

The American Boat & Yacht Council, Inc.

# ABYC

**Setting Standards for Safer Boating**

**ABYC Website: [www.abycinc.org](http://www.abycinc.org)**

3069 Solomons Island Road  
Edgewater, MD 21037  
(410) 956-1050 ph. (410) 956-2737 fax

**E-mail: [info@abycinc.org](mailto:info@abycinc.org)**

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***A-20 BATTERY CHARGING DEVICES***

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## A-20 BATTERY CHARGING DEVICES

Based on ABYC's assessment of the existing technology, and the problems associated with achieving the goals of this standard, ABYC recommends compliance with this standard for all boats, associated equipment, and systems manufactured after July 31, 2001.

### 20.1 PURPOSE

These standards and recommended practices are guides for the design, construction, and installation of permanently installed marine alternating current (AC) electrical devices designed to charge and maintain a battery, or batteries, supplying direct current (DC) loads.

### 20.2 SCOPE

These standards and recommended practices apply to all permanently installed 120 or 240 volt AC powered marine non-rotating battery chargers which supply current at a potential of 50 volts DC or less.

**NOTE:** *This standard does not apply to devices that are intended to supply DC loads without a battery.*

### 20.3 REFERENCED ORGANIZATIONS

ABYC - American Boat & Yacht Council, 3069 Solomons Island Road, Edgewater, MD 21037. (410) 956-1050. Visit the web site: [www.abycinc.org](http://www.abycinc.org)

ANSI - American National Standards Institute, 11 West 42<sup>nd</sup> St, 13<sup>th</sup> Floor, New York, NY 10036 (212) 642-4900. Visit the web site: [www.ansi.org](http://www.ansi.org)

CFR - Obtain the Code of Federal Regulations and other government publications from the Superintendent of Documents, United States Government Information, POB 371954, Pittsburgh, PA 15250-7954 (202) 512-1800, or fax (202) 512-2250. An excerpted edition of the CFR is available from ABYC, Inc., 3069 Solomons Island Road, Edgewater, MD 21037. (410) 956-1050, or fax (410) 956-2737

SAE - Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096. (412) 776-4841. Visit the web site: [www.sae.org](http://www.sae.org)

UL - Underwriters Laboratories Marine Department, POB 13995, 12 Laboratory Drive, Research Triangle Park, NC 27709 (919)-549-1400. Obtain standards from Global Engineering Documents, Inc., 15 Inverness Way East, Englewood, CO 80112. (800) 854-7179 (US and Canada), (303)-397-7956 (outside US and Canada), Fax (303)-397-2740.

20.4 **DEFINITIONS** - For the purposes of this standard, the following definitions apply.

Battery Charger - A device designed primarily to charge and maintain a battery, or batteries, supplying DC loads.

Self limiting battery chargers - Battery chargers in which the output remains at a value that will not damage the charger after application of a short circuit at the DC output terminals for a period of 15 days.

Shunt - A conductor of known resistance placed in series with a circuit to indicate current flow by measurement of the voltage drop across this conductor.

### 20.5 REQUIREMENTS - IN GENERAL

20.5.1 Battery chargers shall be of the automatically controlled type.

20.5.2 All battery chargers shall meet the applicable requirements of UL 1236, Battery Chargers for Charging Engine-Starter Batteries, and the requirements of Supplement SA - Marine Battery Chargers.

20.5.2.1 A battery charger shall be provided with an ammeter or an alternative indicator for measuring the output current.

20.5.3 All battery chargers shall be designed to withstand an ambient temperature of 70°C (158°F) and operate at the ambient temperature of 50°C (122°F).

20.5.4 Isolation of high and low voltage circuits

20.5.4.1 High voltage, i.e., 120 volt or 240 volt, and low voltage, i.e., output voltages, shall be electrically isolated from each other by one or more of the following methods:

20.5.4.1.1 a metallic shield;

20.5.4.1.2 insulation and gap.

**EXCEPTION:** *Chargers having an integral GFCI in the AC input circuit.*

**NOTE:** *For inverter/chargers see [ABYC A-25, Power Inverters](#).*

20.5.4.2 If a metallic shield is used to meet the requirements of [A-20.5.4.1](#) the shield shall be located between the high voltage and low voltage circuit, and shall be connected to the boat's AC grounding (green wire) system.