PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

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IN THIS ISSUE . . .

Directing Firefighting at the Scene . . .

Inflatable Liferafts . . .

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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COVERS

FRONT: The new super cargo liner *Prudential Oceanjet* built at Bethlehem's Sparrows Point Shipyard.

BACK: A safety poster published in the interest of Marine Safety by the Marine Transportation Department of Socony Mobile Oil Co., Inc.

DIST. (SDL) NO. 83

A: a b c d e w(2); f g h i j k l m n o p q r s t u v(1)
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C: a b c d e f g i m o u(1)
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E: None
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Lt. Comdr. Alvin Jones Arnett, USCG, *Editor*
T. A. DeNardo, *Assistant Editor*

On-the-Scene Firefighting Direction

By Lt. Jack A. Eckert, USCG

Former Coast Guard Staff Officer, U.S. Naval Damage Control School.

Flame and smoke billow from a gaping hole in the forward starboard section of the ill-fated tanker M/V Alva Cape. *The 546-foot British ship was carrying a cargo of volatile naphtha when she collided with the 604-foot American Tanker SS* Texaco Massachusetts *in New York Harbor's Kill Van Kull Channel between Staten Island, N.Y., and Bayonne, N.J. The Bayonne Bridge can be seen in the background.*

CONSIDERABLE TRAINING effort is expended in training "the man on the end of the nozzle". Most mariners have a very healthy respect for the nature of fire and some have experienced its effects. Much has been written concerning firefighting in general, but very few articles are apparently written to instruct the man directing the action at the scene of the fire. This is the primary objective of this series of articles.

A professional firefighting organization observes and then selects specially qualified men from their ranks for promotion to line and engineering officers. Advanced classroom study in such topics as hydraulics, physics, chemistry of fire, and directing firefighting operations is provided. Couple this with everyday on-the-job experience, and ultimately men are qualified to assume greater responsibilities. Compare this program to the volunteer firefighting company program. These officers are not necessarily selected because of their knowledge and experience. At best, the entire operation is only a part-time proposition. As dedicated as the volunteers are to their part-time profession, the very nature of their training lends itself to a lesser degree of proficiency. Anyway that you look at it, grocers, postmen, mechanics, clergymen, filling station operators, their esprit de corps notwithstanding, will not normally match in proficiency that "fine edge" of the fully qualified professional firefighter.

A similar situation exists on board a ship. Fortunately, most ships are not involved in firefighting operations every day. Unfortunately, when a fire does in fact break out, unless the ship is moored, a fire department cannot be called. The crew *is* the fire department! The man who directs the operation, like his volunteer F.D. counterpart, is not normally a full-time professional firefighter. His firefighters are seamen, messmen, oilers, and stewards. Like the volunteer company, neither are these men professional firemen.

Review of Fire Chemistry and the Concept of the Fire Triangle

Three elements: heat, fuel, and oxygen, must be brought together in the proper proportions for a fire to occur. Most solids and liquids do not burn directly; rather, vapors given off as the substance is heated burn. Thus, to create fire, the vapors from a *fuel*

An HH–52A amphibious helicopter from the U.S. Coast Guard Air Station, Brooklyn, N.Y., helps recover survivors as tugs and fireboats battle the raging fire on board the 546-foot British tanker M/V Alva Cape *after her collision with the 604-foot American tanker SS* Texaco Massachusetts.

must be intimately mixed with *oxygen* (in the correct amount) and this mixture *heated* to a sufficiently high temperature (called the ignition temperature).

This so–called "fire triangle" has a leg for each: fuel, oxygen, and heat (ignition temperature). To prevent or extinguish fire, one leg of the triangle must be removed. Thus the other two cannot stand alone and no combustion can occur.

Examples:

1. Carbon dioxide, an inert gas, is introduced to displace oxygen. Even though there is sufficient heat and adequate fuel, the fire will be extinguished.

2. Waterfog, a finely divided mist, is introduced to cool the fire below its ignition temperature (to remove heat). Even though adequate fuel and oxygen are present in sufficient quantities, the fire will be extinguished.

3. Fire consumes a pool of gasoline. The consumed fuel no longer exists in its initial state. Oxygen is present and the temperature is high enough to bring about combustion, yet no combustion can exist.

In Summary: If one leg of the triangle is removed, a fire will be extinguished.

The Classification of Fires and the General Methods of Extinguishment

There are four classes of fires: A, B, C, and D.

Class A fires involve flammable solids other than certain metals. Examples of class A fires are: burning paper, wood, cotton, etc. Under most conditions, a metal ashcan will remain after the combustibles inside have been consumed by the fire. Water, especially waterfog, is usually the best agent to effect extinguishment. To get to the heart of deep-seated fires, or during the overhauling phase, high-velocity water streams and/or wet water can be used. This type of fire can generally be identified by a rather white, highly irritant smoke. This smoke usually contains high percentages of harmful agents such as *carbon monoxide.*

Class B fires are burning liquids. The most common of these are hydrocarbons such as: gasoline, fuel oil, etc. Waterfog can be used effectively for cooling the fuel and surroundings. Often it will bring the fire under control and will sometimes effect extinguishment. More effective than water is mechanical foam which is projected onto a vertical surface and then allowed to flow downward, engulfing the surface of the fuel. This foam acts as an agent to separate the fuel from the oxygen. Unfortunately, this foam "blanket" also is an excellent insulator. The liquid may well stay above the ignition temperature for several hours, or well beyond the effective life of the foam. Thus, there is a danger from eventual reflash. This type of fire is associated with black smoke, although certain flammable liquid fires, such as alcohol, may emit little or no smoke. Black smoke indicates that the combustion is inefficient and incomplete and as a consequence contains a lot of free carbon particles.

Class C fires are electrical fires. The best extinguishment is accomplished by securing the electrical power and employing carbon dioxide as the agent. Dry chemicals and the freon agents also have been used extensively on this type of fire with a relatively high degree of success. Other agents such as water, foam, soda-acid, etc. should only be used as a last resort inasmuch as the damage caused by the agent may be greater than that caused by the fire and there is the ever-present danger of electrical shock. Electrical fires are identified by a noxious blue and white smoke. It should be mentioned

that carbon dioxide, dry chemical, and the halogenated agents are nonconductors of electricity, hence, may be used on live electrical hazards, if necessary.

Class D fires such as magnesium will not be dealt with here because of the high degree of specialization involved.

Shipboard Firefighting

When compared to shoreside firefighting procedures, shipboard firefighting procedures present special problems that demand modified techniques. Some of the considerations are that:

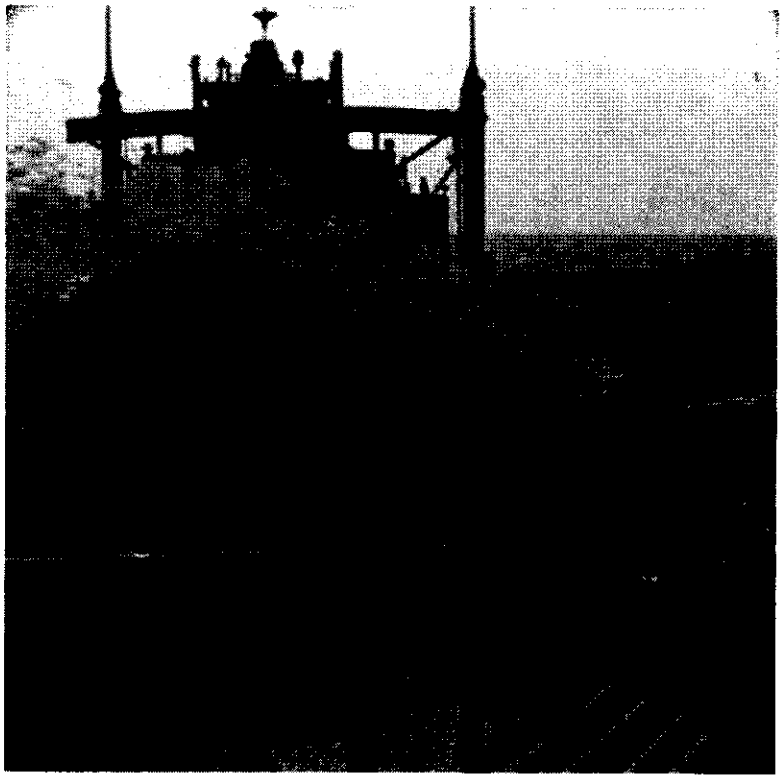
1. Ships are made of steel which will conduct heat and will contain greater pressures than shoreside structures.
2. Introduction of firefighting water into the vessel may impair the vessel's stability.
3. The ventilation system is usually of the forced-air type in most instances and more than one compartment is serviced by a single ventilation unit. Thus fire could spread beyond the area of normal containment through the ventilation system unless proper action is taken to secure it.
4. The vessel's fire main system is self-contained.
5. The vessel has its own drainage system.
6. The vessel generates its own power.
7. With the exception of nuclear vessels, a large quantity of fuel is usually aboard which, under unfavorable conditions, could ignite.
8. Areas exist on a vessel where toxic vapors and/or gases can accumulate or the atmosphere may be oxygen deficient.
9. The cargo carried by the vessel may be dangerous.

One of the most important actions to take when directing a firefighting operation is the horizontal containment of the fire. Because of the rise of hot gases, fires will tend to spread upward. The general tendency is not to spread outward as rapidly. It is difficult for a fire to spread downward. On a ship the fire can spread directly through metal decks and bulkheads by conduction, raising the temperature of material located at or near it above its ignition temperature, thus beginning another fire parallel in vertical development to the initial fire. This event can continue until the entire ship is involved unless action is taken to contain the fire by establishing effective boundaries.

To Ventilate or not to Ventilate

In combating a shoreside fire, one of the cardinal rules is to ventilate the fire through the roof or other high opening so that internal pressures will not build up, the hot fire gases and smoke will be released and the fire will more easily be brought under control. If this rule were applied in all cases to a shipboard fire it is possible that the fire would spread to the point where it could not be brought under control. The buildup of pressures greater than atmospheric can normally be contained in a compartment on a steel ship. Two rules apply to the ventilation question:

1. Do *NOT* ventilate any fire through a mechanical ventilation system. As has been previously stated, the fire could be spread this way and/or the ventilators themselves may be damaged or destroyed.
2. Ventilation of the fire is proper if the fire and its undesirable products can be released *DIRECTLY* to the outside atmosphere and adequate horizontal access for lead-in hose teams is available.



Courtesy, Codan Marine

A shipboard fire drill utilizing foam.

Characteristics of Ventilated Versus Unventilated Fires

We shall now consider the differences between the techniques employed in combating a class A fire in a ventilated versus an unventilated compartment. Of necessity certain generalities will be used in the example.

Figure 1 is a representation of the end view of a compartment located somewhere within the hull of the ship. It is surrounded on all sides, top, and bottom by other compartments of a similar nature. No effort has been made to draw this compartment to scale. No extra embellishments are added except the location of two accesses. Assume the compartment to be watertight and assume that both accesses are watertight. A simple box located in the center of the compartment represents an amount of class A material. The condition of the atmosphere is normal.

Figure 2 represents the compartment after a fire has begun within it. Note particularly that the oxygen initially present is being consumed to support the fire. Carbon dioxide, the main product of combustion being generated at this point, is increasing in percentage in the atmosphere. There are minor inefficiencies in combustion and as a consequence traces of carbon monoxide and flammable hydrocarbon vapors are also beginning to accumulate. Heat intensity and pressures are also beginning to rise. Surface flames on the burning material are very apparent. The deck of the compartment above is beginning to get extremely hot. The

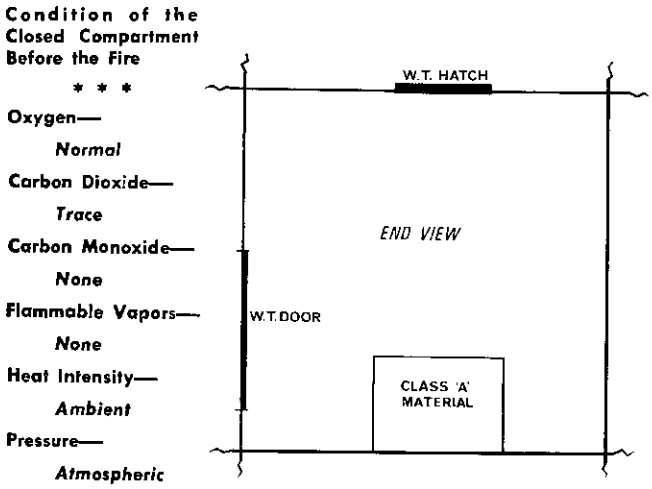


Figure 1.

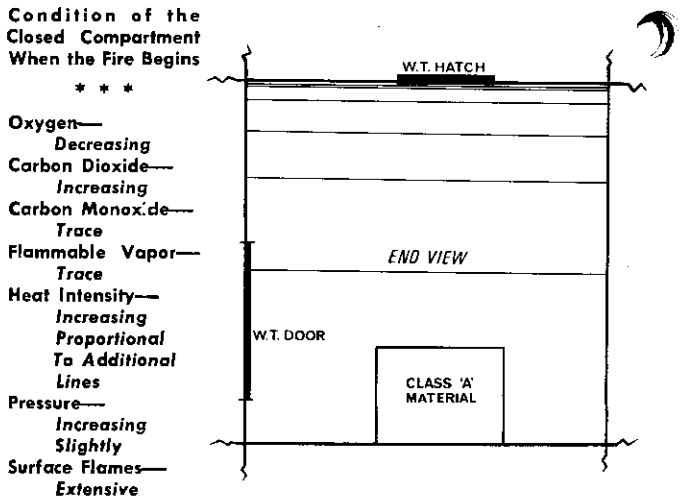


Figure 2.

surrounding bulkheads are showing evidence of heat conduction from adjacent compartments. The additional lines added to this figure horizontally across the compartment represent general increases in heat intensity. It is always hottest in a compartment at its very top and this heat decreases toward the bottom.

Figure 3 represents the compartment at the point where insufficient oxygen is present to support continuous surface flames. If the compartment is tight, surface flames will disappear after very little fuel has been consumed. The fire is smoldering. In the atmosphere carbon dioxide is present in large quantities. Because of the general deficiency in atmospheric oxygen content, inefficient combustion is occurring generating large quantities of carbon monoxide. This carbon monoxide will be considerably above the level which is harmful to persons, but will be well below the explosive level. Flammable hydrocarbon vapors will be escaping from the material in higher quantities and will be accumulating high in the compartment. Because of the increase in heat intensity, the internal pressure will also increase. Exterior symptoms show the deck separating the compartment on fire and the one above to be red hot. Many combustible materials contained in the compartment above will be releasing flammable vapors. Once the ignition temperature is reached surface flames will appear and the compartment above will itself become involved and the same chain of events will occur. Thermal distortion of the deck separating the two compartments may be apparent. Leaks in all surrounding areas will be evidenced by high-velocity wisps of smoke appearing. If the bulkhead is painted, the paint on the opposite side will be the first thing to flame. The surrounding bulkheads will be red hot at the top, diminishing to charred paint, thence to blister paint, to discolored paint, and finally to normal colorations at the bottom. Without taking the protective action that will be described, it is probable that personnel casualties will occur and the fire will spread very rapidly. Entry into this compartment at this time is very hazardous.

Figure 4 represents the compartment just prior to the natural extinguishment of the remaining ashes. In the atmosphere the oxygen content is very low, carbon dioxide content is very high, carbon monoxide content is very high, possibly approaching the lower explosive limit or may be well within it, and excessive hydrocarbon gases and vapors are present. Because there are no longer any surface flames, the total heat intensity and accompanying pressures have diminished, but are still above atmospheric pressure. The exterior of the deck above will be cooling, considerable distortion of plate and structural members will be apparent. The velocity of the escaping smoke jets will become markedly reduced. The upper portions of the bulkheads may evidence some distortion at the top and thence through charring, blistering, discoloration, down to normal.

Eventually the fire will extinguish itself completely in that area and the ashes will become cold. The atmosphere will remain very harmful and will be unable to support human life.

During the course of this type of fire, all combustibles must be removed to a safe distance from adjacent bulkheads and decks as soon as possible. The deck of the compartment above should have a continuous layer of water on it. The depth of this layer of water is dependent on the cooling requirement on one hand and the effect on the stability of the vessel on the other. Remember, water is capable of absorbing tremendous amounts of heat in being converted to steam. Cooling the surrounding bulkheads with waterfog will tend to prevent the further horizontal spread of the fire. Under this general condition, with the deck above, and the bulkheads surrounding being cooled, the heat intensity and resultant pressure within the involved compartment will not rise as rapidly as illustrated in figures 2 and 3.

Extreme caution must be taken at all times when attempting to enter the involved closed compartment under the described conditions. *If the door is opened there will be a sudden rush of the total combustion products under pressure attempting to equalize. The equalization will act like a common spring inasmuch as the involved compartment's pressure will drop below that of the entry compartment to a few inches of water vacuum. A fresh gulp of oxygen-laden air will rush back into the compartment, encounter the smoldering fire and other flammables. There will be a sudden flareup of the surface flames and possibly a high-order explosion. The force of the sudden pressure will cause the rapid propagation of flames through the open access, involving the adjacent compartment and hazarding the personnel in it.*

When organizing the fire party in the unventilated horizontal approach, two teams with working lines should be employed. One team should man a high-velocity fog nozzle and the other team should man a low-velocity fog applicator nozzle. The basic concept is that the No. 2 team (low velocity) will protect and back up the No. 1 team thus allowing them to reach the base of the fire sooner. It is imperative that all personnel mak

Condition of the Closed Compartment After the Fire Has Been Permitted To Continue

* * *

Oxygen— *Deficient*
Carbon Dioxide— *High*
Carbon Monoxide— *High but Usually Below the Explosive Range*
Flammable Vapors— *High*
Heat Intensity— *Very High*
Pressure— *Well Above Atmospheric*
Surface Flames— *Occasional Wisps*

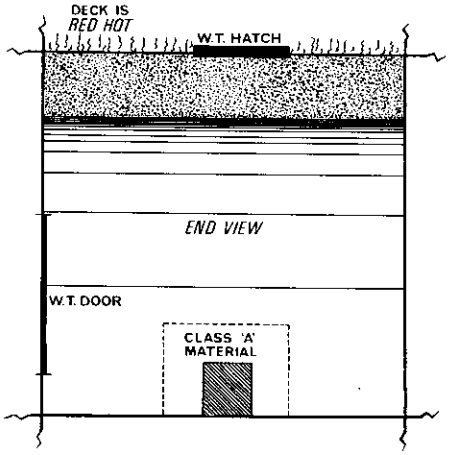


Figure 3.

Condition of the Closed Compartment After the Burning Material Has Been Reduced to a Glowing Ash

* * *

Oxygen— *Very Low*
Carbon Dioxide— *Very High*
Carbon Monoxide— *Very High Approaching or within the Explosive Range*
Flammable Vapors— *Extensive*
Heat Intensity— *Decreasing*
Pressure— *Decreasing*
Surface Flames— *None*

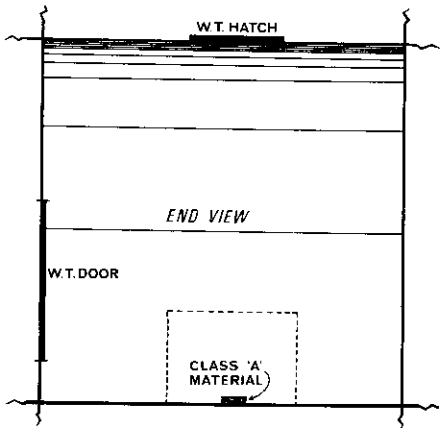


Figure 4.

ing the entry be properly clothed and wear self-contained breathing apparatus. It must be stressed that gas masks or other filtration types are dangerous and not acceptable because of the oxygen deficiency that will be encountered.

Boundaries should be established first, and this is naturally dependent on the degree of involvement. Cool the access door and the area down with the No. 1 high-velocity fog line. Crack the door slightly (but within control) and permit the pressures to equalize slowly, keeping the door and the area constantly covered. When it is apparent that the pressures have equalized, open the door slowly making sure that all personnel are away from the access opening. The No. 2 hose team should place their applicator in front of the No. 1 team, protecting them. Entry should be made from the crouched position and the line should be swept in an arc to attain the maximum cooling effect. Continue the advance making sure that the fire cannot get behind the team, gradually sweeping the last vestiges of the surface flames into a corner. Even after the vestige of the fire is out, continue to sweep the area an extra minute or two. Determine the general source of the fire and then break into the smoldering ashes with the high-velocity straight stream. At this point the No. 2 line can be shut down, but should stand by ready to be cut in if required. The water curtain covering the boundaries can now be secured, but should remain on standby until the fire is overhauled (i.e., examining debris to assure fire is out). Portable ventilation sets should be rigged to remove the accumulated flammable and toxic vapors and gases. In all cases insure that the metal portions of the portable system are positively grounded. The vent outlet should be sent directly through to the weather area in such a way that none of the gases or vapors can accumulate anywhere. Test the compartment for flammables, toxic agents, and oxygen deficiency in that order. If the atmosphere is good, then and only then can the self-contained breathing apparatus be removed. Check the compartment over inch by inch to positively insure that there is no remaining combustion present. The working lines may now be wrapped up and put away in a condition, such, that they are ready if they are needed again. And remember: Properly dry hose before storing.

Additional considerations:

1. Secure all electrical power prior to making an entry. After the fire is overhauled, the circuits, should be checked by a competent electrician and, if intact, restored.

2. The source of water for each of the two teams should come from two different sources. Unless there is no other alternative, never energize both lines from the same fire station. If one hose were to experience a casualty, the other line can protect both teams until they can retreat to the access and seal the area off again. Retreat as such is a matter of judgment based on the situation.

3. Under these conditions if more firefighting personnel can be committed, they should be. Under no conditions should these extra personnel be permitted to enter the involved compartment not properly equipped.

4. If another horizontal access exists to this compartment, *DO NOT* open it during the fire because spreading of the fire horizontally can almost positively be guaranteed.

5. As much of the exposed body surface should be covered as possible.

6. All installed ventilation systems must be secured as soon as possible after the initial discovery of the fire to prevent it from spreading further.

7. In the event that a boundary fails, consideration must be given to retreating to the next intact boundary where there is an increased probability of containing the fire.

8. Last and most important, "Dead Firefighters Have Difficulty Extinguishing Fires."

If the compartment, as illustrated in the accompanying sketches, could be ventilated, directly to the atmosphere through the access at the top of the compartment, many of the dangerous and undesirable aspects of the fire could be eliminated or at the very least be minimized. The atmosphere would not become charged, toxic products as well as the flammable hydrocarbons would not tend to accumulate, and sufficient oxygen would be present to sustain the fire. There is less danger of the fire spreading horizontally because the heat and flame have a clear path. Upward boundaries, though, should be established and maintained.

After the boundaries are established and the access in the top of the compartment has been opened from above, it is a good idea to place at least one charged low velocity fog applicator through the access for cooling. Cool, then open the door, making the entry the same as previously described and then literally sweep the fire out ahead of the No. 1 team. The surface flames will be more intense and may appear to be awesome to the firefighters but this is a much safer approach if it can be effected. ⚓

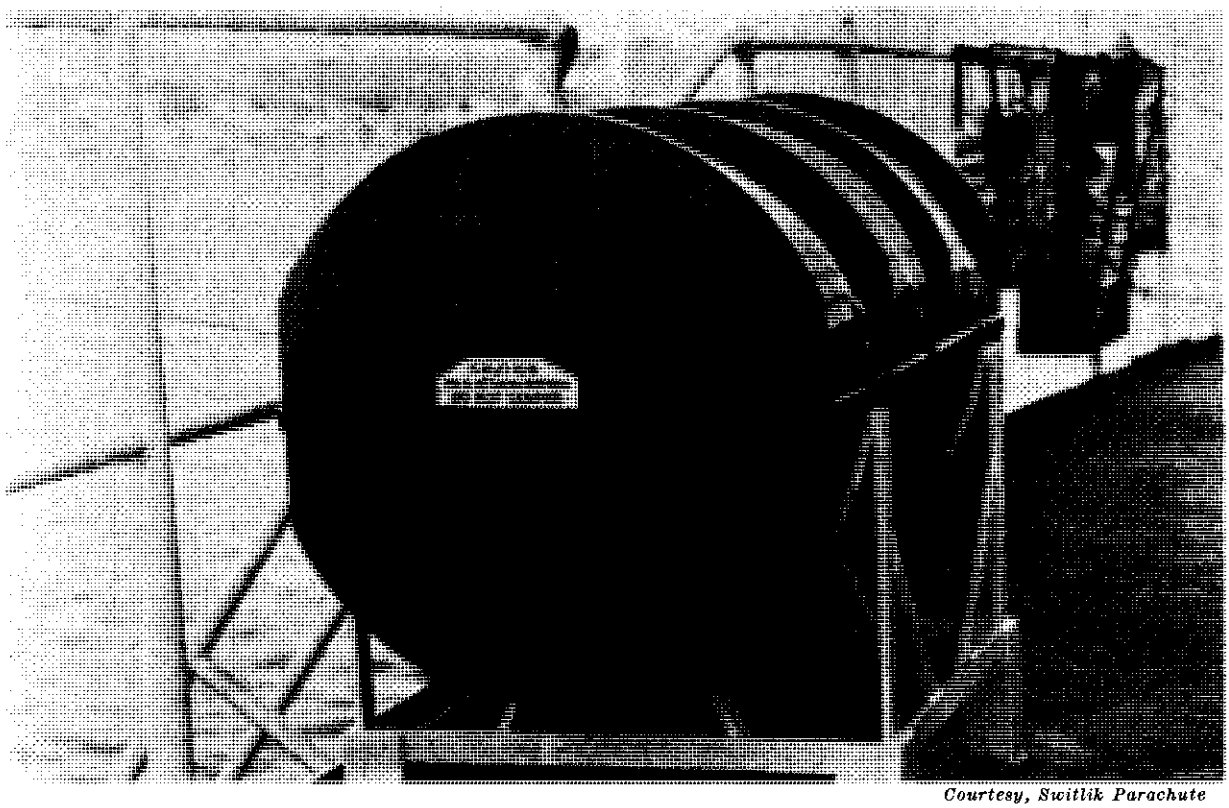
What's in There?

Lt. Geo. Conrad, USCG

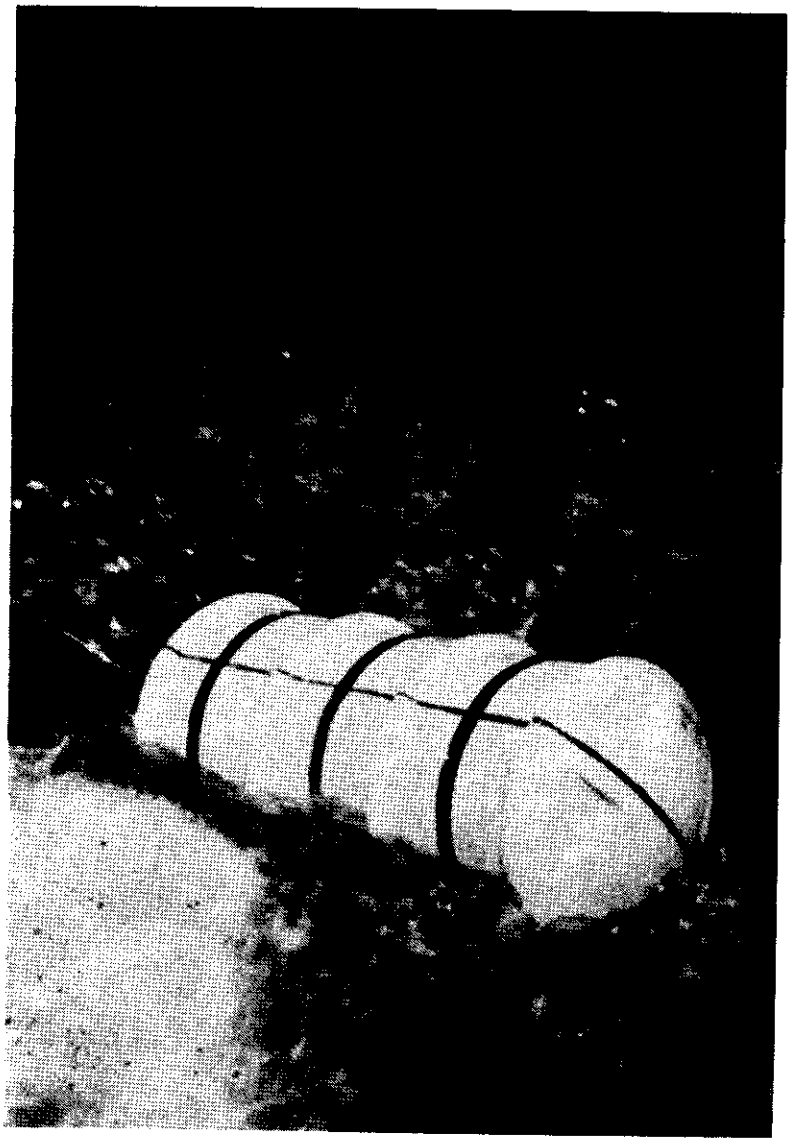
THE ANSWER TO the question is, of course, an inflatable liferaft. Unfortunately, the fact that this question is asked poses an important problem. The design of the inflatable liferaft, as approved by the U.S. Coast Guard, is such that little knowledge of the raft, its operation, or contents *needs* to be known by the user in order for the raft to fulfill its function of saving life. The intention is that in the unfortunate event of a disaster at sea, floating nearby is a liferaft completely ready for use. All that should be necessary is for the survivors to climb aboard. The failure to take, or not to take, certain precautions beforehand, however, can easily thwart the design of the raft. We here provide a little beforehand knowledge that may save your life.

General Description

The inflatable liferaft is a fine piece of lifesaving gear, having many desirable features. It requires no maintenance on the part of the ship's crew and, once properly installed on board, should *remain untouched* until routine servicing by *qualified* personnel ashore. It is designed to operate both manually and, if the vessel sinks, automatically. A full equipment pack is provided inside the raft, not accessible to pilferage, and adequately protected against damage. Food, water, and other essentials are provided as well as such "extras" as seasick tablets. Annual servicing ashore relieves the Chief Mate of a routine burden, assures a full and properly dated equipment pack, and insures proper operation of the raft when necessary.



Courtesy, Switlik Parachute



Liferaft hits the water.

Courtesy Chevron

The raft has a highly visible orange cover and an insulated, eye-soothing, blue interior (depending on manufacturer). In addition to being easy to spot at sea, the cover provides exposure protection, provides for collection of drinkable rainwater, and, by securing gusseted covers over the access areas, completely encloses the occupants from the elements. Further insulation is given by a secondary inflated floor as well as the buoyancy tubes. Riding stability is given to the raft by four water-stabilizing pockets and the use of a sea anchor. In the event of damage to the raft a repair kit is provided together with a hand-operated air pump to inflate the repaired section. A survivor's manual is also provided to give the rudiments of survival at sea. Thus, hopefully, the survivors are furnished with all the equipment necessary to satisfactorily sustain life at sea until rescue arrives.

Installation

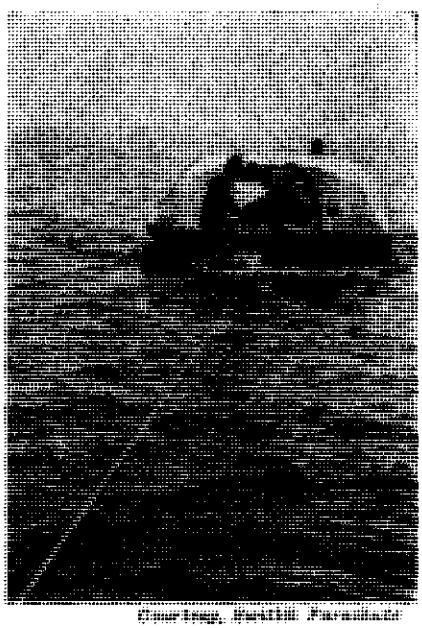
To obtain satisfactory operation the raft must be installed properly. The installation will vary somewhat with each vessel but the basic guidelines are the same. The raft itself comes in a container, sealed, and strapped with retaining bands, similar to steel shipping bands. These are *not* shipping bands, but form an integral part of the raft containment. The bands generally have holes cut in them to form a weak link, allowing the bands to break as the raft inflates. The raft, in its container, must be installed in an open, readily accessible area, where it may both float free of the vessel and be readily launched. Thus, it should not be under an overhang, ladder, bridge wing, or other obstruction. Preferably it should be clear of present boat-lowering areas since the usual confusion in lowering a boat in an emergency would be compounded by the addition of the raft. The result of a 400-pound raft dropped 40 to 60 feet onto a boat is not hard to visualize.

The raft container usually rests in a cradlelike frame permanently attached to the vessel.

A line extends from one end of the raft container and is securely attached to the vessel. This most important line, the operating lanyard, activates the mechanism which inflates the raft.

Lanyard is jerked and liferaft starts to inflate.

Twenty-five-man liferaft undergoing inflation test at New Jersey Coast.



Twenty-five-man inflatable liferaft under tow.

Operation

The raft is released from storage by one of two methods. First, if the vessel sinks with the raft on board, it will float free. The raft is still attached to the vessel by the operating lanyard which pays out of the container as it rises. Second, if it is desired to use the raft with the vessel afloat the container may be picked up and thrown overboard. The *operating lanyard should not* be disconnected from the vessel but should be allowed to pay out as the raft goes over the side.

At this point the 100-foot-long operating lanyard must be pulled completely out of the raft container, by a person on deck, manually by a swimmer in the water, or by the sinking ship itself. The pulling of the lanyard activates the inflation system which releases the contained gases into the raft causing it to literally burst out of its container as it inflates. The raft is boardable after about 8 seconds for an 8-person raft, to about 30 seconds for the large 25-person raft. The raft is usually fully inflated in less than 2 minutes, depending on the raft size.

The raft, after inflation, remains connected to the vessel by the operating lanyard. The operating lanyard has a "weak link" which, when strongly tensioned, breaks the basic connection. The lanyard remains connected to the raft by the sea anchor, and with further tension deploys the sea anchor and then parts, freeing the raft with the sea anchor deployed. If insufficient tension occurs, the raft would be manually cut free using a knife provided at the raft access area and the sea anchor manually deployed.

Lt. Conrad, a 1958 graduate of the U.S. Coast Guard Academy, served aboard various major cutters in the Pacific until assignment to Marine Inspection duties in Philadelphia, Pa.

Testing and Servicing

As are all items of manufacture carrying the USCG approval, inflatable liferafts are thoroughly tested to provide the greatest degree of reliability possible. Each manufacturer must pass rigid specifications and testing of his product before he is given an approval. Each servicing organization must likewise demonstrate its competence, prior to approval. In addition to the manufacturer's quality control team, the Coast Guard details inspectors to examine the rafts from the first stage of manufacture to pressure test and to visually inspect each raft. After passing these tests the rafts are finally inflation tested in individual lots to continually prove the packing methods and the inflation system. At yearly intervals in service, the rafts are removed from each vessel and retested and serviced at a factory-trained-and-authorized service facility, and observed by USCG inspectors.

Points To Remember

The following is summary and should be remembered:

1. Install the raft where it may both float free and be readily thrown overboard.
2. Do not tamper with the installation once in place.
3. Do not remove the steel, or other, containment bands.
4. Do *not* permanently secure or lash the raft *container* to the vessel.
5. *Do* secure the *operating lanyard* to a good solid part of the vessel.
6. To use the raft, simply lift it from its cradle and throw it overboard. If the vessel has sunk, the raft will automatically float free.
7. Pull the line at one end of the raft to inflate.
8. Board the raft and see that the sea anchor has deployed and the operating lanyard parted. If they have not, carefully cut free the operating lanyard, and deploy the sea anchor.

The sincere hope is that you never find the need to use this information. If you do, however, rest assured that a great deal has been done to help you. The remainder is up to you. We hope this "beforehand knowledge" might serve you well. ⚓

A WISE OWL

One of the most marvelous structures in the human body is the eye. While the eyes are only 1/371 part of the body's surface, the National Safety Council reports that one out of every seven on-the-job injuries requiring medical attention involves the eyes, that 98 percent of all eye injuries are preventable, and that 80 percent of them are caused by flying particles.

It is surprising to realize that Nature has not provided more protection for the human's eyes than the eyelids, even though the fastest thing a person can do is wink. No other muscles of the body are so responsive—approximately one-tenth of a second. Most birds and reptiles have three eyelids, one moving up, one moving down, and the third from the corner of the eye over the eyeball. Many insects have two sets of eyes, one to distinguish images and the other set to determine light, telling whether it is night or day. The lowly grasshopper's set of eyes for transmitting images to the brain has one eye on each side of his head where our ears are and they are not coordinated, so he sees two different pictures at the same time.

A fleck of any substance in the eye has a tremendously greater chance of causing serious injury than it would to any other part of the body, as blindness can result from almost any eye injury. You can gravely hurt or even lose other parts of your body and they can be repaired or replaced so that you can lead a near normal life—you can walk with a wooden leg, run a winch or turn a valve with a steel hand, work with a splint in your back or a plate in your head—but you cannot see with a glass eye! When you appreciate this it ought to be pretty plain that the best way to protect vision is to cover the eyes—with goggles or a mask—when doing any work that might expose you to flying particles.

Every seaman's statement regarding his eye injury always contains some excuse why he did not have goggles or did not have them around his eyes at that particular time. Their alibis include: not having time to obtain them, didn't think he would be that long on the job, pushed them up on his forehead or around his neck or stuck them in his pocket while taking a blow.

Are you skeptical about the value of wearing goggles? Let us tell you about the Wise Owl Club. This is an organization, approved by both management and unions, sponsored by the nonprofit National Society for the Prevention of Blindness. The club's 30,000 members consist of men and women who, at the time of an on-the-job accident, saved the sight of one or both eyes because they were wearing eye protection. Why don't you be the charter member for a chapter aboard your ship!

If by chance you should have an eye accident, or even get a speck of foreign body in the eye, get first aid FAST. Don't gamble with self-treatment, rubbing, using oil, or depend on a sympathetic fellow crewmember. Neglect in obtaining fast treatment invariably causes complications with dire results. ⚓

Alvin Robinson
United States P & I Agency

TOE BE SURE

The next time you are ashore, walk up a slight incline at a quick pace. Notice how your toes dig in and provide that extra little push at the end of each step.

Now try to do the same thing holding your toes bent upward. Can't quite make it, can you? You clump along at half the speed with twice the effort. This is the way a man without toes has to walk, and at the end of a day on his feet, he is really bushed, that is, if he is still able to put in 8 hours. Even standing still aboard ship requires much greater effort on the part of the toes, due to the ship's motion. You can prove this the next time you stand wheelwatch by trying the same "toes up" experiment.

The point we are trying to make is the very real crippling effect resulting from a missing toe or two or even from badly broken and distorted ones.

Foot protection is almost entirely up to each individual himself. When working with heavy weights or in areas where stubbing and banging of the toes can be anticipated, foot protection is a worthwhile investment.

Well-designed, properly fitting, and good-looking safety shoes are available and the steel protective caps weigh only one-quarter of an ounce each, not enough extra weight to be noticeable.

They give you a great deal more protection than ordinary shoes. Additionally, they usually are provided with a type of sole which has antislip qualities and is resistant to oil, so that they do not rot away after a few months on the job as discarded pairs of dress shoes tend to do.

Let us keep some other points in mind. There is a human tendency when we drop a handtool or some other part to try and catch it on our toe. Take the case of the Second Assistant Engineer who was disassembling a valve in the machine shop. The ship took a roll, the bonnet slipped from the bench, and the Second tried to protect its fall with his toe. Unfortunately he was successful and instead of a broken bonnet which is easily replaced, the man had his toe broken.

When handling heavy weights be sure the slinging and securing is proper, but regardless, keep *your feet out from under*. So many things can happen and 100 pounds dropping only a few feet will do quite a job on 10 toes.

In this respect, one of the most fallacious arguments is that if a heavy weight falls on safety shoes, the steel caps will either squeeze the toes in or cut them off completely.

Granted this could happen if the weight was heavy enough, but any weight that would do this would do far worse with regular shoes, and safety caps will give complete protection from blows which would break or smash toes if they were not worn.

We recently were talking with a sailor who had purchased a pair of safety shoes and who was so pleased with them that he would only wear them ashore, said that they were great for dancing! We convinced him to buy a second pair for use aboard ship and now he has round the clock protection on his feet. ⚓

Robert H. Smith
U.S. P. & I. Agency

Accident Case Histories

Condition: Workmen were in process of hooking up power leads from a power barge to the shore connection aboard ship. One workman was holding the cover of the shore connection box up so that the other two workmen could connect the leads. Just as one pushed the leads through the opening, the cover holder let go—it struck another on the head.

Result: Contusion of the head, resulting in a disabling injury.

Comments: The employee reportedly was wearing his hardhat, minimizing the injury. Standard procedures should be formulated for all standard operations that occur frequently. Securing the cover open instead of holding it open by hand would have been the correct and safe way to have performed this job. Many times too much help can be as detrimental as not having sufficient help. Unsafe procedure and taking an unsafe position contributed to the accident.

Condition: A workman was scraping loose paint from the overhang of the bridge deck, using a long-handled scraper. He had to lean over the rail to accomplish the job. He apparently lost his balance, and realizing that he was going to fall, jumped through an opening in the rail down to the main deck 8 feet below.

Result: He landed on his feet and suffered a fractured heel.

Comments: Prework inspections of work areas to determine unsafe conditions is one thing, correcting hazards found before an employee starts work is another. These two must be combined if we expect to provide safe work areas for the employee. This does not alter the fact that the employee was clearly inattentive to his whereabouts. Supervisory control and employee awareness will prevent many accidents.

Condition: A workman was operating an air-driven winch. He was standing between the cargo hatch and the winch when he attempted to clear the steel cable from the drum with his right gloved hand. He turned the air control the wrong way—the cable took up instead of slackening off. At this point the cable caught his gloved hand and threw him against the winch.

Result: The workman suffered contusion of the chest—and fractures of both the upper and lower arm.

Comments: "DO NOT ADJUST OR REPAIR MACHINERY THAT IS IN MOTION."

Courtesy Reserve Fleet Safety Review
U.S. Maritime Administration

Don't Mix Polyester and Epoxy Catalysts

A workman has been injured by a chemical explosion which occurred when fiber-glass repair materials were improperly mixed. Fiber-glass repairs are made with either of two groups of materials: the polyester group consisting of polyester resin, a promoter and a catalyst or the epoxy group consisting of epoxy resin and a catalyst.

Mixing the polyester catalyst and the epoxy catalyst together will produce highly reactive results. Polyester materials and epoxy materials are not interchangeable. The two groups of fiber-glass repair materials should be stored separately. They should be plainly labeled and warning signs should be posted where the chemicals are used. Only trained personnel should have access to fiber-glass repair materials.

BUSHIPS Journal, February 1965

The Languid Use of Hand Tools

Tools are no better than the man using them.

An engineer was wire buffing machine parts in the machine shop. He was distracted for a second when an empty can overturned on the shelf above and his index finger was drawn in between wheel and the tool rest. Inattention to the job at hand resulted in a lost time injury and physical pain of extended length.

Courtesy Pacific Maritime Association

On Wearing Safety Belts

It is often very difficult to get members of the Deck Department to wear safety belts when working aloft. They too often ignore instructions from the mate and boatswain. The time spent in getting these belts from the storeroom and the difficulty of working with them appears to be the main objection. Then, too, it might be only a small job to be done aloft (the objectors say) and the securing of these belts seems to be a waste of time to them. It takes only one fall to make one grease spot.

Courtesy Pacific Maritime Association

An Accident Is Only a Symptom

When we experience a headache, a toothache, or stomach ache we know that it is a symptom of something wrong. It is a warning sent out by the body. If the tooth gives one trouble, the ship's dispenser of medicines usually gives oil of cloves. But that only relieves the pain and we know we haven't turned off the alarm. The underlying condition remains and may very likely become worse. But, once ashore, we go to the dentist and have the offensive molar filled or yanked—we eliminate the condition and the warning signals desist.

An accident, too, is a symptom of something basically wrong. A study of the accident *as a symptom* will lead us to the underlying difficulty and this in turn to the proper treatment. If that difficulty was failure of gear, we know that frequent inspection and repair is the only way to cure the condition and prevent another accident. If faulty methods were employed, we must seek cure through training and supervision. If hazardous conditions exist, they must be corrected.

A ship's officer making an accident investigation is in a similar position to a doctor diagnosing a disease.

Courtesy Pacific Maritime Association

COAST GUARD ACADEMY ACCEPTING APPLICATIONS

The United States Coast Guard has announced that applications are currently being accepted for admittance to the next summer's class of the U.S. Coast Guard Academy, New London, Connecticut.

Eligible young men between 17 and 22 years of age desiring an appointment as a cadet must participate in a nationwide competition. There are no congressional appointments to the Academy.

Applicants must be citizens of the United States; of good moral character; unmarried; in good physical condition; at least 5 ft., 4 inches tall, and not over 6 ft., 6 inches; have at least 20/30 vision correctible to 20/20, and be high school seniors or high school graduates.

They also must have 15 high school or college credits, including three in mathematics and three in English. Although no specific grade average is required, high grades help. Admittance is based on scores attained in college board examinations to be given in December of this year, standing in high school class and leadership potential. All qualified applicants are granted equal opportunity for admission.

The United States Coast Guard Academy provides training in leadership and prepares selected young men to become commissioned officers in the Coast Guard. The Academy offers a 4-year course of instruction. Subjects include engineering, humanities, social studies, sciences and service professional courses.

Upon graduation, cadets are awarded a Bachelor of Science Degree, and if physically qualified, are commissioned by the President as an ensign in the U.S. Coast Guard.

Applications must be made to the Director of Admissions, U.S. Coast Guard, New London, Connecticut, *not later than 15 December 1966 and to College Board not later than 1 November 1966.* ⚓

nautical queries

DECK

Q. (a) When a vessel is fitted with sideports, what precautions must be taken to assure that it is accessible for being secured and for inspection at sea?

(b) How are sideports usually secured?

A. (a) Space must be left available adjacent to the sideport for the ship's personnel to work when securing, and vertical battens or other devices rigged to prevent cargo from falling against the sideport so it is accessible for inspection at sea. Access must be available from the deck to the sideport at sea so that it may be inspected.

(b) Sideports are usually secured with heavy bolts and dogs, and if the sideport is large a heavy strongback is also used for securing bolts. The bolts must be made up tight to insure that no leakage occurs.

Q. What are the advantages of doubling the purchase on a cargo fall when handling heavy weights?

A. Better mechanical advantage, better control of the cargo winch, since it will run easier, cargo can be handled and placed better, also less strain on the heel of the boom.

Q. It is necessary to extend some ventilators to the bilges because:

(a) The air will keep the bilges dry and clean

(b) Petroleum vapors are heavier than air

(c) The air will help quick starting of the engine

(d) The hot air will not accumulate

A. (b) Petroleum vapors are heavier than air

Q. At biennial inspection CO_2 cylinders shall be:

(a) Emptied and recharged

(b) Checked for required amount by pressure gauge

(c) Weighed and recharged if required

(d) (b) or (c) above

A. (c) Weighed and recharged if required

Q. If CO_2 gas was released in a compartment you were in:

(a) Evacuate immediately

(b) The general alarms ring

(c) A musty odor is detected

(d) All of the above

A. (a) Evacuate immediately

ENGINE

Q. Under full power conditions explain how the vacuum is affected when using steam at a pressure higher or lower than the designed pressure on the nozzles of the main air ejector.

A. In both cases the vacuum will be lowered when under full power operation. If the steam pressure at the nozzles is lowered, the capacity of the air ejector will be lowered. If the steam pressure at the nozzle is greater than the designed pressure a reduction of the vacuum can be expected due to overheating of the air ejector.

Q. Trace the flow of steam from the throttle through a cross-compound steam turbine unit when admitted for ahead power and when admitted for astern power. What provision is made for operating either the H.P. or L.P. turbine independently in order to meet an emergency?

A. For ahead power, high pressure steam from the ahead maneuvering valve enters the high pressure turbine at the forward end of the cylinder and flows toward the aft end. The exhaust from the high pressure turbine enters the low pressure turbine in the aft end of the cylinder and flows toward the forward end. The exhaust from the low pressure turbine passes downward directly into the condenser. Part of the ahead steam is under control of three hand-operated nozzle control valves, which are located in the high pressure turbine cylinder. In operation, the nozzle control valves should be opened only as required to develop the desired power. Operating with more than the required number of hand valves open will necessitate throttling, will result in greater steam consumption, and will tend to cause wire drawing and valve seat erosions at the maneuvering valve.

In addition to normal operation, either turbine may be operated, for ahead power only, independently of the other turbine of that unit, by installing the emergency piping.

For astern power, high pressure steam from the astern maneuvering valve enters the low pressure turbine at the forward end of the cylinder and flows through the astern blading which is located in the exhaust end of the cylinder. It then passes downward through the main exhaust opening into the condenser.

MARITIME SIDELIGHTS

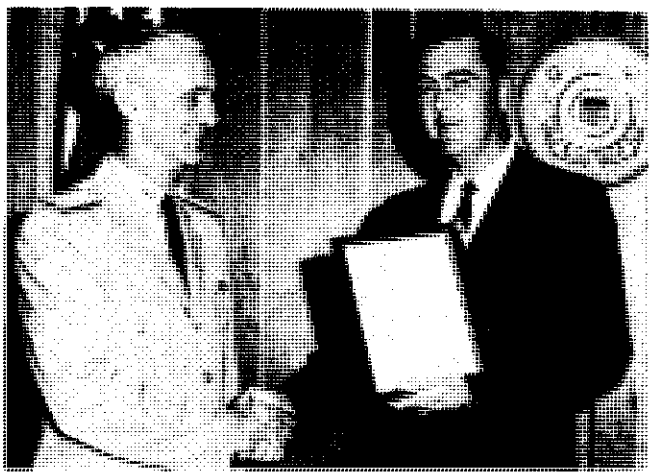
ADMIRAL SMITH BACKS INDUSTRY-SET BOATING SAFETY STANDARDS

"One set of safety standards developed impartially by a broad-based standards-setting body, representing all boating interests, is a philosophy long advocated by the Coast Guard"; so states Admiral Willard J. Smith, Commandant of the U.S. Coast Guard.

This Coast Guard position needs reiteration to boating interests at this time in view of the present widely publicized congressional activity in the field of industry safety standards. A number of congressional and private inquiries have been directed to the Coast Guard as to what the boating industry is doing about safety in boats, including their construction and equipment. Admiral Smith made it clear that the Coast Guard wishes to see minimum federal regulations and control, consistent with public safety, plus uniform nationwide interpretation and enforcement of any regulations that are necessary.

Such a desirable situation is entirely feasible if boating industry regulates itself effectively through a broad-based standards-setting body. Clear and adequate safety standards developed through an organization comprising independent talent from Government, industry, and other interests would provide proper balance and would safeguard the public interest.

Voluntary industry acceptance of such standards, established by one composite group, recognized by all concerned, would have several benefits. First, it would minimize the likelihood of future Government intervention. Secondly, it would eliminate confusion resulting from multiplicity of standards. Thirdly, it would help to create the necessary climate for greater and more effective coordination of effort in all areas of recreational boating safety. ⚓



Daniel Kirby, of New Orleans, La., operations assistant for Delta Steamship Lines, accepts a framed letter of commendation presented on behalf of the Commandant, U.S. Coast Guard by Rear Adm. James D. Craik, Eighth Coast Guard District Commander. Kirby was commended by the Coast Guard for his actions when he rescued a drowning seaman in Rio de Janeiro harbor. Kirby, chief mate of the Delta Steamship Del Monte *at the time, arrived on the scene shortly after the seaman had fallen overboard and jumped in the water to support the unconscious man until a litter was lowered. When the man had been taken from the water, Kirby administered mouth to mouth resuscitation for 10 minutes until medical personnel arrived on the scene.* ⚓

Thirteen ships of the fleet of Lykes Bros. Steamship Co., Inc., have received awards from the National Safety Council for their safety records in 1965. In the photograph from left to right: Mr. A. B. Paterson, President Metropolitan New Orleans Safety Council; Mr. Ralph Morse, Lykes Vice President; Capt. C. H. Waring, USCG (Ret.), Manager of Lykes' Accident Prevention Division; Mr. Dudley Andry, Manager, Metropolitan New Orleans Safety Council.

The award-winning ships included the Tyson Lykes, Mayo Lykes, Adabelle Lykes, Doctor Lykes, Zoella Lykes, Dick Lykes, Jesse Lykes, Letitia Lykes, Louise Lykes, Sheldon Lykes, Shirley Lykes, Solon Turman, and Thompson Lykes.

SEARCH FOR GRAIN SHIP SAFETY

The search goes on for a new way to carry an old cargo—grain—at sea. A series of experiments have just been completed at the Coast Guard Field Testing and Development Center, Curtis Bay, Md. which may radically change the requirements for grain stowage.

The testing was a joint project of the Coast Guard and the National Cargo Bureau (NCB), an organization which supervises grain loading on behalf of the Coast Guard. Captain S. F. Sammis of the NCB and Commander R. I. Price of the Coast Guard's Merchant Marine Technical Division jointly directed the project.

The Coast Guard has been conducting a study of grain stowage since 1962 when at a meeting of the Intergovernmental Maritime Consultative Organization (IMCO), the United States questioned the effectiveness of certain provisions of the 1960 Safety of Life at Sea Convention pertaining to grain stowage.

Recent shipping disasters in which several freighters loaded with grain foundered spurred the study.

The tests were conducted using a scale model of a ship's cargo hold. The model, built of plexiglass, was loaded with three-fourths ton of grain.

During the series of tests shifting boards and feeders were arranged in 19 different ways. For each arrangement the model was listed to four angles of heel—30°, 35°, 40°, and 45°. When the grain had shifted the model was allowed to come back to the new angle of equilibrium and then an inclining experiment was conducted. This was to determine how much the center of gravity had shifted; a vital factor in ship safety.

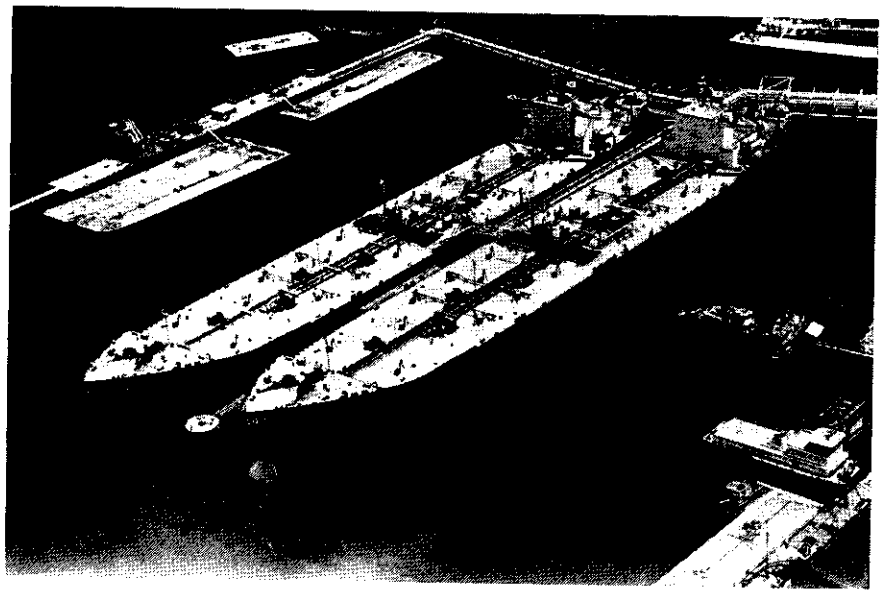
The plexiglass bulkheads allowed observers to watch the shift of the grain and where the voids formed.

The data obtained from the inclining experiments are now being evaluated with the aid of a computer at Coast Guard headquarters in Washington, D.C., to decide which arrangements are most effective in minimizing shifting. The next step will be to use the more promising arrangements on an experimental basis in a conventional dry cargo ship carrying grain.

If the grain behavior observed in the model remains the same in the full-scale ship the Coast Guard will recommend to IMCO that the SOLAS Convention requirements for grain stowage be amended accordingly.

With the increasing worldwide shipment of grain, now in the millions of tons, the importance of safer grain stowage methods becomes more urgent. ⚓

WHICH TWIN HAS THE CARGO—



The two newest vessels in Humble Oil & Refining Co.'s fleet of 20 American-flag tankers lie side by side at the oil firm's Baytown, Tex., refinery docks. The 67,800-ton sister ships—the Esso Houston, *foreground, and the* Esso New Orleans—*are the largest tankers in regular service between the East Coast and Gulf of Mexico ports. The* Esso New Orleans *was launched early in 1965, about 4 months after the* Esso Houston, *and the docking at Baytown was the first time the ships had crossed paths in port. Lying low in the water, the* Esso New Orleans, *top, has loaded products and is about ready to sail. Both ships were built for Humble at the Newport News Shipbuilding & Dry Dock Co.* ⚓

UNIFORM STATE WATERWAY SYSTEM ESTABLISHED

The Uniform State Waterway Marking System, which was developed in 1961 by a panel of State boating officials in conjunction with the U.S. Coast Guard to ease navigation and increase boating safety, has been incorporated into Federal regulations.

This system, already being used by many States on their interior waters, describes two classes of navigational aids. First, are the general information signs and regulatory markers indicating controlled zones, such as speed limits and restricted areas. Secondly, are those aids marking obstructions and channel limits within which a boat may be operated.

The regulations are intended to minimize the administrative procedure and delay for State governments that establish, operate and maintain aids to navigation on those navigable waters of the United States not marked by the Coast Guard.

The new regulation assures the nation's mobile pleasure craft fleet of a more uniform marker system on the country's waterways. ⚓

MERCHANT FLEET STEADY

There were 1,019 vessels of 1,000 gross tons and over in the active oceangoing U.S. Merchant fleet on July 1, 1966, no change from the number active on June 1, according to the Merchant Marine Data Sheet released by the Maritime Administration.

There were 118 Government and 901 private ships in service July 1. These figures do not include private ships temporarily inactive, nor do they include 24 vessels in custody of Defense, Interior, Coast Guard, and Panama Canal Company. ⚓

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

FISCAL YEAR ENDING JUNE 30, 1966

DECK

Grade	July thru September (1965)		October thru December (1965)		January thru March (1966)		April thru June (1966)	
	Original	Renewal	Original	Renewal	Original	Renewal	Original	Renewal
Master:								
Ocean	64	326	36	339	44	384	43	356
Coastwise	12	19	7	24	8	17	13	22
Great Lakes	2	10	4	52	15	125	2	13
B. S. & L	14	63	13	59	16	91	9	97
Rivers	18	56	9	45	18	58	7	53
Radio officer licenses issued	10	78	9	65	22	81	17	112
Chief mate:								
Ocean	37	89	39	103	39	115	94	99
Coastwise	1	3	1	4	1	5	6	5
Inland mate:								
Great Lakes	1	2		2	2	12		2
B. S. & L	1	4	7	5	6	15	2	15
Rivers	6	17	5	29	4	33	5	35
2d mate:								
Ocean	44	79	46	86	62	87	110	144
Coastwise		3						5
3d mate:								
Ocean	129	93	21	59	23	74	216	92
Coastwise		2		2				
Pilots:								
Great Lakes	2	14	4	19	19	62	12	25
B. S. &L	71	80	55	142	56	164	39	146
Rivers	24	51	53	76	61	83	92	103
Master: Uninspected vessels	10	16	20	21	18	38	22	38
Mate: Uninspected vessels	2	1	11	1	10	3	13	2
Motor Boat Operators	251	423	219	344	289	800	410	1,011
Total	**699**	**1,429**	**559**	**1,477**	**713**	**2,247**	**1,112**	**2,375**
Grand total	**2,128**		**2,036**		**2,960**		**3,487**	

ENGINEER

Grade	July thru September (1965)		October thru December (1965)		January thru March (1966)		April thru June (1966)	
	Original	Renewal	Original	Renewal	Original	Renewal	Original	Renewal
STEAM								
Chief engineer:								
Unlimited	38	486	21	454	51	516	47	503
Limited	5	60	6	55	3	102	5	75
1st assistant engineer:								
Unlimited	32	188	28	150	55	200	104	221
Limited	3	22	4	17	2	27	6	17
2d assistant engineer:								
Unlimited	52	243	66	213	102	277	138	331
Limited		4		2	12	9	9	3
3d assistant engineer:								
Unlimited	207	328	25	262	64	273	255	293
Limited		1		4	2	3	4	3
MOTOR								
Chief engineer:								
Unlimited	12	84	8	86	20	93	12	98
Limited	31	95	32	115	31	145	30	135
1st assistant engineer:								
Unlimited	3	25	5	34	11	44	11	31
Limited	9	28	9	32	19	44	20	40
2d assistant engineer:								
Unlimited	2	14	1	31	13	26	11	33
Limited	3	2	2	5	8	8	3	6
3d assistant engineer:								
Unlimited	182	274	7	288	15	242	208	275
Limited		3	2	3	3	13	4	6
Chief engineer: Uninspected Vessels	8	7	7	3	9	16	12	12
Assistant engineer: Uninspected Vessels	4		10	1	6	6	12	6
Total	**591**	**1,864**	**233**	**1,755**	**426**	**2,044**	**891**	**2,088**
Grand total	**2,455**		**1,988**		**2,470**		**2,979**	

MERCHANT MARINE PERSONNEL STATISTICS—Continued

MERCHANT SEAMEN'S DOCUMENTS ISSUED

Type of document	July thru September (1965)					October thru December (1965)					January thru March (1966)					April thru June (1966)				
	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total
Staff officer	24	6	17	4	51	11	6	24	------	41	55	10	29	3	97	46	7	42	1	96
Continuous discharge book	------	7	52	------	59	------	6	1	1	8	------	5	------	------	5	------	13	------	------	13
Merchant mariner's documents	1,408	838	1,221	1,261	4,728	991	668	1,540	725	3,924	886	546	1,580	493	3,505	1,970	949	1,985	2,061	6,965
AB any waters unlimited	119	79	104	25	327	72	47	81	20	220	68	66	67	25	226	207	78	107	26	418
AB any waters, 12 months	57	51	38	63	209	38	35	50	26	149	52	56	60	16	184	100	59	58	59	276
AB Great Lakes, 18 months	3	------	9	30	42	5	------	2	11	18	3	------	6	17	26	3	1	4	25	33
AB tugs and towboats, any waters	7	2	5	2	16	10	2	3	------	15	11	4	3	------	18	15	5	6	2	28
AB bays and sounds	1	------	------	------	1	1	------	------	------	1	------	------	------	------	------	1	------	------	------	1
AB seagoing barges	3	------	------	------	3	------	------	------	------	0	2	1	------	------	3	3	1	1	------	5
Lifeboatman	148	7	81	9	245	107	5	63	1	176	107	4	81	2	194	255	12	130	3	400
Q.M.E.D	230	68	140	71	509	106	53	108	47	314	132	63	132	45	372	317	72	133	91	613
Entry ratings	1,257	791	1,201	1,203	4,452	961	639	1,502	672	3,774	839	483	1,557	445	3,324	1,793	902	1,950	2,006	6,651
Tankerman	21	55	6	52	134	20	56	10	59	145	25	61	6	38	130	25	61	6	51	143
Total	3,278	1,904	2,874	2,720	10,776	2,322	1,517	3,384	1,562	8,785	2,180	1,299	3,521	1,084	8,084	4,735	2,160	4,422	4,325	15,642

FIRE PREVENTION WEEK, 1966

By the President of the United States of America

A Proclamation

Destructive fires—many of which could be avoided by eliminating known fire hazards—result in the tragic waste of life, property, and irreplaceable natural resources.

Inevitably such fires bring sorrow and financial difficulties to many families.

The toll of life and property occasioned by fire has been sharply reduced in those communities where fire prevention programs have been conducted.

Further progress is essential. Further progress can be made if every individual assumes the responsibility for removing the hazards and reforming the habits which cause fires.

NOW, THEREFORE, I, LYNDON B. JOHNSON, President of the United States of America, do hereby designate the week beginning October 9, 1966, as Fire Prevention Week.

I urge State and local governments, the Chamber of Commerce of the United States, the American Red Cross, the National Fire Protection Association, and business, labor, farm and youth organizations, as well as schools, civic groups, and public information agencies to observe Fire Prevention Week, to provide useful fire safety information to the public, and to enlist the active participation of all citizens in year-round fire prevention programs.

I bid all citizens to support earnestly the fire prevention and control efforts of their community fire departments.

I also direct the appropriate Federal agencies to assist in this effort to reduce the needless waste of life and property caused by preventable fires.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this twelfth day of July in the year of our Lord nineteen hundred and sixty-six, and of the [Seal] Independence of the United States of America the one hundred and ninety-first.

LYNDON B. JOHNSON

By the President:
DEAN RUSK,
Secretary of State.

AMENDMENTS TO REGULATIONS

The *Proceedings* does not normally reprint Federal Register material in toto because of space limitations. Rather, as a public service, mention is made on this page of those Federal Register items published during the month that have a direct effect on merchant marine safety. Then, should one wish to read the regulation in its official presentation, he must purchase the applicable Federal Register from the Superintendent of Documents. Always give the date of the Federal Register when ordering. This date can be found in the *Proceedings* coverage of the items. See instructions in publications panel inside back cover.

TITLE 33 CHANGES

COAST GUARD CUTTER LIGHTS EXEMPTED, OTHER AMENDMENTS

The Federal Register of August 2, 1966 sets forth certain navigational lighting exemptions for two classes of Coast Guard Cutters.

The 82-foot and the 95-foot WPB Classes of Coast Guard cutters have a limited mast height. Because of special construction of these vessels, it is not possible to provide the 6-foot vertical separation between the three white lights required to be displayed by Rule 3(a), International Rules, when such vessels are towing and the length of the tow exceeds 600 feet. Rule 3(a), International Rules (33 U.S.C. 1063) requires in part that the vertical separation of the three white towing lights, when the length of tow exceeds 600 feet, shall be not less than 6 feet above or below the middle light. It is hereby found that the 82-foot and 95-foot WPB Classes of Coast Guard cutters are vessels of special construction and cannot comply with the requirements in Rule 3(a), International Rules, and are therefore exempt. It is hereby found and certified that the requirements for these vessels, as described in 33 CFR 135.47 in this document, conform as closely as feasible to the applicable requirements for the vertical separation of the three white towing lights. Except as otherwise provided, the Coast Guard vessels described in this document are in full compliance with the other provisions of the applicable International Rules and Inland Rules governing the areas where such vessels may be operated.

The amendment to 33 CFR 135.35 (b) corrects the designation for the U.S.C.G.C. *COURIER* from "(WAGR–410)" to "(WTR–410)".

The amendments to 33 CFR 3.55–55 and 3.55–60 revise the boundary descriptions of the Captain of the Port Areas in the 11th Coast Guard District in order to provide better administration of Port Security matters.

PAINTERS REQUIRED FOR LIFEFLOATS OR MANNED PLATFORMS

The requirement for and a description of the painter to be provided for lifefloats on manned platforms has been set forth in the Federal Register of August 9, 1966. 33 CFR 144.01–10 (a) is amended as follows:

(a) Each lifefloat shall be provided with a painter. This painter shall be a manila rope not less than 2¾ inches in circumference and of a length not less than three times the distance from the deck where the lifefloat is stowed to the low water line. Alternatively, the painter may be of other material provided it has equal strength to the size of manila rope specified and is not less than ½ inch in diameter.

STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from August 1 to August 31, 1966, inclusive, for use on board vessels in accordance with the provisions of Part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels" are as follows:

CERTIFIED

Aetna Chemical Corp., Wallace Street Extension, East Paterson, N.J., Certificate No. 679, dated 2 August 1966, DESCALIT P and FLYING "A" S.P. NO. 12 DESCALER; Certificate No. 683, dated 16 August 1966, ACTENITE L and FLYING "A" S.P. NO. 11 BURNER CLEANER.

Certified Laboratories, Inc., Post Office Box 217, Irving, Tex. 75061, Certificate No. 680, dated 2 August 1966, NF–1000.

National Chemsearch Corp., Post Office Box 217, Irving, Tex. 75061, Certificate No. 681, dated 2 August 1966, NATIONAL CHEMSEARCH UNISOL.

Harco Chemical Co., 338 North Avenue, East, Cranford, N.J., Certificate No. 682, dated 8 August 1966, HARCO ELECTRICAL CONTACT AND EQUIPMENT CLEANER.

AFFIDAVITS

The following affidavit was accepted during the period from July 15, 1966, to August 15, 1966:

United Brass Works, Inc., Randleman, N.C. 27317, VALVES AND FITTINGS.

HYDRAULIC CAST ALUMINUM VALVES

Manufacturer	Valve type	Identity	Maximum allowable pressure (psi)
Barksdale Valves [1], 5125 Alcoa Ave., Los Angeles, Calif. 90058.	Manipulator Valve (Aluminum)	6902R3HC3-MC-J	3000
Abex Corp.,[1] Denison Div., 1160 Dublin Rd., Columbus, Ohio 43216.	Relief, sequence, unloading, or pressure reducing valve.	R*-**3-*3*-**	5000

[1] Previously listed incorrectly.

NOTICE

It is now possible to keep your Coast Guard publications up to date by using the column entitled "Marine Safety Publications and Pamphlets" as a ready reference. Following the title of each publication are the dates of the Federal Registers which amend it. With the use of the proper Federal Register, each pamphlet can be kept up to date until a new issue is available.

MERCHANT MARINE SAFETY PUBLICATIONS

The following publications of marine safety rules and regulations may be obtained from the nearest marine inspection office of the U.S. Coast Guard. Because changes to the rules and regulations are made from time to time, these publications, between revisions, must be kept current by the individual consulting the latest applicable Federal Register. (Official changes to all Federal rules and regulations are published in the Federal Register, printed daily except Sunday, Monday, and days following holidays.) The date of each Coast Guard publication in the table below is indicated in parentheses following its title. The dates of the Federal Registers affecting each publication are noted after the date of each edition.

The Federal Register may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription rate is $1.50 per month or $15 per year, payable in advance. Individual copies may be purchased so long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue but will be 15 cents unless otherwise noted in the table of changes below. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1966 and Supplement dated July 1, 1966 are now available from the Superintendent of Documents, price basic book: $2.50; supplement: 60 cents.

CG No.	TITLE OF PUBLICATION
101	Specimen Examination for Merchant Marine Deck Officers (7–1–63).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (8–1–62).
115	Marine Engineering Regulations and Material Specifications (3–1–66).
123	Rules and Regulations for Tank Vessels (5–2–66).
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (9–1–65). F.R. 12–8–65, 12–22–65, 2–5–66, 3–15–66, 7–30–66, 8–2–66.
172	Rules of the Road—Great Lakes (6–1–62). F.R. 8–31–62, 5–11–63, 5–23–63, 5–29–63, 10–2–63, 10–15–63, 11–5–64, 5–8–65, 7–3–65, 12–22–65, 7–30–66, 8–2–66.
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (3–2–64).
175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (3–1–65).
176	Load Line Regulations (1–3–66).
182	Specimen Examinations for Merchant Marine Engineer Licenses (7–1–63).
184	Rules of the Road—Western Rivers (6–1–62). F.R. 1–18–63, 5–23–63, 5–29–63, 9–25–63, 10–2–63, 10–15–63, 4–30–64, 11–5–64, 5–8–65, 7–3–65, 12–8–65, 12–22–65, 2–5–66, 3–15–66, 7–30–66, 8–2–66.
190	Equipment lists (8–3–64). F.R. 10–21–64, 10–27–64, 3–2–65, 3–26–65, 4–21–65, 5–26–65, 7–10–65, 8–4–65, 10–22–65, 10–27–65, 1–27–66, 2–2–66, 2–5–66, 2–10–66, 3–15–66, 3–24–66, 4–15–66.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (2–1–65). F.R. 2–13–65, 8–21–65, 3–17–66.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (10–1–63). F.R. 11–5–64, 5–18–65.
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4–1–57).
227	Laws Governing Marine Inspection (3–1–65).
239	Security of Vessels and Waterfront Facilities (7–1–64). F.R. 6–3–65, 7–10–65, 10–9–65, 10–13–65, 3–22–66, 7–30–66, 8–2–66.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5–2–66).
257	Rules and Regulations for Cargo and Miscellaneous Vessels (1–3–66). F.R. 4–16–66.
258	Rules and Regulations for Uninspected Vessels (1–2–64). F.R. 6–5–64, 6–6–64, 9–1–64, 5–12–65, 8–18–65, 9–8–65.
259	Electrical Engineering Regulations (7–1–64). F.R. 2–13–65, 9–8–65.
266	Rules and Regulations for Bulk Grain Cargoes (7–1–64). F.R. 3–10–66.
268	Rules and Regulations for Manning of Vessels (2–1–63). F.R. 2–13–65, 8–21–65.
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11–19–52). F.R. 12–5–53, 12–28–55, 6–20–59, 3–17–60, 9–8–65.
293	Miscellaneous Electrical Equipment List (4–1–66).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10–1–59). F.R. 10–25–60, 11–3–61, 4–10–62, 4–24–63, 10–27–64, 8–9–66.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1–3–66).
329	Fire Fighting Manual for Tank Vessels (4–1–58).

CHANGES PUBLISHED DURING AUGUST 1966

The following have been modified by Federal Registers:
CG–169, CG–172, CG–184, and CG–239, Federal Register, August 2, 1966.
CG–320, Federal Register, August 9, 1966.

U.S. GOVERNMENT PRINTING OFFICE:1966

Socony "BIL" says:

"Good FIRES NEVER START!"

It's your job and the job of everyone aboard to keep fires from starting. The fire that never starts causes no damage, or injures, or kills!

KNOW FIRE PREVENTION AND FIRE FIGHTING RULES BEFOREHAND! KNOW WHAT IMMEDIATE STEPS SHOULD BE TAKEN.

IS FIRE EQUIPMENT IN IT'S PROPER PLACE, PROPERLY MAINTAINED AND READY FOR INSTANT USE?

FIRE ALARM? GO TO YOUR STATION IMMEDIATELY! ... IT MAY NOT BE JUST A DRILL!"

SPOT FIRE HAZARDS! · REMOVE THEM OR REPORT THEM AT ONCE!

KNOW INSTANTLY WHICH TYPE OF EXTINGUISHER TO USE ON EACH CLASS OF FIRE. KNOW HOW TO OPERATE THEM!

Type of Extinguisher	CLASS OF FIRE: PAPER-RUBBISH-WOOD-RAGS	FLAMMABLE LIQUIDS	ELECTRICAL FIRES
Soda AND Acid	Yes	No!	No!
Pressurized Water (LOADED STREAM)	Yes	No!	No!
Foam	Yes	Yes	No!
Carbon Dioxide	No!	Yes	Yes
Dry Chemical (ALL PURPOSE)	Yes	Yes	Yes

NEVER USE PETROLEUM PRODUCTS TO CLEAN CLOTHING!

EARLY DETECTION AND SPEED IN FIGHTING IS OF PRIME IMPORTANCE IN SUCCESSFUL FIRE-FIGHTING!