



**CSA
Group**

C22.2 No. 183.1-M1982
(reaffirmed 2018)

Alternating-current (AC) electrical installations on boats

Withdrawn

A background graphic featuring a blue globe with a green grid pattern, set against a light green background with white grid lines and a blue wave at the bottom.

Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document’s fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party’s intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



Standards Update Service

C22.2 No. 183.1-M1982

March 1982

Title: *Alternating-current (AC) electrical installations on boats*

Pagination: **26 pages**, each dated **March 1982**

To register for e-mail notification about any updates to this publication

- go to **shop.csa.ca**
- click on **CSA Update Service**

The **List ID** that you will need to register for updates to this publication is **2001256**.

If you require assistance, please e-mail techsupport@csagroup.org or call 416-747-2233.

Visit CSA Group's policy on privacy at csagroup.org/legal to find out how we protect your personal information.



Canadian Standards
Association

CSA Standard
C22.2 No.183.1-M1982

**Alternating-Current
(AC) Electrical
Installations on Boats**

Forming Part of
Canadian Electrical Code,
Part II
Safety Standards for
Electrical Equipment

ISSN 0317-5669
Published, March, 1982
by the
Canadian Standards Association
(Incorporated 1919)
178 Rexdale Boulevard
Rexdale, Ontario, Canada
M9W 1R3
Printed in Canada

c Canadian Standards Association-1982

All rights reserved. No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior permission of the publisher.

Contents

Page

4 **Subcommittee on C22.2 No. 183.1**

5 **Committee on Canadian Electrical Code, Part II**

7 **Preface**

8 **Foreword**

Standard

9 **1. Scope**

9 **2. Definitions**

10 **3. General Requirements**

10 **4. Construction**

10 4.1 General

10 4.2 Mechanical Assembly

11 4.3 Overcurrent Protection

11 4.3.1 *Shore-Power Supply*

11 4.3.2 *Branch Circuits*

11 4.4 Wiring

11 4.5 Installation

11 4.5.1 *General*

12 4.5.2 *Terminal Connections*

12 4.5.3 *Shore-Power Polarity*

13 4.5.4 *Receptacles*

13 4.6 Shore-Power Supply

13 4.6.1 *Cable Sets*

13 4.6.2 *Power Inlets*

14 4.7 Types of Alternating- Current (AC) Power Circuits

14 4.7.1 *Single-Phase 120-V System with Shore-Grounded (White) Neutral Conductor and Grounding (Green or Green/Yellow) Conductor*

14 4.7.2 *Single-Phase 120/240 V System with Shore-Grounded (White) Neutral Conductor and Grounding (Green or Green/Yellow) Conductor*

14 4.7.3 *Single-Phase Isolating Transformer System*

15 4.8 Generators

15 4.9 Ground-Fault Indication

15 4.10 Ignition Sources

16 **5. Marking**

16 5.1 Marking of Controls

16 5.2 Marking of Equipment

16 5.3 Shore-Power Inlet Warning

16 **6. Test for External-Ignition Protection**

17 **Tables**

22 **Figures**

Subcommittee on C22.2 No. 183**R.E. Edwards** (*Chairman*)

Alcan Canada Products, Limited,
Toronto, Ontario

T.A. Fekete (*Vice-Chairman*)

Scarborough, Ontario

J.R. Beale

Allied Boating Association of Canada,
Islington, Ontario

L.H. Bell

Canadian Coast Guard,
Toronto, Ontario

G.E. Davidson

Ontario Hydro,
Toronto

D.A. Dobie

Philbrook's Shipyards Ltd.,
Sidney, British Columbia

S. Glass

C & C Yachts Ltd.,
Oakville, Ontario

J.E. Guerrette

New Brunswick Labour and Manpower,
Fredericton

K. Hansen

Whitby Boat Works,
Whitby, Ontario

J. Harrison

British Columbia Department of
Permits and Licenses,
Vancouver

J.G.C. Henderson

Canada Wire and Cable Company Ltd.,
Toronto, Ontario

M.R. Holman

Square D Canada,
Waterloo, Ontario

G. Jagessar

G. Jagessar and Associates Ltd.,
West Hill, Ontario

E.F. Johnson

E.F. Johnson and Associates,
Ottawa, Ontario

G.J. Lippmann

American Boat & Yacht Council, Inc.,
Amityville, New York
U.S.A.

A.R. Luck

British Columbia Ministry of Labour,
Vancouver

D.T. Matheson

Canoe Cove Manufacturing Ltd.,
Sidney, British Columbia

L. McBurney

Spencer Boats Ltd.,
Richmond, British Columbia

G.H.K. Meyer

Canadian Standards Association,
Rexdale, Ontario

P.M. Petersen

3M Canada Inc.,
London, Ontario

D.J. Squires

College of Fisheries, Navigation, Marine
Engineering and Electronics,
St. John's, Newfoundland

W. Turner

Toronto, Ontario

R.C. Gilmour

(*Standards Administrator, Non-voting*)
Canadian Standards Association,
Rexdale, Ontario

Committee on Canadian Electrical Code, Part II

K.R. Dunphy (*Chairman*)
Toronto, Ontario

B.A. MacEwen
(*Standards Administrator*)
Canadian Standards Association,
Rexdale, Ontario

Representing Regulatory Authorities

G.E. Davidson
Ontario Hydro, Toronto

D.H. Dunsire
Manitoba Hydro, Winnipeg

J.E. Guerrette
New Brunswick Labour and Manpower,
Fredericton

A.R. Luck
British Columbia Ministry of Labour,
Vancouver

R. Morin (*Alternate*)
Ministere du Travail, de la Main d'oeuvre
et de la Securite du revenu,
Quebec, Quebec

J. Rousseau
Ministere du Travail, de la Main d'oeuvre
et de la Securite du revenu,
Montreal, Quebec

C.M. Speers
Alberta Department of Labour,
Edmonton

***Representing Manufacturers (Electrical and
Electronic Manufacturers Association of
Canada)***

G. Bedingham
Motorola Canada Limited,
Willowdale, Ontario

J.R. Caicco
Canadian General Electric Company Limited,
Toronto, Ontario

R.D. Colvin
Allen-Bradley Canada Ltd.,
Cambridge, Ontario

R.E. Edwards
Alcan Canada Products, Limited,
Toronto, Ontario

J.G.C. Henderson
Canada Wire and Cable Limited,
Toronto, Ontario

C.E. McRoberts
Federal Pioneer Limited,
Toronto, Ontario

R.A. Wilson
Westinghouse Canada Inc.,
Hamilton, Ontario

Representing General Interests

J.A. Bossert
Department of Energy, Mines and Resources,
Ottawa, Ontario
Representing Canadian Electrical Code, Part V

I.M. Clark
Canadian Electrical Association,
Montreal, Quebec
Representing Canadian Electrical Association

J.E. Duncan
Canadian Standards Association,
Rexdale, Ontario

E.F. Johnson
Department of Industry, Trade and Commerce,
Ottawa, Ontario
*Representing Federal Department of Industry,
Trade and Commerce*

G. Neal
National Research Council of Canada,
Ottawa, Ontario
Representing National Research Council

C. Seccombe
Consumers' Association of Canada,
Ottawa, Ontario

W.R. Virtue
Department of Consumer and Corporate Affairs,
Hull, Quebec
*Representing Federal Department of Consumer
and Corporate Affairs*

Associate Members

O.D. Beck

Canadian Gas Association,
Don Mills, Ontario

B.H. Chick

Public Works Canada,
Ottawa, Ontario

P. Douglas

British Standards Institution,
Hemel Hempstead, Hertfordshire, England

D.L. Johnson

Health and Welfare Canada,
Ottawa, Ontario

F.K. Kitzantides

National Electrical Manufacturers Association,
Washington, D.C., U.S.A.

D.S. Martin

Underwriters' Laboratories of Canada,
Scarborough, Ontario

Preface

This is the first edition of No. 183.1 in a series of Standards issued by Part II of the Canadian Electrical Code.

It was based on requirements of the American Boat and Yacht Council and modified in accordance with Part II of the Canadian Electrical Code.

For general information on the Standards of the Canadian Electrical Code, Part II, see the preface of the latest issue of CSA Standard C22.2 No. 0, Definitions and General Requirements.

This Standard was prepared under the jurisdiction of the Committee on CE Code, Part II, and was formally approved by this Committee.

Rexdale, March, 1982

Note: *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the user of the Standard to judge its suitability for his or her particular purpose.*

All enquiries regarding this Standard should be addressed to Canadian Standards Association, 178 Rexdale Boulevard, Rexdale, Ontario M9W 1R3.

CSA Standards are subject to periodical review and suggestions for their improvement will be referred to the appropriate committee.

Requests for interpretation will also be accepted by the committee. They should be worded in such a manner as to permit a simple "yes" or "no" answer based on the literal text of the requirement concerned. Formal interpretations are published in "CSA Information Update". For subscription details and a free sample copy, write to CSA Information Centre or telephone (416) 744-4058.