

## DON'T BUILD A BOAT WITHOUT THEM

If someone sues your company and you can present evidence that shows that your company's products are built in compliance with the latest voluntary safety standards and recommended practices, as well as applicable Federal standards, the plaintiff's attorneys will have a hard time disproving your interest in the safety of purchasers of your products. On the other hand, a company that ignores existing voluntary marine standards and recommended practices, for a propane gas system installation for example, would have a hard time proving that they had considered the degree of hazard and the potential for an accident.

The law in recent years has tended to place full responsibility for injuries caused by defective products upon the product manufacturer. This is because the manufacturers can design, build and market products in ways that will reduce if not eliminate most unreasonable and unnecessary hazards. In the absence of applicable Federal standards, the best way to assure the safety of purchasers of the products you manufacture is to build them in compliance with recognized voluntary industry standards and recommended practices.

If one of your company's boats is totally destroyed by a fire or explosion, you will be in a better position in a product liability suit if you can show by means of an identical model that your boats and their equipment are built to the latest voluntary standards and recommended practices. If there is a recognized voluntary marine standard or recommended practice covering a particular installation, follow it.

A generator designed for use on a recreational vehicle, e.g. on land, does not comply with marine standards and therefore should not be installed on a boat. Similarly, heating appliances designed for use in a home probably cannot withstand a marine environment.

For the purposes of this discussion, standards are proven and broadly accepted engineering practices or requirements for a material, product, process, procedure or test method. Recommended practices are guides to standard engineering practice, but may be of a more general nature, or may cover practices or requirements that have not yet gained broad acceptance.

The Coast Guard issued safety standards for recreational boats are relatively new and are very limited in scope, particularly because Federal standards must be based upon a demonstrated

need -- accident statistics. The Display of Capacity Information, Safe Loading, Safe Powering and Flotation Standards issued in 1972 were developed to reduce drownings and allow victims to recover from capsizing and swamping accidents; the Electrical and Gasoline Fuel Systems Standards to reduce fires and explosions; and the Start-In-Gear- Protection Standard to reduce falls overboard in small boats.

As early as 1925, however, other organizations have been issuing voluntary standards and recommended practices for boats. The objective of voluntary standards organizations is to make the technical knowledge, experience and skill of engineers from various boat and engine manufacturing companies working together with marine surveyors and other public members, useful to the boating industry, the public, Government and educational institutions. Today, these organizations have standards and recommended practices covering everything from the design and construction of cleats and chocks to the installation and maintenance of heating, refrigeration and air conditioning equipment; from marine-type electric lighting fixtures to exhaust systems, steering systems and control systems. In fact, there is probably a recognized industry standard covering just about every facet of boat construction.

Most of the recreational boating safety standards that exist in the United States today are the result of work done by broad based committees in the National Fire Protection Association (NFPA) and the American Boat and Yacht Council (ABYC). The Society of Automotive Engineers (SAE) Marine Technical Committee and by the various technical committees supported by the Boating Industry Associations (BIA), now the National Marine Manufacturers Association have also made valuable contributions. The Marine Department of Underwriters' Laboratories (UL) has contributed test procedures and an inspection service to implement the standards developed by the other organizations. The various technical committees in these organizations revise and update their standards annually.

The National Fire Protection Association's NFPA 302, "Fire Protection Standard for Pleasure and Commercial Motor Craft," adopted in 1925, exerted very strong influence on the standards for electrical and fuel systems published by the American Boat and Yacht Council, the BIA, and in turn, the Coast Guard. Portions of NFPA 302 are incorporated by reference in the Coast Guard Electrical System

Standard. For many years, NFPA 302 was the principal reference used by marine surveyors inspecting boats prior to granting insurance by marine underwriters.

From the day it was founded in 1954, the American Boat and Yacht Council has been the most broadly based of the standards writing organizations in the recreational boating field in the United States. The majority of ABYC members are associated with the boat building field in some capacity; however, there are members from the other standards writing organizations, the public, yachting organizations, the Coast Guard, Underwriters' Laboratories, marine surveyors and insurance companies. The ABYC publishes a book, "Standards and Recommended Practices For Small Craft," which to quote from the preface, "is the product of a consensus of representatives of government, industry and public sectors." The book is a guide to aid manufacturers, consumers and the general public in the design, construction, equipage and maintenance of small craft.

The SAE Marine Technical Committee has issued several marine safety standards primarily related to gasoline inboard engines. Portions of the SAE standards covering fuel hoses are incorporated by reference in the Coast Guard Fuel System Standard. SAE also publishes the standards for propeller

shaft taperings and propeller hub dimensions used by all U.S. propeller manufacturers.

Underwriters' Laboratories, Inc. is a nonprofit, independent organization testing for public safety. UL's Marine Department provides a service to manufacturers of marine devices for testing, labeling and listing those products as meeting the requirements set forth in the UL Marine Specifications. UL's findings are recognized by insurance rating bureaus, Federal agencies, State, county and municipal authorities and inspectors. These specifications or standards usually equal or exceed the requirements of Coast Guard regulations and the other marine industry standards. The Coast Guard does not directly accept UL listing as evidence of compliance with its regulations; however, we are usually confident that a product installed in a boat will meet Coast Guard requirements if it displays the UL label.

In the absence of an applicable Federal standard, boat manufacturers, marine equipment manufacturers, installers and boat owners, are strongly urged to follow the latest voluntary standards and recommended practices available.

Want to find out more about voluntary standards and recommended practices? The following is a listing of the major marine standards organizations and the materials they publish:

American Boat and Yacht Council  
P. O. Box 747  
Millersville, MD 21108  
(301) 923-3932

National Fire Protection Assn.  
Batterymarch Park  
Quincy, Massachusetts 02269  
(617) 770-3500

Underwriters' Laboratories, Inc.  
Publications Stock  
333 Pfingsten Road  
Northbrook, Illinois 60062

Society of Automotive Engineers  
400 Commonwealth Drive  
Warrendale, Pennsylvania 15096

American Bureau of Shipping  
45 Eisenhower Drive  
Paramus, New Jersey 07652  
(212) 440-0300

ABYC Standards and Recommended  
Practices for Small Craft  
Price: \$100.00 for nonmembers  
plus \$20.00 annually for updates

NFPA 302  
Pleasure and Commercial Motor Craft  
Price: \$8.50

UL Marine Products Directory  
Price: \$1.15

UL Standards  
Prices vary

SAE Standards  
Price: \$7.00 each

SAE Marine Standards  
Price: \$22.00 per volume  
(4 volume set)

ABS Rules for Reinforced  
Plastic Vessels  
Price: \$10.00

ICOMIA  
Vale Road, Oatlands, Weybridge  
Surrey KT13 9NS England

Det norske Veritas  
P. O. Box 300  
1983N-1322 HOVIK  
Norway

International Council of Marine  
Industry Associations (ICOMIA)

Rules for Construction and  
Certification of Vessels Less  
Than 15 Metres  
Price: NOK 120,-

Rules for Classification of High  
Speed Light Craft 1985  
Price: NOK 300,-

[BSCs 61 & 62]

## APPLICABILITY

Paragraph 183.3(e) defines a monohull boat as any boat on which the line of intersection of the water surface and the boat at any operating draft forms a single closed curve or "footprint." A catamaran, trimaran or pontoon boat, for example, is not a monohull boat.

We wish to reiterate this definition in order to clear up some confusion about the Product Assurance Compliance Testing Program, and tests that are performed on what appear to be multihulled boats. Some manufacturers have disputed the applicability of the regulations to their boats, when in fact, the regulations are actually quite clear in their definition of what constitutes a monohull boat.

The key words in the definition of a monohull boat are "at any operating draft." When a boat is operated, it is assumed that the boat is carrying the weights used by the manufacturer in calculating the values displayed on the capacity label. As a result, if the hull configuration forms a single closed curve at any operating draft when the boat is loaded with the Maximum Weight Capacity for outboard boats, or with the Maximum Weight Capacity and weights simulating the weight of the largest engine offered by the manufacturer for inboard boats, then the boat is considered a monohull.

Any recreational boat which appears to have a waterline which forms more than one closed curve after being immersed in water before loading, but which becomes a waterline with one closed curve after loading, will be tested for compliance with all applicable regulations. The passenger weights will be distributed in accordance with the seating arrangements of the various boats tested.

For the purposes of the Coast Guard Compliance Testing Program, each boat selected for testing will be tested in the manner described above. The

tests will be discontinued if any boat clearly displays a waterline with two or more footprints when loaded as described above. [BSC 51]

## PERSONS CAPACITY, PORTABLE FUEL TANKS AND OUTBOARD POWERED BOATS

When performing the calculations and tests under the Safe Loading Standard, be sure to include the weight of a portable fuel tank.

Section 183.41 in the Safe Loading Standard prescribes the method for determining the persons capacity of boats powered by outboards of more than two horsepower. First of all, the regulations require subtracting the combined weights of the motor, controls, battery and full "portable" fuel tank (Col 6 of Table 4) from the Maximum Weight Capacity. - If the resulting number is more than 550 pounds, it is the Maximum Persons Capacity; HOWEVER, - If the resulting number is 550 pounds or less, then the manufacturer must perform the stability test in 183.41(a)(2).

Manufacturers must include the weight of a full portable fuel tank in these calculations even if the boat is equipped with a permanently installed fuel tank. Many boat owners carry a portable tank as a reserve for the permanently installed tank, so the regulations require the inclusion of that weight when calculating the Maximum Persons Capacity.

The stability test is performed with the weight of the motor and controls, battery and full portable fuel tank (if any) in normal operating positions. Weights are added along the outer edge of the passenger carrying area until the boat assumes maximum list without water coming aboard. The total weight added is divided by 0.6. Then, the lesser of the two values obtained (calculation method vs. stability test) is the Maximum Persons Capacity. [BSC 62]