

PROCEEDINGS OF THE MERCHANT MARINE COUNCIL UNITED STATES COAST GUARD

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This copy for not less than 20 readers.
PASS IT ALONG

CG 129



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SIX CAME BACK



MERCHANT MARINE COUNCIL

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and three Marine Inspection Officers are
designated as members by the Commandant.

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COUNCIL ACTIVITIES

A public hearing will be held by the Merchant Marine Council on Tuesday, March 23, 1954, commencing at 9:30 a. m., in Room 4120, Coast Guard Headquarters, Washington, D. C., for the purpose of receiving comments, views, and data on certain proposed changes in the Navigation and Vessel Inspection Regulations regarding the following subjects:

- ITEM I—MARINE ENGINEERING REGULATIONS; CONSTRUCTION.
- ITEM II—MARINE ENGINEERING REGULATIONS; PIPING.
- ITEM III—MARINE ENGINEERING REGULATIONS; INTERNAL COMBUSTION ENGINE EXHAUST LINES.
- ITEM IV—PASSENGER, CARGO AND MISCELLANEOUS VESSELS; APPLICATION OF RULES AND REGULATIONS.
- ITEM V—PASSENGER VESSELS; STRUCTURAL FIRE PROTECTION.
- ITEM VI—PASSENGER, CARGO AND MISCELLANEOUS VESSELS; ACCOMMODATIONS FOR OFFICERS AND CREW.
- ITEM VII—PASSENGER, CARGO AND MISCELLANEOUS VESSELS; RAILS AND GUARDS.
- ITEM VIII—PASSENGER, CARGO AND MISCELLANEOUS VESSELS; TESTING AND MARKING OF CO₂ STORAGE BOTTLES FOR EXTINGUISHERS.
- ITEM IX—DANGEROUS CARGO REGULATIONS; MISCELLANEOUS AMENDMENTS.
- ITEM X—SPECIFICATIONS; DISTRESS SIGNALS.
- ITEM XI—SPECIFICATIONS; REPLACEMENTS FOR IMPULSE-PROJECTED ROCKET TYPE LINE THROWING APPLIANCES.

The specific changes proposed to the regulations are contained in the Merchant Marine Council Meeting Agenda (CG-249), dated March 1954. Copies of this Agenda have been mailed to persons and organizations who have expressed a continued interest in the subjects under consideration and have requested that copies be furnished them. Copies of the Agenda will be furnished on request to the Commandant (CMC), United States Coast Guard, Washington 25, D. C., so long as they are available.

THE COAST GUARD AUXILIARY

The Coast Guard Auxiliary is a civilian organization whose purpose is as follows:

To promote safety and to effect rescues on and over the high seas and 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.

To facilitate other operations of the Coast Guard.

One of the most important activities of the Auxiliary is the Courtesy Examinations of pleasure-boats owned by the general public.

One of the duties of the regular Coast Guard is to inspect all vessels to see that they comply with the laws governing safety equipment and seaworthiness. To assist the Coast Guard in this duty the Auxiliary has established Courtesy Examination stations where boatmen may bring their boats and have them examined by the Auxiliary. This examination is voluntary and is made only when a pleasure-boat owner requests it. The trained Auxiliary examiners examine the boat to see if it is properly equipped. If the boat is equipped as required, the owner will receive a decal for his windshield, which will indicate that his boat passed the examination.

If a boat does not pass the required examination, the matter is not reported as a violation, rather the examiner will help the owner by telling him what is required and will also give the owner any advice that he may be asked. In other words, the Auxiliary is out to help the boatmen in making their boats safe.

AUXILIARY REQUIREMENTS FOR AWARD OF DECALCOMANIA

It should be readily apparent that in order to qualify for award of this decal a motorboat must meet high standards of safety. The Coast Guard and the Auxiliary have found through years of experience with small boats that a motorboat may satisfy all the minimum requirements and still not be entirely safe. Therefore, before a vessel can be awarded a decal, it must meet not only the legal requirements, but in addition must satisfy certain other requirements considered by the Auxiliary to be essential to safe boat operation.

These additional requirements may be considered in two parts as follows:

(1) Amplification of Legal Requirements

Although a vessel may comply with the law as set forth elsewhere in this issue under the title of *Equipment Required for All Motorboats*, it will not be awarded a decal if it does not satisfy the following:

Lights. While boats are not required to have lights aboard during daylight hours, the decal will not be awarded unless the boat is so equipped and the lights are operative.

Lifesaving Equipment. The decal will not be awarded unless there are at least as many approved devices on board as there are berths, notwithstanding the fact that there are as many devices on board as there are people during the Examination.

Fire Extinguishers. Outboard motorboats of open construction not carrying passengers for hire that are under 26 feet in length are not required to carry portable fire extinguishers. However, outboard motorboats sixteen (16) feet and over in length must have the required number of extinguishers on board for her class, and, Class A and I motorboats having a fixed CO₂ system in the engine room must have at least one hand portable fire extinguisher on board, in order to qualify for a decal.

Flame Arrestors. The decal will not be awarded to a motorboat unless the carburetor is equipped with a flame arrestor, regardless of the date of engine installation.

(2) Additional Equipment and Condition Requirements

In addition to satisfying the amplified legal requirements, a boat must comply with the following in order to qualify for a decal.

Galley Stove. Galley stoves must be installed securely so that they will not shift position due to the motion of the boat. They must be so positioned that no inflammable material in close proximity can be ignited. Any of the common types of fuel may be used except gasoline. Decals will not be awarded to vessels having gasoline stoves on board.

Fuel Tank Filler Pipe. The fuel tank filler pipe must be so mounted that it fits into a filling plate on deck outside the cockpit. This arrangement prevents vapors from escaping to the inside of the boat, and the overflow of gasoline, when fueling, will run overboard. Filling pipes terminating at deck plates on the floor of a self-bailing cockpit are also approved.

Fuel Tank Vents. Adequate vents or reliefs leading outboard must be provided on all fuel tanks. Under no circumstances shall vents terminate in an enclosed space.

Carburetor Drip Pan. There are two types of carburetors in general marine service today—the updraft type and the downdraft type. The updraft type is an older design and is so constructed that the flow of air entering the carburetor is directed in an upward direction. The downdraft type, a new development, directs the flow of air in a downward direction. One of the advantages of this latter type is that any leakage of fuel in the unit will not drip into the bilge. This type is not required to have a drip pan. Vessels with the updraft type must have a drip pan installed beneath the carburetor in order to qualify for a decal. This pan must be equipped with a fine mesh wire screen to prevent the possibility of the gasoline in the pan catching fire. A thin tube leading from the lowest point of this pan to the intake manifold will automatically empty this pan when the engine is in operation. If the drip pan is not so equipped, the owner will be cautioned to empty the pan at frequent intervals to prevent accumulation of gasoline.

General Condition. A decal will not be awarded to a boat which is not in good overall condition. For instance, the bilges must be clean and free from oil, grease, and water; fuel lines must be intact and preferably lead from the top of the fuel tanks; electrical wires and fittings must comply with good marine practice, be in good condition and installed to minimize danger of short circuits and resultant fires; the hull must be generally sound.

Many other factors contribute to a vessel's seaworthiness that cannot be described here. They too will be considered in determining whether or not the boat is generally shipshape.

EXTENT OF ACTIVITY IN 1953

During the period January 1–December 31, 1953, the Coast Guard Auxiliary inspected 5,629 member boats, rendered 17,621 courtesy examinations, and awarded 15,866 decals. It gave operational assistance in 1,699 instances and thereby saved 156 lives. Among other things, it also enrolled 4,171 boat owners in the Auxiliary Public Instruction Course, which is designed to teach the basic fundamentals of safe boating.

(Continued on page 39)

EQUIPMENT REQUIREMENTS FOR ALL MOTORBOATS

Outboard Motorboats

In the case of outboard motorboats, the same requirements as to safety equipment must be met as specified for the general classes of motorboats of identical length, with the exception of the requirements regarding ventilation, the carburetor flame arrestor, and fire extinguishers.

It will be noted that only motorboats less than 26 feet in length of open construction, propelled by outboard motors, not carrying passengers for hire need not carry portable fire extinguishers.

An amendment to 46 CFR 25.30-20 requiring fire extinguishers on outboard motorboats was published in the Federal Register of December 18, 1953, as many motorboats are being built with cabins and other enclosed spaces and such motorboats are propelled by outboard motors. In addition, many of these motorboats are carrying portable auxiliary gasoline tanks as part of the outboard motor accessories.

The new regulation reads as follows:

25.30-20. Fire extinguishing equipment required—(a) Motorboats. (1) All motorboats shall carry at least the minimum number of hand-portable fire extinguishers set forth in Table 25.30-20 (a) (1), except that motorboats less than 26 feet in length of open construction, propelled by outboard motors, not carrying passengers for hire need not carry such portable fire extinguishers.

Outboard motorboats not exceeding 16 feet in length are not required to be numbered.

Motorboats of Class "A" (Less than 16 feet in length)

Lifesaving Devices. One Coast Guard-approved life preserver, ring buoy or buoyant cushion in good and serviceable condition for each person on board.

Lights. A combination light in the forepart of the boat, showing red to port, and green to starboard, from right ahead to two points abaft the beam, visible for 1 mile. A white light aft showing all around the horizon, visible for 2 miles.

Fire Extinguisher. See table.

Ventilation. Two or more ventilators with cowls or equivalent capable of removing gases from the bilges

in engine and fuel-tank compartments on boats constructed or decked over after April 25, 1940, using gasoline or fuel of a flashpoint less than 110° F. Motorboats so constructed as to have the greater portion of the bilges under the engine and fuel tanks open and exposed to the natural atmosphere at all times are not required to be fitted with such ventilators.

Flame Arrestor. Carburetors on all engines on motorboats, other than outboard engines, shall be fitted with an approved device for arresting backfire. Installations made before November 19, 1952, need not meet the detailed requirements of the specifications and may be continued in use so long as they are in good condition.

Motorboats of Class "1" (16 feet to less than 26 feet in length)

The same equipment as required by a class "A" motorboat is required on this class boat. The only addition is a hand-, mouth-, or power-operated whistle or horn capable of producing a blast of at least 2 seconds' duration and be audible for a distance of at least ½ mile.

Motorboats of Class "2" (26 feet to less than 40 feet in length)

Lifesaving devices. Same as for a class "1" motorboat.

Lights. Individual running lights (not combination lights), red to port, green to starboard, visible at least 1 mile. A bright white light aft showing all around the horizon, visible for 2 miles. A bright white light in forepart of boat showing from right ahead to two points abaft the beam on both sides, visible for 2 miles.

Bell. One which, when struck, produces a clear, bell-like tone of full round characteristics.

Horn or Whistle. One hand- or power-operated whistle or horn capable of producing a blast of at least 2 seconds' duration and audible for a distance of 1 mile.

Fire Extinguisher. See table.

Ventilation. Same as for a class "1" motorboat.

Flame Arrestor. Same as for a class "1" motorboat.

Motorboats of Class "3" (40 feet to not more than 65 feet in length)

Lifesaving Devices. One Coast Guard-approved life preserver, or ring

buoy for each person on board (buoyant cushions will not meet the requirements on this class boat).

Lights. Same as for a class "2" motorboat.

Bell. Same as for a class "2" motorboat.

Horn or Whistle. Must be power operated capable of producing a blast of at least 2 seconds' duration and audible for a distance of at least 1 mile.

Fire Extinguishers. See table.

Ventilation. Same as for a class "2" motorboat.

Flame arrestor. Same as for a class "2" motorboat.

Fire Extinguishers

Class of motorboat	Number of extinguishers ¹	Boats fitted with fixed CO ₂ system ²
A-----	1	0
1-----	1	0
2-----	2	1
3-----	3	2

¹ The extinguishing units required by the above table shall be of any of the following approved types and capacities: 1½-gallon foam; 4-pound carbon dioxide; 1-quart carbon-tetrachloride or 4-pound dry chemical. On boats of class 3, the approved extinguishers required, may, in the case of the foam and carbon-dioxide type, be of larger capacity, i. e., 2½-gallon foam or 15-pound carbon dioxide and provided in the ratio of one larger unit for two of the units required by the table.

² To secure this reduction, the fixed carbon-dioxide system fitted must be of an approved type and installed and maintained in accordance with the provisions of the regulations covering such systems.

Special Note

Motorboats which carry passengers for hire must be provided with an approved life preserver (ring buoys or cushions will not suffice) for each person carried, and with an additional number of approved life preservers suitable for children, equal to at least 10 percent of the total number of persons carried. Motorboats while carrying passengers for hire must also be operated and navigated by a person duly licensed by the Coast Guard.

Motorboats over 15 gross tons carrying passengers for hire are subject to annual inspection by the Coast Guard.

NUMBERING AND RECORDING OF UNDOCUMENTED VESSELS

Under the act of June 7, 1918, as amended, and the regulations issued thereunder, 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, shall be numbered. The requirements contemplate that machinery-propelled undocumented vessels of less than 5 net tons used for commercial purposes, which are owned in the United States and found on such waters, be numbered under the provisions of the act as such vessels, by reason of tonnage, are exempt from documentation. The Numbering Act, however, is for the purpose of identification only and the certificate of award of number which is issued to any such vessel is solely for such purpose. It is not an authorization, license, or permit for any such vessel to engage in trade.

The regulations issued by the Commandant under the authority of the Numbering Act require the following undocumented vessels to be numbered:

A. All boats equipped with permanently installed motors.

B. All boats over 16 feet in length equipped with detachable motors.

The following undocumented vessels are not required to be numbered:

A. Public vessels.

B. All boats not exceeding 16 feet in length temporarily equipped with detachable motors.

C. Motor lifeboats carried as life-saving equipment on inspected vessels.

YACHTS ENTITLED TO DOCUMENTATION

The Bureau of Customs has recently extended the privilege of documentation as yachts under the navigation laws to a large class of pleasure boats heretofore excluded. The change makes possible more expeditious travel by small boats between the United States and foreign ports, and facilitates financing and transfers of title of such craft. The order affects vessels of not less than 5 net tons nor more than 15 gross tons used exclusively for pleasure. In addition, as in the past, vessels used exclusively for pleasure of more than 15 gross tons may be licensed or enrolled and

licensed as yachts, if otherwise entitled to be documented.

Important privileges extended by documentation of vessels as yachts are:

A. Authority to fly the yacht ensign, a right highly prized by yachtsmen.

B. Right to voyage to a foreign port without clearing the vessel through United States customs.

C. In the case of yachts of 15 gross tons or less, the right to return to a port of the United States from a foreign port or ports without entering the vessel through customs. (Report of arrival or departure must be made, however, as required by sec. 433 of the Tariff Act of 1930.)

D. Provision for recording of mortgages, bills of sale, and other instruments of title, and the keeping of permanent records thereof in the offices of collectors of customs. Mort-



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gages which are so recorded may, upon compliance with the applicable requirements, become preferred mortgages, thus giving additional security to the mortgagee. Owners who document such vessels must effect renewals annually and must report any changes of master to a collector of customs. Requests for documentation should be made through the customhouse at or nearest the port where the vessel is located.

The requirements in connection with the documentation of yachts are not mandatory and it is entirely discretionary with the owner as to whether he should document his yacht. Owners who desire to have their vessels documented as yachts should consult with the nearest collector of customs. The regulations on the subject are contained in 19 C. F. R. Part 3. However, yachts and other vessels which are not docu-

mented, which are machinery propelled, which are owned in the United States, and which are found on the navigable waters thereof must be numbered under the provisions of the act of June 7, 1918, as amended (46 U. S. C. 238). There are no restrictions as to the length, tonnage, or size of such vessels under the provisions of the Numbering Act which should not be confused with those of the Motorboat Act of 1940 (46 U. S. C. 526-526q).

SUGGESTIONS FOR SAFE OPERATION . . .

- Do not overload your boat.
- Do not leave shore in a leaky or poorly constructed boat.
- Liquor and safe boating do not mix. Observe the Rules of the Road.
- Instruct at least one of your passengers or "crew" in the rudiments of handling your boat if you should become disabled, and, without alarming them, see that all hands know what to do in an emergency. Show all hands the location of emergency equipment.
- Don't hurry when operating your boat or when securing equipment and supplies for it—take your time and use caution.
- Obtain local information and familiarize yourself with the locality in which you are going to operate your boat. Do not venture into dangerous or restricted waters.
- Have life preservers readily available and wear when conditions warrant. Check your weather and tides before going out and have due regard for them.
- Gasoline filler pipes outside of combing and extending to bottom of gas tanks.
- Fuel tanks vented.
- Bilges free from oil, waste, grease, etc.
- Electrical equipment and wiring in accordance with good marine practices.
- Have adequate fuel filter.
- Check your battery and its ventilation.
- Do not operate near swimmers in the water.
- Do not use gasoline stoves.
- Do not use kapok-filled life preservers to sit upon, as such action compresses the filler and reduces its efficiency.
- Do not fail to provide lifebelts for children.
- Do not be afraid of a boat—respect it.
- Do not forget your wake can damage others.
- Do not fail to reduce speed through anchorage areas.
- Do not lie at anchor with short cable; allow sufficient scope.

Side Lights on the Rules

The reader will recall that running lights for motorboats and other power-driven boats were briefly mentioned in a previous article (October 1953) in the *Side Lights on the Rules* series, at which time it was pointed out that motorboats and other power-driven boats were not subject to Rule 2, International Rules, and the equivalent statutory and regulatory rules applicable to the Inland Waters, the Great Lakes, and the Western Rivers. In this, the sixth article in the *Side Lights on the Rules* series, the discussion will center on running lights for such boats, and an effort will be made to draw attention to the differences in requirements under the rules applicable to the respective waters.

Boats termed "motorboats" by United States statute are subject to Rules 7 and 10, International Rules. In Inland Waters, on the Great Lakes, and in waters termed "Western Rivers" motorboats are subject to the requirements of the Motorboat Act of April 25, 1940.

There is a fundamental difference between Rule 7, International Rules, and the Motorboat Act. The latter divides motorboats according to their length, up to and including 65 feet. The former, on the other hand, deals with power-driven vessels and boats of less than 40 gross tons, and is not concerned with length. It is therefore often difficult to reconcile the two.

Rule 7, International Rules, states:

Rule 7 Power-driven vessels of less than 40 tons, vessels under oars or sails of less than 20 tons, and rowing boats, when under way shall not be required to carry the lights mentioned in Rule 2, but if they do not carry them they shall be provided with the following lights:

(a) Power-driven vessels of less than 40 tons, except as provided in section (b), shall carry:

(i) In the forepart of the vessel, where it can best be seen, and at a height above the gunwale of not less than 9 feet, a bright white light constructed and fixed as prescribed in Rule 2 (a) (1) and of such a character as to be visible at a distance of at least 3 miles.

(ii) Green and red sidelights constructed and fixed as prescribed in Rule 2 (a) (iv) and (v), and of such a character as to be visible at a distance of at least 1 mile, or a combined lantern showing a green light and a red light from right ahead to 2 points (22½ degrees) abaft the beam on their respective sides. Such lantern shall be carried not less than 3 feet below the white light.

(b) Small power-driven boats, such as are carried by seagoing vessels, may carry the white light at a less height than 9 feet above the gunwale, but it shall be carried above the sidelights or the combined lantern mentioned in subsection (a) (ii).

(c) Vessels of less than 20 tons, under oars or sails, except as provided in section (d), shall, if they do not carry the sidelights, carry where it can best be seen a lantern showing a green light on one side and a red light on the other, of such a character as to be visible at a distance of at least 1 mile, and so fixed that the green light shall not be seen on the port side, nor the red light on the starboard side. Where it is not possible to fix this light, it shall be kept ready for immediate use and shall be exhibited in sufficient time to prevent collision and so that the green light shall not be seen on the port side nor the red light on the starboard side.

IT IS SUGGESTED THE READER REFER TO CG-169, "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-172, "PILOT RULES FOR THE GREAT LAKES AND THEIR CONNECTING AND TRIBUTARY WATERS AND THE ST. MARYS RIVER;" AND CG-184, "PILOT RULES FOR THE WESTERN RIVERS AND THE RED RIVER OF THE NORTH;" WHICH CONTAIN THE LOCAL RULES TO PREVENT COLLISIONS BETWEEN VESSELS ON THE LOCAL WATERS OF THE UNITED STATES. REFERENCES TO RULES AND ARTICLES THROUGHOUT THIS SERIES MAY BE FOUND THEREIN.

(d) Small rowing boats, whether under oars or sail, shall only be required to have ready at hand an electric torch or a lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision.

(e) The vessels and boats referred to in this Rule shall not be required to carry the lights or shapes prescribed in Rules 4 (a) and 11 (e).

Power-driven vessels and boats subject to this rule carry running lights similar to those required by Rule 2, International Rules, for larger power-driven vessels under 150 feet. The primary difference is in the required heights of lights and the fact that a combination lantern is authorized in lieu of the regular red and green side lights. These lights cover the arc from dead ahead to two points abaft the beam (a total arc of 225 degrees).

As in the case of the larger power-driven vessels, which they resemble, they too must carry a stern light as required by Rule 10, International Rules, which reads as follows:

Rule 10 (a) A vessel when under way shall carry at her stern a white light, so constructed that it shall show an unbroken light over an arc of the horizon of 12 points of the compass (135 degrees), so fixed as to show the light 6 points (67½ degrees) from right aft on each side of the vessel, and of such a character as to be visible at a distance of at least 2 miles. Such light shall be carried as nearly as practicable on the same level as the sidelights.

NOTE.—For vessels engaged in towing or being towed, see Rules 3 (b) and 5.

(b) In a small vessel, if it is not possible on account of bad weather or other sufficient cause for this light to be fixed, an electric torch or a lighted lantern shall be kept at hand ready for use and shall, on the approach of an overtaking vessel, be shown in sufficient time to prevent collision.

(c) A seaplane on the water when under way shall carry on her tail a white light, so constructed as to show an unbroken light over an arc of the horizon of 140 degrees of the compass, so fixed as to show the light 70 degrees from right aft on each side of the seaplane, and of such a character as to be visible at a distance of at least 2 miles.

The Motorboat Act of April 25, 1940, on the other hand, does not maintain the continuity with respect to running lights required for nonseagoing steam vessels. Specific running lights are prescribed according to the length of the motorboat. Those that are under 26 feet in length are required to carry a combination lantern forward with a white all-around light abaft of and higher than the combination lantern. Those ranging from 26 feet through 65 feet in length are required to carry:

(1) A bright 20 point white light forward as near the stem as practicable.

(2) Red and green side lights, properly screened (*Note:* A combination lantern is not authorized).

(3) Aft of and higher than the side lights, a bright white all-around light.

Then, if these boats proceed under sail alone or if they proceed under both sail and power they must carry either side lights or a white all-around light, depending on their size, as set forth in Section 3 (c) of the Act.

The pertinent sections of the Act state:

Motorboat defined; inspection

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the word "motorboat" where used in this Act shall include every vessel propelled by machinery and not more than sixty-five feet in length except tugboats and towboats propelled by steam. The length shall be measured from end to end over the deck, excluding sheer: *Provided*, That the engine, boiler, or other operating machinery shall be subject to inspection by the Coast Guard, and to their approval of the design thereof, on all said motorboats, which are more than forty feet in length, and which are propelled by machinery driven by steam.

Classes of motorboats

SEC. 2. Motorboats subject to the provisions of this Act shall be divided into four classes as follows:

Class A. Less than sixteen feet in length.

Class 1. Sixteen feet or over and less than twenty-six feet in length.

Class 2. Twenty-six feet or over and less than forty feet in length.

Class 3. Forty feet or over and not more than sixty-five feet in length.

Lights

SEC. 3. Every motorboat in all weathers from sunset to sunrise shall carry and exhibit the following lights when under way, and during such time no other lights which may be mistaken for those prescribed shall be exhibited:

(a) Every motorboat of classes A and 1 shall carry the following lights:

First. A bright white light aft to show all around the horizon.

Second. A combined lantern in the fore part of the vessel and lower than the white light aft, showing green to starboard and red to port, so fixed as to throw the light from right ahead to two points abaft the beam on their respective sides.

(b) Every motorboat of classes 2 and 3 shall carry the following lights:

First. A bright white light in the fore part of the vessel as near the stem as practicable, so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass, so fixed as to throw the light ten points on each side of the vessel; namely, from right ahead to two points abaft the beam on either side.

Second. A bright white light aft to show all around the horizon and higher than the white light forward.

Third. On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side. On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side. The said side lights shall be fitted with inboard screens of sufficient height so set as to prevent these lights from being seen across the bow.

(c) Motorboats of classes 2 and 3, when propelled by sail and machinery, or by sail alone, shall carry the colored side lights, suitably screened, but not the

white lights prescribed by this section: *Provided, however*, That motorboats of all classes, when so propelled, shall carry, ready at hand, a lantern or flashlight showing a white light which shall be exhibited in sufficient time to avert collision: *Provided further*, That motorboats of classes A and 1, when so propelled, shall not be required to carry the combined lantern prescribed by subsection (a) of this section.

(d) Every white light prescribed by this section shall be of such character as to be visible at a distance of at least two miles. Every colored light prescribed by this section shall be of such character as to be visible at a distance of at least one mile. The word "visible" in this Act, when applied to lights, shall mean visible on a dark night with clear atmosphere.

Motorboats operating inshore of the boundary lines of Inland Waters must comply with the Motorboat Act of April 25, 1940. If they proceed outside these lines, they must comply with the International Rules. Each boat presents its own problem when it is necessary to reconcile the respective provisions. In most cases the reconciliation between "gross tons" and "length in feet" will be readily determinable from a close perusal of the respective requirements. When there is difficulty along these lines assistance may normally be obtained from the local Coast Guard Marine Inspection Office.

The Coast Guard Auxiliary

(Continued from page 35)

KNOW HOW YOU MAY SAVE YOUR LIFE

In short, the Coast Guard Auxiliary offers boating people a chance to acquaint themselves with the best practices of seamanship. Every year hundreds of Auxiliary members, specially qualified for the purpose, participate in the Courtesy Examination of motorboats. Courtesy Examinations are made at the request of pleasure-boat owners, and special stickers are issued to boats which pass the examination. Owners found short of legal requirements are not reported, but are made aware of the hazards of unseaworthy boats and inadequate equipment.

In other words the Auxiliary is organized to help make your favorite relaxation more enjoyable for you and your friends. As a civilian adjunct of the regular Coast Guard, the Auxiliary promotes safer and more efficient operation of motorboats and fosters better compliance with motorboating laws and regulations.

Let's make this year a safer one so that pleasure boating can continue to be a safe relaxation for all hands: Contact your nearest Coast Guard Auxiliary Unit for a Courtesy Examination *before* you start the coming season.

YOU MAKE Y'O CHOICE
YOU TAKE Y'O CHANCES



Courtesy Safety Bulletin.

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 September 1, 1953**

In order to prevent collisions of vessels operating on the high seas and the inland waters of the United States, Congress has enacted certain rules which must be obeyed by all vessels and seaplanes of the United States. This publication contains the Inland Rules and the International Rules, as well as the Pilot Rules published pursuant to the Inland Rules. The International Rules were revised at the 1948 International Conference on Safety of Life at Sea and have been effective since January 1, 1954. It is important that operators of all vessels be thoroughly familiar with the contents of this pamphlet both for their own safety and that of others. Because of the recent changes in the Rules, operators should obtain this latest edition, 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.

For ready reference the International and Inland Rules have been arranged in comparative form. Thus vessels operating between International 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 CG-169.

**"Pilot Rules for the Great Lakes and Their
Connecting and Tributary Waters and the
St. Mary's River" (CG-172), Dated May
1, 1952**

The statutory and regulatory rules to prevent collisions for the Great

Lakes and their connecting and tributary waters and the St. Mary's 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. Of interest also to persons operating on the St. Mary's River is a schedule of distances and times for that river.

**"Pilot Rules for the Western Rivers and the
Red River of the North" (CG-184), Dated
August 1, 1949**

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, available from the Coast Guard at no charge, 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 sys-

tem 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 upon request to the various District Coast Guard Offices, from District Directors of the Coast Guard Auxiliary, or from the Commandant (CHS), United States Coast Guard, Washington, D. C.

**"Rules and Regulations for Uninspected Vessels" (CG-258), Dated November 19,
1952**

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 Offices, 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 radiotelephone 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.

Your Fact Forum

THE MOTORBOAT ACT

Q. What is the Motorboat Act?

A. This is an Act of Congress dated 25 April 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.

Q. What is a motorboat under the Act?

A. A motorboat is any vessel propelled by machinery not more than 65 feet in length, excepting tugboats and towboats propelled by steam.

Q. Into what four classes are motorboats divided under this Act?

A. Class A: Less than 16 feet in length.

Class I: 16 feet or over and less than 26 feet.

Class II: 26 feet or over and less than 40 feet.

Class III: 40 feet or over and not more than 65 feet.

Q. Does this Act provide for specific equipment to be carried on motorboats when underway?

A. Yes.

Q. When is a motorboat required to have a licensed operator in charge?

A. When being navigated while carrying passengers for hire.

Q. Define negligent operation.

A. No person shall operate any vessel in a reckless or negligent manner so as to endanger the life or property of any person.

Q. Who can arrest a person for committing negligent operation?

A. Any officer authorized to enforce the navigation laws of the United States of America.

Q. May an Auxiliarist arrest a person for negligent operation?

A. No.

Q. Are there penalties provided for violations of this 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 and bells 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. If a group of friends, or members of a club, agree in advance to pay the expenses incident to the operation of a pleasure vessel, either for a cruise or for general transportation, does this constitute "for hire" operation?

A. The agreement to pay part, or all, of the operating expense constitutes the operation of a motorboat "for hire," and the operator must have a license to operate vessels for hire.

Q. If a motorboat of 5½ 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

If you don't heed safety stencils
You may end up selling pencils

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any waters declared to be navigable waters of the United States unless such a vessel is more than 15 gross tons in which case 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 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 horn is required on Class III motorboats?

A. FALSE.

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

A. TRUE.

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

A. FALSE.

Q. Class II and Class III motorboat horns 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 engines installed since 25 April 1940 must be equipped with flame arrestors?

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 event of the sale of an 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 purchaser 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 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.



Courtesy Maritime Reporter.

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 Marine Inspection, USCG.

Q. Where must the certificate of award be kept?

A. On board and readily accessible at all times, except in the case of vessels not exceeding 17 feet in length or those whose design is such that it might be rendered imperfect.

Q. Must the owner furnish Marine Inspection information if changes in the vessel occur?

A. Yes. Notification must be made within ten days if the vessel changes ownership or is lost or abandoned or if the owner moves permanently to another Coast Guard or Customs District.

Q. What must accompany the notice of loss or sale of a numbered vessel?

A. The Certificate of Award of Number.

Q. Is the number assigned required to show on the bows of the vessel?

A. Yes. It must be attached or painted on each bow with the numbers reading from left to right.

Q. What requirements are designated for bow numbers?

A. Bow numbers shall be block characters not less than 3 inches in height, parallel with the water line, and as far forward as legible identification permits. They shall be as high on the bows as is practicable and of color contrasting to that of the hull.

Q. What pleasure craft may be documented?

A. Motorboats or other craft of 5 net tons or over used exclusively for pleasure.

Q. What are the requirements as to the name and number of documented yachts?

A. The name and sailing port must appear clearly on some conspicuous portion of the hull, and, on the stern, the name and port of register. The official number must be carved or permanently marked on the main beam.

Q. May pleasure craft of less than 16 gross tons be documented?

A. Yes.

Q. Where must owners desiring to change the port of registry apply?

A. They must make application to the Collector of Customs at the original port of registry.

GENERAL MOTORBOAT PRACTICE

Q. What safety essentials for motorboats are represented by the first six letters of the alphabet?

A. A nchors, B arometer, C ompass, D istance signals, E mergency rations, and F irst aid kit.

Q. What are the first requisites of a safe boat?

A. A sound hull, a clean bilge, and tight underwater fittings.

Q. Why must a bilge be kept constantly cleaned?

A. Because fuel drippings will cause a collection of highly explosive vapors which are heavier than air.

Q. What explosive power exists in a fouled bilge?

A. One-half pint of gasoline in a bilge may create a potential explosive power of five pounds of dynamite.

Q. Why should all electrical installations be permanent and in keeping with best modern safety practices?

A. Because haywire or amateurish installations are found to be the cause of many fires and explosions.

Q. How should fill and vent pipes be attached to fuel tanks?

A. Fill pipes should fit tight to the deck plate and extend to the bottom of the tank. Vent pipes should be firmly attached to the top of the tank and should discharge outboard away from hull openings.

Q. What practice should be followed before fueling?

A. Moor securely; close all ports; put out lights and fires; and, make sure of the amount of fuel space available.

Q. What practice should be followed during fueling?

A. Maintain nozzle contact with the fill opening to avoid sparks or spillage.

Q. What practice should be followed after fueling?

A. Secure fill openings with care; wipe up drippings; open all ports to ventilate the boat thoroughly; and check for vapor odor inboard.

Q. What practice should be followed before starting engines?

A. Open hatches and ports; turn on blowers; and ventilate for 5 minutes.

Q. Why should fuel tanks be inspected regularly?

A. Because a slight perforation may cause large quantities of fuel to leak into the bilge.

Q. Why is it best to have a master switch and fuse panel accessible?

A. Because all power may be cut from concealed shorted wires found smoking while aboard; moreover, an open switch averts such danger when ashore.

Q. Why should paints, rags, etc., be stored in well-ventilated lockers?

A. The dangers of static discharge or spontaneous combustion are ever present where confinement exists.

Q. What protection should be taken against lightning?

A. Ground all vertical projections.

Q. Why should machinery mounted on rubber be grounded?

A. To avoid accumulation of static charge.

Q. Why should batteries be covered?

A. To avoid sparks or short circuits due to tools or metal pieces falling across contacts.

Q. What precautions should be taken with auxiliary generators?

A. Auxiliary generators should never be run while enclosed, and great care should be exercised to avoid leaks in the fuel system.

Q. Why should all motor exhaust pipes be checked regularly?

A. The danger of carbon monoxide gas leaking into the bilge and thus permeating the boat is ever present. This gas is deadly.

Q. Why should drive shafts and bronze fittings be checked?

A. Because salt water as a ground has a tendency to complete an electrical circuit causing electrolysis which deteriorates metal.

Q. Why is it necessary to consider the size of wire conductors when installing electrical circuits on a vessel?

A. Because wire of insufficient size to carry the required load will cause voltage drop which, in turn, develops heat and possibly fire.

Q. Why is it best to carry two anchors?

A. Because one may be left on the bottom by a parted line.

Q. How much anchor line should be carried aboard?

A. Sufficient to lie at anchor at six times the water depth. Remember, the longer the line, the greater the holding power.

Q. Why should a sea anchor be carried?

A. Should a boat experience motor failure at sea in dirty weather, a sea anchor will hold the boat to the sea and thus avoid broaching.

Q. Why is it best not to carry life preservers in a tightly closed locker?

A. Because they will rot out quickly, and nobody can see them anyway.

Q. Where should life preservers be stowed?

A. In an easily accessible place which is well ventilated.

Q. What precautions are necessary to preserve buoyant cushions?

A. Buoyant cushions should not be handled roughly in using them as cushions; their efficiency as lifesaving devices depends on their being in good condition.

PLASTIC FUEL LINE

Figure 1 shows the end effect of a gasoline-fed fire on the interior panelling of a 47-foot pleasure boat.

The principal villain in this story was a 15-foot length of 1/2-inch plastic hose installed between the gasoline fuel tanks and the engine.

This boat had been drydocked for overhaul, and had just been floated. However, as it was built in 1909, there were no vents installed for the enclosed compartments.

The owner came down to the boat-

yard to get his boat in order and to charge his storage batteries. He opened the gasoline fuel line valve and ran the small generator for 30 minutes. Shutting down the generator, the owner departed from the boatyard and returned 4 hours later. This time the generator was run for 20 minutes with the batteries on charge, and then was secured. As the owner pressed the ammeter test circuit button, there was a blast in the forward end of the boat, followed by the outbreak of fire in the engine room. He ran to the open cockpit for

his 15-pound portable CO₂ extinguisher, but found that it was securely lashed to a stanchion, and he could not move it. The owner then ran to the boatyard office and borrowed its 15-pound CO₂ and expended it on the flaming boat with no appreciable effect.

The city Fire Department arrived within a few minutes and extinguished the fire with hose lines. Suffering from extensive first- and second-degree burns over the major part of his body as a result of the explosion and fire, the owner was hospitalized for 3 weeks. His boat was severely damaged, especially in the bow section where some of the planking was blown off. Machinery and berthing spaces were completely gutted by fire.

It was certain that the spark for original ignition was supplied by the battery test circuit switch, and the fumes which exploded were undoubtedly from gasoline which had leaked from the generator fuel system. Subsequent melting of the plastic gasoline fuel line allowed a small stream of gasoline to run steadily from the gravity flow tank and feed the roaring flames. The lack of ventilation for the enclosed lower portions of the hull was probably the strongest contributory factor in the circumstances leading to this fiasco. Regardless of date of build, any owner of a motorboat using fuel with a flash point below 110° F., such as gasoline, should insure that the fuel tanks and decked-off portions of his hull are adequately vented to the atmosphere to remove any inflammable or explosive gases. Fuel piping should be of seamless drawn annealed copper tubing or the equivalent, never plastic hose or any other type of hose.

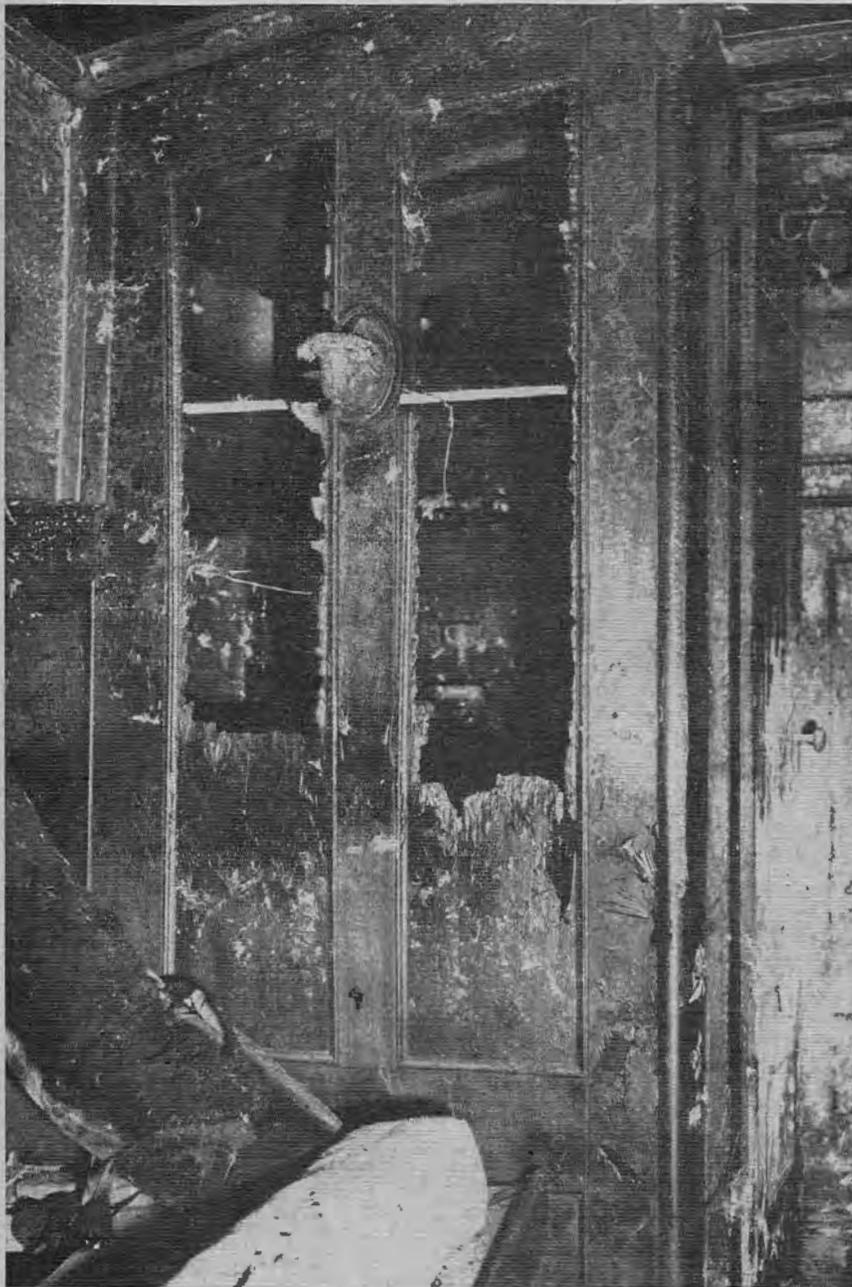


Figure 1.

OVERDUE AND UNREPORTED

Just what happened to convert a 37-foot auxiliary sloop to the wreck-age pictured in Figure 2 will probably be never known and must be listed in the annals of the mysteries of the sea. Two intelligent and well-educated adults, inexperienced in boating but enthusiastic and willing to go cruising, purchased this 47-year old sloop and announced their intention to cruise it for a considerable distance up the coast in the early spring. This decision was met with dismay by the seller of the boat and other persons, and they strongly advised against the trip unless experienced yachtsmen were taken along. However, the new owners started out on the first leg of the trip. They neglected to affix to the bow the new number awarded to this boat by the Coast Guard upon change of ownership, and set out with the old number still showing. This neglect

later led to considerable confusion, although it did not contribute to the casualty.

The first day the owners cruised only a few miles in sheltered water and anchored overnight. The next morning they passed out into a large open bay. During the day, wind was light and southerly, but about evening it shifted to the NW and freshened. Since no berthing arrangements had been made at the next boat harbor, no overdue report was made at night when the boat failed to appear. This is the last information known about these two enthusiastic yachtsmen. They were not again seen alive.

The next day a yacht reported to the Coast Guard that a capsized sailboat had been sighted. Two Coast Guard patrol boats proceeded to the reported position. A derelict was found which bore a Coast Guard number. When found it was on its port beam ends with the mast in the water. There was no keel. A hole in the starboard side and bottom extended aft for about 6 feet from the forward end of the cockpit, where the motor had been located. A line leading from the bow into the water was picked up and found to be made fast to an anchor.

While the number and ownership of the boat were being checked by radio and other Coast Guard communication, one of the patrol boats attempted to tow the derelict but could not make fast to anything solid enough to take the strain. At this time no report had been made to the Coast Guard of the missing sloop. Due to the confusion of the number on the boat and a report from a previous owner that his boat had been abandoned, it was concluded that the derelict found represented abandoned property, and a Coast Guard vessel broke up the derelict as a menace to navigation.

Five days after the presumed date of casualty, a report was received from friends of the owners of the 37-foot sloop that they were overdue and unreported. This was the first indication to the Coast Guard that anyone was missing or that the derelict wreckage might have been the vehicle of a casualty. Pieces of wreckage, equipment, and parts of a dinghy which had been salvaged from the wreckage were now reexamined and compared with reports from previous owners of the sloop. The number found on the wreckage was checked again, and it became clear that the wreckage found was the remains of the missing 37-foot sloop. An intensive air and surface search for possible survivors was immediately begun. Eight days later a man's body was found which proved to be one of

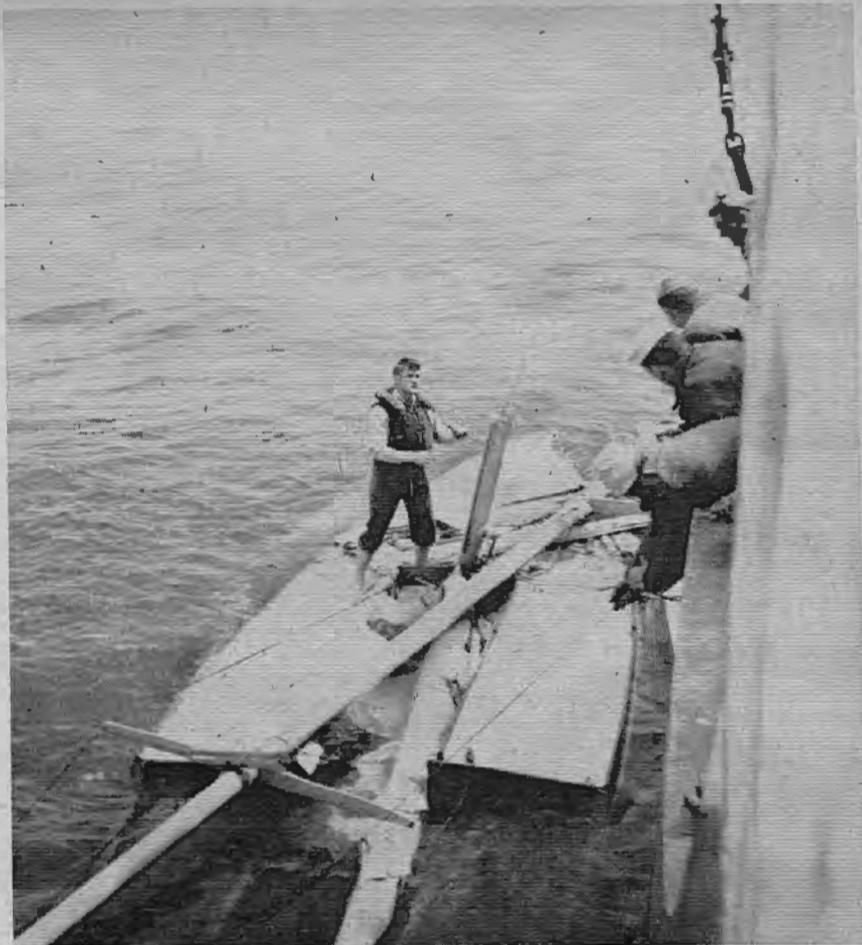


Figure 2.

the owners. At last reports, the woman's body had not been found.

After extensive investigation of the entire chain of circumstances, it was concluded that the sudden increase in wind the night the sloop was lost possibly set the vessel on a rock or reef on the lee side of the bay where she had been cruising; the keel was probably ripped off, the boat holed, and the motor lost in the grounding. The two occupants undoubtedly perished soon after.

When this vessel was purchased, some repair work had been done to the hull, but it is most likely that the 47-year-old wooden hull was in highly questionable condition for a coastal trip, especially in the early spring. This fact was well known to those who advised the new owners not to attempt the trip without experienced persons along. Aside from the questionable condition of the hull, the hazards of the trip, piloting, seamanship, heavy weather, lurking shoals and reefs, unpredictable currents and local conditions presented the amateur navigators with overwhelming difficulties

for which they were ill-prepared and with which they could not cope. This tragedy must serve to emphasize the dangers of pleasure cruising in open waters with poor equipment and lack of experience.

The records of marine casualties abound with cases of inexperienced boatmen who put to sea with an abundance of enthusiasm and a minimum of caution and end up as statistics. Discouragement of pleasure boating has never been undertaken by any government agency, and it is strongly hoped that this healthy and satisfying form of recreation will never be dampened by government regulation. Therefore, the safety of pleasure boatmen must ultimately rest upon their common sense and good judgment. This means a strong measure of reserve in planning and providing for the perils of the sea. The potential strength and fury of the sea must never be underestimated. "Hope for the best, but plan for the worst" when you are preparing that next trip in your boat. The life you save may be your own.

FAULTY CARBURETOR

A 30-foot party fishing boat (Figure 3) was severely damaged and its owner hospitalized for shock, second- and third-degree burns and injuries when the faulty carburetor on the boat's gasoline engine was continued in use. The owner had hired a mechanic to tune up his engine and overhaul the carburetor only a few days before. Although the mechanic installed new points and a new condenser and adjusted the carburetor, the owner was not satisfied with the carburetor and stated after the accident that he felt the carburetor should have been cleaned out and "soaked in a solution to remove all that scum in it."

Nevertheless the owner took out a party of two nonpaying fishing passengers on the first Saturday following the repairs. They proceeded only a mile or so off the beach since the owner had been towed ashore by the Coast Guard when he had experienced engine trouble only 2 weeks before and, as he stated, "I didn't want to be towed back that far." After a few minutes trolling, the owner felt unusual heat from the engine compartment and smelled gas fumes. He and one of his passengers lifted the hood from the engine compartment and attempted to adjust the carburetor which was sticking and flooding. The engine began to spit and miss. He stated that he had already headed the boat for shore and "I didn't want to have to be towed in again." As he reached in toward the carburetor for another try at adjusting it to run smoothly, a sheet of flame arose from the carburetor, and there was an explosion.

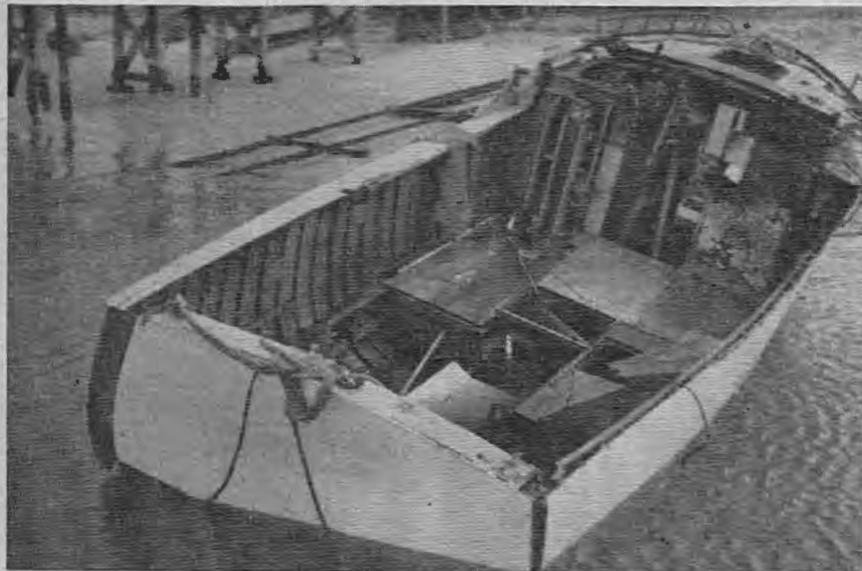


Figure 3.

The metal cover over the spark plugs flew up and struck the owner in the face, but in doing so probably shielded his face from burns due to the flames. Flames enveloped the owner. The 2 other occupants of the boat, only slightly burned or injured by the explosion, grabbed the dazed man and lowered him overboard to extinguish his burning clothes. The two other men also jumped into the water and swam away from the burning boat. Rescuers arrived within 3 minutes, and the 3 men were pulled out and rushed ashore. An ambulance was at the landing when they arrived and transferred all 3 to the hospital.

They had been unable to use the lifejackets on their boat as they were stowed in the cabin forward of the engine hatch and were completely inaccessible after the explosion and fire.

Some of the motorboat's bottom seams had been opened by the blast, and the boat settled rapidly. However, after submerging to the point where all fire was extinguished, it stayed awash long enough to be dragged ashore and beached. While the owner-operator suffered painful burns and the financial loss of the damage to the boat and the hospitalization, he was fortunate indeed not to have lost his life. It is also a sure bet that this operator will, in the future, keep his engine and especially his carburetor in clean and efficient running order.

The importance of avoiding any condition tending to flood a carburetor in a gasoline-fueled motorboat should be obvious from the above casualty. Similarly the need for stowing or arranging life preservers in a location or locations on a pleas-

ure boat where they will be *immediately available in an emergency* cannot be stressed too greatly. To purchase approved life preservers as required by law, to care for and preserve them carefully through the years, and then to have them sink or burn, inaccessible, with the boat in the hour of need is the height of irony and, perhaps, the essence of tragedy.

SIX CAME BACK

A most unusual motorboat casualty in which a terrific gas-vapor explosion shattered a deluxe runabout but did not seriously injure any of the 6 occupants is vividly portrayed in Figure 4 and on the front cover. This boat was so completely racked and torn by the force of the blast that it is almost unimaginable that, of the 6 persons aboard, including 2 women and a young boy, none was fatally injured. Built only 5 years before, the runabout was well constructed and sturdy but had 1 grave defect. The enclosed spaces of the hull, other than the engine compartment, had no ventilation. An electric blower system ventilated the engine space, but the ventilation ducts did not lead down to the bilges.

After undergoing seasonal fitting-out and overhauling at a repair yard, this boat was equipped with an additional gasoline fuel tank, installed just aft of the starboard engine, to give the vessel greater cruising radius. The two original fuel tanks were located at the stern. All fuel flow was by gravity.

On the day preceding the day of the casualty, all fuel tanks were completely filled for the first time since leaving the repair yard, and a short trip was made. No gasoline fumes or gasoline were noticed in the engine compartment or near the fuel tanks when the vessel was secured following this trial trip.

The next morning the operator opened the hatches above each engine and started the electrical blower and the bilge pumps. He did not examine the bilges in the engine compartment, nor any of the bilges under the forward cabin. A few minutes later, the engine spaces were closed, and five guests came aboard. The operator turned on the ignition switch for one engine, and a terrific blast shook the boat. The blower and the bilge pumps were still in operation at the time.

All of the guests had been standing on the engine compartment hatches or on the hatches just aft of the engine. The blast threw the guests and the operator about like match-sticks. A small fire was blazing on the port side. One of the women guests found

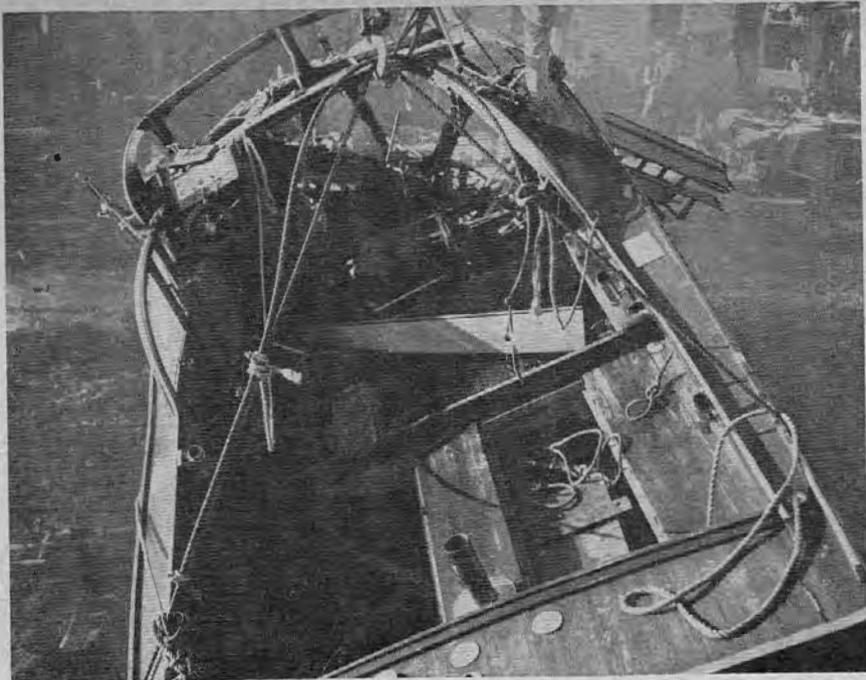


Figure 4.

herself lying on top of the starboard engine and, noticing the fire, she leaped overboard and swam to the dock where she was pulled out.

The operator recovered quickly from his dazed condition and was able to extinguish the small fire using a portable 15-pound CO₂ extinguisher provided by the owner of a nearby yacht. Other persons came running and assisted ashore the six occupants of the boat, who were injured with burns, lacerations, and bruises. The woman who had not gone overboard incurred painful burns over a large area of her body and required hospitalization for a period of 10 days.

The runabout was completely shattered forward of the cockpit and was severely damaged aft of the cockpit—a total loss. It sank at the dock, but the depth of water was small, and the wreck could be easily hauled out. Extensive investigation and analysis led only to the conclusion that gasoline had leaked from the fuel system, probably from the newly installed fuel tank, and had run into the bilges in the forward end of the boat. Therefore, when the ignition system was activated at the time of the explosion, the forward bilges were probably loaded with a gas-air mixture equivalent in explosive power to many pounds of dynamite. The lack of any ventilation for the forward bilges and the lack of vent ducts from the blower to the engine bilges created a highly hazardous situation which would lead inevitably to disaster. The gun was loaded.

It remained but for the boat operator to pull the trigger.

FRICITION SPARKS

A man and his wife with their small son and a guest cruising up the coast one summer evening in their 38-foot twin screw auxiliary sloop encountered about as much trouble as any boating party should ever have to

bear. They got lost, ran aground, claimed to have been lured ashore, almost capsized, were pulled off and taken in tow by the Coast Guard; their boat exploded and almost sank, and was finally beached at the repair yard (see Figure 5) in badly damaged condition—all in the space of about 12 hours. The group had originally planned to make the harbor entrance at their destination before dark, but engine trouble delayed them several hours en route, and they found themselves searching for any buoy or recognizable landmark along an unfamiliar beach long after sunset.

A small light was seen blinking on the dark shoreline. Taking this for a buoy, the owner headed in for the vicinity of the light. At about 8 p. m. the sloop fetched up hard aground on a sandy beach. Voices were heard on the beach, and the occupants of the stranded sloop discovered the light they had seen was a flashlight used by the beach party. The tide was on the ebb, and the sloop began to list severely as the water level fell. Fortunately, there was a ship-to-shore radio-telephone installation aboard in good working order. Calling the local Coast Guard Radio Station, an immediate response was heard, and the distressed party was told that help was on the way. Within 40 minutes a Coast Guard 38-foot patrol boat and a DUKW (amphibious vehicle) had arrived at the grounded sloop. A 40-foot patrol boat arrived 3 hours later. Since the sloop was high out of the water, it was decided to wait until the next flood tide to attempt to refloat.

(Continued on page 50)



Figure 5.

HIGH SPEED CRACKERBOX

As fantastic as it may seem, there were 4 persons in the tiny craft pictured in *Figure 6*, traveling at a speed of better than 15 m. p. h. when catastrophe struck and 2 of them drowned. Two small boys, aged 9 and 11, lost their lives due to the reckless operation of this little punt, home made, lightly constructed, and terribly inadequate for the safe carriage of 1 person at high speed, not to speak of 4 persons.

One balmy afternoon last June, the builder and owner of this craft launched her for the trial run in a Great Lakes harbor. The weather was mild, and there was very little sea. A brand new 10 h. p. outboard motor weighing over 50 pounds was attached to the light transom. The hull of the boat was of $\frac{1}{4}$ inch plywood secured to light pine framing—a veritable cockleshell.

The owner started the motor and took a quick spin around the harbor. Since all went well, he next took a 14-year-old boy for a ride. Apparently imbued with overconfidence, he then took his wife and tiny daughter for a ride. Thus far all was well. The next ride was given to 3 small boys, 1, the owner's son, age 11, and the other 2, nephews, age 9 and 10.

This time the owner opened up the tiny pod and circled in the outer harbor at high speed, then he headed back for shore. When about 500 feet from a breakwater, the small vessel

rose and swerved on a swell. Before the owner could catch his balance and grab the throttle to check his speed, the boat capsized and threw all occupants into the water, still going at full speed.

There were no life preservers or buoyant material of any kind in the boat.

The two youngest boys clung to the owner, who could barely hold his own. They quickly became exhausted and submerged. The owner, himself, managed to struggle free and swim near enough to the breakwater so that a ring buoy could be thrown to him, and he was pulled out. The oldest boy kept himself afloat for several minutes. An auto repair man, fishing on the breakwater, heard people clamoring and noticed the struggle in the water. Heroically, he threw off his trousers and shoes and dove in and swam out to the boy. By superhuman effort, he was able to keep himself and the boy afloat until another boat arrived and rescued them both.

During the struggle in the water in which the two small boys were losing their lives, approximately 40 persons on the breakwater were watching. None but the auto repair man moved to help.

When recovered, the boat still had the motor securely attached. With the boat capsized and all this weight hanging on it, there was practically no buoyancy, and the boat was of little use in supporting any of those

who were struggling in the water. The owner stated at a later time that he did not know that life preservers or buoyant cushions were required to be carried in his boat. He also stated that he had had little experience in operating motor boats and less experience in designing or building boats. While the tragic impact of the loss of his son and nephew in this matter will forever remain a stark memory for this man, who will probably never build or operate a motor boat again, the simple lessons so dramatically emphasized herein should be clear to all other amateur motorboaters.

1. *Never* operate a boat without one approved life preserver or buoyant cushion for each person aboard.

2. All craft *must* be sturdy and tight and capable for the use to which put.

3. Do not overload your small craft with persons beyond its safe capacity or with an outboard motor of power far in excess of that needed for safe and reasonable speed.

A rule of safety which could save many lives in high speed outboard motorboat cruising would be the requiring of any occupant who could not swim to *wear* a life preserver while underway. The record of casualties in this country indicates an alarming increase in lives lost due to reckless, ill-considered, and imprudent operation of outboard motor boats, usually craft with too much power. "Forewarned is Forearmed." Don't let it be you.



Figure 6.

LIFEJACKETS OUT OF REACH

While all lakes, bays, and sounds can be transformed quickly from calm tranquility to roaring fury by sudden changes of weather, Lake Erie has a particular reputation for sudden treachery. The wreck of an outboard motorboat pictured in *Figure 7* represents results of one of this Lake's tantrums.

A young man and young woman went out for a pleasure ride. *Only the woman came back.*

One windy Saturday afternoon, this couple decided to cruise their 14 foot runabout about 5 miles up the Lake shore to a yacht basin, where they planned to take on fuel, visit with some friends, and return. The boat was equipped with a 25 hp. outboard motor, which drove it at 15 m. p. h. or better in calm water. Included in the equipment were 3 buoyant cushions and 3 lifejackets, but the lifejackets were stowed in a forward compartment of the boat and were relatively inaccessible. When they started out, surface conditions were choppy, with the wind about 20

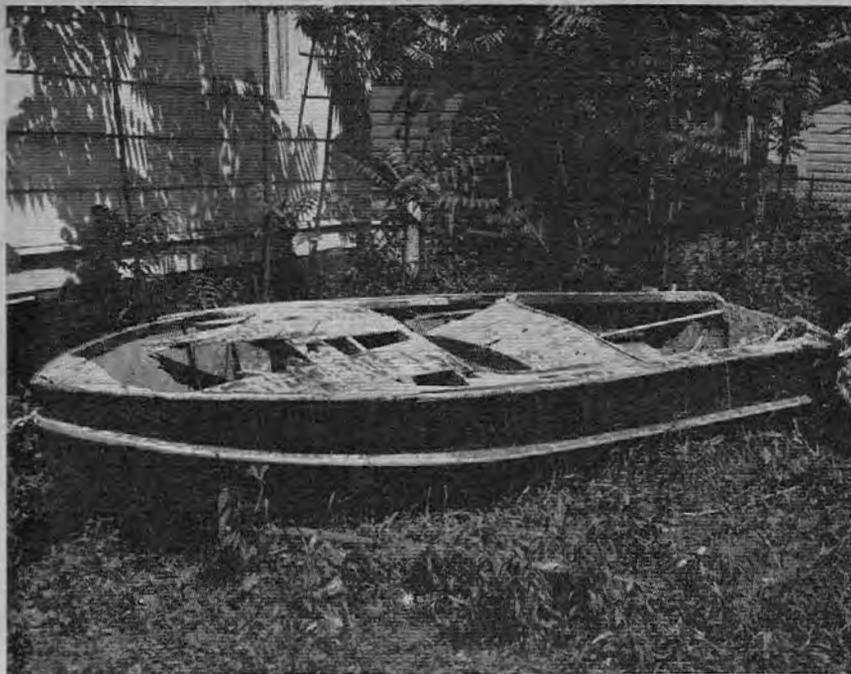


Figure 7.

m. p. h. from the NE. However, the trip to windward to the yacht basin was made without difficulty, although some spray was taken aboard.

Upon arrival at the yacht basin, the couple went ashore and purchased gasoline. Some friends they met there took note of the increasing weather and advised them to leave the boat in the yacht basin overnight rather than attempt the return trip. However, their answer was that they had made the trip over without difficulty and they would be all right in returning.

As they headed out from the yacht basin, heavier seas than they had anticipated were making up. Turning downwind for the return run, the young man who was operating attempted to run wide open, but his boat pounded too much, and he reduced to a slower speed. The heavy seas were now yawing and rolling the small craft alarmingly, so they decided to put in any place they could find. About 1 hour after leaving the yacht basin, a heavy sea suddenly swamped the boat, capsizing it and throwing both occupants into the water. Neither had any grip on a buoyant cushion. The lifejackets could not be reached. The young woman managed to clutch the keel of the overturned boat, but a large wave washed completely over the man and that was the last she saw of him.

Still clinging to the boat, the woman drifted to within 400 feet of shore, where two men who had observed her plight heroically waded out neck deep and pulled her ashore. She

was taken to a hospital and treated for exposure and shock. The young man's body was recovered 7 days later by a Coast Guard picket boat. The capsized boat had drifted ashore and was hauled out by a winch truck.

While the judgment of the young couple in undertaking the return trip from the yacht basin in the face of

warning by their friends must be condemned in hindsight, the most pertinent factor which led to loss of life was their failure to wear lifejackets.

If prudence ever dictated the wearing of lifejackets in the teeth of danger, this was certainly the occasion. It is tragically true that this lesson is so often clear only after disaster has struck, and the young lady of the above case will never again have to be convinced of its importance. Lifejackets require a minute or so to put on and to adjust properly. When small vessels start to capsize, swamp, or sink, it is already too late. A feeling of reluctance to wear a lifejacket before catastrophe has struck may be modish, but is contrary to common sense and the instinct of self-preservation.

When the weather makes up and the spray becomes rife,

Put your lifejacket on; it may save your life!

AUTOMATIC PILOT

The substitution of mechanical and electronic devices for any of the practices and precautions of good seamanship may lead to a disaster such as encountered by the outboard motorboat pictured in Figure 8. This small pleasure craft was run down by a high-powered 45-foot twin screw cruiser which was under the control of an automatic pilot at the time. Two men suffered a horrible death



Figure 8.

under the screws of the cruiser, and their little boat was almost completely demolished. Ironically, the cruiser was hardly scratched.

One warm summer evening three men decided to try their hand at night fishing. They lived in a large city on an intensively busy river. Setting out in their 14-foot outboard motorboat about 11 p. m., they cruised at moderate speed up the busy channel, headed for their favorite fishing spot. The boat was equipped with required running lights in good order. However, just before midnight, as the small boat was turned across the channel towards their destination, the man in the stern who was operating the motor suddenly noticed a green light bearing down upon him only a few yards away. He threw the tiller over in a sharp turn to the right and shouted to the other man. The attempt to avoid collision failed, and there was a grinding crash. The operator, who was the only survivor from the small boat, stated later that he remembered a blow and being thrown into the water. The next thing he could remember was being pulled out of the river by a third motorboat.

The 45-foot cruiser, running downriver that night, with good visibility, had been cruising on automatic pilot although the boat operator was standing by the controls. The operating position was at the wheel inside the tight cabin, behind a glass windshield, about 22 feet from the bow. From this position there was a distance of from 100 to 150 feet forward of the bow which was obscured from the vision of the operator by the vessel structure. Running at about 13 m. p. h. approximately in the center of the channel, the cruiser was pointed on a prominent navigating light down stream and maintained a fixed course under the control of the automatic pilot.

Just before midnight, persons in the cruiser suddenly heard a scraping sound on the bottom and sides and the propellers striking something. Immediately wreckage of an outboard motorboat was seen alongside. They shouted to the operator, and he cut the engines, reversed the automatic pilot, and turned the boat around by backing one engine and going ahead on the other. All hands aboard searched, with the aid of a spot light, for the wreckage and survivors. A few minutes later, they saw a man pulled from the water by another motorboat which had come to the scene. The cruiser then located the man who had been operating the outboard motorboat and pulled him aboard. He appeared to be uninjured, and told them that two other men were probably in the water. After

searching for another half hour the cruiser delivered the rescued man safely ashore at the nearest Coast Guard Station.

The man who was pulled in by the other motorboat was taken to the nearest dock ashore. Although badly injured due to deep cuts and broken bones, he was still alive, and artificial respiration was begun. A few minutes later, however, he died from his injuries. The body of the third occupant of the outboard motorboat was recovered from the river 5 days later bearing signs of severe injuries. The nature of injuries of the two men who died indicated that they were undoubtedly struck by the screws of the cruiser which had run down their boat.

Wreckage of the outboard motorboat as pictured in *Figure 8* was recovered by the Coast Guard the day after the collision and was returned to the owner-operator.

The principal cause of this sad episode, was directly due to the failure of both vessels involved to keep a proper lookout. This failure was not as serious on the part of the outboard motorboat operator, as he apparently saw the other craft before the collision and attempted to take evasive action. Such lookout as was kept on the cruiser was utterly useless, as this craft plowed right into the outboard without any change of course or speed. It is an anomaly of human nature that ordinary intelligent human beings, who would not dream of driving down a busy street without keeping a sharp and alert lookout for other cars, will go out upon the water in a powerful boat which is far less capable than a car of stopping quickly, and completely relax their alertness, sometimes keeping no lookout at all. Granted that a pleasure boat is one of the better places to relax and enjoy oneself, still the devastating power and terrible suddenness with which moving vessels can come together must never be forgotten.

The hazards of direct injuries from collision are amplified on the water by the attendant hazards of being drowned or cast helpless into the water. This double jeopardy should serve to increase rather than decrease the precautions required of boatmen.

The apparent false sense of security evidenced upon the above cruiser while operating on automatic pilot was symptomatic of a dangerous state of mind which the availability of automatic mechanical and electronic devices to aid navigation may lead to on all types of vessels. It cannot be emphasized too often that devices such as radar, gyro pilots, automatic depth-finding instruments, etc., are but aids

to safe navigation and can never replace the alertness, caution, prudence, and good seamanship of the pilot, the lookout, the helmsman, and the captain.

Friction Sparks

(Continued from page 47)

A strain was taken on the tow line as the tide flooded, and the sloop came off and floated at about 5 a. m.

While the stranded vessel had listed on the ebb tide, gasoline had spilled out of the carburetor float-valve or run from one of the fuel tank overflows and collected in the bilges. The fumes of gasoline were quite heavy in the cabin, almost to the point of making the woman and the boy, who were waiting in the cabin, sick. As soon as the boat was floated, the owner entered the cabin, opened two deadlights and decided to attempt to exhaust some of the fumes with his electric blower system. He switched on one blower, and as soon as the second blower started, an explosion ripped through the cabin, knocking the owner off his feet, his young son overboard, and throwing the woman and other man about in the cabin. Parts of the cabin were demolished; the mast and rigging crashed down; and, the sloop started to leak, with fire burning in several spots. With the use of two extinguishers the owner was able to drag from the wreckage, plus the help of the 40-foot patrol boat which came alongside immediately, all flames were extinguished. The young boy was rescued safely from the water, and it was determined that no one was seriously injured.

As the vessel was not settling too badly, the tow was continued while first aid was given to the occupants who were suffering from shock and minor burns. The tow was safely completed, and the dismantled sloop was beached at a repair yard in a safe harbor. Examination of the port electric blower showed it to have had several vanes rusted off, or nearly off, leading to the conclusion that a contact between the metallic parts of the blower had supplied the spark which ignited the fumes.

In attempting to exhaust dangerous air-gasoline fumes in the most logical manner to avoid explosion, the owner had inadvertently activated the very instrument of ignition himself; a strong argument for preventive safety maintenance. Only good judgment based upon experience in piloting could have prevented the grounding, but good safety practice in maintaining the equipment of his boat in clean and efficient operating order could easily have prevented the explosion. All of this boating party are, fortunately, alive and well. How different the score could have been!

PLEASE NOTE

All outboard motorboats of 16 feet or less in length previously required to be numbered but presently exempt from the provisions of the Numbering Act of June 7, 1918, as amended, have been removed from the records of the various Coast Guard District Commanders in accordance with instructions contained in General Administration Memorandum No. 11-52. The total number of such vessels removed from the records is 133,971.

HE LED WITH HIS CHIN

The gaping snout of the 24-foot pleasure craft (*See Back Cover*) represents what happened when this runabout plowed into the side of a 30-foot heavily constructed wooden workboat at 25 m. p. h. Two occupants of this speedboat were severely injured—one narrowly escaped with his life and was probably permanently disabled, the other suffered what will probably be a permanent heart condition.

The high speed pleasure boat, cruising on a broad open river in daylight and in good visibility, did not see the workboat until about 10 feet from it and therefore had no chance to avert the collision. The workboat saw the speedboat approaching from about one-half mile away, but the only remedial action taken by its operator was to throw his engine into neutral, although he had plenty of room to avoid the collision. The speedboat, being on the workboat's starboard beam, had the right of way.

Following the crash the workboat, apparently in unreasoning panic, departed for shore, although this boat was not severely damaged and was well equipped to render assistance. The speedboat sank very quickly, and it was most fortunate that other boats approached the scene immediately and pulled in the injured men.

While the failures of the speedboat included not stopping or backing, not taking any emergency measures to avoid collision, not making any passing signals, and not operating at a safe speed in congested waters, the worst dereliction was its failure to keep a proper lookout, since this led directly to the collision. Due to this fact a small boat, designed and built for pleasure and recreation, had become in one moment a veritable engine of destruction. For any pleasure boat operator who loves the thrilling surge of a powerful marine engine, it is heartily recommended that this photograph be clipped and mounted in the cockpit, preferably near the throttle.

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of undocumented vessels numbered under the provisions of the Act of June 7, 1918, as amended (46 U. S. C. 288), in each Coast Guard district by Customs ports for the quarter ending 31 December 1953. Generally speaking, undocumented vessels are those machinery-propelled vessels of less than 5 net tons engaged in trade which by reason of tonnage are exempt from documentation. They also include all other vessels propelled in whole or in part by machinery which have not been issued marine documents by the Customs, owned in the United States and found on the navigable waters thereof.

Coast Guard District	Customs Port	Total
1 (Boston).....	(4) Boston.....	16,618
	(1) Portland, Maine.....	11,658
	(2) St. Albans.....	1,298
	(5) Providence.....	4,909
	Total.....	34,483
2 (St. Louis).....	(45) St. Louis.....	10,092
	(12) Pittsburgh.....	2,085
	(34) Pembina.....	71
	(35) Minneapolis.....	2,219
	(40) Indianapolis.....	3,591
	(42) Louisville.....	2,781
	(43) Memphis (part).....	5,262
	(46) Omaha (part).....	274
	(47) Denver.....	16
Total.....	26,391	
3 (New York).....	(10) New York.....	44,393
	(6) Bridgeport.....	8,931
	(11) Philadelphia.....	18,019
	Total.....	71,343
5 (Norfolk).....	(14) Norfolk.....	15,444
	(13) Baltimore.....	22,285
	(15) Wilmington, N. C.....	7,450
	Total.....	45,179
7 (Miami).....	(18) Tampa (part).....	23,073
	(16) Charleston.....	1,573
	(17) Savannah.....	2,894
	(49) San Juan.....	373
	(51) St. Thomas.....	94
	Total.....	28,007
8 (New Orleans).....	(20) New Orleans.....	19,482
	(18) Tampa (part).....	577
	(19) Mobile.....	7,214
	(21) Port Arthur.....	4,165
	(22) Galveston.....	7,532
	(23) Laredo.....	1,361
	(24) El Paso.....	10
	(43) Memphis (part).....	65
	Total.....	40,406
9 (Cleveland).....	(41) Cleveland.....	7,303
	(7) Ogdensburg.....	2,602
	(8) Rochester.....	5,042
	(9) Buffalo.....	4,427
	(26) Duluth.....	2,607
	(37) Milwaukee.....	3,723
	(38) Detroit.....	17,848
	(39) Chicago.....	6,075
	Total.....	49,689
	11 (Long Beach).....	(27) Los Angeles.....
(28) San Diego.....		1,851
(26) Nogales.....		88
Total.....		11,490
12 (San Francisco).....	(28) San Francisco.....	12,460
	Total.....	12,460
13 (Seattle).....	(30) Seattle.....	17,595
	(29) Portland, Oreg.....	8,488
	(33) Great Falls.....	459
	Total.....	26,542
14 (Honolulu).....	(32) Honolulu.....	3,208
	Total.....	3,208
17 (Juneau).....	(31) Juneau.....	7,344
	Total.....	7,344
Grand total.....		356,542

APPENDIX

AMENDMENTS TO REGULATIONS

[EDITOR'S NOTE.—The material contained herein has been condensed due to space limitations. Copies may be obtained upon request from the Commandant (CMC), U. S. Coast Guard, Washington 25, D. C.]

TITLE 46—SHIPPING

CHAPTER I—COAST GUARD, DEPARTMENT OF THE TREASURY

Subchapter B—Merchant Marine Officers and Seamen

[CGFR 53-58]

PART 10—LICENSING OF OFFICERS AND MOTORBOAT OPERATORS AND REGISTRATION OF STAFF OFFICERS

SUBPART 10.05—PROFESSIONAL REQUIREMENTS FOR DECK OFFICERS' LICENSES (INSPECTED VESSELS)

SUBPART 10.20—MOTORBOAT OPERATORS' LICENSES

EXAMINATION SUBJECTS FOR DECK OFFICERS OF OCEAN OR COASTWISE STEAM OR MOTOR VESSELS AND EXPERIENCE REQUIREMENTS FOR APPLICANTS FOR MOTORBOAT OPERATORS' LICENSES

A notice regarding proposed changes in the regulations regarding licensing of officers and motorboat operators was published in the FEDERAL REGISTER dated September 9, 1953, 18 F. R. 5432, as Items IV and V on the agenda to be considered by the Merchant Marine Council, and a public hearing was held by the Merchant Marine Council on September 29, 1953, in Washington, D. C. All comments submitted were considered and were rejected because a change was not considered necessary or the application of the regulation was already described in the regulations.

The amendment to the table 10.05-45 (b) in 46 CFR 10.05-45 (b) describes the examination subjects given to candidates for deck licenses for prospective deck officers of ocean or coastwise steam or motor vessels. This table sets forth the various subjects covered by the various examinations given by the Coast Guard. This amendment is based on Item IV of the agenda.

The amendment to 46 CFR 10.20-3 (a) regarding general requirements of an applicant for a motorboat operator's license is revised to require an applicant to show evidence of satisfactory service of at least one year's experience in the operation of motor-

boats. This requirement is considered necessary in promoting safety of life at sea. This amendment is based on Item V of the agenda.

These amendments to the regulations shall become effective on and after thirty days after the date of publication of this document in the FEDERAL REGISTER.

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

CHAPTER I—COAST GUARD, DEPARTMENT OF THE TREASURY

[CGFR 53-61]

PART 135—LIGHTS FOR COAST GUARD VESSELS OF SPECIAL CONSTRUCTION

EXEMPTIONS OF STATUTORY REQUIREMENTS FOR COAST GUARD VESSELS

This is the second document describing exemptions of statutory requirements for Coast Guard vessels. The first document (CGFR 53-50), dated November 25, 1953, was published in the FEDERAL REGISTER dated December 1, 1953 (18 F. R. 7641, 7642).

TITLE 46—SHIPPING

CHAPTER I—COAST GUARD, DEPARTMENT OF THE TREASURY

Subchapter K—Marine Investigations and Suspension and Revocation Proceedings

[CGFR 53-57]

PART 137—SUSPENSION AND REVOCATION PROCEEDINGS

STATEMENTS OF POLICY AND REVIEW OF EXAMINER'S DECISION

The new regulations designated §§ 137.03-1 to 137.03-30, inclusive, and § 137.21-10 set forth statements of policy that the Coast Guard has followed and will follow in suspension and revocation proceedings affecting merchant mariners' licenses or certificates or documents. These rules cover offenses for which revocation of a license or a certificate or a document is mandatory; offenses for which revocation of a license or a certificate or a document is sought; maritime labor disputes; surrender of a license or a certificate or a document to avoid responding to charges; issuance of a new license or a certificate or a document in place of those surrendered or revoked; and a statement regarding evidence of wrongful possession of narcotics. These rules are based on Item XV of the agenda.

DEPARTMENT OF THE TREASURY

UNITED STATES COAST GUARD

[CGFR 53-62]

COAST GUARD PORT SECURITY CARDS

Notice is given to holders of Coast Guard Port Security Cards (Form CG-2514) that the period of validity of such cards, unless sooner surrendered or canceled by proper authority, will be for a period of six years from the date of issuance thereof instead of the period of two years as indicated on the reverse of the card.

TITLE 46—SHIPPING

CHAPTER I—COAST GUARD, DEPARTMENT OF THE TREASURY

[CGFR 53-60]

LIFESAVING APPLIANCES AND FIRE PROTECTION EQUIPMENT

A notice regarding proposed miscellaneous changes in the rules and regulations governing inspection of vessels in connection with lifesaving appliances and fire protection equipment was published in the FEDERAL REGISTER dated September 9, 1953, 18 F. R. 5432, 5433, as items VII and VIII on the agenda to be considered by the Merchant Marine Council, and a public hearing was held by the Merchant Marine Council on September 29, 1953, at Washington, D. C. All comments, views, and data submitted were considered and where practicable were incorporated into the regulations.

The amendments to 46 CFR 33.05-2 (c), 33.15-3, and 33.20-1 (c) (3) revised certain requirements regarding lifeboats, portable radio telegraph apparatus, and deck illumination for tank vessels engaged in international voyages. These changes bring the requirements for tank vessels into agreement with similar requirements presently applicable to inspected dry cargo vessels, and implement the 1948 Convention for the Safety of Life at Sea. These amendments are based on Item VIII of the agenda.

The amendments to 46 CFR 34.10-25 (b), 34.10-30 (f), 76.10-10 (1), and 95.10-10 (1) revise the requirements regarding the number of threads used in fire hose couplings on board all types of inspected vessels. The revised regulations establish a standard of 9 threads per inch for 1½-inch fire hose couplings in lieu of the 11½ threads per inch standard presently

in use and will apply only to new construction. This revision is in accord with the recommendations of the National Fire Protection Association and many other leading fire safety organizations and is an effort to secure standardization of couplings for fire hoses in order to facilitate using shore based fire-fighting facilities to deal with fires which may occur on board ships in port. This action is also based on Recommendation 8 of the International Convention for the Safety of Life at Sea, 1948. These amendments are based on Item VII of the agenda.

The regulations shall become effective 90 days after the date of publication of this document in the FEDERAL REGISTER, except as otherwise indicated in the regulations:

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 11-53

22 December 1953

Subj: Fog gongs for vessels of over 350 feet in length on International waters.

1. *Purpose.* The purpose of this circular is to clarify the requirements for subject equipment as set forth in the amended International Regulations for Preventing Collisions at Sea, 1948.

2. *Background.* The regulations referred to above come into effect on 1 January 1954. They apply to all vessels, United States and foreign, when outside the line of demarcation dividing the high seas from rivers, harbors and inland waters. Rule 15 (e) (iv) requires that every ship of more than 350 feet in length when at anchor in fog, mist, falling snow, heavy rainstorm, or any other condition similarly restricting visibility, shall, in addition to ringing the bell in the fore part of the ship, sound a gong or other instrument in the after part of the ship. The tone and sounding of this instrument shall be such that it cannot be confused with that of the bell.

3. *Discussion.* During recent months tests of equipment have been conducted in order to determine the characteristics required in this sound equipment to meet the intent of the rule. It was determined that the equipment should produce a sound easily distinguishable from the sound of the fog bell at a distance approximating the range of audibility of the ship's fog bell. Triangles were found to be unsatisfactory because their tone resembled too closely the tone of the ship's fog bell. The most satisfactory piece of equipment tested was a circular metal gong 16 inches in

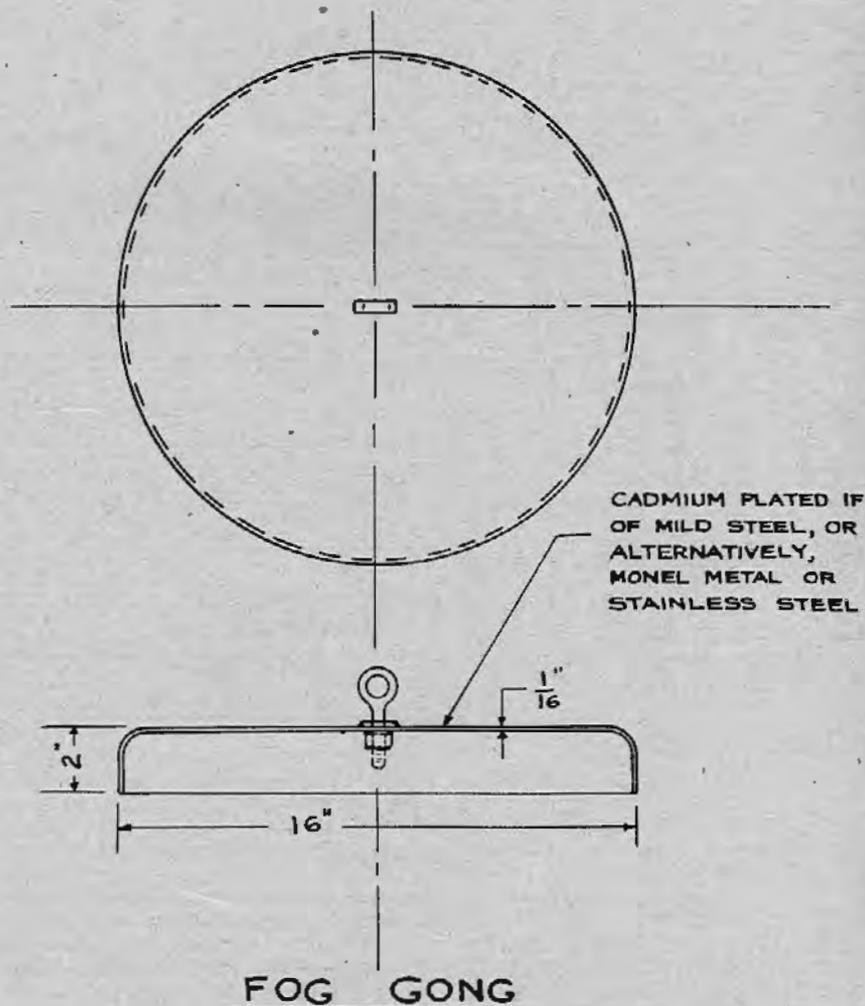
diameter with a lip of 2 inches, manufactured of mild steel of about $\frac{1}{16}$ inches thick.

4. *Recommendation.* All shipowners and operators are hereby notified that while the Coast Guard does not intend to issue detailed specifications for the subject equipment, it is recommended that a circular gong of a size, type, and class of material as shown on the attached sketch be used for fulfilling the intent of Rule 15 (c) (iv), since the most suitable instrument tested for this purpose was of this size, shape and material. The gong should be suspended on a lanyard clear of all obstruction and should be maintained in a paint free condition.

5. *Action.* Shipowners and operators shall be prepared to comply with Rule 15 (c) (iv) of the International

Regulations for Preventing Collisions at Sea, 1948 on 1 January 1954. Gongs of non-ferrous metals or other instruments which clearly meet the requirements of Rule 15 (c) (iv) may be accepted, but in all cases the sound produced shall be easily distinguished from the sound of the ship's fog bell at a distance approaching the range of audibility of the ship's fog bell. When there is doubt about the suitability of an instrument a test shall be carried out under the supervision of an Officer in Charge, Marine Inspection, and a report forwarded to the Commandant (MVI).

H. C. SHEPHEARD
Rear Admiral, U. S. C. G.
Chief, Office of
Merchant Marine Safety
By direction of the Commandant



MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

Quarter Ending 31 December 1953

DECK		
Grade	Original	Renewal
Master:		
Ocean.....	98	528
Coastwise.....	3	26
Great Lakes.....	2	17
B. S. & L.....	25	142
Rivers.....	8	50
Radio officer licenses issued.....	38	6
Chief Mate:		
Ocean.....	76	117
Coastwise.....	1	6
Mate:		
Great Lakes.....	7	17
B. S. & L.....	12	23
Rivers.....	96	121
Second Mate:		
Ocean.....	96	121
Coastwise.....	2	2
Third Mate:		
Ocean.....	34	81
Coastwise.....	1	4
Pilots:		
Great Lakes.....	4	5
B. S. & L.....	155	45
Rivers.....	55	13
Master: Uninspected vessels.....	1	4
Mate: Uninspected vessels.....	1	1
Total.....	574	1,197
Grand total.....	1,771	

ENGINEER

Grade	Original	Renewal
STEAM		
Chief Engineer:		
Unlimited.....	53	600
Limited.....	9	116
First Assistant Engineer:		
Unlimited.....	66	206
Limited.....	4	7
Second Assistant Engineer:		
Unlimited.....	90	259
Limited.....	2	1
Third Assistant Engineer:		
Unlimited.....	70	157
Limited.....	1	1
MOTOR		
Chief Engineer:		
Unlimited.....	17	62
Limited.....	31	104
First Assistant Engineer:		
Unlimited.....	5	7
Limited.....	20	12
Second Assistant Engineer:		
Unlimited.....	3	13
Limited.....	1	1
Third Assistant Engineer:		
Unlimited.....	8	22
Limited.....	11	4
Chief Engineer: Uninspected vessels.....	4	2
Assistant Engineer: Uninspected vessels.....	1	1
Total.....	398	1,572
Grand total.....	1,970	

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 3,311 cases during the fourth quarter of 1953. From this number, hearings before Examiners resulted involving 86 officers and 285 unlicensed men. In

ORIGINAL SEAMEN'S DOCUMENTS ISSUED

Quarter Ending 31 December 1953

Type of document	Coast					Total
	Atlantic	Gulf	Pacific	Great Lakes and rivers	Canal Zone	
Staff officer.....	82	13	28	5	---	128
Continuous discharge book.....	---	7	---	---	---	7
Merchant mariner's documents.....	1,558	917	1,239	1,389	1	5,104
AB any waters unlimited.....	167	35	130	21	---	353
AB any waters, 12 months.....	108	28	80	81	---	297
AB Great Lakes, 18 months.....	10	2	13	16	---	41
AB tugs and tow-boats, any waters.....	---	1	---	---	---	1
AB bays and sounds.....	1	---	---	---	---	1
AB seagoing barges.....	---	---	---	---	---	0
Lifeboatman.....	234	16	406	27	---	683
Q. M. E. D.....	196	77	108	121	---	502
Radio operators.....	2	2	7	---	---	11
Certificate of service.....	1,523	693	1,210	1,331	---	4,957
Tankerman.....	11	33	5	38	---	87

¹ 12 months, vessels 500 gross tons or under, not carrying passengers.

NOTE.—The last 11 categories indicate number of endorsements made on United States merchant mariner's documents.

WAIVER OF MANNING REQUIREMENTS

Waivers	Coast				Total
	Atlantic	Gulf	Pacific	Great Lakes	
Deck officers substituted for higher ratings.....	---	---	2	12	14
Engineer officers substituted for higher ratings.....	1	---	3	4	8
O. S. for A. B.....	6	---	2	2	10
Wiper or co-compassers for Q. M. E. D.....	3	---	1	1	5
Total waivers.....	9	---	5	18	32
Number of vessels.....	0	---	5	13	18

NOTE.—In addition, individual waivers were granted to permit the employment of 26 able seamen holding certificates for "any waters—12 months" in excess of the 25 percent authorized by statute.

the case of officers, 1 license was revoked, 7 were suspended without probation, 34 were suspended with probation granted, 8 licenses were voluntarily surrendered, 13 cases were dismissed after hearing, and 6 hearings were closed with admonitions. Of the unlicensed personnel, 28 documents were revoked, 31 were suspended without probation, 129 were suspended with probation granted, 64 documents were voluntarily surrendered, 18 hearings were closed with admonitions, and 17 cases were dismissed after hearing.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 12-53

29 December 1953

Subj: Officers' Competency Certificates Convention, 1936, and R. S. 4438a, as amended (46 U. S. C. 224a); evidence of compliance with:

1. *Purpose.* The purpose of this circular is to bring attention to new regulations published in the Federal Register dated 19 December 1953 (18 F. R. 8582), regarding compliance with the Officers' Competency Certificates Convention, 1936, and R. S. 4438a, as amended (46 U. S. C. 224a). The new regulations designated 46 CFR 157.18-1 to 157.18-15, inclusive, will be in effect on and after 18 January 1954.

2. *Discussion.* The new regulations designated 46 CFR 157.18-1 to 157.18-15, inclusive, provide that every master or person in charge of a vessel subject to the Officers' Competency Certificates Convention, 1936, or to R. S. 4438a, as amended (46 U. S. C. 224a), shall file with the Collector of Customs a complete list of officers employed aboard the vessel upon application for final clearance for a foreign port or for an application for a permit to touch and trade. These regulations apply to all vessels however propelled, navigating on the high seas which are registered, enrolled and licensed, or licensed under the laws of the United States, whether permanently, temporarily, or provisionally, including yachts enrolled and licensed, or licensed with the exception of (a) ships of war; (b) Government vessels, or vessels in the service of a public authority, which are not engaged in trade; (c) wooden ships of primitive build as dhows and junks; (d) unrigged vessels; or (e) all vessels of less than 200 gross tons.

3. *List of countries.* The Department of State has informed the Coast Guard that the following countries have ratified the Officers' Competency Certificates Convention, 1936:

United States	Finland
Belgium	France
Brazil	Italy
Bulgaria	Mexico
Denmark	New Zealand
Egypt	Norway
Esthonia	

Foreign vessels to which the Officers' Competency Certificates Convention, 1936, applies are subject to the regulations in 46 CFR 157.18-1 to 157.18-15 when within the jurisdiction of the United States.

4. Nature of evidence of compliance.

a. The master of any vessel of the United States subject to R. S. 4438a, as amended (46 U. S. C. 224a) shall, upon application for final clearance for a foreign port or upon application for a permit to touch and trade, file with the Collector of Customs a record on Form CG-710A listing the names of the master, chief engineer and all deck and engineer officers in charge of watches, together with the serial number and description of the license held by each such officer. However, if the master of a vessel is required, under any other statute or regulation, to file with the Collector of Customs a list of his entire crew on Form CG-710A, this list will be considered as acceptable evidence of compliance with R. S. 4438a, as amended, provided a notation as to the serial number and description of the license held by the master, chief engineer, and each deck and engineer officer in charge of a watch is placed thereon.

b. The master of any foreign vessel belonging to a nation which has ratified the Officers' Competency Certificates Convention, 1936, shall, upon making application for final clearance from a port in the United States, file with the Collector of Customs a list of the names of the master, chief engineer, and all deck and engineer officers in charge of watches, together with the serial number and description of the license held by each such officer.

5. Action required. On and after 18 January 1954, the master of any vessel of the United States subject to the provisions of R. S. 4438a shall file with the Collector of Customs the list referred to in paragraph 4 (a) above as a condition to obtaining final clearance for a foreign port or a permit to touch and trade; and the master of any foreign vessel belonging to a country which has ratified the Officers' Competency Certificates Convention, 1936, shall file with the Collector of Customs the list referred to in paragraph 4 (b) above as a condition to obtaining final clearance from a port in the United States.

H. C. SHEPHEARD
Rear Admiral, U. S. C. G.
Chief, Office of
Merchant Marine Safety
By direction of the Commandant

**EQUIPMENT APPROVED
BY THE COMMANDANT**

FUSIBLE PLUGS

The regulations prescribed in Subpart 162.014, Subchapter Q Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufac-

March 1954

**COAST GUARD DISTRICT COMMANDERS AND MERCHANT
MARINE ACTIVITIES**

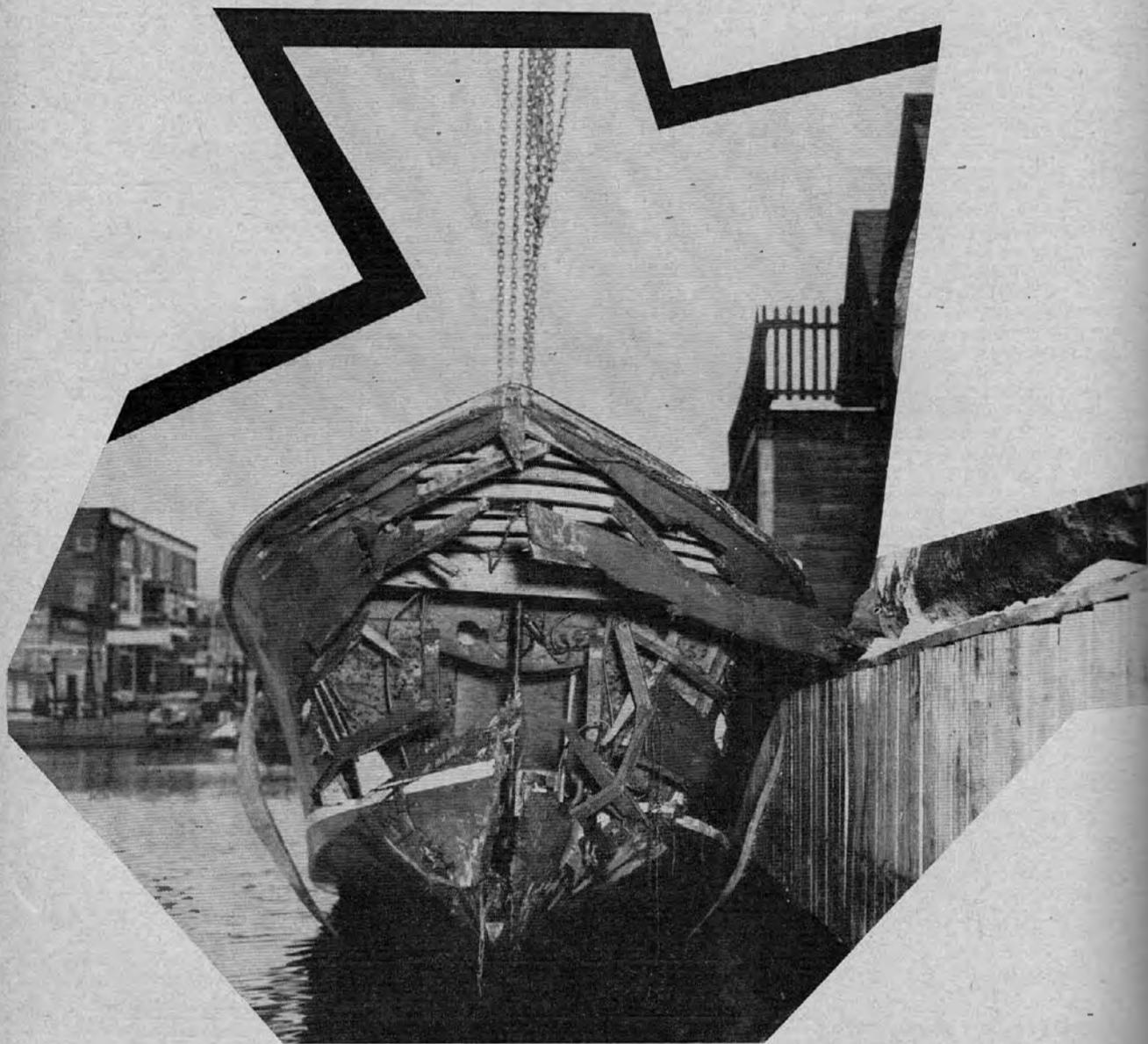
District	Title	City and State
1st	Commander, 1st Coast Guard District	Boston, Mass.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Portland, Maine.
	do	Providence, R. I.
2d	Commander, 2d Coast Guard District	St. Louis, Mo.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
	do	Chgo, Ill.
	do	Dubuque, Iowa.
	do	Cincinnati, Ohio.
	do	Louisville, Ky.
	do	Memphis, Tenn.
do	Nashville, Tenn.	
3d	Commander, 3d Coast Guard District	New York, N. Y.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
	do	New London, Conn.
5th	Commander, 5th Coast Guard District	Norfolk, Va.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
	do	Baltimore, Md.
7th	Commander, 7th Coast Guard District	Miami, Fla.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
	do	Tampa, Fla.
	do	Charleston, S. C.
	do	Savannah, Ga.
8th	Commander, 8th Coast Guard District	New Orleans, La.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
	do	Mobile, Ala.
	do	Port Arthur, Tex.
	do	Galveston, Tex.
9th	Commander, 9th Coast Guard District	Cleveland, Ohio.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
	do	Buffalo, N. Y.
	do	Oswego, N. Y.
	do	Detroit, Mich.
	do	Duluth, Minn.
	do	Toledo, Ohio.
	do	Saint Ignace, Mich.
	do	Chicago, Ill.
do	Ludington, Mich.	
do	Milwaukee, Wis.	
11th	Commander, 11th Coast Guard District	Long Beach, Calif.
12th	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
13th	Commander, 13th Coast Guard District	San Francisco, Calif.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
14th	Commander, 13th Coast Guard District	Seattle, Wash.
	Marine Inspection Officer	Do.
	Officer in Charge, Marine Inspection	Do.
17th	Commander, 14th Coast Guard District	Portland, Oreg.
	Marine Inspection Officer	Honolulu, T. H.
	Officer in Charge, Marine Inspection	Do.
17th	Commander, 17th Coast Guard District	Do.
	Marine Inspection Officer	Juneau, Alaska.
	Officer in Charge, Marine Inspection	Do.

tured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from 15

December 1953 to 15 January 1954, is as follows:

H. B. Sherman Manufacturing Co.
Battle Creek, Mich., Heat Nos. 784 through 790 incl.

HE LED WITH HIS CHIN



SEE PAGE 51