

MOTORBOAT SAFETY

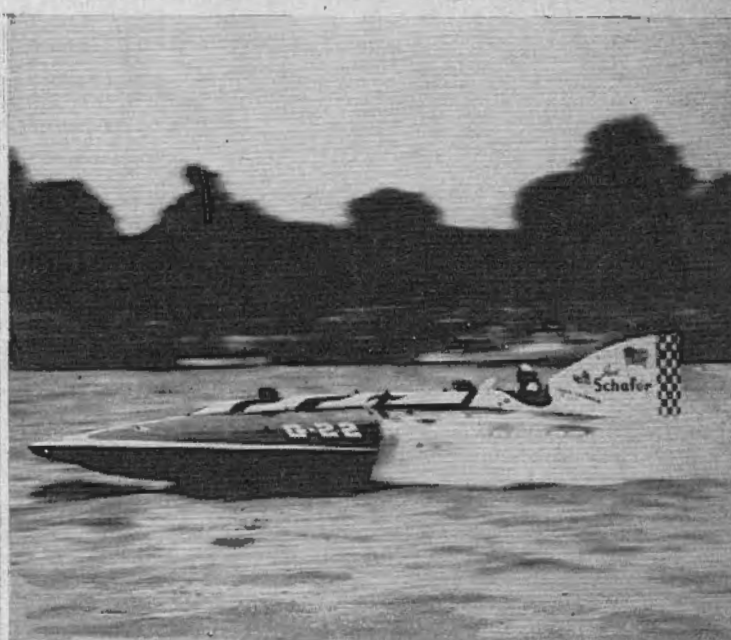
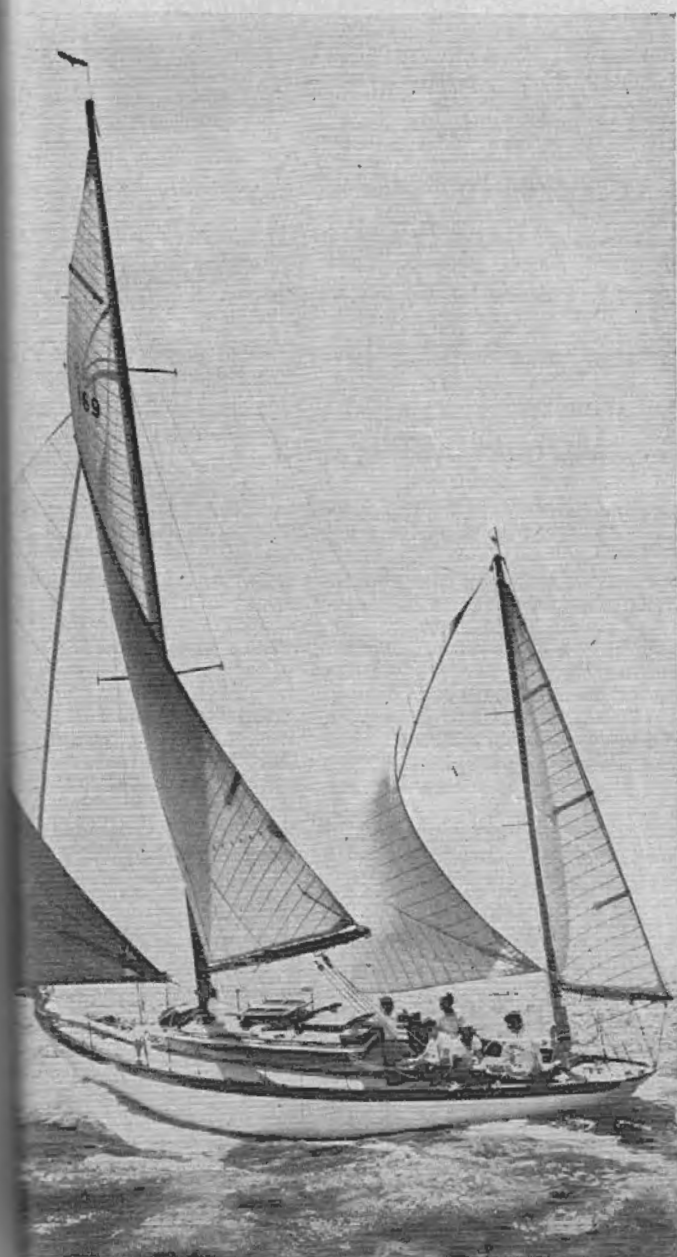


UNITED STATES
COAST GUARD



PLEASURE BOATING CAN BE PLEASURE

1955-1956



CONTENTS

FEATURES

Do You Know?	1
History of the Coast Guard Auxiliary (1939-1955)	2
American Boat and Yacht Council	4
Regattas or Marine Parades	5
Coast Guard Publications Available to the Public	6
Operation of Motorboats at Summer Camps	7
Artificial Respiration	8
Nautical Queries	12
Minimum Standards To Prevent Fire and Explosion	14
Check List for Gasoline Fueled Craft	15
Procedures for Numbering Undocumented Vessels	16
Buoyant Vests	17

LESSONS FROM CASUALTIES

Upsetting Moment	18
The Heat Was On	18
Magic Carpet	19
Free of Charge	20
Open Pilot Light	22
Head On	22
Hot Tip	23
Rapid Turnover	24
Death From Glass	24
A Lantern in His Hand	24
Arson, Barratry, Fraud	25
Are Explosions Inevitable?	26

PHOTO CREDITS

Front Cover—The yawl "Malay," photo by Norman Fortier; a Matthews cruiser; and the racing craft "Such Crust."
 Inside Front Cover—Cape Hatteras Lighthouse, U. S. Coast Guard photo.
 Back Cover—Photo by Morris Rosenfeld, New York.

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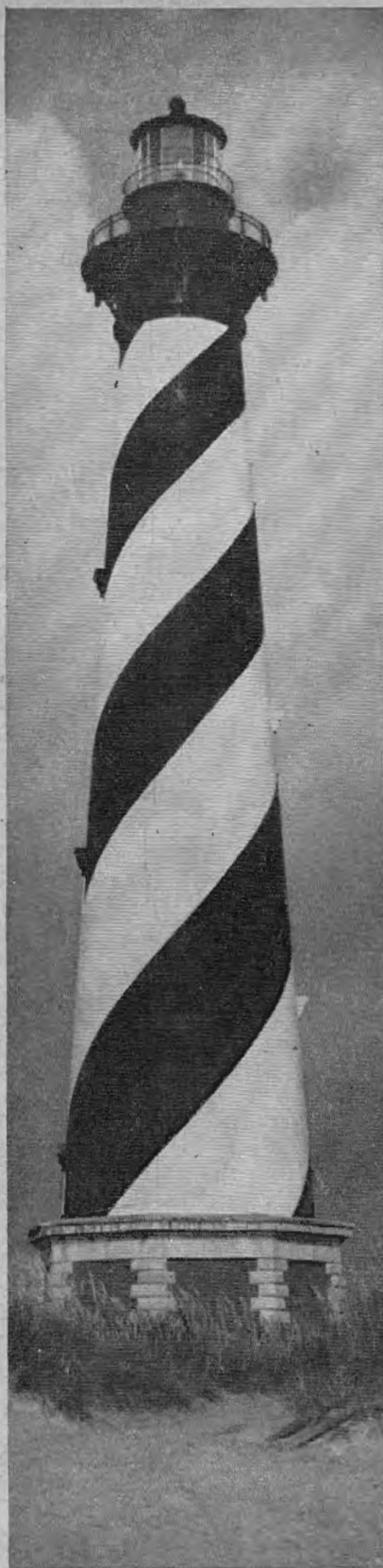
Another motorboat season is here. Again the Coast Guard wishes to bring to mind an old adage "*Eternal vigilance is the price of safety*"—don't let an accident spoil your holiday.

To skim quickly over the water in a refreshing breeze is what more people want to do each year. Motorboats can be a great source of pleasure or they can be a menace to life and property. In one Coast Guard district it was informally reported that on the average of once a week a motorboat was involved in an explosion and fire. Many of these accidents are not reported in Coast Guard statistics because property damage did not exceed \$1,500 nor were any persons seriously injured or killed. The need for vigilance in the prevention of accidents is more important than ever. To save a life or to save a person from injury or to save a craft from disaster is the greatest contribution a boatman can make to society. The best safety measure is, therefore, a careful boatman.

Statistics by themselves are not impressive because they do not show the human suffering and personal losses that may be reflected thereby. Neither is it possible to show by statistics all the near accidents that occur. Every "near accident" should be treated as a warning.

On June 30, 1954, there were 359,183 vessels bearing identification numbers issued by the Coast Guard. These vessels do not include the small motorboats that are less than 16 feet in length. It is impossible to estimate the total increase in the number of pleasure craft on the navigable waters of the United States.

Tragically, the casualty and death rate due to motorboat accidents continues year after year. Let us therefore be more safety conscious and make this boating season the safest one ever.



DO YOU KNOW?

*It makes no difference whether you sail by power, by sail, or by both.
Inboard? Outboard? Auxiliary? Or, sail? You should know!*

The next time you take your boat out, you will be on the navigable waters of your State, or on the navigable waters of the United States. You may stay in these waters, go between them, or go out on the high seas.

If you don't know which waters you sail, remember:

If the waters start and end inside the State's boundaries, the waters are navigable waters of your State.

If the waters start or end outside the State, touch another State or another Country, empty into the ocean, or join waters that run into another State, another Country, or the ocean, the waters are navigable waters of the United States.

If the waters are open waters of the Atlantic or Pacific Oceans, or the Gulf of Mexico, the waters are high seas.

This breakdown of the waters is the basis for the boating traffic laws. If you remember it, it will help you avoid untold difficulties.

Each type of water has its own traffic laws. These laws often require different lights, different daymarks, different whistle-horn-and bell signals, and even different passing maneuvers. You've probably heard them casually referred to as "Pilot Rules."

You can tell what the proper boating traffic laws are for the navigable waters of your State by checking the State law. If you sail the navigable waters of the United States, or the high seas, you can tell what the proper boating traffic laws are by referring to one of three pamphlets issued cost-free by the Coast Guard. The exact pamphlet will depend on the exact location of your boat.

The navigable waters of the United States and the high seas are divided into four distinct geographical areas. Two of these areas cover the interior of the United States; the other two, the Atlantic, Pacific, and Gulf Coasts and the open waters of the Atlantic and Pacific Oceans and the Gulf of Mexico.

GREAT LAKES

One of the interior areas is limited to United States controlled segments of the Great Lakes and their connecting and tributary waters. It is known as the Great Lakes. In this area, the boating traffic laws, which may be found in pamphlet CG-172, consist of:

(1) The Great Lakes Rules, a set of statutory rules passed by Congress.

(2) The Motorboat Act, an Act by Congress, which amends a very small part of the Great Lakes Rules.

(3) The Pilot Rules for the Great Lakes, a set of regulations passed by the Coast Guard to supplement the Great Lakes Rules.

(4) The General Regulations, a set of regulations passed by the Corps of Engineers, Department of the Army, to supplement the Great Lakes Rules and the Pilot Rules for the Great Lakes.

(5) The Anchorage and Navigation Requirements, St. Marys River, a set of special regulations passed by the Coast Guard to control traffic on the St. Marys River between Point Iroquois on Lake Superior to Point Detour on Lake Huron.

Other rules of the same general content apply to Canadian controlled segments of the Great Lakes and their connecting and tributary waters. Those who enter such waters might add to the foregoing:

(6) Canadian Rules, equivalent to all the foregoing rules and regulations.

WESTERN RIVERS

The other interior area takes in the Mississippi River from the Huey P. Long Bridge in New Orleans to its source; all the waters flowing into the Mississippi or its tributaries; the Red River of the North below the Canadian border; that part of the Atchafalaya River which is above its junction with the Plaquemine-Morgan City alternate waterway; and all of the Illinois River below Lockport, Ill. This network is called the Western Rivers. In this area, the boating traffic laws, which may be found in pamphlet CG-184, consist of:

(1) The Western Rivers Rules, a set of statutory rules passed by Congress.

(2) The Motorboat Act, an Act by Congress which amends a very small part of the Western Rivers Rules.

(3) The Pilot Rules for the Western Rivers, a set of regulations passed by the Coast Guard to supplement the Great Lakes Rules.

(4) The General Regulations, a set of regulations passed by the Corps of Engineers, Department of the Army, to supplement the Western Rivers Rules and the Pilot Rules for the Western Rivers.

INLAND WATERS

The third pamphlet, CG-160, contains the proper boating traffic laws for the two remaining areas—not because they are the same—on the contrary, to enable those who sail both areas to have an easier time in tracing differences.

The first of the remaining areas includes all the navigable waters of the United States flowing into the Atlantic or Pacific Oceans, or the Gulf of Mexico, which are not part of the Western Rivers, and certain fringes of the Atlantic and Pacific Oceans

and the Gulf of Mexico. It is known as Inland Waters.

The exact outer limits at major ports are spelled out in detail in pamphlet CG-169; so are the outer limits along New England, Key West, and the western part of the Gulf of Mexico. Where no specific outer limits have been established, the outer boundaries are determined in this manner:

(1) At buoyed entrances, a line approximately parallel with the general trend of the shore, drawn through the outermost buoy or other aid to navigation.

(2) At all other times, the shore line.

In this area, the boating traffic laws consist of:

(1) The Inland Rules, a set of statutory rules passed by Congress.

(2) The Motorboat Act, an Act by Congress which amends a very small part of the Inland Rules.

(3) The Pilot Rules for Inland Waters, a three part set of regulations passed by the Coast Guard to supplement the Inland Rules, which is divided as follows:

(a) General applicability.
(b) Special towing regulations for the Hudson River, Lake Champlain, and adjacent waters.

(c) Special towing regulations for the Gulf Intracoastal Waterway, its connecting waters, and other waters flowing into the Gulf of Mexico.

(4) The Boundary Lines of Inland Waters, a set of descriptive regulations passed by the Coast Guard to define specific outer limits of the area.

It is extremely important that you know what the outer boundary lines of Inland Waters are—whether specifically established, or determined by yourself in the manner described in preceding paragraphs. These boundary lines not only tell you the outer limits of Inland Waters, they also tell you the inner boundaries of the last of the four areas—known as the high seas. It is an area where many ships that share the waters are unfamiliar with the Inland Rules. Here, the boating traffic laws consist of:

(1) International Rules, a concise set of rules passed by Congress which are a duplicate of the rules followed the world over.

No matter which pamphlet you refer to—CG-169, CG-172, or CG-184—you will find that the various boating traffic laws—called the Rules of the Nautical Road—tell you three things. First, they tell you what lights, daymarks, whistles, horns, and bells to carry on your boat in each area. Next, they tell you how to

(Continued on page 27)

HISTORY OF THE COAST GUARD AUXILIARY (1939-55)

By 14 U. S. C. 822 the United States Congress created the Coast Guard Auxiliary—

"To promote safety and effect rescues on and over the high seas and on navigable waters;

"To promote efficiency in the operation of motorboats and yachts;

"To foster a wider knowledge of, and better compliance with, the laws, rules, and regulations governing the operation of motorboats and yachts; and

"To facilitate other operations of the Coast Guard."

With more and more people turning to water sports for recreation in the late '30's, the Coast Guard, as the Government agency charged with the enforcement of the navigation laws and the assistance of mariners in distress, found itself increasingly concerned with this growing field of small boat operations. For example, in 1938 the Coast Guard handled more than 14,000 cases of assistance primarily incident to the operation of motorboats. A great percentage of motorboat troubles was found by actual survey to be due to lack of seamanship of the operators, failure to use proper equipment, or ignorance of and noncompliance with the law.

It was readily apparent that increased fines and penalties and increased rescue facilities were not the answer. A better solution would have to be found. Since 1935 many letters had been written to the Coast

Guard urging the establishment of an organization by which owners of motorboats and yachts could voluntarily affiliate with the Coast Guard in the promotion of safety at sea. Admiral R. R. Waesche, then Coast Guard Commandant, saw the value of these suggestions as a voluntary measure to prevent motorboat accidents and to encourage compliance with the laws without recourse to punitive measures. And so on June 23, 1939, a civilian organization called the Coast Guard Reserve was authorized by Congress, its purpose to be the promotion of safety in the small boat field.

BOAT OWNERS ENROLLED

Motorboat owners (in full or in part) were enrolled after being examined in maritime knowledge and their boats passed for seaworthiness and compliance with applicable regu-

lations as prescribed by the Coast Guard. Uniforms and insignia were authorized for members, and a distinctive flag was provided for them to fly from their boats. A member's vessel flying the flag served notice to other boatmen that the vessel was seaworthy and properly equipped in compliance with the law and that the owner was a competent boatman. Yachtsmen all over the country enjoyed the association with the Coast Guard and the privilege of flying this flag, as well as the fellowship of like minded boatmen.

Another advantage that this group offered to the yachting scene was a broader coverage of regattas and marine parades with patrols by members' boats, as requests for the Coast Guard patrols of these water events greatly taxed the existing facilities of the Service. Under the provisions of the founding act, members volunteered their vessels for such patrols with no compensation for personal services, and cooperated wholeheartedly with the Coast Guard in serving the public. By July 1, 1940, members operating 2370 boats totaled 2654 and were formed into 129 flotillas.

WORLD WAR EFFECT

This new and enthusiastic group was still in its formative stages when World War II broke out in Europe. The Coast Guard found itself called upon to perform more and more military defense duties such as Neutrality Patrol and security of harbors and anchorages. There was an urgent need for a military reserve patterned after the Naval Reserve to augment regular Coast Guard personnel in carrying out potential wartime duties. Accordingly, on February 19, 1941, by a revision of the original Act, Congress formed a new Coast Guard Reserve, fully military in character, and renamed the original Reserve the Coast Guard Auxiliary. The Coast Guard Auxiliary retained all its original civilian voluntary characteristics and continued to assist the parent service in its civil functions pertaining to safety in boating.

On December 7, 1941, the United States became totally engaged in World War II and the all out wartime effort was begun. The civil functions of the Coast Guard were greatly overwhelmed by its military duties, and civilian boating came to a standstill



Figure 1.



Figure 2.

because of security regulations and gasoline shortages. For all practical purposes the Auxiliary suspended its normal activities during the war years. Many former Auxiliarists served in the Coast Guard and other military services in all the war zones of the world, and of those ineligible or unable to participate in frontline duty, many became Temporary Members of the Reserve on a voluntary, part-time basis and helped on the home front. Ownership of a boat as a requirement for membership in the Auxiliary was waived during this period as membership in the Auxiliary was a stepping stone to Temporary Reserve enrollment. In 1944 membership in the Auxiliary was extended to owners of radio stations and aircraft.

At war's end millions of servicemen gradually returned to their homes and settled down to peacetime occupations and pursuits. As civilian boating came back the Coast Guard again turned to the Auxiliary for assistance in its peacetime campaign against motorboat casualties and ignorance of the motorboat regulations. In 1946 Auxiliary faced up to its original tasks.

ORGANIZATION

The Auxiliary is a civilian, non-military, voluntary organization of owners of boats, airplanes, and radio stations administered by the U. S. Coast Guard. Every organization has a mission or a purpose, and the Auxiliary's mission is a most important one—SAFETY IN THE SMALL BOAT FIELD. Membership in the

Auxiliary is open to any male or female citizen of the United States, over 17 years old and having either a 25 percent interest in a boat, plane or radio station or special nautical training or experience. A boat upon which membership is based must be either a motorboat, pleasure or commercial, of Class 1, 2 or 3; a sailboat over 16 feet in length; or a vessel used exclusively for pleasure over 65 feet in length propelled by machinery other than steam. A radio station upon which membership is based must be a fixed amateur radio station licensed by the Federal Communications Commission, and the owner must be a regularly licensed amateur operator (any class). A member basing

membership upon ownership of an airplane must hold a current private pilot's certificate or aircraft and engine license issued by the Civil Aeronautics Administration and his plane must have a current CAA Airworthiness Certificate.

The basic unit of Auxiliary organization is the Flotilla, consisting of ten or more boats, planes or radio stations. Five or more Flotillas are grouped into a Division. These Divisions are organized geographically into Districts, the boundaries of which coincide with the boundaries of Coast Guard Districts.

The Coast Guard exercises the management control of the Auxiliary and its programs in the various districts in accordance with the policies set forth by the Commandant, U. S. Coast Guard. A Coast Guard Officer, designated as Chief Director, Auxiliary, at U. S. Coast Guard Headquarters, Washington, D. C., assists the Commandant in the development and administration of the Auxiliary on a national level. Auxiliary affairs in a District are supervised by a Coast Guard Officer designated as District Director of Auxiliary, who represents the Coast Guard District Commander in all matters pertaining to the Auxiliary.

The Auxiliary organization itself is administered under guidance of the District Director by Auxiliary Officers elected by the membership for one-year terms. A Commodore, a Vice-Commodore, and a Rear-Commodore are elected for district office. Divisions elect a Division Captain, a Vice-Captain and a Training Officer, and Flotillas are guided by a Flotilla Commander, a Vice-Commander, and a Training Officer. In addition to these elected officers, other members particularly qualified in some special

(Continued on page 27)

SCOPE OF AUXILIARY PARTICIPATION IN COAST GUARD ACTIVITIES

PERIOD FROM JANUARY 1, 1954 TO DECEMBER 31, 1954

Coast Guard district	Auxiliary boats inspected	Non-member courtesy examination decals issued	Boats rejected on courtesy examination	Operational assistance rendered	Lives saved	Regattas patrolled	Number enrollees in public instruction course	Basic seaman'ship certificates issued
1.....	173	1,673	100	85	8	27	463	143
2.....	736	771	0	91	4	7	493	296
3 (NA).....	907	4,333	672	204	10	21	931	503
3 (SA).....	281	807	239	57	4	1	1,325	575
5.....	250	538	34	110	1	10	99	85
7.....	587	1,407	378	395	30	48	532	367
8.....	291	535	55	225	8	33	198	65
9.....	656	4,638	291	809	40	91	1,000	761
11.....	495	817	320	198	1	30	591	536
12.....	568	344	96	160	0	0	75	37
13.....	488	1,606	73	77	10	17	942	186
14.....	75	8	3	31	0	3	0	0
Total.....	5,507	17,477	2,261	2,535	116	297	6,949	3,564

Figure 3.

AMERICAN BOAT AND YACHT COUNCIL

April 30, 1955, marks the first anniversary of one of the more important developments in motorboating safety in several decades—the formation of the American Boat and Yacht Council.

Prior to the formation of this Council, the Motorboat Act of April 25, 1940, was the last legislative step taken in respect to motorboating safety. This Act, however, fell far short of accomplishing its purpose, which was to provide the legal basis for a comprehensive set of safety regulations for the motorboating public. Unfortunately, this Act provides the Coast Guard with the statutory authority only to promulgate regulations governing fire extinguishers, lifesaving appliances, flame arresters, etc., and makes no provision concerning the construction or seaworthiness of hulls.

In the years following the enactment of the 1940 Motorboat Act, the ever-expanding motorboat field took to the water with relatively few legal requirements for safety. The fire, explosion and accident rate during these years demonstrated an urgent need for the setting up of voluntary standards which would be more rigorous than the minimum standards required by law. It became apparent to all interested parties, both within the industry and the Coast Guard, that unless such voluntary standards were forthcoming sooner or later legislative authorities, both Federal and State, would enact some form of statutory requirements. This latter development was not desirable since the resulting legal requirements might differ as to Federal and State and would prove cumbersome to the motorboating public. In addition, such legislation would cause an increased

expenditure for enforcement apparatus.

MERCHANT MARINE COUNCIL

During World War II, the Coast Guard created a Merchant Marine Council to make recommendations to the Commandant on matters pertaining to Safety at Sea. Among others, a panel of civilian consultants was formed, called the Motorboat and Yacht Advisory Panel, to advise on matters pertaining to small boats. The members are men primarily interested in small boats and safety. In 1950, this panel recommended the creation of a national safety organization for small craft which would be analogous in some ways to the American Bureau of Shipping. The purpose would be to establish minimum safety standards in all phases of construction of small craft and to place the organization's seal on the manufactured products to indicate compliance with the approved standards.

This recommendation was not acted upon at that time but did serve as a basis for discussion within the industry at various conferences, including the safety conferences annually sponsored by the National Association of Engine and Boat Manufacturers, and joint meetings of committees of this organization with representative yacht underwriters.

The remaining consideration was how best to undertake this task. That consideration was resolved at an open meeting held in New York on October 14, 1953, and attended by the representatives of the boating industry. It was decided that a "Council" would be formed, consisting of individuals without regard to their commercial affiliation, and within which matters related to trade or politics would not be considered, but whose objective would be as follows:

"To make the knowledge, experience and skills of small craft technicians effectively useful to the industry, the Government, educational institutions, boating organizations and the general public. To accomplish this objective, the Council shall develop recommended practices and engineering standards for improving and promoting the design, construction, equipage, and maintenance of small craft with reference to their safety."

In pursuing its objective the Council will be receptive to suggestions and recommendations from any concerned element of the industry.

This organization, which was formally named the American Boat and Yacht Council, was officially

launched on April 30, 1954. On that date, its certificate of incorporation as a non-profit, public service organization under the Membership Corporation Law of the State of New York was presented and accepted, and a constitution and by-laws adopted. At the meeting held on that date the following officers were elected: Mr. Phelps Ingersoll, President of Wilcox-Crittenden and Company, was elected President; Mr. Irving Jakobson, President of Jakobson Shipyard, Inc., was elected Senior Vice President; Mr. Wm. Edgar John, President of Wm. Edgar John and Associates, was elected Technical Vice President; Captain C. L. Clark, Marine Surveyor with Chubb and Son, was elected Treasurer; and Mr. E. S. Terwilliger, Manager of the Yacht Safety Bureau, was appointed Secretary.

TECHNICAL SOCIETY

As organized the Council is basically a technical society devoted exclusively to the many problems of small vessel design, construction, and outfitting as they may relate to boat safety. The prime functions of the Council are the support and direction of its technical committees, plus making the findings of those committees available to all interested in the form of a code of recommended practices or engineering standards.

The technical committees are appointed and guided by a technical board. The committees are manned by the best scientific and practical minds available and specialize in the following fields: hull, materials, machinery, equipment, electrical, and operations. Each committee deals with its specialty. Combined, it is expected that every phase of boat building will be covered.

The benefits to be derived from the Council's efforts are indeed limitless. The builder will have a guiding means to measure all safety aspects of his product. Service organizations, underwriters, equipment producers, Government agencies, and the boating public will all have the same guidance available to them.

While it is as yet too early to enumerate improvements and recommendations attributable to this Council, the ground work has been laid and the near future will probably see the overall safety aspect of the boating field improved manifold by the efforts of this Council.

On the eve of the first anniversary, the U. S. Coast Guard wishes the American Boat and Yacht Council "Smooth Sailing!"



Courtesy Maritime Reporter

REGATTAS OR MARINE PARADES

From time to time complaints are received to the effect that various regattas and marine parades are interfered with by vessels not participating in the event. It is contended such vessels cross the course laid out for a boat race; anchor in the course of a regatta or marine parade; or pass this area at excessive speeds which jeopardize the safety of the participating vessels, and those on board.

Unfortunately, it is often true that complaints such as these are the first notice that the Coast Guard has that such a regatta or marine parade was held. This, of course, is in conflict with statutory regulations inasmuch as 33 CFR Part 100 clearly sets forth the procedure to be followed in seeking permission from the District Commander, U. S. Coast Guard, before a regatta or marine parade may be held.

Such regulations are not something new. They trace their origin back to statutes enacted at the turn of the century. Moreover, their prime purpose, to promote the safety of life on navigable waters during regattas or marine parades, has not changed.

Therefore, organizations planning to hold marine parades or regattas, which, by their nature, circumstance, or location will introduce extra or unusual hazards to the safety of life on navigable waters, must submit detailed plans of such marine regattas or marine parades to the Commander of the Coast Guard district in which it is planned to hold them. Any organized water event of limited duration which is conducted according to a prearranged schedule, and in which general public interest is manifested, is considered a "marine parade" or "marine regatta."

NOTICE REQUIRED

Since many factors must be considered in arranging for the proper supervision and notice to the public of a contemplated regatta or marine parade, requests for permission to hold such affairs are required to be filed well in advance of the date of the event. If the planned regatta or marine parade is to be of such a nature as to involve limitations on the use of a portion of the navigable waters by other interested parties, detailed plans must be submitted at least 60 days prior to the event. In all other cases, not less than 15 days' notice is required.

In order that the District Commander may properly evaluate the request, certain detailed information must be furnished with the applica-

tion to hold a marine parade or regatta. First, the name and address of the organization sponsoring the event, as well as the purpose for the affair, must be given. In this connection, the amount of general public interest in the event must be included, along with an estimate of the number and types of participating and spectator watercraft likely to be in the area at the time. A time schedule and description of the events to be held should also be included in the plans, along with a section of a chart or scale drawing showing the boundaries of the event and the various water courses or areas to be utilized by participants, officials, and spectator craft.

It may be wondered why so much advance notice and detail are required in these matters.

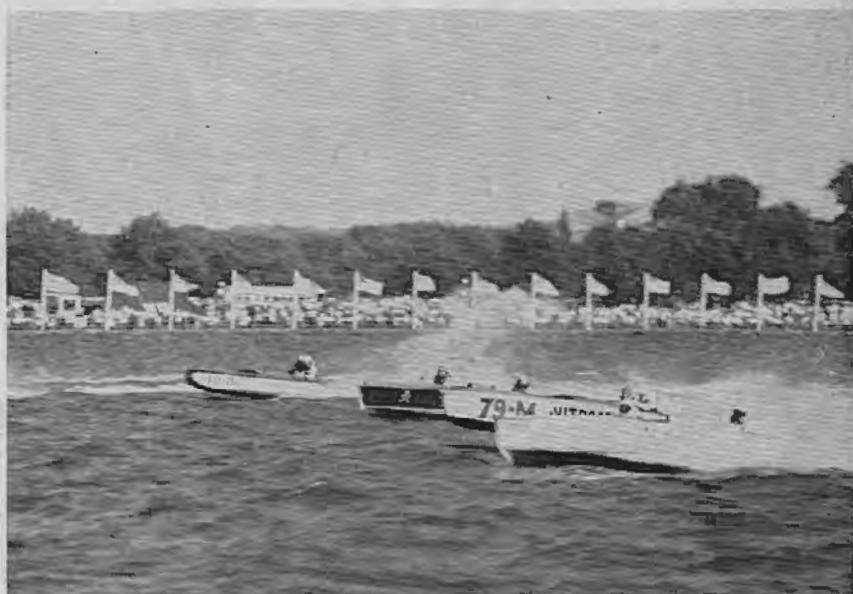
When there is a possibility that the movement of traffic over a certain portion of a navigable body of water may be suspended or restricted for a period of time, it is essential that serious and thorough consideration be given to such matters. The plans must also be studied to ascertain whether the proposed marine regatta or marine parade may be held in the designated navigable waters with safety to life. At times it is necessary to hold a public hearing on the matter to determine the views of all persons interested in, or who will be affected by, the proposed marine regatta or marine parade before a decision is given. Therefore, sufficient time must be allowed to consider all these points.

LOCAL REGULATIONS

After carefully studying all factors involved in the submitted plans, the District Commander will either approve, disapprove, or suggest a certain change or changes in the interest of safety on the navigable waters before they are approved. If the plans are approved, special local regulations will probably accompany the approved plans. For example, if the plans concerned a series of races, the special regulations would prohibit movement of vessels, except participants, patrol craft, committee boats, etc., on race courses and adjacent waters for a specific period prior to, during, and after the races. Anchorage would be prohibited on the race courses, and where anchorage areas were established, anchors would be required to be placed well within the area so that no portion of the hull or rigging would extend outside the boundaries of the anchorage area. These are some regulations which may be applicable to most marine parades or regattas. They are by no means all-inclusive since conditions peculiar to each event must be considered when special regulations are formulated. However, every effort is made to make such regulations as specific as possible and at the same time to draw them up so as to cover every foreseeable situation.

When for various reasons it is necessary to deny approval of plans for a marine parade or regatta these

(Continued on page 28)



COAST GUARD PUBLICATIONS AVAILABLE TO THE PUBLIC

**"Methods of Artificial Respiration" (CG-139),
Dated July 1952**

This publication describes in detail the latest and most effective methods of administering artificial respiration to persons whose breathing has stopped. It is concisely written and easily understood, with illustrations outlining the more important phases. These methods are now used by the Armed Forces, the Public Health Service, the Red Cross, and other National organizations. This booklet is a must for those whose hobby or business is the water and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the price of 10 cents.

**"Rules to Prevent Collisions of Vessels and
Pilot Rules for Certain Inland Waters of
the Atlantic and Pacific Coasts and of
the Coast of the Gulf of Mexico"
(CG-169), Dated March 1, 1955**

This publication contains the Inland Rules and the International Rules, as well as the Pilot Rules published pursuant to the Inland Rules. For ready reference the International and Inland Rules have been arranged in comparative form. Thus vessels operating between the high seas and inland waters may easily determine the difference in requirements between the two sets of rules. Important excerpts from the Motorboat Act of 1940, together with an explanation of Hurricane, Storm and Small-Craft Warning Signals are also contained in this pamphlet. It may be obtained at no cost, either from the Coast Guard Marine Inspection Offices in the major ports or the Commandant (CHS), United States Coast Guard, Washington, D. C.



**"Pilot Rules for the Great Lakes and Their
Connecting and Tributary Waters and
the St. Marys River" (CG-172), Dated
January 3, 1955**

The statutory and regulatory rules to prevent collisions on the Great Lakes and their connecting and tributary waters and the St. Marys River are contained in this pamphlet. These rules must be complied with by all persons navigating or piloting public or private vessels in these waters, and may be obtained upon request to Coast Guard Marine Inspection Offices or the Commandant (CHS), United States Coast Guard, Washington, D. C.

**"Pilot Rules for the Western Rivers and the
Red River of the North" (CG-184),
Dated January 3, 1955**

This publication is similar to CG-169 and CG-172 in that it contains the rules to prevent collisions for vessels navigating the "Western Rivers." This latter term is given to the waters of the Mississippi River between its source and the Huey P. Long Bridge and all of its tributaries and their tributaries; that part of the Atchafalaya River above its junction with the Plaquemine-Morgan City alternate waterway, and the Red River of the North. Operators of vessels in these rivers must comply with these rules and should be thoroughly familiar with them. They may be obtained free of charge from Coast Guard Marine Inspection Offices or from the Commandant (CHS), United States Coast Guard, Washington, D. C.

**"Aids to Marine Navigation of the United
States" (CG-193), Dated June 1949**

Along the coasts and navigable waters of the United States and its possessions, there are thousands of devices to give a mariner his exact position at all times, in any weather, in relation to the land and hidden dangers. These devices range from steel and concrete structures, such as buoys and lighthouses, to invisible beacons of an electronic nature, such as radiobeacons and loran. All aids to navigation (except private aids) in United States waters are designed, built, and maintained by the United States Coast Guard. This publication is designed to acquaint interested persons with the basic principles underlying the marking of coasts and waterways of the United States and its possessions with lighthouses, lightships, fog signals, radiobeacons, loran, and buoys. It explains briefly the

significance of the various colors of lighthouses and buoys, of the wide variety of light and fog signal characteristics, and of the system of electronic aids to navigation. It states in simple terms the manner in which the information provided by these aids is applied in actual navigation.

This pamphlet is concerned primarily with the manner in which the physical characteristics of the various aids to navigation serve the mariner and is not intended to replace the Light Lists, Coast Pilots, and other Government publications which should be at hand during actual navigation. However, it is an excellent, concise explanation of the general features of the systems used to guide vessels safely along our coasts and waterways. It may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 25 cents a copy.

"Rules and Regulations for Uninspected Vessels" (CG-258), Dated April 1, 1954

Yachtsmen and owners and operators of commercial motorboats not subject to an inspection by the Coast Guard should become thoroughly acquainted with the requirements contained in this publication. What each uninspected motorboat needs in the line of lifesaving devices, whistles, fire extinguishers, bells, and other equipment prescribed by law, together with other requirements of the law in the operation of motorboats is discussed in detail.

CG-258 replaces the requirements affecting uninspected vessels previously published in the pamphlet entitled "Motorboat Regulations." The rules and regulations governing passenger vessels are contained in a separate publication entitled "Rules and Regulations for Passenger Vessels." There are separate publications also for cargo and miscellaneous vessels, for tank vessels, and for tank barges. This pamphlet may be obtained free of charge from any District Coast Guard Office, District Directors of the Coast Guard Auxiliary, or from the Commandant (CHS), United States Coast Guard, Washington, D. C.

**"Rules and Regulations for Numbering Un-
documented Vessels" (CG-267), Dated
January 15, 1953**

The greatest majority of vessels operating in this country are so-called "Numbered" boats. These vessels are in possession of a "Certificate of Award of Number" issued by the Coast Guard. "Documented" vessels have

a document issued by the Bureau of Customs. A vessel five (5) net tons or over engaged in commercial activities such as cod or mackerel fishing or carrying passengers or cargo is subject to documentation. All undocumented vessels with permanently installed motors and all such vessels over 16 feet in length equipped with detachable motors must be numbered. Most pleasure boats are in this latter class, and their owners can get information on the procedure for numbering their boats and the manner in which the numbering requirements are administered from CG-267. This publication is obtained at no cost upon request to the District Coast Guard Office, District Directors of the Coast Guard Auxiliary, or to the Commandant (CHS), United States Coast Guard, Washington, D. C.

Notices to Mariners

The Notice to Mariners is a form of public announcement of importance to the safety of marine navigation which concerns aids to navigation, channel conditions, menaces to navigation and other items of a similar nature. There are three methods by which this information is disseminated: Broadcast Notices; Local Notices; and Weekly Notices. When it is urgent that shipping interests should receive notice without delay of changes or deficiencies in aids to navigation, the information is issued by means of radiotelegram or radio-telephone broadcasts. Local Notices to Mariners are issued by the Commanders of the various Coast Guard Districts whenever there is a change in the aids to navigation within the limits of that particular District which might affect the safety of navigation. Weekly Notices to Mariners, published jointly by the Coast Guard and the Navy Hydrographic Office, contain information on aids to navigation over much wider areas than the Local Notices and are used principally to correct charts and other nautical publications. Local Notices are of great value to the boat operator as an aid to safe navigation in his own local waters and may be obtained free of charge by application to the Commander of the Coast Guard District in which the boat is to operate. Weekly Notices are intended for seagoing vessels and others requiring information over a wider area than Local Notices. They may be obtained free of charge upon application to the Commandant (OAN), United States Coast Guard, Washington, D. C.

Light Lists

Light lists are published by the Coast Guard to provide more detailed information about aids to navigation

than can be conveniently shown on the nautical charts. These aids consist of lights on fixed structures and lightships, fog signals, radiobeacons, lighted and unlighted buoys and day-bacons. The lists include the name, characteristic, color and location of all aids to navigation of the United States, its territories, possessions, The Trust Territory of the Pacific Islands, and at overseas military bases. In addition, the introductory pages of each list contain information as to the significance of the various types of aids.

The following light lists are published annually and may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. The price usually ranges from \$0.75 for a local list to about \$4.25 for a complete list.

List of Lights and Other Marine Aids, Atlantic Coast

- Volume I, 1st Coast Guard District, from St. Croix River, Maine, to Watch Hill, Rhode Island.
- Volume II, 3d Coast Guard District, from Watch Hill, Rhode Island, to Fenwick Island, Delaware.
- Volume III, 5th Coast Guard District, from Fenwick Island, Delaware, to Little River Inlet, South Carolina.
- Volume IV, 7th Coast Guard District, from Little River Inlet, South Carolina, to Apalachicola River, Florida.
- Volume V, 8th Coast Guard District, from Apalachicola River, Florida, to Rio Grande.
- Volume VI, 7th Coast Guard District (Greater Antilles Section), covering the United States West Indies.
- Volume I-VI (Combined) Complete List of Lights and Other Marine Aids, Atlantic Coast. This volume is a composite list of Volumes I to VI, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard district.

List of Lights and Other Marine Aids, Pacific Coast

- Volume I, 11th Coast Guard District, from Mexican border to Point Arguello, Calif.
- Volume II, 12th Coast Guard District, from Point Arguello, Calif., to St. George Reef, Calif.
- Volume III, 13th Coast Guard District, from St. George Reef, Calif., to Alaska.
- Volume IV, 17th Coast Guard District, Alaska.
- Volume V, 14th Coast Guard District, Hawaiian and Pacific Islands.

Volume I-V (Combined), List of Lights and Other Marine Aids, covering the Pacific Coast and Islands. This volume is a composite list of Volumes I to V, inclusive, with suitable cross-references to facilitate its use by navigators operating in more than one Coast Guard District.

Great Lakes

Light List, Great Lakes, United States and Canada.

Mississippi River System

Light List, Mississippi and Ohio Rivers and their tributaries.

OPERATION OF MOTORBOATS AT SUMMER CAMPS

Motorboats or other vessels propelled by internal combustion engines and operated on the navigable waters of the United States in connection with summer camps conducted and maintained at private expense, which defray the expense of the operation of such vessels by charges, assessments or tuitions, are construed as carrying passengers for hire. Accordingly, the operators of such vessels must be licensed by the Coast Guard, the vessels must carry approved life preservers for every person on board, sufficient approved fire extinguishers, and must otherwise comply with the applicable requirements of the Motorboat Act of April 25, 1940.

Any such motor-propelled vessel which is above 15 gross tons is also subject to inspection by the Coast Guard and may not be operated in such service unless a certificate of inspection has been issued.

The operation of a motorboat or motor vessel in violation of the statute and regulations makes the owner and/or operator liable to severe penalties. The vessels are subject to seizure for the enforcement of the penalties assessed.



ARTIFICIAL RESPIRATION

ASPHYXIA

When breathing stops for any reason a condition results which is known as asphyxia.

The physiological causes of asphyxia may include lack of stimulation of the respiratory center in the brain, paralysis of the respiratory center, and inability of the blood to absorb oxygen from the lungs or to effect the normal exchange of gases in the body tissues.

When it is due to physical causes, it may be spoken of as suffocation. In asphyxia resulting from physical causes, the lungs are deprived of air because of stoppage of the air passages mechanically. Such causes may include water in the air passages, as in drowning; foreign body in the air passages; tumor in the air passages; swelling of the mucous membrane in the nose and throat, following inhalation of live steam or an irritating gas; constriction around the neck, compressing the windpipe; and the lack of oxygen from any cause. The most frequent causes of stopping of breathing are drowning, electrical shock, and gas poisoning. Asphyxia may be present also in victims of shock or collapse, of extreme exposure to heat or cold, and chemical poisoning. Whatever the cause of asphyxia,



Figure 1.

death will result unless breathing is started quickly. A few seconds' delay in starting artificial respiration may lead to fatal result.

SYMPTOMS OF ASPHYXIA

The symptoms by which the necessity for artificial respiration may be recognized are: Cyanosis (blueness of the skin and membrane), suspension of breathing, or shallow breathing in some cases of poisoning.

TREATMENT OF ASPHYXIA

The first thing to do in treatment is to remove the cause of the asphyxia or to remove the patient from the cause. Then administer artificial respiration. Later treat as for shock. In some cases artificial respiration can be administered while the patient is being removed from the cause to more suitable surroundings. The treatment for shock can often be started while artificial respiration is being administered.

The patient's mouth should be cleared of any obstruction, such as chewing gum, tobacco, false teeth, or mucous, so that there is no interference with the entrance into and escape of air from the lungs.

Artificial respiration should be started immediately. Every moment of delay is serious. It should be continued at least 4 hours without interruption, until normal breathing is established or until the patient is pronounced dead by a medical officer.

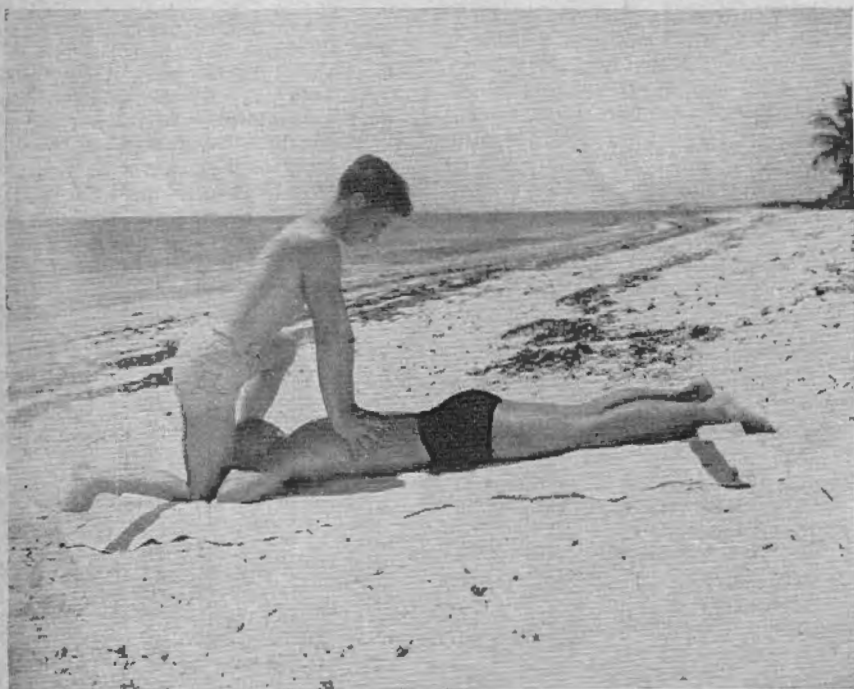


Figure 2.

As soon as the victim is breathing by himself, or when additional help is available, see that the clothing is loosened (or removed, if wet) and that the patient is kept warm, but do not interrupt the rhythmic artificial respiration to accomplish these measures. Adjust your timing to assist him. Do not fight his attempts to breathe. Synchronize your efforts with his.

Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched and if natural breathing stops, artificial respiration should be resumed at once. Perform artificial respiration gently and at the proper rate. Roughness may injure the patient.

Every precaution must be taken to prevent further injury to the patient. In the application of pressure, injury to the skin, ribs, and internal organs must be avoided.

BACK-PRESSURE, ARM-LIFT METHOD

This series of photographs illustrates the two manual methods of artificial respiration approved for U. S. Coast Guard use:

(1) Holger Nielsen, or Back-Pressure, Arm-Lift method (preferred), figures 1-4,

(2) Emerson, or Back-Pressure, Hip-Lift method (alternate), figures 5-8.

These improved methods have been adopted by the Department of Defense, U. S. Public Health Service, American Red Cross, and other na-

tional organizations on recommendation of the National Research Council.

To further acquaint the public with these two approved methods of artificial respiration, the Coast Guard has had prepared a 16-mm. motion picture film. This film runs for 10 minutes duration and is titled "Artificial Respiration." It can be obtained on a loan basis, at no charge, by any public group. A request for the use of this film should be addressed to the Commander of the nearest Coast Guard District or the Commandant (CPI), U. S. Coast Guard, Washington 25, D. C.*

Figure 1: Time is of prime importance, begin at once: Getting air into the victim's lungs is the immediate necessity.

Place the victim in the face-down position. Bend both his elbows and place one of his hands on the other. Turn his face to one side and place it on his hands. Quickly clear the victim's mouth of any obstruction, and bring his tongue forward.

Kneel at his head, on either knee, facing him. Place the knee close to his head. Place your other foot near his elbow. If it is more comfortable, kneel on both knees, one on either side of the victim's head. Place your hands on his midback, just below the shoulder blades. Fingers should be spread downward and outward, with thumb-tips about touching.

*See Editor's note on p. 11.

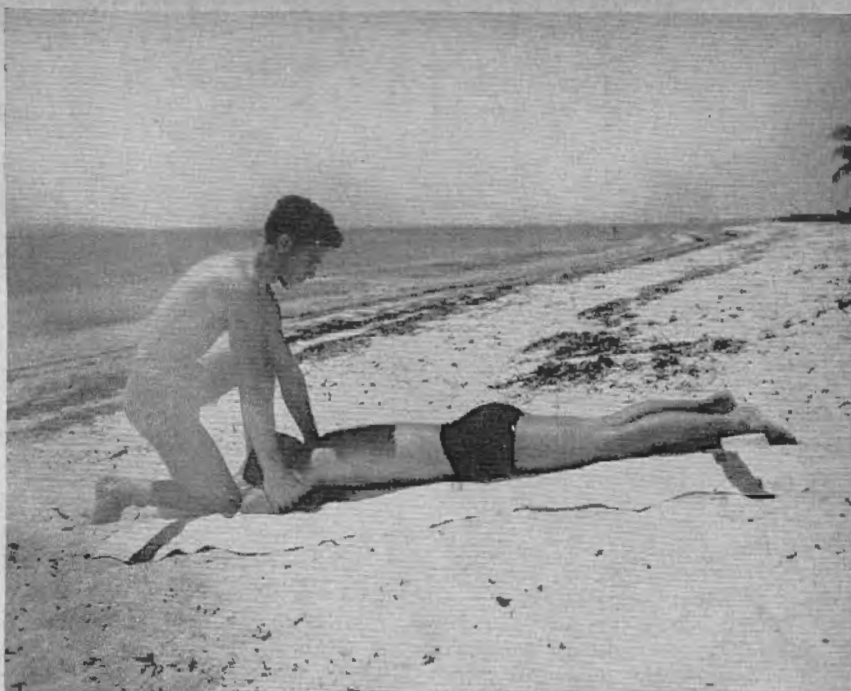


Figure 3.

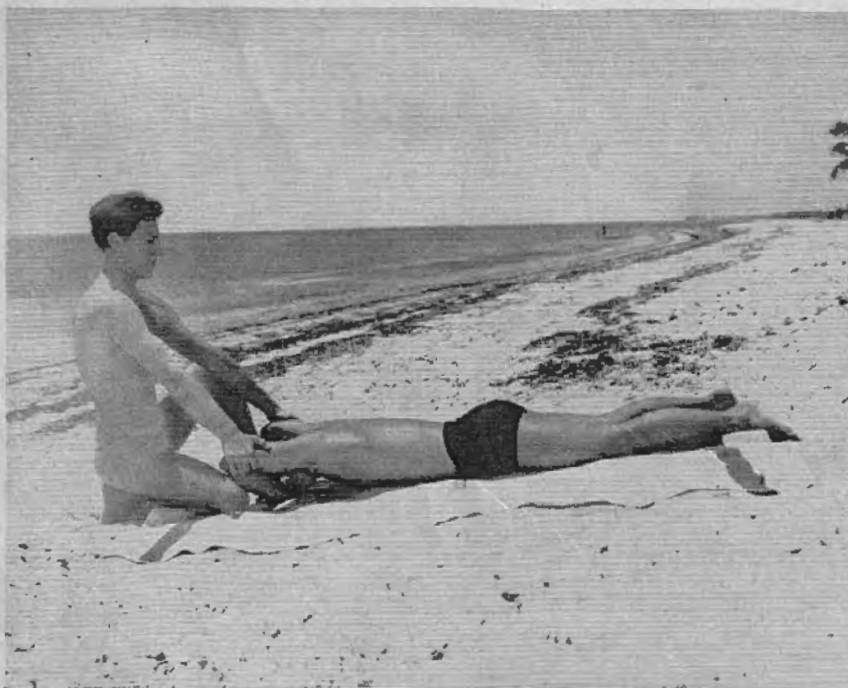


Figure 4.

Figure 2: Rock forward until your arms are about vertical and allow the weight of the upper part of your body to exert slow, steady, even pressure on your hands until firm resistance is met. This compresses the chest, forces air out of the lungs. Your elbows should be kept straight and the pressure exerted almost directly downward. Do not exert sudden or excess pressure, or place your hands high on the back or on the shoulder blades.

Figure 3: Release the pressure quickly. This is done by "peeling" your hands from the back without giving any extra push with the release.

Now rock backward and allow your hands to come to rest on the victim's arms and just above his elbows. Although he may be grasped anywhere along the arms, the position just above the elbows is generally best.

Figure 4: Continue rocking backward, drawing the victim's arms upward and toward you. When doing this, do not bend your elbows; keep your arms straight and as you rock backward, the arms will be drawn upward and toward you. Put enough lift on the arms to feel resistance and tension at the shoulders. The arm-lift pulls on the chest muscles, arches the back and relieves the weight on the chest; air is thus sucked into the lungs.

Lower the victim's arms. You have now finished one full cycle.

Repeat this cycle approximately 12



Figure 5.

times per minute, to the rhythm of: (1) rock forward, (2) press, (3) rock backward, (4) stretch.

Maintain a slow, easy rhythm, rocking forward on the back-pressure phase, backward on the arm-lift phase. Continue without interruption until spontaneous breathing

starts or the victim is pronounced dead by a medical officer. If the victim begins to breathe, adjust your timing to assist him.

BACK-PRESSURE, HIP-LIFT METHOD

Figure 5: Place the victim in the face-down position with his elbows bent. Turn his face to one side and rest it on the back of one hand. Allow his other arm to extend alongside and beyond his head. Quickly clear the victim's mouth of any obstruction, and bring his tongue forward.

Kneel on either knee at the level of the hips. Straddle the victim and place your foot on the ground near the opposite hip. Your heel should be directly opposite the kneeling knee.

Place your hands on his midback just below the shoulder blades. Your fingers should be spread downward and outward, with thumb-tips about touching.

Figure 6: Rock forward and allow the weight of the upper part of your body to exert slow, steady, even pressure downward on your hands until firm resistance is met. This compresses the chest, forces air out of the lungs. Your elbows should be kept straight and the pressure exerted almost directly downward. Do not exert sudden or excess pressure, or place your hands high on the back or on the shoulder blades. Release the pressure quickly. This is done by



Figure 6.

"peeling" your hands from the back without giving any extra push with the release.

Figure 7: Now rock backward and allow your hands to come to rest on the victim's hips, well below his waist. Do not grasp the waist. Just slip your fingers under the hip bones.

Figure 8: Lift the hips four to six inches. This allows the abdomen to sag downward. The diaphragm descends and air is sucked into the lungs. Do not bend your elbows; keep your arms straight as you lift. In this way you do the work of lifting with your shoulders and back instead of with your arms.

Lower the victim's hips. You have now finished one full cycle.

Repeat this cycle approximately 12 times per minute, to the rhythm of: (1) rock forward, (2) press, (3) rock backward, (4) lift.

Maintain a slow, easy rhythm, rocking forward on the back-pressure phase, backward on the hip-lift phase.

The back-pressure, hip-lift method is preferable in cases where there have been injuries to the upper chest, neck, shoulder or arms. Although fully as effective as the back-pressure, arm-lift method, it is somewhat harder on the operator.

NOTE:

These methods of artificial respiration are discussed in detail and published in CG-175, *Manual for Life-*

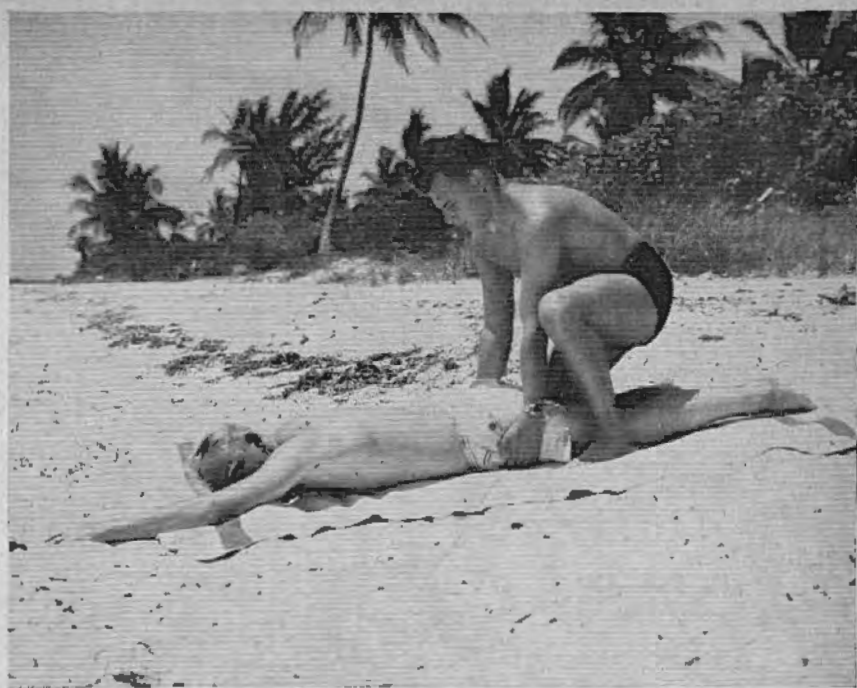


Figure 7.

boatmen and Able Seamen, which may be obtained from the nearest Officer in Charge, Marine Inspection, U. S. Coast Guard.

*EDITOR'S NOTE:

In addition to the film on **ARTIFICIAL RESPIRATION** mentioned in this article,

there are 2 other Coast Guard films that should be of interest to yachting groups. These are **YOU'RE BEING BOARDED**, a 25 minute film showing what occurs when a motorboat is examined by Coast Guard boarding officers; and **SAFETY ON THE WATER**, a 26 minute film demonstrating the importance of having safety equipment on motorboats beyond the legal minimum and stressing the need for a sound knowledge of seamanship and small boat handling.

These films may be obtained on a loan basis by addressing a request to the Chief, Public Information Division, Coast Guard Headquarters, Washington 25, D. C., or Commanders, Coast Guard Districts, located as follows:

- First Coast Guard District, 1400 Custom House, Boston 9, Mass.
- Second Coast Guard District, 8th and Olive Sts., St. Louis 1, Mo.
- Third Coast Guard District, 80 Lafayette St., New York 13, N. Y.
- Fifth Coast Guard District, Box 540, U. S. Post Office and Court House, Norfolk 1, Va.
- Seventh Coast Guard District, 150 S. E. 3d Ave., Miami 32, Fla.
- Eighth Coast Guard District, 328 Custom House, New Orleans 16, La.
- Ninth Coast Guard District, Main Post Office Bldg., Cleveland 13, Ohio.
- Eleventh Coast Guard District, 706 Times Building, Long Beach 2, Calif.
- Twelfth Coast Guard District, 630 Sansome St., San Francisco 26, Calif.
- Thirteenth Coast Guard District, 618-2d Ave., Seattle 4, Wash.
- Fourteenth Coast Guard District, P. O. Box 410, Honolulu, T. H.
- Seventeenth Coast Guard District, P. O. Box 2631, Juneau, Alaska

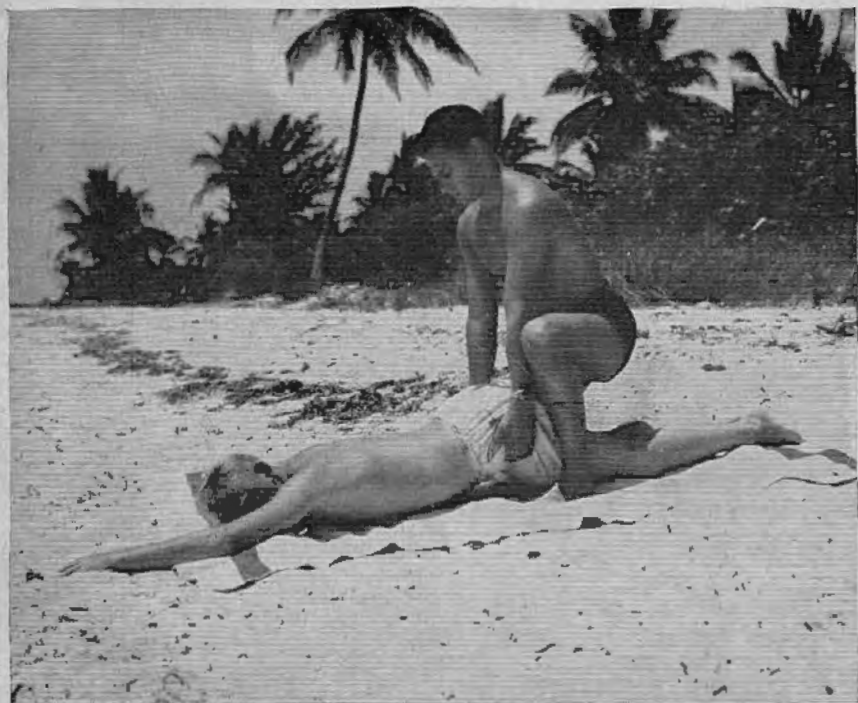


Figure 8.



nautical queries

THE MOTORBOAT ACT

Q. Are there penalties provided for violations of the Motorboat Act?

A. Yes. The owner or operator of vessels subject to the provisions of the Act shall be liable to a penalty of \$100, except in the case of such vessels carrying passengers for hire, in which a penalty of \$200 shall be imposed on the owner or operator, either one or both of them, for any violation of Section 6 relating to life-saving appliances, Section 7 relating to licensed operators, and Section 8 relating to fire extinguishers.

Q. What is the specific penalty for violators of the negligent operation section?

A. Any person who violates the negligent operation section of the Act shall be deemed guilty of a misdemeanor, and, upon conviction, shall be punished by a fine not exceeding \$2,000 or by a term of imprisonment not exceeding one year or both.

Q. Under the Act of April 25, 1940, how is an outboard motorboat legally defined?

A. An outboard motorboat is a vessel propelled by machinery and, therefore, subject to the equipment requirements according to its class.

Q. Are all outboard motorboats subject to the regulations prescribed under the authority of the Motorboat Act of April 25, 1940?

A. Yes, according to its class.

Q. Does the Act provide exemptions for outboard motorboats specifically engaged in racing or navigation incidental thereto?

A. Yes. The requirements for whistles, bells and fire extinguishers do not apply.

Q. Does the Act cite special requirements for motorboats propelled by sail and machinery or sail alone?

A. Yes. Classes A and I so propelled shall carry the prescribed white light, but not the combination light; Classes II and III shall carry the prescribed colored side lights, but not the white light. Motorboats of all classes when propelled by sail and machinery or by sail alone shall, in addition, carry ready at hand a lantern or flashlight showing a white light which shall be exhibited in sufficient time to avert collision.

Q. Does the Act apply to sailboats?

A. No.

Q. What is the Motorboat Act?

A. This is an Act of Congress dated April 25, 1940 which prescribes minimum requirements in the matter of lights, safety equipment, ventilation, and other safety appliances on motorboats and certain motor vessels over 65 feet in length operated on the navigable waters of the United States. *Note:* To understand what it means to you read the article entitled "Do You Know?" on page 1.

Q. If a motorboat of 5 tons *net* is used mostly for pleasure, but is sometimes used on a "share expense" basis or "for hire," how must it be operated?

A. When it carries passengers "for hire" and is of 5 tons *net* or over it must be documented and in charge of a licensed operator.

NOTE: The operator in charge of a motorboat carrying passengers for hire may navigate his vessel on *any* waters declared to be navigable waters of the United States. If such a vessel is more than 15 gross tons the route will be restricted by the Certificate of Inspection.

Q. A flotilla of the United States Coast Guard Auxiliary, or other Club, agrees to pay the expenses of operation and upkeep on a member's motorboat while it is being used by such a flotilla or Club exclusively for training purposes, the owner receiving no pay for the use of the boat. Does this constitute "for hire"?

A. The vessel is exempt from the "for hire" provisions of the Motorboat Regulations when used for training or instruction purposes.

Q. A pleasure vessel, 67' O. A. of 16 gross tons is used "for hire" on inland waters. Is an operator's license sufficient?

A. No. The operator must be a licensed Pilot or Master.

MANDATORY EQUIPMENT FOR MOTORBOATS UNDER THE ACT

Q. Are Class A and Class I motorboats both required to carry a combination red and green light in the fore part of the boat?

A. True.

Q. Combination lights must show around the horizon?

A. False.

Q. Combination lights must be visible at least one mile?

A. True.

Q. A bright white light must be carried aft on all motorboats?

A. True.

Q. White lights must show all around the horizon?

A. True.

Q. White lights may be shown at any level?

A. False.

Q. Class II and III motorboats must carry screened red lights on each side?

A. False.

Q. Class II and III motorboats must carry screened side lights and a white light fore and aft?

A. True.

Q. White lights carried forward must show around the horizon?

A. False.

Q. White lights aft must be higher than any other light prescribed by the Motorboat Act?

A. True.

Q. White lights must be bright and visible for at least two miles?

A. True.

Q. All classes of motorboats must carry a life preserver or other device of an approved type for each person aboard?

A. True.

Q. Any type of buoyant cushion is approved for motorboats?

A. False.

Q. Inspectors must examine all life preservers for the stamp of approval of the United States Coast Guard?

A. True.

Q. At least one approved portable fire extinguisher must be carried on Class A and Class I (inboard) motorboats if such boats are not fitted with a fixed Carbon Dioxide system?

A. True.

Q. Two-pound Carbon Dioxide and 1 1/4 gallon foam type fire extinguishers are approved for all classes?

A. False.

Q. Class II motorboats must carry at least 2 approved portable fire extinguishers if they are not fitted with a fixed Carbon Dioxide system?

A. True.

Q. Class III motorboats must carry at least 3 approved portable fire extinguishers if they are not fitted with a fixed Carbon Dioxide system?

A. True.

Q. A mouth operated whistle is required on Class III motorboats?

A. False.

Q. A hand, mouth or power operated whistle must be carried on Class I motorboats?

A. True.

Q. Whistles on Class II and III motorboats may be hand or power operated?

A. False.

Q. Class II and III motorboat whistles must be capable of a blast

of two seconds duration and audible for at least one mile?

A. True.

Q. Class II and Class III motorboats must carry a clear toned bell?

A. True.

Q. All classes of motorboats must carry a bell?

A. False.

Q. All carburetors on inboard engines installed since 25 April 1940 must be equipped with flame arresters?

A. True.

REGISTRATION AND DOCUMENTATION

Q. What statute in the United States Code of Laws provides for the numbering of undocumented vessels?

A. 46 U. S. C. 288.

Q. What vessels are required to be numbered?

A. Undocumented vessels which are (a) equipped with permanently installed motors, or (b) over 16 feet equipped with detachable motor.

Q. What vessels are not required to be numbered?

A. Undocumented vessels which

are (a) 16 feet or less in length and temporarily equipped with detachable motors, or (b) public vessels, or (c) motor lifeboats carried for lifesaving on inspected vessels.

Q. Where and by whom shall application for certificate of award of number be made?

A. The legal owner of the vessel must make application to the Officer in Charge, Marine Inspection, USCG, or the Coast Guard District Commander having jurisdiction over the area in which the vessel is owned.

Q. What is Form CG-1513?

A. Form CG-1513 is a Certificate of Award of Number. On the reverse side space is provided for a Bill of Sale and an application for an Award of a Number in the event of sale.

Q. In the sale of a numbered and undocumented vessel, what is required of the vendor and the purchaser?

A. The vendor executes the Bill of Sale, and the purchaser executes the application for Award of Number on the back of Form CG-1513.

Q. What is required of a pur-

chaser upon proper completion of a sale?

A. The purchaser must forward Form CG-1513 to the cognizant Officer in Charge, Marine Inspection, or Coast Guard District Commander within ten days.

Q. When is Form CG-1512 used?

A. In the case of a new vessel or one not previously numbered, or vessels holding the old form of certificate (Form NAVCG 1513—Obsolete), application for a number must be made in duplicate on Form CG-1512.

Q. From whom may blank forms be obtained?

A. Blank CG Forms may be obtained from the Officer in Charge, Marine Inspection, USCG, and, upon execution, must be returned to that officer in the Coast Guard having jurisdiction.

Q. Are applicants for award required to furnish proof of ownership?

A. Yes; A bill of sale, receipted bills for construction, or such other evidence as is acceptable to the Marine Inspection Officer, USCG.

EQUIPMENT REQUIREMENTS FOR PLEASURE AND COMMERCIAL FISHING MOTORBOATS



Equipment	Class A 0 to less than 16 feet	Class 1 16 to less than 26 feet	Class 2 26 to less than 40 feet	Class 3 40 to not more than 65 feet
Combination light.....	1 in fore part of boat showing red to port and green to starboard from right ahead to 2 points abaft the beam. Visible at least 1 mile.		None.....	None.
Port side light.....	None.....	None.....	1 on port side, properly screened to show red from right ahead to 2 points abaft the beam, visible at least 1 mile.	
Starboard side light.....	None.....	None.....	1 on starboard side properly screened to show green from right ahead to 2 points abaft the beam. Visible at least 1 mile.	
Stern light.....	1 bright white light aft showing all around the horizon. Visible at least 2 miles.			
Bow light.....	None.....	None.....	1 bright white light in fore part of boat showing from right ahead to 2 points abaft the beam on both sides. Visible at least 2 miles.	
Whistle ¹	None.....	1 hand-, mouth-, or power-operated, audible at least $\frac{1}{4}$ mile.	1 hand-, or power-operated, audible at least 1 mile.	1 power-operated, audible at least 1 mile.
Bell.....	None.....	None.....	1 which produces, when struck, a clear bell-like tone of full round characteristics.	
Lifesaving devices ²	1 approved life preserver, buoyant vest, ring buoy, or buoyant cushion for each person on board.....			1 approved life preserver or ring buoy for each person on board.
Flame arrestors.....	1 approved on each carburetor of all gasoline engines installed after Apr. 25, 1940, except outboard motors.			
Ventilation.....	At least 2 ventilators with cowls or equivalent capable of removing gases from the bilges in engine and fuel tank compartments of boats constructed or decked after Apr. 25, 1940, using gasoline or other fuel of a flashpoint less than 110° F.			
Fire extinguishers ³	Any one of the following types of extinguishers: 1 quart vaporizing liquid 1½ gallon foam 4 pound CO ₂ 4 pound dry chemical None required on pleasure outboard motorboats of open construction.		Any two of the following types of extinguishers: 1 quart vaporizing liquid 1½ gallon foam 4 pound CO ₂ 4 pound dry chemical	Any three of the following types of extinguishers: 1 quart vaporizing liquid 1½ gallon foam 4 pound CO ₂ 4 pound dry chemical

¹ Commercial fishing motorboats may carry any of these specified devices.

² Commercial fishing motorboats may carry in lieu of this specified equipment prescribed wooden life floats.

³ Those vessels which are fitted with a fixed fire extinguishing system in the machinery space may dispense with one (1) of the required fire extinguishers.

MINIMUM STANDARDS TO PREVENT FIRE AND EXPLOSION

Most of the casualties experienced by pleasure craft and their occupants result from fire or explosion. Since fire is a useless waste of life and property it is imperative that all boat owners take effective action to prevent this casualty from happening. To do this there are three safeguards that must be taken—

First, make sure that not a drop of gasoline is allowed to get below decks, except into tanks.

Second, that no spark or flame, including oil lanterns, be allowed in the engine or fuel compartments.

Third, that the engine and fuel compartments be so ventilated (*at least 5 minutes after refueling*) that all gasoline vapors are quickly removed.

To ensure these safeguards at a minimum of expense, the Yacht Safety Bureau has set forth certain minimum standards to be followed, representative of the thinking of many experienced marine surveyors. These minimum standards are as follows:

ENGINE COMPARTMENT

That fill pipes to gasoline tanks be 1½ inches in diameter and be tightly connected to outer decks, outside of cockpit and coamings so that any overflow will run overboard.

That all vent pipes to gasoline tanks lead to outside the hull with a flame screen at the hull. Copper tubing, ¾ inches outside diameter is considered to be the minimum size.

That if fill pipes cannot be used for soundings, the tank will be provided with an indicating device, but such device shall not consist of pet cocks nor glass gages other than those of the bull's-eye type.

That no outlets for drawing gasoline for any purpose should be provided.

That drip collectors, either screened or enclosed, equipped to drain to engine intakes should be connected under all carburetors, except those with air intakes turned upward at

about 45° to form a substantial sump that is emptied by means of an automatic device returning all drip to engine intakes.

That carburetor air intakes be fitted with approved backfire flame arresters to prevent explosions.

ELECTRICAL WIRING

That all electric wiring be located as high as practicable above the accommodation flooring.

That electrical circuits be fused and never overloaded. This should be considered before adding accessories.

That all switches and fuses be placed outside of the engine compartment. On large boats where it is desired to have all equipment in the engine room, switches, fuses, and other spark emitting devices should be enclosed and located at least 4 feet above the floor.

If a fuse blows, take every precaution. Try to determine cause. In replacing a fuse always make certain there is no load on the circuit—if in doubt pull main switch—and never use a fuse of higher rating than the circuit requires.

That independent generators and motors be located well above the accommodation floor level to prevent contact with low lying and possibly explosive vapors.

That storage batteries be carried in substantial and suitable trays, located in a well ventilated accessible space and provided with a protective cover to prevent any object being dropped on them.

BILGE VENTILATION

Proper ventilation is not only vital for safety, it is also vital for the prevention of damage to your boat by dry rot.

That ventilating ducts, equipped with cowls, running down to the bilges, be placed in all four corners of the engine and fuel tank compartment. This will induce a thorough scouring draft through the bilges. These installations should be made so that the cowls cannot be closed, for what little water might enter in a heavy sea is of small consequence in comparison with the peril inherent in confined gasoline vapor.

That the ventilators be arranged so that the forward two open aft, and the after two open forward at a level at least 4 inches higher than the forward ventilator openings.

That an exhaust fan be installed, in connection with at least one of the forward ventilation ducts, as high above the accommodation deck as

practicable, with the motor outside the duct. The exhaust fan should be operated five minutes and preferably ten, before starting the engine.

Note: As a large proportion of motorcraft fires and explosions occur while the boat is at rest, and as many boats lie at piers and so are often stern to the wind, it follows that to provide good natural bilge ventilation at all times, the after ventilators must be fully equal in size to the forward ones.

VENTILATION PIPE SIZES

Losses having occurred recently from inadequate bilge ventilation, the table given below was drawn up as the minimum requirements of sizes which might be used. It will be noted that any ventilation system using piping less than 3-inches in diameter is considered to be inadequate.

Boat Length	Ventilating Pipe Diameter
20' and under	3"
25'	3½"
30'	4"
35'	4½"
45'	5"
50'	5½"
60'	6"

MISCELLANEOUS SAFEGUARDS

That galley stoves are properly secured and thoroughly insulated. If wet primed alcohol, kerosene or fuel oil stoves are used, they should be equipped with a catch pan not less than ¾ inches deep, secured inside the frame of the stove.

That portable stoves and heaters are never to be carried on boats.

That gasoline stoves or lamps, or stoves and heaters with wick or bubble type burners, are never to be used on boats.

That if liquefied or compressed gas is used for cooking, the fuel cylinders and regulators must be located so that escaping vapor cannot reach the bilges, machinery space, accommodations or other enclosed spaces.

That gasoline carried for outboard motor use be limited to 2 gallons and carried in an approved safety container preferably stowed above deck.

That flammable fabrics not be used for interior decorations.

FUEL PRECAUTIONS

The large number of explosions that have occurred on gasoline-powered boats just after fueling, involve not only a heavy monetary loss but also many lives. To stop these explosions, it is strongly recommended that before tanks are opened or gasoline is brought on board:



All engines, motors, fans and other spark-producing devices be shut down;

That all galley fires be put out;

That all ports, windows, doors, and hatches be closed;

That no smoking be permitted while filling;

That in filling tanks no gasoline (not one drop) be allowed to get below decks except into tanks—neglect of this has cost many lives;

Fill with hose—keep nozzle in contact with fill pipe. If cans must be used, see that there is a metal-to-metal contact between cans, funnels, and fill pipes. Static electric sparks may occur in filling operations if this is not done.

In filling gasoline tanks, etc., allow 1 percent of cubic air space for each 15° Fahrenheit for expansion. Viz: 90° would need 6 percent of air space, 130° would need approximately 9 percent;

That after the filling hose and/or cans have been removed from boat, any spillage on deck be wiped up and all ports, windows, doors, and hatches be opened and kept open for at least 5 minutes before any fan, motor, or engine is started or stove lighted;

Approved fire extinguishers of the following types are recommended: Carbon-dioxide type; vaporizing liquid type (either carbon tetrachloride or chlorobromomethane); dry chemical type; or foam type.

If all of the foregoing recommended practices and minimum standards are complied with, your motor boating should prove to be not only enjoyable, but safe as well.

CHECK LIST FOR GASOLINE FUELED CRAFT

Are all carburetors fitted with back-fire flame arresters? Yes ☐ No ☐

Are the carburetors (except down-draft type) fitted with a drip pan underneath to prevent gasoline from dripping into bilges? Yes ☐ No ☐

Is the exhaust pipe in good condition and arranged and insulated so as not to scorch or ignite adjacent woodwork? Yes ☐ No ☐

Is the muffler, if fitted inboard, absolutely tight, so that no carbon monoxide fumes can leak into the structure of the boat? Yes ☐ No ☐

Are fuel tanks in good condition and properly secured to prevent vibration movement? Yes ☐ No ☐

Are filling, sounding pipes, and vents so arranged that vapors, both from filling pipes and from vents, as well as fuel in case of overflow when filling, will not enter the interior of the boat? Yes ☐ No ☐

Are such filling and sounding pipes tightly attached to the tank and to a deck fitting? Yes ☐ No ☐

Do the filling pipes extend nearly to the bottom of the tank? Yes ☐ No ☐

Is the fuel-tank vent pipe solidly attached to the top of the tank? Yes ☐ No ☐

Does the fuel-tank vent pipe terminate in the open air, clear of openings in the vessel's hull, cabins, etc.? Yes ☐ No ☐

Can the fuel supply be shut off at the tank, the shut off control being outside the compartment in which tank is located? Yes ☐ No ☐

Is the entire fuel system, including piping and fittings, tight and in good condition, containing no pet cocks which might accidentally release fuel into the bilges? Yes ☐ No ☐

Are all enclosed parts of the vessel provided with means for proper ventilation? Yes ☐ No ☐

Is the ventilating system for spaces, such as engine rooms and those containing gasoline machinery, arranged to circulate air in the lower part or bilge? Yes ☐ No ☐

Is the entire electrical system in good condition? Yes ☐ No ☐

Are explosion-proof appliances and fittings installed in spaces likely to contain explosive mixtures, such as gasoline and fuel tank compartments, and near storage batteries, which are charged on board? Yes ☐ No ☐

Are electric storage batteries located in a well-ventilated space? Yes ☐ No ☐

Are such batteries protected to prevent metallic objects being dropped on the batteries, shorting them, and causing sparks? Yes ☐ No ☐

Are all life preservers, buoyant cushions, ring buoys, fire-fighting equipment, navigation lights, etc., in good serviceable condition and ready for immediate use? Yes ☐ No ☐

Have carbon dioxide extinguishers, which are more than ten percent underweight, been recharged? Yes ☐ No ☐

Is all equipment located in a permanent place and readily accessible, in case of an emergency? Yes ☐ No ☐

Have you checked to see that your fire extinguishers are not too close to the most likely site of a fire, so that in case of fire in such a site, the extinguisher will not then become inaccessible to you? Yes ☐ No ☐

Are all of the requirements for approved equipment, safety devices, and installations, as provided by the Motorboat Act and required by the Coast Guard's rules and regulations for motorboats and certain motor vessels, complied with? Yes ☐ No ☐

NOTE:

If any of the above answers are No, immediate steps should be taken to correct the deficiency.

Valuable additional information covering the various phases of safety in operation and maintenance may be obtained by contacting the Commander of your nearest flotilla of the Coast Guard Auxiliary. Complete information concerning all laws relative to motorboats may be obtained at your nearest Coast Guard District Office, Coast Guard Marine Inspection Office, or Coast Guard station or unit.

"ALL WORE LIFE PRESERVERS"

The following item appeared in the Boston Daily Globe on Friday, September 14, 1951:

"Newburyport, September 13.—A Malden couple and their 4-year-old son were rescued by the Coast Guard today within 10 minutes after their motorboat swamped in heavy seas at the mouth of the Merrimack River.

Pulled from the water were Arthur Hanson, 50; his wife, Christine, 28, and their son, James, 4, of 21 Summer St. All wore life jackets and were in no immediate danger.

A lookout at the Coast Guard station on Plum Island saw the accident at 3:30 p. m. At 3:40, a 36-foot lifeboat was at the scene and had the Hansons aboard.

The Hanson craft, a 26-foot converted Navy whaleboat, capsized when it hit treacherous rip tide currents on the way into Newburyport Harbor.

In the boat that picked them up were Boatswain's Mate 1c Sylvester E. Andrews and Seamen 1c James G. Martin and Eugene James."

A cursory reading of this article would indicate little other than an alert Coast Guard lookout observed the accident in time to effectuate a prompt rescue. However, one sentence stands out and should have been capitalized and printed in red letters

**"ALL WORE LIFE PRESERVERS
AND WERE IN NO IMMEDIATE
DANGER"**



PROCEDURES FOR NUMBERING UNDOCUMENTED VESSELS

The authority for the numbering of undocumented vessels is the act of June 7, 1918, as amended (40 Stat. 602; 46 U. S. C. 288), which requires every undocumented vessel operated in whole or in part by machinery, owned in the United States and found on the navigable waters thereof, except public vessels and vessels not exceeding 16 feet in length, measured from end to end over the deck excluding sheer, temporarily equipped with detachable motors, to be numbered. When a number is awarded to such a vessel, a certificate of award is issued, which must be kept on board at all times and constitutes a document in lieu of enrollment or license.

The term "undocumented vessel" is used to describe those machinery-propelled vessels which are not required or entitled to be documented (registered, enrolled, or licensed) by the Bureau of Customs.

The following undocumented vessels are specifically required to be numbered:

(1) All vessels equipped with permanently installed motors. (These are vessels propelled in whole or in part by machinery.)

(2) All vessels over 16 feet in length equipped with detachable motors.

The following undocumented vessels are not required to be numbered:

(1) All vessels not exceeding 16 feet in length temporarily equipped with detachable motors.

(2) Sail vessels not equipped with auxiliary motors or sail vessels not exceeding 16 feet in length when equipped with detachable motors.

(3) Public vessels.

(4) Motor lifeboats carried as lifesaving equipment on inspected vessels.

Undocumented vessels that are not required to be numbered will not be numbered even though the owner may request that a number be assigned.

The owner of an undocumented vessel, or his duly authorized agent, is required to make application for an award of number to the Coast

Guard District Commander having jurisdiction over the area in which the vessel is owned. When the District Commander is satisfied that the evidence submitted is sufficient to establish prima facie evidence of ownership, and the certificate of award of number is issued, he will return to the owner of the vessel upon request all canceled checks, receipts for materials used in construction, and other miscellaneous papers. The District Commander will retain in his file all Builder's Statements, Master Carpenter's Certificates, and Forms CG-2945 (Claim of Ownership of Undocumented Vessel). However, certified copies of any such papers will be issued to the owner or other properly authorized or interested party upon request. In no instance will the surrendered bill of sale form on CG-1513 be returned to the owner, except in the case of exempted vessels.

PAPERS NECESSARY TO OBTAIN AWARD OF NUMBER

The papers generally necessary to obtain an award of number are set forth in the following paragraphs, and most applications will fall into these categories. These are not intended to cover every possible type of application, evidence of ownership, etc., which may be submitted, but only those which are ordinarily submitted.

(1) *New vessels purchased from manufacturers or dealers.*—Bill of sale or paid-in-full receipt and two application cards (Form CG-1513). If the vessel is 25 feet or over in length a Builder's Statement on Form CG-2895 or Master Carpenter's Certificate is required.

(2) *Vessels built by applicants.*—Receipted bills for materials used in construction and two application cards (Form CG-1512). If receipted bills are not available, Form CG-2945 (Claim of Ownership of Undocumented Vessel), together with the two application cards, may be accepted. If the owner is a recognized builder or manufacturer of boats, a Builder's Statement (Form CG-2895) or Master Carpenter's Certificate, together with the two application cards, will be acceptable.

(3) *Used vessels not previously numbered.*—Bill of sale or paid-in-full receipt and two application cards (Form CG-1512) and complete chain of ownership if possible (Form CG-2945—Claim of Ownership of Undocumented Vessel—may be accepted if chain of ownership is not obtainable with reasonable effort). If ves-

sel is 25 feet or over in length, a Builder's Statement (Form 2895) or Master Carpenter's Certificate should be obtained if possible.

THE SHIPPING ACT OF 1916

Section 37 of the Shipping Act of 1916, as amended (46 U. S. C. 835), became effective upon Presidential Proclamation 2914, dated December 16, 1950 (15 F. R. 9029). Accordingly, this proclamation has brought into operation, among others, the statutory provisions prohibiting the transfer of any interest in an American owned vessel or shipbuilding plant to foreign ownership without prior Maritime Administration approval. The prohibition extends to sales, charters, leases, and other transfers of interest in such vessels and plants; in agreements to effect such transfers; to agreements and understandings whereby the controlling interest or a majority of the stock of a corporation, organized in the United States and owning such vessels or facilities, would be vested in or for the benefit of a noncitizen; and to related activities. Accordingly, sales of undocumented and numbered vessels by American citizens to aliens without the consent of the Maritime Administration, U. S. Department of Commerce, under such regulations as are prescribed by that agency cannot be consummated.

[Ed. note: Vessels of less than 40 feet overall length and less than 50 horsepower are given blanket approval. Violations of any of the provisions of Section 37 of the Shipping Act of 1916, as amended (46 U. S. C. 835), are reported in the usual manner to the Maritime Administrator, U. S. Department of Commerce, through the Commandant, U. S. Coast Guard.]

LETTERS OF AUTHORIZATION

The District Commander is authorized to issue a letter of authorization permitting the vessel to temporarily operate without the certificate of award of number on board after accepting the application with proof of ownership, pending the receipt of the certificate of award of number by the new owner.

CERTIFICATES OF AWARD OF NUMBER

A single copy of CG-1513, "Certificate of award of number to an undocumented vessel" will be prepared by the Coast Guard District Commander and delivered to the owner as soon as possible after receipt of the applica-

(Continued on page 29)



BUOYANT VESTS

With springtime with us again, pleasure boats will once again skim across blue lakes or idly explore the quiet inlets on some bay or sound—for summertime and vacation time are just around the corner.

This is the time when pleasure seekers, old and young, take to the water. You may be one of these. If so, have fun; enjoy yourself, but take care to avoid a one-way trip. Most important, be sure your craft is equipped with a life preserver or other type approved lifesaving equipment for every person on board.

In the last few years, too many pleasure boat excursions have been marred by the loss of life by drowning. Official files show that many of these

cases of drowning were avoidable if only the person had been wearing a Coast Guard approved life preserver. This fact indicated to the Coast Guard that there was a need for a small, lightweight, more comfortable life preserver for use on pleasure motorboats. Accordingly, the Coast Guard developed such a design, and it was recommended for adoption by the Merchant Marine Council on October 19, 1954. This new piece of safety equipment was designated a *Buoyant Vest* to distinguish it from other type life preservers.

On December 18, 1954, new regulations were published in the Federal Register, which mean that the owner or operator of a pleasure motorboat



of Classes A, 1, and 2, not carrying passengers for hire, will now have a choice of the following types of approved lifesaving equipment, which he may carry for each person on board to meet the statutory requirements:

1. Life preserver
2. Buoyant vest
3. Ring buoy
4. Buoyant cushion

This new *Buoyant Vest*, of the jacket type design, is more comfortable, and will allow greater freedom of movement than the regular life preserver. The buoyancy is obtained from kapok or fibrous glass contained in sealed, waterproof plastic pads. This new design incorporates safety features approaching those of the larger approved life preservers. It is available in 3 sizes, the adult size, child's size for children weighing from 45 to 90 pounds, and a small child's size for children weighing less than 50 pounds. (See fig. 1.) All sizes can be secured in the same manner, with a snap hook and D-ring on body straps near the bottom of the jacket, and two tie straps higher on the chest. To provide for the most comfortable fit, the straps and webbing are fitted with slidebuckles for necessary adjustment.

Like all other approved lifesaving equipment, *Buoyant Vests* are required to be plainly marked with a U. S. Coast Guard marking tag. This marking consists of a rectangular cloth tag attached to the back of the vest, on which shall be plainly printed in waterproof ink the following:

Buoyant Vest
Model -----
(Adult or child)

Approved for use on motorboats of Classes A, 1, or 2 not carrying passengers for hire.
U. S. Coast Guard Approval
No. ----- Lot No. -----
Date Manufactured: -----

Whatever type of approved lifesaving equipment you prefer, make sure it is aboard before you depart on your cruise.



Figure 1.

LESSONS FROM CASUALTIES

UPSETTING MOMENT

A woman died trapped inside the tiny cabin of the outboard motorboat pictured in *figure 1*, when it suddenly capsized. Only 14 feet in length and 5 feet in beam, this small skiff was never designed to carry any superstructure, much less the high cumbersome cabin with which it was burdened. Unfortunately, the owner had no appreciation of the unstable and dangerous condition imposed on his motorboat by the height and weight of the cabin or the consequences which could result.

The owner and his wife had recently purchased the tiny craft from its builder and had bought a new outboard motor the very day of the trial run. After a short cruise on calm river waters, they were returning and approaching the dock. With his wife inside the cabin, the owner stepped up on the port walkway and started forward to tie up the bow. Immediately, the boat took a sharp list to port, throwing his wife over toward the port side. Automatically attempting to save himself from falling over the side, the owner grasped the handrail on top of the cabin, at a height at least 5 feet above the keel. The sudden application of his weight

with most of the force directed horizontally and perpendicular to the boat's fore-and-aft axis resulted in a greatly increased upsetting moment which instantly overcame the boat's slight positive stability and she capsized. Later, when the boat was righted by the grief-stricken owner and two other men, they found his wife's body with her foot caught under the thwart in the so-called cabin.

Apparently, the slight amount of stability, that is, the *ability to resist capsizing*, possessed by a great many small boats is not realized by the owners. In spite of the age-old aphorism "Sit down, you're rocking the boat," which has been heard by every man, woman, and child who has ever stood in a canoe or rowboat, the principle of stability is often forgotten when a slightly larger runabout or motor cruiser is the platform. Annual casualty reports abound with instances of deaths due to small boats capsizing unexpectedly when "it never should have happened."

An important point to remember concerning the stability of small boats is the condition existing whereby many weights other than passengers, such as gear, tool kits, and fuel tanks are not secured and will slide or fall to the low side if the boat takes a

severe list. The sudden arrival of additional weight (perhaps with considerable momentum) may furnish just the required upsetting moment, and over you go. Since it is extremely difficult to breathe under water, such an upsetting moment may have permanent results!

THE HEAT WAS ON

A beautiful \$35,000 cabin cruiser was recently damaged by fire to such an extent that she was declared a total loss. The source of fire was traced to a marine heater of the type which uses the combustion of gasoline for the generation of heat.

With the yacht moored snugly in a sheltered basin in a Southern port, the master was the only person aboard. Arising before dawn one morning, he threw the control switch to the heater to an "on" position and went forward to the galley to make a pot of coffee. This heater, which was supplied with gasoline from one of the auxiliary fuel tanks through a copper tubing fuel line system, was located inside a built-in cabinet on the after starboard side of the main lounge. An overboard vent for the exhaust led aft through a wooden bulkhead, into a sleeping space, and thence overboard. However, this line was well insulated by 2 inches of asbestos where it passed through wooden partitions. Preheating, combustion, and operation of the blower, which supplied air for combustion and for the transfer of heat throughout the vessel, were controlled automatically after the starting switch was thrown, by an electrical system of wiring, thermostats, and relays which operated from the yacht's lighting batteries.

About 2 minutes after turning on the heater, the master heard an explosion in the main lounge. He ran aft and observed the cabinet enclosing the heater to be a mass of flames. He stepped out on deck, pulled the release lever for the fixed CO₂ system, installed in the engine space and bilges, and then ran out on the dock to call the city fire department. When the fire department arrived, the yacht was afire from stern to stern. Two hours later all fire was extinguished but the cruiser was an empty gutted shell.

Protected somewhat by a metal housing, the heater was found to be fairly intact. An examination showed that the wiring insulation was charred and the points on the fuel relay had melted, which indi-



Figure 1 illustrates why this motorboat was topheavy. The man standing alongside is the Coast Guard Investigating Officer.

cated that the ignition of explosion had occurred in the vicinity of this relay. It was concluded that a gasoline leak had developed at one of the fuel connections and the resulting vapors were ignited by the arcing when the fuel relay operated. The first small explosion communicated flames to the wooden cabinet which eventually consumed the entire upper portion of the boat.

While the use of heaters utilizing gasoline or other low flash point liquid fuels on uninspected motorboats and yachts is not subject to control by government regulation, their use on inspected motor vessels carrying passengers for hire is permitted only under stringent restrictions. On the latter type vessels, both heater and fuel tank must be installed on an open deck with the tank located at least 36 inches away from the heater, only fuel having a flash point above 110° F. such as kerosene or diesel oil is permitted, and the heater must be manually actuated so that it will not normally be in operation when there is nobody aboard. In addition, several other precautions involving wiring, source of electrical power, insulation of hot ducts, type of fuel fittings, etc., must be observed. The owner of any motorboat not subject to inspection who is contemplating the installation of a heater using inflammable fuel in his boat would do well to ponder the restrictions for inspected vessels outlined above. There are excellent reasons for all of them.

MAGIC CARPET

A common method of hiding unsightly or worn flooring is to install wall-to-wall carpeting. On the deck of the main cabin of the palatial cabin cruiser, the wreck of which is shown in figure 2, were two unsightly objects—the hinged hatch covers over both main engines. A ready solution to this problem was found. Both hatches were secured in a closed position and the deck was covered with wall-to-wall carpeting. When this sleek yacht was shattered by a tremendous blast 3 years later, it was not recorded whether or not this magic carpet flew through the air, but in all likelihood it did.

Following a family cruise, the operator moored this 46-foot cabin cruiser in a yacht club slip under a boat shed. The yacht was cleaned out and locked up, and all machinery secured with the exception of two electrical motors. These were in the refrigerator which was operated by thermostatic control, and in an automatic fresh water pump, which operated whenever the booster tank pres-

sure fell below 38 p. s. i. Both motors were powered from shore electricity while in this mooring. The operator departed for several days on a business trip. Forty hours later a terrific blast was heard by everyone in the vicinity. Rushing down to the boat shed, they found this fine yacht aflame and sinking fast. She was completely wrecked from stem to stern.

Investigation after the accident disclosed that the bulkhead forward of the engine compartment had been cut away at the center line to provide access to the engine. Ventilation of the engine space was provided by four vents which originated near the bilge and terminated on deck, two of which were furnished with power blowers. When the operator departed he left several windows and doors open "on the hooks." However, circulation of air through these openings could not possibly have reached the engine space due to the hatches being closed and covered by the carpet.

The only logical conclusion was that gasoline had dripped from one of the carburetors into the bilges, since the drip pans were ineffective as they did not extend completely un-

der the carburetors. This gasoline had gradually vaporized and permeated the engine space and other compartments. The most likely source of ignition for the explosion was the sparking of the commutator on the motor of the refrigerator or the fresh water pump. Both of these motors operated automatically, from time to time, as the refrigerator temperature rose, or as the water booster tank pressure fell, due to leakage. Brushes on these motors had not been changed in many months and probably were worn, with consequent arcing on the commutator segments.

While the installed vents might have been sufficient to remove explosive air-vapor mixtures from the interior of the boat while underway, with this vessel lying in a semi-enclosed structure and with little breeze, gasoline vapor was formed more rapidly than it could be carried away. If the large engine compartment hatches had been open, the minor air circulation through to the open windows might have carried away enough of the vapors to have prevented the explosion. Wall-to-wall carpeting can be decorous and useful, but not to cover up a problem.



Figure 2. Drip pans were ineffective and permitted gasoline to drip into the bilges.

FREE OF CHARGE

The hazards of electrostatic charges which may be built up in various kinds of machinery and equipment have long been known to Fire Protection Engineers and all fire-fighting organizations. Whenever there is a flow of liquids or solids over the surface of a solid object, which is not grounded, it is possible for a potential, an electrostatic charge, to be built up in the solid object, the amount of charge depending upon the nature of the materials. When this electrostatic potential is discharged in the form of a spark in the presence of any flammable or explosive vapors or mixtures, disaster may result. The grounding of machinery, equipment, and other materials which may accumulate static charges where explosive materials may be present is a well-defined branch of Fire Protection Engineering.

That such a static charge may be accumulated in the hose and nozzle of a fuel-filling line and in the filling system in a boat as the fuel flows through may not be appreciated by many small-boat operators. Little imagination is required to picture the results of the inadvertent discharge of such an electrostatic potential between the nozzle of a gasoline-filling line and the metallic fill pipe or tank of a motorboat while gasoline is flowing. With a mixture of from 1.5 to 6 percent of gasoline by volume in air surrounding the fill pipe, an electrostatic discharge with a high voltage spark can blow such a motorboat sky high, or at least start a roaring fire.

A 38-foot gasoline-powered motorboat was thus destroyed recently when the operator forgot to guard against static spark. After arriving at a fueling dock, the operator inserted a bronze filling nozzle into the fill pipe of his center fuel tank in such

a manner that the nozzle was grounded to the boat by direct metallic contact. The wooden-hulled boat was equipped with gas-tank vents which terminated through the vessel's hull just below the gunwale and the fill pipes from all tanks terminated properly and tightly at the deck level. A few minutes after gasoline started flowing into the tank, the operator lifted the nozzle with one hand in order to observe the fuel level in the tank, which at this time was only partly full. As he replaced the nozzle into the fill pipe, a tremendous blast occurred from the tank, blowing the operator onto the after deck. He immediately dove into the water to extinguish flames on his face, hands, and clothing. He was able to swim to another boat and was assisted from the water and to a local hospital where it was determined that he had suffered second degree burns. The motorboat burned furiously and was extensively damaged before being extinguished by the local fire department (see fig. 3).

This motorboat was abundantly equipped with fire extinguishers and a fixed CO₂ system, none of which was used since the only person aboard was temporarily disabled. It is not certain how ignition of the explosion took place, but the facts known indicate a static spark at the fill pipe. Since the nozzle, filling line, gas pump, and other attached parts were undoubtedly grounded to shore by way of a steel pipeline, tank structure, etc., no static charge would accumulate on the nozzle. However, since wood is an extremely poor conductor, the fill pipe and gas tank in the wooden-hulled boat would not be grounded to the water, and a static charge could develop in these parts due to the flow of gasoline as soon as the metal-to-metal contact between the nozzle and fill pipe was lost. When the operator lifted the nozzle, he thereby broke the ground connection which had existed and, since gasoline continued to flow, a static charge immediately began to accumulate on the fill pipe. Apparently sufficient potential was built up that when the nozzle returned to the fill pipe, the electric spark of static discharge was of sufficient heat to ignite the explosive gas-air mixture existing in the fill pipe and in the gas tank above the surface of the liquid. By such an apparently trivial detail in fueling this motorboat, there occurred a serious property loss and injuries which could have been disabling.

Automobile gasoline filling stations are invariably so designed that the filling and pumping equipment are grounded. In addition, automobile fill pipes and gas-delivery nozzles are

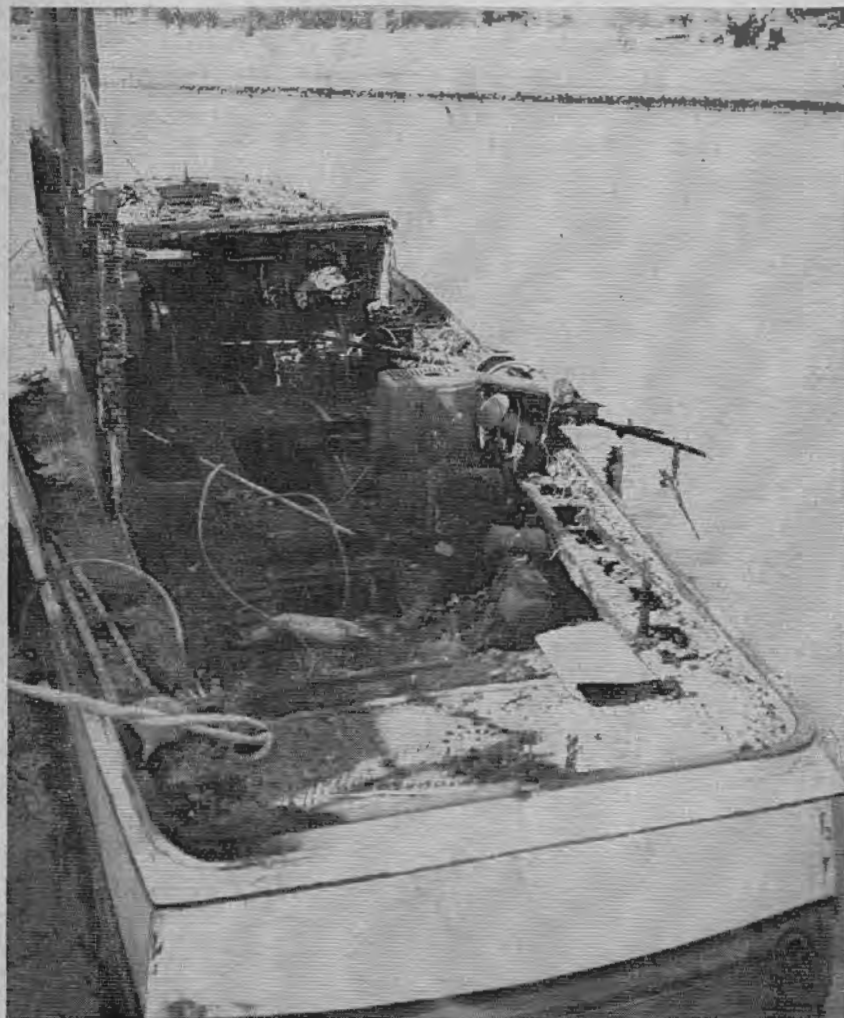


Figure 3. Static electricity while refueling resulted in this explosion.

usually so designed that it is almost impossible to fill the tank without metal-to-metal contact between the nozzle and fill pipe, and thus the automobile is also grounded. Therefore, the danger of explosion from electrostatic spark in automobile filling stations is extremely small and such casualties are rare. Due, perhaps, to this common knowledge or awareness, many persons are careless in fueling gasoline motorboats. While the filling system at marine fuel stations may be adequately grounded as described above, the motorboat itself, especially if wooden construction, may not be grounded at all, and the avoidance of an explosion from static spark will then depend on the maintenance of a metal-to-metal contact at the fill pipe.

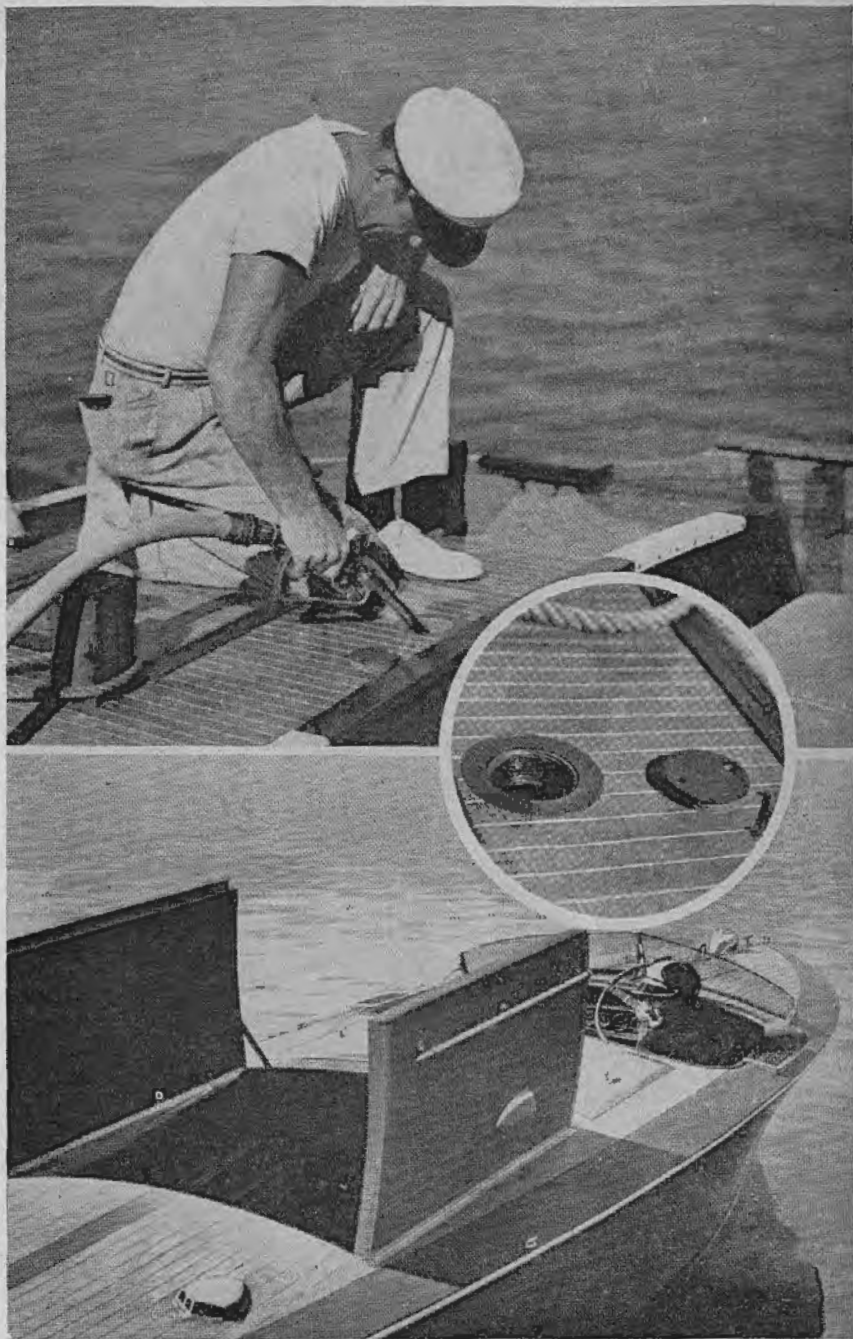
The use of a bonding cable or wire which, when connected, forms a good electrical connection between the filling system and the tank being filled is usually required by local fire codes or other municipal ordinances whenever gasoline or other flammable or combustible liquids and gases are transferred commercially, that is, into or out of commercial carriers or storage tanks. Bonding cables are required to be used in fueling government ships, boats, aircraft, etc. While the principle of bonding is important while fueling with any type of combustible liquid fuel, it is especially important while fueling with gasoline due to the low flash point (extreme flammability) and highly explosive characteristics of gas-air mixtures.

Bonding cables, although not required by law or government regulation while fueling private gasoline motorboats, would provide a strong safeguard against a static spark explosion, and their use is strongly recommended. A tight connection at both the filling system and fill pipe or tank should be made *before* the tank is opened and *before* any fuel flows, and the connection should not be broken until *after* fuel flow has ended and *after* the tank is closed. In the case of fueling from a system which is grounded by means of a pipeline, shore tank, etc., the explosion hazard exists from static charge which may be built up in the motorboat. However, in the case of fueling from a tank truck (with rubber tires which insulate it from ground) or from a drum or barrel of fuel, the explosion hazard exists from static charge which may be built up in *both* the motorboat *and* the tank truck or barrel. In the latter case the use of a bonding cable between tank truck and boat or between barrel and boat will be even more essential so that an

electrostatic potential cannot build up between filling system and motorboat.

It is realized that the use of a bonding cable while fueling motorboats is not always possible. As a minimum precaution in the absence of a bonding cable, if the motorboat owner or operator will make sure the filling

nozzle is held tightly against the metal fill pipe at all times while fuel is flowing, expensive and painful accidents due to static spark will be avoided (see fig. 4). Remember—static electricity is insidious, silent and invisible—until the spark jumps, and then it may be too late!



Courtesy The Texas Company

Figure 4 illustrates a safe fuel operation. Note that the metal fill pipe is flush with the deck; that the filling nozzle is held tightly against the metal fill pipe during fueling; and that after fueling is completed the engine compartment is opened for proper ventilation.

OPEN PILOT LIGHT

A disastrous explosion occurred on the 36-foot cabin cruiser whose remains are pictured in figure 5. The principal villain of this evil occurrence is plainly visible in the center of the picture, the refrigerator which was in operation at the time. Operated by propane gas, it had an *open gas flame* pilot light burning.

The cruiser had just completed fueling, with about 180 gallons of gasoline pumped into each of two tanks. During the fueling operation the owner had unscrewed an inspection plate on the top of the starboard fuel tank to check the fuel level, because this could not be done by means of the fill pipe opening on deck. After fueling was completed, he noticed that he had not resealed the inspection plate properly and gasoline was oozing out. He hurriedly grabbed a turkish towel and attempted to mop up the gasoline, meanwhile wondering how he could make the inspection plate tight without additional spillage.

Within moments a flash explosion occurred in the cabin, flames engulfed the owner and his wife, both of whom suffered burns, and the vessel burned, out of control. Both occupants were able to escape to the dock and the city fire department finally extinguished the fire, but the boat was a total loss. The owner and his wife were fortunate, indeed, to

escape without more serious injuries.

Unquestionably the pilot light under the refrigerator was the source of ignition for the explosion, which took place as soon as the vapors from the spilled fuel had mixed with the air



Figure 5. A pilot light set off this explosion.

and the explosive gasoline-air mixture reached the open flame. *Fueling with any inflammable liquid while an open flame is burning aboard the vessel is highly imprudent and downright dangerous.* The use of Liquefied Petroleum Gas (LPG) introduces a potential hazard if there is any leak in the storage bottles or system whereby this gas can collect inside the cabin or hull, as an explosive mixture of this gas with air can form readily. In the present case, an additional hazard was introduced by the open flame of the LPG gas pilot light. Any prudent motorboat operator, before fueling with gasoline, should eliminate every possible source of ignition, in particular remembering a forgotten or unnoticed source such as the pilot light.



Figure 6. An inexperienced helmsman caused this head-on collision.

HEAD ON

The smashed-in bow of the sturdily-built steel cabin cruiser pictured in figure 6 was the result of a head-on collision with a steel pipe and causeway when an inexperienced operator became "rattled" while cruising at high speed in restricted waters.

After a family outing, the powerful cruiser was returning through a busy waterway, turning up about 15 knots. It was late at night but visibility was good and the shoreline could be clearly seen. Suddenly the engine throttle button seemed to be stuck. The owner-operator turned over the

wheel to his relatively inexperienced wife, picked up a flashlight, and slid back the engine hatch to attempt to clear the throttle cable. Unfortunately, his wife did not realize that the cruiser had slight right rudder and was swinging slowly to starboard, although a left turn in the channel was not far ahead. With her husband on his hands and knees working over the engine space, she suddenly realized a solid causeway flanking the right-hand edge of the channel was just ahead. Apparently in fright or panic, she "froze" at the wheel, emitting a scream only at the last moment before the cruiser smashed into the causeway. All occupants were pitched forward by the collision. The husband struck the cabin door, which was torn off its hinges, and landed inside the cabin with severe bruises and a lacerated throat. The woman suffered a bruised chest and arms. Other occupants were bruised but not seriously.

The cruiser was damaged but remained afloat. A section of heavy pipeline on the causeway was shattered for about 3 feet. Considering the potential damage and hazard to life and limb which resulted from the collision at 15 knots of this heavy motorboat with a solid object, the outcome was most lucky for all concerned.

In the moment just before impact, the woman showed some presence of mind and shut off the engine ignition. How much safer it would have been to have shut off the ignition when throttle trouble was first suspected, allowed the boat to drift to a stop, and anchored until the trouble could be remedied. No doubt these motorboaters will do just that if the occasion again arises.

HOT TIP

Fire protection engineers have established the fact that the temperature may be over 1,000° F. in the hot tip of a smoldering cigarette, or as high as 1,500° F. when the cigarette is being puffed. While the total amount of heat generated by a smoldering cigarette is small and is not a serious factor in causing fires, a real danger exists in the high temperature, which is sufficient to ignite cotton and synthetic fibers, and the fact that a cigarette can smolder slowly for a considerable time, during which period any material in contact with it may begin to char, smolder, and then break into open flame.

The disastrous fire which almost completely destroyed a \$100,000 diesel yacht (see fig. 7) was blamed on a

carelessly-discarded cigarette. Three persons, master, deckhand, and cook, had been busy aboard the yacht all day long while lying at the pier. The master and cook departed for the night at the end of the working day. The deckhand went ashore a few hours during the evening, returning before midnight. No one else was known to have been aboard that evening. About 5:45 the next morning, smoke rising from the yacht was noticed by the master of another yacht, who went aboard and awakened the deckhand. The two men immediately abandoned the yacht through dense smoke and called the fire department. City fire equipment arrived a few minutes later and fought the fire, finally extinguishing it 2 hours later. By then, although still afloat, the beautiful yacht was a charred and gutted wreck.

Conclusive evidence indicated that the fire had originated in a berth in the owner's quarters. The master and both crew members vehemently denied that they had ever used the owner's quarters. However, in lack of any evidence of an electrical or mechanical source of ignition in the

owner's quarters, the inevitable conclusion was reached that these quarters were utilized during the night by one or more persons and that the most likely cause of the incipient fire was a discarded cigarette. With the deckhand asleep forward, a smoldering fire induced by a lighted cigarette in bedding or other flammable fabrics could easily have reached extensive proportions before discovery.

Hazards introduced by careless smoking habits are serious ashore, but they are even more serious on motorboats and yachts such as this. Due to the wooden structure and the close proximity of flammable liquid fuels, a small vessel of this type has little fire resistance and may, when started, become a tinder box. If a fire should occur at sea, there is no place to go except overboard, with the additional hazards that action may entail. Better by far to take the small extra precautions of safe smoking habits—the right time and place, the proper disposal of match and cigarette—than to risk being in an inferno such as the one that did the job pictured in figure 7—with no place to go!



Figure 7. A smoldering cigarette caused this damage.

RAPID TURNOVER

A man's life was lost when the charter party fishing boat, pictured in figure 8, capsized suddenly in a rough choppy seaway. An afternoon of sport fishing and recreation, for the five men who hired the boat, turned into an occasion of stark tragedy from which one of the party never returned. Smashed by breakers, a forlorn hulk of splintered timber, the 38-foot motorboat finally drifted ashore, bottom up like a bloated fish, where the final rites were administered before it was hauled off to the junkyard.

Sailing early in the morning with the five fishermen aboard, the ill-fated charter boat was favored with good weather and good fishing. As the breeze picked up after lunch, a strong chop developed, aggravated by tide rips. Suddenly, a particularly heavy swell rode down upon the slowly trolling boat, picked her up by the stern, rolled her over on her starboard side, and capsized her. All hands were cast into the sea. The life preservers were stowed inside closed unlabeled lockers and none of the passengers had been apprised of their location. Fortunately another fishing boat was nearby and came quickly to the rescue. Within 5 minutes, four of the men had been pulled safely aboard. One of the fishermen, unable to swim and without a life preserver, disappeared below the surface and could not be found. Had this party boat been carrying a larger number of passengers, it is fairly certain that the death toll would have been much larger.

One of the requirements of the Motorboat Act of 1940 is that all motorboats carrying passengers for hire shall carry, so placed as to be readily accessible, at least one approved-type life preserver for each person on board. If the life preservers on this motorboat had been stowed in open, labeled boxes and their presence made known to the passengers, it is possible that the loss of life could have been prevented. The protection afforded motorboaters by efficient life preservers is only as positive as their immediate availability at the moment when most needed.

DEATH FROM GLASS

By CDR. Jesse E. Eastman, USCG

A small piece of glass caused the loss of a large fishing vessel in 1952. Another small piece of glass was the indirect cause of the loss of a pleasure boat and the death of a man in 1954. The glass in question was in a sight gage on a fuel-oil tank. This



Figure 8. One person drowned because the life preservers were not immediately available.

type of installation is not permitted on any vessel subject to inspection.

A short circuit in the electrical distribution system took place on the pleasure boat and a fire resulted. The diesel fuel-oil tank was equipped with a tubular glass gage column to indicate the fuel level. The glass broke as a result of the heat from the fire and oil poured out into the engine room which increased the fire to such an extent that it became out of control. The vessel burned, sank, and was a total loss.

On a bright Sunday morning, the proud owner and builder of a new 16-foot, inboard-propelled, gasoline-driven, motorboat launched his vessel. He boarded the boat, along with his wife and small son, his brother-in-law, and nephew, looking forward to a pleasant day of boating. The vessel had been underway only a few hours when an explosion occurred and the vessel became a mass of flames. The proud owner and breadwinner of the family was killed and the boat was a total loss.

Investigation, after the hulk was salvaged, revealed that the owner had installed a war surplus, aluminum tank for use as a fuel tank. This tank was also equipped with a tubular glass gage to indicate the fuel level. The conclusion of the Investigating Officer was that the most probable leak in the fuel system was from a broken glass gage.

It is contrary to all acceptable marine safety practices to install tubular glass gages on fuel oil tanks. Even though such gages may be equipped with valves, top and bottom, the human element must be considered and these valves may be left open. It

takes very little to break such glass thereby pouring a combustible and inflammable liquid into the engine space.

Installing a glass gage on a gasoline fuel-oil tank in any space aboard a pleasure craft is asking for sudden death!

If the owner finds it necessary to use a gage on a fuel-oil tank, there are many makes of visual gages that are relatively safe. There are those using the float system, compressed air, or those using a combination float and electrical resistor system such as used on automotive fuel tanks. Gages of this type have been proven satisfactory after years of use throughout the marine industry. Glass gages of the tubular type should never be used on a fuel tank, afloat or ashore. *It behooves the owners and operators of pleasure craft for their own safety to remove any tubular glass gages which are now fitted to fuel tanks.*

A LANTERN IN HIS HAND

Standing in the after cockpit, the yachtsman attempted to light his gasoline pressure-type lantern. A half hour later, he and two other men who had gone out on Lake Erie for some night fishing were struggling in the dark waters clinging desperately to a small life float and the beautiful \$35,000 cabin cruiser was a mass of flames.

The owner-operator had cruised to the fishing grounds, anchored his boat and prepared to light off a lantern to use as a fish light. With the other two men forward getting out the fishing gear, he pumped up the lantern,

opened the fuel valve and applied a match. Due to a defective mantle, the lantern did not light immediately but, after an interval, flared up with a flame 2 feet high. This startled the operator so much that he dropped the lantern (see fig. 9) onto the deck. Immediately a nylon-acetate rug flared up and fire was transmitted throughout the cabin.

In spite of valiant efforts by the three men to combat the flames with portable extinguishers, it soon became obvious that it was a losing battle. Two men were able to grab life preservers but the third was forced overboard without one by a puff of flame. Before jumping into the lake to escape the inferno the two wearing life jackets were able to release the small life float. When a Coast Guard patrol boat arrived a few minutes later, all three men were found clinging to the float, cold, miserable, but safe, with no injuries except a few minor burns. The burning yacht was extinguished with the help of a nearby tug, but it was a charred shell and was later declared a total loss.

The dangers of using any gasoline-operated equipment other than the main engine on board a motorboat are self-evident. Fires and explosions resulting from leakage of gasoline from the engine fuel system are all too frequent. That just as disastrous results can occur when gasoline leaks from any other type of equipment using gasoline as a fuel seems

to be frequently overlooked. The defective mantle in this case helped lead to this painful (and expensive) casualty, but the highly flammable material used as a deck covering played a large part in the loss of the vessel and the sudden danger to human lives.

ARSON, BARRATRY, FRAUD

The temptation to attempt to collect insurance proceeds by intentionally destroying property is sometimes too great to resist, even for boat owners. The incidence of small vessels lost by sinking or fire wherein comprehensive investigation can reveal no definite or reasonable causes for their loss, especially in locations where it is known that business is not too good, is far too great for normal explanation. One recent attempt to defraud an insurance company by intentionally burning a boat ended in utter disaster for the owner.

In July 1954, the owner of a 30-foot cabin cruiser was sentenced by a District Court Judge in Jacksonville, Fla., to 4 years in Federal prison for burning his boat to collect the \$6,500 insurance. Two accomplices, who pleaded guilty to the actual burning of the vessel, were each given suspended sentences and placed on 5 years' probation. Federal statutory criminal offenses committed on the navigable waters of the United States or in the United States admiralty or

maritime jurisdiction are under the original jurisdiction of Federal District Courts. Section 2271, Title 18, United States Code, CRIMES AND CRIMINAL PROCEDURES, reads as follows: "Whoever, on the high seas, or within the United States, willfully and corruptly conspires, combines, and confederates with any other person, such other person being either within or without the United States, to cast away or otherwise destroy any vessel, with intent to injure any person that may have underwritten or may thereafter underwrite any policy of insurance thereon or on goods on board thereof, or with intent to injure any person that has lent or advanced, or may lend or advance, any money on such vessel on bottomry or respondentia; or

Whoever, within the United States, builds, or fits out any vessel to be cast away or destroyed, with like intent—

Shall be fined not more than \$10,000 or imprisoned not more than 10 years, or both." Prosecution of the owner in this case was based upon this statute and upon Sections 2272 and 2274, Title 18, United States Code, which are somewhat similar.

The incident, investigated as a marine casualty by the Office of Marine Inspection, Jacksonville, Fla., took place on May 11, 1953. At 5 p. m. on the above date the cruiser while navigating approximately 1½ miles offshore from Jacksonville Beach caught on fire and burned to almost a total loss. During subsequent investigation, the two men who had been operating the boat stated that they took the boat from a repair yard to sea on a trial run after repairing the engine. They claimed that they had been running for 3 hours when the engine backfired, causing fire in the engine compartment and the fire so alarmed the men that they immediately abandoned the cruiser in a small dinghy. During interrogation of other witnesses, it became apparent that fraudulent conspiracy to destroy the property was involved.

A witness from the repair yard stated that on two previous occasions he had found a soldering iron left plugged into the electric current on board the boat. Other witnesses who were able to salvage the engine and part of the boat testified that the repairs alleged to have been made on the engine were not likely as the carbon deposits in the engine had not been disturbed and it did not appear that any of the fittings on the engine had been removed at all. One witness testified that he saw two men remove the dinghy from the top of the cabin of the cruiser and tow it astern upon leaving the yard. However, the statements of the two men who had been



Figure 9. This gasoline lantern caused the complete destruction of a \$35,000 yacht.

in the boat when it caught fire were in conflict as to where the dinghy was kept and when it was placed overboard.

Close examination of the engine and fuel connections from the salvaged portion of the boat indicated that the fuel connection from the tank at the carburetor had been tampered with and the soft gaskets had been taken out in order to allow the leakage of gasoline to the bilges. The engine was fitted with an approved type flame arrester of the up-draft type which would have prevented fire from reaching the bilges in case the engine backfired.

In view of the conflicting and condemning circumstances, the Officer in Charge of Marine Inspection, Jacksonville, Fla., contacted the United States district attorney. The Federal Bureau of Investigation was assigned to further investigate the circumstances of this case and assisted the Coast Guard's investigation as necessary.

Charges against the owner of the boat and the two men who were in it when the fire occurred were presented to the Federal grand jury which returned a true bill of indictment. The owner was charged as follows:

COUNT ONE

Beginning prior to May 6, 1953, and continuing to June 1, 1953, the owner did willfully and corruptly conspire within the United States to cast away or otherwise destroy a vessel, to wit, a 30-foot cabin cruiser, with intent to injure the person who had underwritten a policy of insurance thereon; in violation of Section 2271, Title 18, United States Code.

OVERT ACTS

1. On or about the 6th of May 1953, the owner offered another man the sum of \$500 to burn his boat.

2. On or about the 8th day of May 1953, the other man accepted the offer of the owner to burn the boat.

3. On or about the 10th day of May 1953, at the boatyard the owner showed the conspirator how to operate the boat and instructed him how to destroy it by fire on the high seas offshore from Jacksonville Beach, Fla.

4. On or about the 11th day of May 1953, another man agreed to assist in destroying the cruiser by fire.

5. On or about the 11th day of May 1953, at a point approximately 1½ miles offshore at Jacksonville Beach, Fla., on the high seas the men did destroy by fire the cabin cruiser.

6. On or about the first day of June 1953, the owner filed with the insur-

ance company carrying the insurance policy on his boat, a claim in the amount of \$6,500 for the destruction by fire of the boat.

COUNT TWO

On or about May 11, 1953, upon the high seas and on waters within the admiralty and maritime jurisdiction of the United States, in the Southern District of Florida, the owner did willfully and corruptly destroy and cause to be destroyed a vessel, to wit, a 30-foot cabin cruiser of which he was owner, with intent to injure the person who had underwritten a policy of insurance thereon; in violation of Section 2272, Title 18, United States Code.

COUNT THREE

On or about May 11, 1953, upon the high seas and within the territorial waters of the United States, in the Southern District of Florida, the owner of a private vessel, to wit, a 30-foot cabin cruiser known as the ----- did willfully permit the destruction of said vessel; in violation of Section 2274, Title 18, United States Code.

On the 9th day of June 1954, after the Government had completed testimony in its case against him before a trial jury in district court, the owner of the boat pleaded guilty under count one, conspiring to destroy a vessel with intent to fraudulently collect the insurance proceeds, Title 18, United States Code 2271. Following the guilty plea to the conspiracy count, the Government dropped the second and third counts. The maximum punishment authorized for the

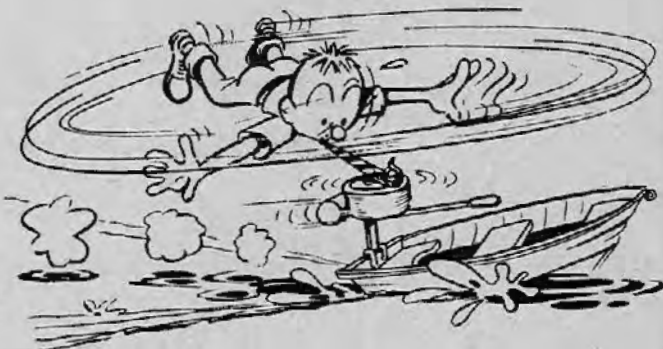
second count is life imprisonment. The two accomplices were given suspended sentences as described above. The owner of the boat was given 1 week from the date of conviction to set his affairs in order, at the termination of which he was to report to the United States marshal to begin the execution of sentence.

ARE EXPLOSIONS INEVITABLE?

The complete devastation of the sleek 36-foot cabin cruiser pictured in figure 10 is a good example of the type of accident which can occur to a craft powered by a gasoline engine, even when every practicable precaution has been taken. Shattered and burned to a charred skeleton, this boat became a total loss and serious injuries or loss of life were avoided by the seven occupants only by the narrowest of margins.

After sailing on a moonlight cruise, the party was returning at about 4:00 a. m. Just as the operator slowed the engine for his approach to the mooring, there was a blast from the engine space. The engine hatch flew up knocking over one passenger and injuring him. Flames shot forward burning the persons in the cabin. After a few moments of ineffectual use of two 1-quart carbon tetrachloride extinguishers all seven occupants abandoned the floating inferno. Five were able to drift ashore clinging to a tiny dinghy which had been carried on the fore deck of the cruiser. The other two occupants, who could not swim, tossed the bow painter over the side, lowered themselves into the

NEVER WEAR LOOSE CLOTHING
"AROUND" MOVING
MACHINERY!



National Safety Council

water, and clung to the painter until picked up by a man who chanced to be nearby in a rowboat. About 30 minutes later the fire was extinguished by the crew of a Coast Guard patrol boat, who then towed the gutted hulk in to the landing.

The closest investigation could not determine the source of the gasoline leak which obviously led to this disaster. During the previous winter, the owner, who was also an automotive engineer, had overhauled the engine, removed, cleaned, pressure-tested, and reinstalled both gasoline fuel tanks. All fuel lines and fittings from the tanks to the carburetors were renewed. A power exhaust blower with two vent lines was installed. This boat was already equipped with four cowl vents from the bilges of the engine space, two forward and two aft. The owner testified that he had operated the exhaust blower for at least 5 minutes prior to each starting of the engine throughout that evening.

No clues could be found in the wreckage as to the source of the leak, except for a slight amount of looseness in one fuel line from fuel pump to carburetor. However, a gasket installed in this line was damaged by fire and the original thickness of the gasket could have been just the amount of slackness which was observed. Here was a serious and dangerous accident for the specific pre-

vention of which the owner had apparently taken every logical precaution. Obviously there was one flaw in the system and gasoline had leaked into the bilges. Gasoline can be a boon to all mankind when properly controlled, but a terrible adversary when its insidious vapors escape and form explosive mixtures. Only a continuous vigilance against gasoline leaks will keep this monstrous power chained.

DO YOU KNOW?

(Continued from page 1)

recognize other boats and ships in the same waters. Then, they tell you how to pass each other safely. Obviously, and contrary to popular conception, it is not enough that you know just your own lights—so others can keep out of your way.

THE MOTORBOAT ACT

There's another popular conception that is highly erroneous. That is, that *The Motorboat Act* excuses all boats from observing the boating traffic laws for the area of operation. It doesn't.

If you sail a sail boat, *The Motorboat Act* doesn't even apply to your boat—no matter where you sail. Nor does *The Motorboat Act* apply to your inboard, outboard, or auxiliary, if you sail ocean or Gulf waters beyond the seaward limits of Inland Waters.

If you read the list of boating traffic laws for each of the four areas again, you will see what *The Motorboat Act* does. It amends a very small part of the basic boating traffic laws for the Great Lakes, Western Rivers, and Inland Waters.

And, if you were to read *The Motorboat Act*, itself, you would see this is what it says:

(1) If your boat is 65 feet or less in length, and has an engine or some other form of propulsion machinery, it is a "motorboat"—even if you think it is a sail boat with an auxiliary engine.

(2) If you have a boat which is a "motorboat," you must carry the lights *The Motorboat Act* tells you to carry, rather than the lights required by the boating traffic laws for the Great Lakes, Western Rivers, and Inland Waters—while you are cruising. But, if you stop and anchor, start to fish, do any towing, or anything else besides cruise, you must carry the lights and daymarks required by the boating traffic rules for the area you are in.

(3) If your boat is a particular type of "motorboat," you must carry the whistle and bell *The Motorboat Act* tells you to carry, when you are in the Great Lakes, Western Rivers, or Inland Waters, so that you may give the proper signals and execute the proper maneuvers required by the boating traffic laws for each of those areas. And, if your boat is not required to be permanently equipped with a whistle or bell, it is your duty to get the proper equipment to sound the signals required by the boating traffic laws for the area you are in, before you take your boat out.

You can get whichever pamphlet you need—CG-169, CG-172, or CG-184—from the local Coast Guard Marine Inspection Office, or by writing directly to the Commandant (M), U. S. Coast Guard, Washington 25, D. C.

COAST GUARD AUXILIARY

(Continued from page 3)

field are appointed by the District Commodore to serve on his District Staff and by Division Captains to serve on Division Staffs. These Staff Officers are concerned with assisting in the administration of the various Auxiliary programs, such as Public Instruction Courses, Membership Qualification, Courtesy Examination, and so forth.

MOTORBOAT EXAMINATION

All of the Auxiliary's programs are slanted toward safety as the main theme. In all the districts various Auxiliary units sponsor a standard instruction course in boating subjects for the benefit of the general public. Each year thousands of pleasure boats are given Courtesy Examination



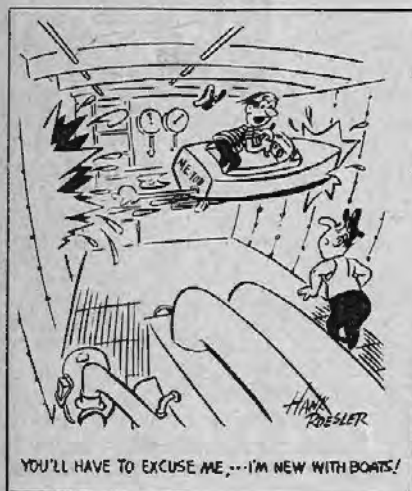
Figure 10. A leaking fuel line caused this fire.

checks by Auxiliary Examiners qualified in that field and, if they measure up to the high safety standards set by the Auxiliary, they are awarded the coveted Courtesy Examination Decalcomania (see fig. 1). Auxiliary vessels are also inspected annually and while the two examination programs are similar in scope, there are additional safety requirements beyond those required of non-member boats. If the Auxiliary vessels qualify they are awarded the decalcomania and may fly the Auxiliary "Blue Ensign" (see fig. 2).

Another instruction program in which the Auxiliary is engaged is the instruction of Provisional Members in qualifying for regular membership. New members are enrolled as "Provisional Members" and have one year in which to qualify as members by taking examinations prescribed by the Commandant.

Auxiliarists are also given the opportunity to assist the Coast Guard in some of its civil functions, particularly those concerned with the safety of navigation. Hundreds of regattas are patrolled each year by Auxiliary units. They assist the Coast Guard in locating and lending a helping hand to many of their fellow boatmen in distress. Special safety patrols of water pageants and marine parades by the Auxiliary contribute greatly to the safety and pleasure of these events (see fig. 3).

It is in this manner that members of the Auxiliary, by friendly advice, good example, and by furthering boating education and instruction, form the link between official law enforcement by the Coast Guard and voluntary compliance by the boat owners.



Courtesy Maritime Reporter

REGATTAS

(Continued from page 5)

reasons will be furnished at the time notice of disapproval is given. As was mentioned above, such decisions are made only after sound consideration of all the factors involved, and it is unfortunate that at times it is necessary to refuse permission to hold regattas or marine parades on the navigable waters.

However, where the plans are approved it is essential that notices of such marine parades or regattas be given wide publicity well in advance of the event. The local radio, press, and Notices to Mariners are utilized for this purpose. Such advance publicity increases the effectiveness of the Patrol Commander during the actual event, inasmuch as all boat operators in the area are forewarned and know what is expected of them.

ADEQUATE PATROL

After approval of the plans for a marine parade or regatta, the District Commander takes the necessary steps to see that the area will be adequately patrolled, not only to see that the special local regulations are enforced, but also to render assistance where necessary and to enforce applicable general regulations. From time to time the Coast Guard Auxiliary is called upon to assist in these matters, and it does an excellent job. Where a private vessel is utilized by the Coast Guard to assist in this work, it is easily identified, as it displays the Coast Guard ensign.

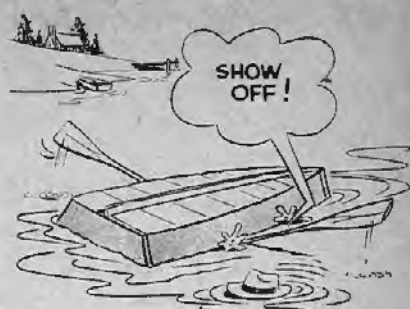
In 1952, Part 100 of Title 33 CFR was amended by the addition of a new Section 100.30. By this amendment, 33 CFR Part 100 was made inapplicable to a marine parade or marine regatta occurring on the interior waters of a state, providing certain conditions were complied with. The new section sets forth these prerequisites and is quoted below:

"§ 100.30 Permissible state regulation of marine regattas or marine parades.

(a) In the exercise of his discretion as provided in section 1 of the act of April 28, 1908, as amended (sec. 1, 35 Stat. 69, as amended; 46 U. S. C. 454), the Commandant has determined that the regulations in this part shall not be applicable to a marine regatta or a marine parade occurring on the interior waters of a state if:

(1) The state directs and controls the operation of such a marine regatta or marine parade in a manner such as to insure the safety of life on navigable waters during a marine regatta or marine parade; and,

(2) The state submits to the Commander of the Coast Guard district in which the marine regatta or marine pa-



National Safety Council

rade is to occur its complete plans for regulation of such regatta or parade, such plans to be submitted at least two weeks before the occurrence of such regatta or parade.

(b) Upon the completion of his study of the plans and at least one week before the occurrence of a marine regatta or marine parade, the Commander of the Coast Guard district will notify the state which submitted the plans:

(1) That the plans are approved and the regulations in this part shall not be applicable to such regatta or parade; or,

(2) That the interest of safety of life on the navigable waters require specific change or changes in the plans before they can be approved; or,

(3) That the plans are not approved, with reasons for such disapproval, and that the regulations in this part are applicable to the marine regatta or marine parade.

(Sec. 1, 35 Stat. 69, as amended; 46 U. S. C. 454)"

PENALTIES

Several penalties are provided for the violation of any regulations issued to promote the safety of life on navigable waters during regattas or marine parades. For example, 46 U. S. C. 454 and 457 read in part as follows:

Section 454. Regulations as to Regattas or Marine Parades. The Commandant of the Coast Guard is authorized and empowered in his discretion to issue from time to time regulations, not contrary to law, to promote the safety of life on navigable waters during regattas or marine parades.

Section 457. Penalties for Violations of Regulations. For any violation of regulations issued pursuant to the three preceding sections the following penalties shall be incurred:

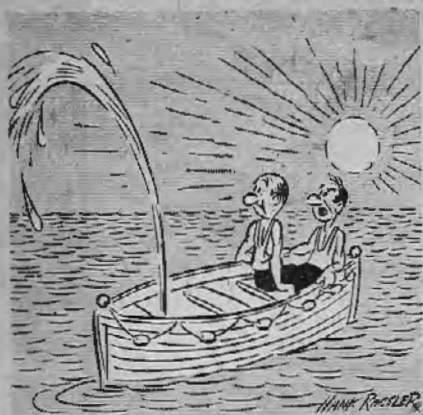
(a) A licensed officer shall be liable to suspension or revocation of license.

(b) Any person in charge of the navigation of a vessel other than a licensed officer shall be liable to a penalty of \$500.

(c) The owner of a vessel (including any corporate officer of a corporation owning the vessel) actually on board shall be liable to a penalty of \$500, unless the violation of regulations shall have occurred without his knowledge.

(d) Any other person shall be liable to a penalty of \$250.

Persons who operate a motorboat in a reckless or negligent manner are



"No, that isn't why it's called a Whaleboat
—That's a leak!"

Courtesy Maritime Reporter

also subject to severe penalties as provided by the Motorboat Act of 1940. This Act, 46 U. S. C. 526m reads as follows:

Any person who shall operate any motorboat or any vessel in a reckless or negligent manner so as to endanger the life, limb, or property of any person shall be deemed guilty of a misdemeanor and on conviction thereof by any court of competent jurisdiction shall be punished by a fine not exceeding \$2,000, or by imprisonment for a term of not exceeding one year, or by both such fine and imprisonment, at the discretion of the court. Apr. 25, 1940, C155, Sec. 14, 54 Stat. 166; U. S. C. Sec. 526m.

These statutes are not quoted or held out as threats to be invoked at the slightest infraction of the special local regulations for a particular marine parade or regatta. They are available, however, if infractions are serious enough to warrant resorting to them.

Cooperation with the special local regulations is what is desired primarily by the Coast Guard. All these regulations have one purpose in mind—the promotion of safety of life on navigable waters during these events.

PROCEDURES FOR NUMBERING

(Continued from page 16)

tion and determination of satisfactory ownership is made.

If a person resides for an extended length of time or maintains a summer or winter residence within a Customs District other than the one where he has his permanent residence, and such a person acquires an undocumented vessel while at his temporary residence, he may make an application for a certificate of award of number to the District Commander having jurisdiction over his tempo-

rary residence. In such cases a number may be assigned and a certificate of award of number may be issued after satisfactory proof of ownership is established.

In cases of vessels undergoing manufacturers' test, as distinguished from vessels being used for demonstration to prospective purchasers, the District Commander is authorized to assign each manufacturer one identification number and to issue as many certificates bearing this number as may be required to furnish a certificate of award of number for each vessel that may be tested at any one time. Each certificate issued will be endorsed "this certificate has been issued for an undocumented vessel being operated solely for test purposes." When such a boat is sold or transferred by the manufacturer, it shall be treated as an undocumented vessel not previously numbered.

A certificate of award of number will be issued to each boat used for demonstration purposes by dealers. Upon the sale or transfer of the undocumented vessel, the application, a short form of bill of sale on the reverse side of the certificate, must be executed and submitted by the new owner for a new certificate of award of number.

An individual owner or manufacturer or a dealer duly authorized by the manufacturer of a boat not yet completed may obtain a number from the District Commander of the District in which the purchaser resides, upon compliance with the requirements in 46 CFR 29.14. A number and certificate of award of number in the name of the owner may be issued. Under such circumstances, the number when awarded, may be placed on the undocumented vessel by the manufacturer and the certificate delivered to the purchaser at the time of delivery of the vessel. Should, for any reason, the vessel not be delivered to the person named in the application, the certificate must be returned for cancellation.

CERTIFICATES REPLACING THOSE LOST, DESTROYED, ETC.

In case a certificate of award of number is lost, destroyed, or mutilated, another certificate will be issued upon application by the owner to the District Commander. No charge will be made for the issuance of a certificate of award of number, nor for the issuance of another certificate, when the first certificate is lost, destroyed, or mutilated.

CANCELLATION OF CERTIFICATES

The owner is not authorized to make any changes on a certificate of

award of number, Form CG-1513. If changes occur the owner may voluntarily surrender the certificate and changes may be made on that certificate by the Coast Guard or a new certificate may be issued.

When the owner of a numbered vessel changes the name, service, or engine of the vessel the District Commander shall request the surrender of the certificate of award of number so that such changes may be entered on the certificate, or he may issue a corrected certificate of award of number.

PROCEDURE UPON CHANGE OF PERMANENT RESIDENCE

When the owner moves his permanent residence to a place in another customs district, or to a place within the jurisdiction of another District Commander, the original number awarded the vessel will be changed and the owner will be required to surrender the certificate of award of number for reassignment of another number and issuance of a certificate of award of number.

PLACEMENT ON VESSEL OF NUMBER AWARDED

The act of June 7, 1918, as amended (46 U. S. C. 288), and the numbering regulations in 46 CFR Part 29 require that the numbers assigned shall be placed on the bows of undocumented vessels and that certificates of award of number shall be kept on board while on navigable waters of the United States.

The vessels being tested by a manufacturer must carry the number assigned to the manufacturer in some temporary form on each bow of the vessel.



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