MIL-STD-2003-3. This part provides general requirements for cable penetrations of various boundaries using stuffing tubes and multiple cable penetrations (MCPs). Topics for which requirements are established include penetration of pressure hulls; pressure-proof, shielded, ballistic bulkheads and decks; and the use of riser boxes and kickpipes.

4.4 MIL-STD-2003-4. This part provides general requirements for cable runs and cableways for protection and maximum reliability of the cables and electrical distribution system.

4.5 MIL-STD-2003-5. This part provides general requirements and procedures to be utilized by a connector assembly technician for the preparation and installation of shipboard cable connectors.

5. DETAILED REQUIREMENTS

See MIL-STD-2003-1 through MIL-STD-2003-5.

6. NOTES

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

6.1 Intended use. This standard specifies the requirements for electric plant installation standard methods to be employed both on surface ships and submarines. Standard methods identified for electric plant installation are intended for new construction, conversion, repair, and alteration of existing ships. The use of this standard will be specified in the contract, ship specifications, and similar implementing documents (such as COMUSFLTFORCOMINST 4790.3, Joint Fleet Maintenance Manual (JFMM) and S9086-KC-STM-010/300, Naval Ships' Technical Manual Chapter 300, Electric Plant-General).

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this standard.

6.3 Designation of electric plant installation standard methods figures. Each of the parts of electric plant installation standard methods contains figures that depict standard methods that are applicable for general electric plant installation on both surface ships and submarines. The methods shown on the figures are grouped together in the following appendices to MIL-STD-2003-1 through MIL-STD-2003-5. Each appendix provides requirements for similar functions.

<u>Part</u>	<u>Appendix</u>	<u>Title</u>
1 (Cables)	1A	Cable Preparation and End-Sealing
	1B	Cable Entry to Equipment
	1C	Protection of Topsides Connectors
	1D	Repair of Damaged Cable
	1E	Cable Splicing

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2 (Equipment)	2A	Standard Methods for Mounting Equipment
	2B	Switchboard Mounting
	2C	Battery Rack Mounting
	2D	Casualty Power
	2E	Shore Power
3 (Penetrations)	3A	Penetrations – Stuffing Tubes, Submarines
	3B	Penetrations – Surface Ships
	3C	Penetrations – Stuffing Tubes, General
	3D	Penetrations – Kickpipes
	3E	Penetrations – Pressure Hulls, Submarines
4 (Cableways)	4A	Cableways (Submarines)
	4B	Cableways (Surface Ships)
	4C	Cableways (General)
	4D	Cable Protection
5 (Connectors)	5A	Cable Lead Preparation
	5B	MIL-C-81511/SAE-AS81511 Series 1 and 2 Gang Contact Release Connector Assembly Procedure
	5C	MIL-DTL-5015/SAE-AS50151 Connectors
	5D	MIL-DTL-26482 Connectors
	5E	MIL-DTL-28840 Connectors
	5F	MIL-DTL-27599 Connectors
	5G	MIL-DTL-22992 Connectors
	5H	MIL-DTL-38999 Connectors

6.4 Subject term (key word) listing.

Battery equipment

Cable lead preparation

Casualty power

Connection preparation

Connectors

Double banking

End-sealing

Equipment entry

Hangers

Kickpipes

Multi-cable transits

Multiple cable penetrator

Shore power

Splicing

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Stuffing tubes

Switchboard mounting

Tier

Watertight

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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CONCLUDING MATERIAL

Preparing activity:
Navy – SH
(Project SESS-2015-026)

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 Online database at <https://assist.dla.mil>.