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# COVERS

FRONT COVER: The SS Hess Voyager underway. Delivered in 1964 by the Sparrows Point, Md., shipyard, the 48,500 deadweight ton tanker steams at 16½ knots. She is 736 feet long, has a beam of 102 feet and a depth of 50 feet. She is the second tanker to bear the name, the first having been decommissioned in 1963.

BACK COVER: Safety cartoon by G. Seal, Pacific Maritime Association.

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# OF THE

# MERCHANT MARINE COUNCIL

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November 1969

# A UNIVERSAL SYSTEM FOR THE TONNAGE MEASUREMENT OF SHIPS

# Phillips S. Stitt

Admeasurement Branch, U.S. Coast Guard Headquarters

ON 23 JUNE 1969, RADM C. P. Murphy, Chief, Office of Merchant Marine Safety, U.S. Coast Guard, signed the International Convention on Tonnage Measurement of Ships, 1969, subject to acceptance. The Convention, which culminated 10 years of work by members of the Intergovernmental Maritime Consultative Organization (IMCO), was prepared and opened for signature during a 4-week international conference which convened in London 27 May 1969. The United States Delegation, which comprised 11 representatives from industry and government, was led by RADM Murphy. Admiral E. J. Roland USCG (Ret.), former Commandant of the Coast Guard and a member of the United States Delegation, served as President of the Conference.

The need for a universal system of tonnage measurement becomes apparent when one considers that a merchant vessel in international trade often carries its own national tonnage certificate, a Panama Canal and a Suez Canal tonnage certificate, as well as a British certificate or an appendix to its national certificate. Although the tonnages on all the certificates are computed and displayed in similar ways, their values are often substantially different because different philosophies of tonnage measure-

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ment are reflected in the various rules provided by the systems of measurement used.

The principal criticism of separate Panama Canal and Suez Canal certificates is aimed at the duplication of work involved in developing the certificates. The appropriate rules are applied uniformly to the vessels of all nations when the vessels transit the respective canals.

Since the tonnages recited on the national tonnage certificates serve as bases for application of a number of international conventions, local laws and regulations, and for port dues and other charges, differences in those rules very often cause vessels of some nations to be favored over those of other nations in identical situations. These differences, which cause inequities in the charges assessed ships of different countries, have led certain ports to adopt policies requiring ships of some countries having different rules either to accept high tonnage estimates designed to offset the tonnage differences or to be delayed while tonnage adjustments are made.

From the outset of the quest for a universal system of tonnage measurement in IMCO there was general concern that a new system could be disruptive. It was quickly agreed by most governments, therefore, that any acceptable universal system of tonnage measurement of ships should provide two parameters having values as close as practicable to the gross and net tonnages, respectively, obtained by application of the present national systems. It was also generally agreed that an acceptable system:



U.S. DELEGATION TO INTERNATIONAL CONVENTION ON TONNAGE MEASUREMENT, 1969

Front row, left to right—Mr. R. C. Krack, MARAD; Mr. J. J. Ingersoll, Embassy, London; RADM C. P. Murphy, Chief, Office of Merchant Marine Safety, Headquarters; Adm. E. J. Roland, USCG (Ret.); Mr. C. I. Bevans, Department of State. Back row, left to right—LCDR E. M. Kelly, USCG; Mr. P. Stitt, USCG; Mr. E. V. Stewart, Atlantic Richfield Refining Corp.; CDR H. G. Lyons, USCG; Mr. C. M. Smith, Lake Carriers Association; Mr. R. T. Cunningham, American Institute of Merchant Shipping.

(a) should not influence design and in particular it should not encourage constructional features which detract from safety or efficiency;

(b) should avoid dependence on details of construction;

(c) should permit the determination of tonnages in the early design stage of the ship and provide, insofar as possible, for the use of plans in place of taking physical measurements;

(d) should be as direct and simple as possible, consistent with the purposes to be served;

(e) should not adversely affect the economics of the shipping industry;

(f) should embody a concept avoiding needless and objectionable features relating to exemptions in superstructures; (g) should provide a net tonnage that reflects the space connected with the carriage of cargo and passengers which, subject to the above considerations, provides a reasonable and consistent index of the vessel's revenue earning capacity;

(h) should provide an index of the functional capability of a vessel which carries neither cargo nor passengers; and

(i) should provide a gross tonnage yielding a measure of the total vessel volume which, subject to the above considerations, gives a reasonable and consistent index of the vessel size.

The system provided by the adopted Convention meets all the above requirements to a very great degree.

The gross tonnage of a vessel measured under the new system will be a

simple logarithmic function of the total molded volume of the vessel in cubic meters. Except in the case of a vessel which under present systems would have very large exempted spaces representing in some cases the differences in the present systems such as the treatment of large water-ballast tanks, very deep double bottoms and frames, or exempted shelter between decks, the gross tonnage value found under the new system will be within a few percentage points of what it would be if determined under the present national systems. The designer will no longer have to take into account as factors affecting gross tonnage such purely design considerations as the depth of the double bottom and the frames, the amount of water-ballast space, and the use or arrangement of closed-in spaces either above or below the upper deck. There will be no provision for exemption of spaces as "open" resulting from the installation of tonnage openings and the gross tonnage will not be affected by the operating draft.

The gross tonnage formula is:

GT=K<sub>1</sub>V

where: V=total volume of all enclosed spaces of the ship in cubic meters K<sub>1</sub>=0.2+0.02 log<sub>10</sub>V (or as shown in a table appended to the regulations).

The net tonnage of a cargo ship with accommodations for not more than 12 passengers will be a logarithmic function of the total volume of the cargo spaces modified by a function of the draft-to-depth ratio designed to incorporate the shelter-deck concept. If accommodations for more than 12 passengers are provided, the net tonnage will be increased by a function of the number of passengers. In no case will the net tonnage be less than 30 percent of the gross tonnage.

The net tonnage values found under the new system will, with certain exceptions, be as close as possible to what they would be if determined under the present national systems. Net tonnage values of shelter-deck types will be slightly higher than under present national systems. Net tonnage values for single-deck ships with high freeboards will be somewhat less than under present systems. This, in effect, will eliminate the disadvantages that containerships and similar high freeboard vessels now operate under with respect to shelter-deck vessels. It will make it unnecessary in the future to build a second deck to meet a definition in order to gain a tonnage advantage. It will also remove the incentive to install tonnage openings in shelter decks and in bulkheads.

The net tonnage formula is:

$$NT = K_2 V_c \left(\frac{4d}{3D}\right)^2 + K_3 \left(N_1 + \frac{N_2}{10}\right)$$
  
in which formula:

- (a) the factor  $\left(\frac{4d}{3D}\right)^2$  shall not be taken as greater than unity
- (b) the term  $K_2 V_c \left(\frac{4d}{3D}\right)^2$  shall not be taken as less than 0.25 GT; and
- (c) NT shall not be taken as less than 0.30 GT

and in which:

- V<sub>c</sub>=total volume of cargo spaces in cubic meters
- K2=0.2+0.02 log10V. (or as shown in a table appended to the regulations) K<sub>3</sub>=1.25 GT+10,000

10,000

- D=molded depth amidships in meters d=molded draft amidships in meters as defined below
- N<sub>1</sub>=number of passengers in cabins with not more than 8 berths
- N2=number of other passengers N<sub>1</sub>+N<sub>2</sub>=total number of passengers the ship is permitted to carry as indicated in the ship's passenger certificate; when  $N_1 + N_2$  is less than 13,  $N_1$  and  $N_2$  shall be
  - taken as zero GT=gross tonnage of the ship as determined in accordance with the formula above.

The molded draft (d) referred to above will be one of the following drafts:

(a) for ships to which the International Convention on Load Lines in force applies, the draft corresponding to the Summer Load Line (other than timber load lines) assigned in accordance with that Convention;



RADM C. P. Murphy, USCG, Chief, Office of Merchant Marine Safety signs the International Convention on Tonnage Measurement of Ships, 1969, subject to acceptance for the United States. At the table with RADM Murphy is Mr. T. Busha, Secretary, Credentials Committee; in the background from left to right are: Mr. Y. Sasamura, Secretary, Technical Committee; Mr. V. Nadeinski, Executive Secretary of the Conference; Adm. Edwin J. Roland, USCG (Ret.), former Commandant of the Coast Guard, President of the Conference; Mr. Colin Goad, Secretary-General; Mr. J. Quéguiner, Deputy Secretary-General.

(b) for passenger ships, the draft corresponding to the deepest subdivision load line assigned in accordance with the International Convention for the Safety of Life at Sea in force or other international agreement where applicable;

(c) for ships to which the International Convention on Load Lines does not apply but which have been assigned a load line in compliance with national requirements, the draft corresponding to the summer load line so assigned;

(d) for ships to which no load line has been assigned but the draft of which is restricted in compliance with national requirements, the maximum permitted draft;

(e) for other ships, 75 percent of the molded depth amidships.

Since the new system will provide for gross tonnage a figure which will vary with the size of a vessel, it should meet the requirements of those who need an index representing the relative sizes of vessels. Since it will provide for net tonnage a value which will vary with the space available for the carriage of cargo and the number of passengers carried, it should meet the requirements of those who need a measure of the relative earning capacities of vessels for bases for charges. Since the volumes to be used will be molded volumes, most of the measurement work will be able to be carried out in the early design stage from blueprints. Since there will be no provision for exemptions or deductions, the measurement regulations and their application will be as simple as possible.

The tonnage certificate which vessels will be expected to carry will be comparatively simple. It will recite the gross and net tonnages, identifying information, and minimal information concerning the spaces comprising the tonnages:

The Convention will come into force 24 months after the date on which not less than 25 governments

(Continued on page 225)

# CHANGES IN REEXAMINATION PROCEDURES

Commander R. E. Anderson, USCG

Chief, Seamen Occupational Standards and Analysis Branch, Headquarters

The report of a Coast Guard sponsored study of its licensing requirements and procedures was discussed in an article in the May 1969 edition of the *Proceedings of the Merchant Marine Council*.

Some of the changes suggested by the study are far-reaching and must be categorized as long-range. On the other hand, recommendations, such as establishing a clear relationship between the examination content and the actual knowledge and skills required for each license, new questions, and standardized scoring procedures, are problems that can be resolved in a shorter span of time. However, these are still involved tasks, and it will take some time, perhaps as much as  $2\frac{1}{2}$  years, to accomplish.

There is one change that can be accomplished immediately which will affect many persons planning to take license examinations in the near future. That concerns the long-standing policy on failure reexaminations.

Heretofore, a candidate for a license, particularly a deck officer, had to pass each of the 15 to 20 subjects comprising his examination. The time consumed to take the deck officer examination averaged 10 days. A failure in any one of the subjects required the applicant to return to the same office after a period of 30 days and retake the entire examination including the subjects he previously passed.

The first breakthrough in longstanding examination procedure policy has been made in this area. Effective 1 November 1969 a candidate, subject to certain limitations, will be required to retake only those subjects he failed on his examination. This new policy will in no way affect the previous policy, insofar as failure of the subjects of Radar Plotting and Practical Signaling. For deck officers, these two subjects will not be included in computing the total subjects failed. As in the past, a candidate will be permitted to retake examinations in these subjects any time within 6 months of his initial failure.

It is obvious that any relaxation of the examination policy must not cause any relaxation of the license's basic purpose-safety at sea. Thus, every deck officer must have a thorough and intimate knowledge of the Rules of the Road. Accordingly, it is mandatory that this subject shall be passed by each deck officer candidate before any relaxation concerning makeup examinations can be permitted. Hence, a person who fails Rules of the Road will have his examination terminated then and there and will be required to return after a period of 30 days and commence the entire examination.

Once Rules of the Road have been successfully passed, the candidate will then come under the provisions of the revised policy concerning failures. He will be permitted to continue his examination. If he fails no more than two subjects in the remainder of the examination (Radar Plotting and Practical Signaling excluded), he will be permitted to return any time within 60 days from the initial failure date and retake only those subjects failed. The subjects previously passed will remain valid. If he should fail three subjects, the examination is then terminated, and, when he returns any time after 30 days, he must retake the entire examination including those subjects that be originally passed.

If the deficient subjects are completed with passing grades at the makeup examination, the candidate will be considered eligible for his license, provided he has already satisfied the Radar Plotting and Practical Signaling requirements.

A person will be allowed only one makeup examination. If he should fail a subject on the partial makeup examination, he will be considered as having failed the examination. In this case, he will be required to take the entire examination on any subsequent examination.

In order to take advantage of this liberalized policy, it is mandatory for the candidate to appear within the 60-day time limit to take the partial examination to make up his deficiencies. If the person does not appear within this time period, he will be classified as having failed the entire examination. Consequently, he will then be required to retake the entire examination at any subsequent sitting.

As indicated earlier, the subjects of Radar Plotting and Practical Signaling are not affected by this revised policy, and a deck candidate will be permitted to complete his examination even though he records a failure

(Continued on page 225)

# M/V TRIPLE CROWN SINKING WITH LOSS OF LIFE SANTA BARBARA CHANNEL, 25 NOVEMBER 1968

# MARINE BOARD OF INVESTIGATION

The actions taken on the M/V Triple Crown case follow in chronological order

#### FINDINGS OF FACT

1. The M/V Triple Crown, Official Number 516 480, sank at or about 0345, P.s.t., 25 November 1968, in a position approximately 8 miles southeast of Santa Barbara, California (34–17.4 North, 119–36.7 West). Sixteen of the 25 persons on board the vessel were rescued. Seven bodies have been recovered from the sunken vessel. Two persons are missing and presumed dead. One person suffered a broken ankle. The Triple Crown was engaged in picking up anchors and chain for the offshore drilling rig Bluewater II when the vessel listed to starboard and sank stern first.

2. Vessel data is as follows:

Name: Triple Crown.

Official number: 516 480.

Service: Drilling rig supply (anchor handling and supply vessel).

Length: 159.5.

Breadth: 40.1.

Depth: 13.4.

Propulsion: Twin oil screw.

Horsepower: 2,000.

Home port: Wilmington, Del.

- Master: George R. Gaskill, 16515 East 23d Street, Sunset Beach, Calif.
- License number: 333 983, endorsed as Master, steam and motor passenger, 300 gross tons, any oceans, and radar observer.

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Inspection: Uninspected.

Documentation: Issued temporary certificate No. 13 on 10 September 1968.

- Load Line Certificate: Issued International Load Line Certificate (1966) No. GI-20-624 on 14 November 1968.
- Owner: Caspary-Wendell, Inc., 101 Basin Drive, P.O. Box 938, Rockport, Tex.

3. The M/V Triple Crown, owned by Caspary-Wendell, Inc., was chartered to Humble Oil and Refinery Co., 1800 Avenue of the Stars, Los Angeles, Calif., and operated by Deepwater Operators, Inc., Box 922, Morgan City, La. Santa Fe International Corp., One Wilshire Building, Suite 2222, Los Angeles, Calif., has a controlling stock interest in both Caspary-Wendell, Inc., and Deepwater Operators, Inc.

4. When building of the M/V Triple Crown was completed at Port Arthur, Tex., the M/V Triple Crown was admeasured on 30 August 1968 and found to be 288.19 gross tons and 195 net tons. Subsequent to being admeasured, she proceeded to Port Hueneme, Calif., where four of the exempted water-ballast tanks were converted for the stowage of anchor chain and two ballast tanks were converted to fuel oil tanks. In addition, the wing tanks, port and starboard, were converted to domestic water. These changes added 207.66 tons to the gross tonnage.

# 5. Record of deaths and injuries:

Name and address	Coast Guard license/document No.	Position			
a. Deaths					
VON MILLS, Mark, 3016 Cliff Drive, Newport Beach, Calif	Merchant Mariner's Document Z-13424- D1, No license.	Mate.			
THOMASSON, William, 1708 E. 215th Pl. Torrance, Calif	None	Deckhand.			
VOIGHT, Lloyd E., Jr., 1622 De La Vina St. Santa Barbara, Calif	None	Deckhand.			
McDANIEL, Jackie W., 4929 Snowden	Merchant Mariner's Document Z-717 091. No License	Chief Engineer.			
CALLOWAY, Frank, 3333 Rexford, Ven-	None	Assistant Engineer.			
TAYLOR, Richard, 7367 Jackson St., Ven- tura, Calif.	None	On board as surveyor from Lewis & Lewis Co., Ventura, Calif., to locate anchors a new location.			
TAYLOR, Alvin Dean, 994 Concord Avc., Ventura, Calif.	None	Serving as part of anchor-handling crew from Offshore Transport Contractors, Inc.			
	b. Missing and presumed to be lost				
KOUNS, Richard, 874 Poli, Ventura, Calif.	None	Serving as part of anchor-handling crew from Offshore Transport Contractors, Inc.			
GRAMENZ, Jack, 165 Mountain View, Oak View, Calif.	None	Serving as part of anchor-handling crew from Offshore Transport Contractors, Inc.			
	c. Injured				
DAVIS, William, 106½ James Drive, Veu- tura, Calif.	None	Serving as part of anchor-handling crew from Offshore Transport Contractors, Inc.			

6. The weather at the time of this casualty was as follows:

Clear with good visibility, wind out of the north at 30 knots and gusting. The sea was moderate with a 3- to 5-foot surface wave running from the north across 10-foot swells from the west. The air temperature was 60°F, water temperature 57°F.

7. At 1345, 23 November 1968, the M/V Triple Crown departed from Port Hueneme, Calif., enroute to a position approximately 32 miles southwest of Santa Barbara, Calif. Upon arrival at the location, the Triple Grown set two anchors with chains and buoys in preparation for the arrival of a large offshore drilling rig, the Bluewater II. After the anchors were set, Triple Grown proceeded to the site of the anchored Bluewater II, approximately 8 miles southeast of Santa Barbara.

8. Upon arrival at the Bluewater II between 2300 and 2400 on 23 November 1968 the Triple Grown commenced the operation of picking up anchors and chain to allow movement of the Bluewater II to the new location. The Bluewater II was anchored with two anchor lines running from each corner of its rectangular hull. Each anchor line was perpendicular to one of the rig's sides and the angle between the two lines at each corner of the hull was approximately 90 degrees.

 The Triple Crown's procedure to pick up anchors for a drilling rig move was:

The vessel first retrieved the marker buoy. The pendant wire between the buoy and anchor was winched aboard, which hauled the anchor close up at the stern. The anchor was brought aboard through use of the gantry crane, which moved fore and aft on rails, and stowed on deck. The anchor chain, after being disconnected from the anchor, was brought aboard using a winch called the "draw-works". Each chain was approximately 3,200 feet in length, and weighed 40 to 45 pounds per foot. This chain was led from the draw-works to a portable wildcat which fed it into the tanks converted to chain lockers located aft of the draw-works. Men from the anchorhandling crew stationed in the chain lockers faked the chain athwartship, with an aid called an "air tugger" to do the lifting and pulling. When the end of the chain came aboard, a cable (rig wire) from the drilling rig was disconnected from the chain and the rig wire was passed to a tug, where it was held while the drilling rig



The M/V Triple Crown underway. When admeasured after being built in 1968, she was 288.19 gross tons and 195 net tons. After admeasurement, four of her exempted water ballast tanks were converted for the stowage of anchor chain, and two ballast tanks were converted to fuel oil tanks. In addition, the wing tanks, port and starboard, were converted to domestic water. These changes added 207.66 tons to the gross tonnage.

reeled it in (unless it is one of the rig wires to be used for towing the rig).

10. After arrival at the Bluewater II, the Triple Crown proceeded to pick up the two after anchors in the above manner and the cable from Bluewater II was passed to two tugs, the Pacific Ranger and the Pacific Mariner, for the purpose of holding the Bluewater II in position while the remainder of the anchors were being picked up. The cable tugs then took a position approximately 2,200 feet to the windward of the Bluewater II, which was to be towed astern. To make room on the deck of the Triple Crown before bringing up any of the additional anchors, the two 10-ton anchors aboard were transferred to the Bluewater II. This was accomplished by going alongside the drilling rig, where the drilling rig removed the anchors from the Triple Crown with its crane. The Triple Crown then continued to retrieve the remaining eight anchors through 24 November. (There were three anchors on one of the remaining six cables piggy-backed to provide greater holding capability.)

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11. After being relieved by the Mate, Mark Von Mills, Captain Gaskill made a tour of the vessel before he retired at about 0145 on 25 November. The vessel appeared normal but had a slight starboard list. Five of the 10-ton anchors were on deck and one of the anchors was stowed slightly aft of the open starboard stackhouse door.

12. The M/V Triple Crown continued to retrieve chain and anchors. Just prior to the casualty she had eight anchors and approximately 26,000 feet of chain on board. Three hundred to 500 feet of chain remained to be brought aboard. While the M/V Triple Crown was hauling on the last anchor chain from Bluewater II, one of the anchor-handling crew, William Davis, who was working on the starboard side of the vessel forward of the stackhouse, noted that more water was washing on deck than had been earlier. At about 0300, in an attempt to keep dry, he got inside an empty 55-gallon barrel. He continued to operate the air tugger from this position. His position soon became untenable as the barrel floated due to the amount of water on deck. 13. At about 0340, Captain Gaskill awoke with an intuitive feeling that something was amiss aboard the vessel. He proceeded to the bridge area, meeting James Petrovich, foreman of the anchor-handling crew, en route. While on deck Mr. Petrovich had observed that the vessel had an abnormal amount of water on the starboard side and stern. Mr. Petrovich was proceeding to the bridge to discuss this condition with the Master. A brief discussion ensued and Mr. Petrovich returned to the deck and Captain Gaskill continued to the bridge. Captain Gaskill told James Van Auken to go down below to the engine room, get some help and secure the watertight doors in the stackhouse, and wake up the people that were sleeping.

14. Captain Gaskill sent the Mate below to wake up sleeping personnel and have them come topside to the hoat deck. As Mr. Von Mills departed on this assignment, the vessel listed further to starboard. The starboard list then increased at an accelerated rate. Captain Gaskill told Mr. Raymond Null, who was aboard as an observer from Bluewater II, to call the rig and have them stop the tugs that were holding Bluewater II. The vessel continued to list further to starboard and Captain Gaskill directed Mr. Null to tell the Bluewater II to send the Pacific Saturn over to assist because the Triple Crown was sinking. Captain Gaskill then ran out of the wheelhouse to the next deck below, opened the life preserver box, and passed out some life preservers to crewmembers in the area. He then returned topside to try to release an inflatable liferaft, but the vessel seemed to lurch and Captain Gaskill's next recollection was that he was in the water, where he watched as the Triple Crown sank stern first. The period of time from the first indication that something was wrong until the vessel sank was 3 to 5 minutes.

15. Before the vessel capsized, Mr. James Van Auken, another survivor, had proceeded through the below-deck passageway to the watertight door into the engine room where he found Mr. Dean Taylor from the anchor-handling crew. They saw that water was pouring in a continuous stream through the starboard stackhouse door. Realizing that they could not close the door, which was obstructed by an anchor, Mr. Van Auken told Dean Taylor to come with him because the ship was sinking. Van Auken then proceeded to run through the quarters below the wheelhouse shouting and hitting doors to awaken anyone. Mr. Van Auken saw several persons open their doors and look out, but they appeared to go right back into their rooms. As Mr. Van Auken returned to the bridge, the water was rising behind him and the vessel completely rolled over on her starboard side. Mr. Van Auken escaped through a broken window. He was pulled down by the suction of the sinking vessel but managed to swim free.

16. William Davis, the air tugger operator, was on deck just before the vessel rolled over. He ran into the galley to warn anyone inside that the vessel was sinking, but saw no one. When he returned on deck, the vessel had listed considerably to starboard. He was attempting to pull himself toward the port side when his leg was struck by shifting acetylene bottles. He described the deck scene as one in which most of the weight appeared to shift to starboard and floating articles came forward as the vessels stern went under. Mr. Davis managed to swim free after being submerged and, when picked up, was found to have suffered a broken ankle.

17. Sixteen of the 25 persons on board were rescued from the water by the tug *Pacific Saturn* within 30 to 45 minutes. Some of those rescued wore life preservers. Some managed to cling to buoys which washed off the *Triple Crown*'s deck, and one of them managed to reach the inflated liferaft which had floated free from the *Triple Crown*. When James Van Auken was noted to be in trouble in the water, Harold Young, the Assistant Engineer on board the *Pacific Saturn*, dove into the water and brought him back to the tug where he successfully administered artificial resuscitation.

18. Within 25 minutes of the distress call, the USCGC *Point Judith* was at the scene assisting in the search. Helicopters from Coast Guard Air Station, Los Angeles, also took part in the unsuccessful search for the remainder of the crew. The search covered a total area of 737 square miles, 17 sorties were flown, and 10 vessels participated in the 33 hour search and rescue operation.

19. On 26 November, divers from California Divers, Inc., Santa Barbara, located the Triple Crown in 300 feet of water. Seven of the nine missing persons were found inside the vessel. Two persons, Mr. Jack Gramenz and Mr. Richard Kouns, have not been located and are presumed drowned. The vessel was located on a soft mud bottom about 8 miles southeast of Santa Barbara Harbor, lying in a relatively level attitude with the bow toward the northwest. The hull appeared to have suffered pressure depressions in many areas along the sides. The stern of the vessel was caved in above both rudders in small areas. Both rudders were bent forward toward the propellers. The after deck was buckled and rippled and had several areas of large depressions. The gantry and the tracks appeared to be relatively undamaged. The deck machinery appeared to be intact. At least one anchor chain and one 2-inch wire were found leading off the stern of the vessel. Various overhead beams in the engine room were bent.

20. Before flooding of the engine room occurred M/VTriple Crown's metacentric height was 11.4 feet. The owners of the M/V Triple Crown have submitted reports of a structural strength and stability study, along with towing basin tests of a model of the Triple Crown, for the Board's consideration. The structural reports were based on the condition of the vessel subsequent to her con-



The M/V Triple Crown's gantry crane, which was capable of moving fore and aft on its rails. The crane was used in hoisting anchors aboard and stowing them on deck.

version for anchor work at Port Hueneme. The most significant changes effected by the conversion of the M/V *Triple Crown* were:

a. The water-ballast tanks located between Frames 28 to 34, port and starboard, were provided with openings and hawse-type fittings on deck to accommodate anchor chain. These openings were one to each of eight separate compartments made up of four ballast tanks as separated by a swash bulkhead. The openings were approximately  $5' \ge 1\frac{1}{2}$  without a coaming. A fitted cover provided for the hawse openings was not watertight. The tanks remained equipped with ballast piping and were ballasted as necessary. These changes added 175.52 tons to the gross tonnage.

b. The water ballast tanks aft of the fuel oil tanks located port and starboard amidships between Frames 45 and 52 were converted for fuel oil. Wing ballast tanks between Frames 39 and 56 were converted for domestic water. These changes added 32.14 tons to the gross tonnage.

c. The water-ballast tanks located between Frames 26 and 28 were cemented to carry potable fresh water to supply offshore oil rigs. Piping arrangements were modified in the engineroom accordingly.

d. A gantry-type crane, with appropriate tracks, was installed along the bulwarks extending from Frame 27 to the stern. This topside weight change amounted to approximately 30 long tons. e. The draw-works, weighing approximately 40 long tons, was installed on the main deck amidship between Frames 26 and 28.

21. To date the owners of the *Triple Crown* have not made a decision as to whether or not the vessel will be salvaged.

22. No member of the operating crew of M/V Triple Crown held a U.S. Merchant Mariner's Document endorsed as Able Seaman.

## CONCLUSIONS

1. That the cause of the casualty, to the extent determinable, was the flooding of the engineroom through the open starboard stackhouse door as the vessel rolled. The flooding became progressively worse as the list to starboard increased. Contributing causes of the casualty were the seas breaking on the afterdeck due to the low freeboard at the stern during the prevailing weather conditions and the inability to close the starboard stackhouse door because it was obstructed by an anchor. Other factors contributing to the casualty were restricted maneuverability of the M/V Triple Crown during the anchor retrieval operation, and the anchor chain over the stern which interfered with the vessel's seakeeping qualities.

2. That there is no evidence that any material failure of the *Triple Crown* caused or contributed to the casualty. The structural damage found by the divers was apparently caused by hydrostatic pressure and shifting cargo and weights when the vessel heeled and sank.

3. That there is evidence of misconduct and negligence on the part of the Master of the M/V Triple Crown, which has been referred to the appropriate Officer in Charge, Marine Inspection, for action under RS 4450.

4. That there is evidence that the following laws have been violated:

a. 46 USC 643 in that all seamen employed on the *Triple Crown* did not hold and exhibit specially validated Merchant Mariner's Documents.

b. 46 USC 672(a) in that 65 percent of the deck crew, exclusive of licensed officers and apprentices, were not of the rating of Able Seaman.

c. 46 USC 404 and 46 USC 367 for operating the *Triple Crown* without a valid Certificate of Inspection.

d. 46 USC 224a(4) for engaging persons to perform the duties of Mate and Chief Engineer aboard the *Triple Crown* who were not licensed by the Coast Guard.

e. 46 USC 60 for fraudulent use of the enrollment and license of the M/V Triple Grown after her tonnage had been increased by the use of exempted water-ballast tanks for carriage of anchor chain and domestic fresh water and fuel oil.

f. 46 USC 39 for failure to document the M/V Triple Crown anew when altered in burden. (In conjunction with 46 USC 252 making requirements for registered vessels applicable to enrolled and licensed vessels.)

g. 19 CFR 2.43(g)(3) and 3.26 for failure to report change in use of water ballast spaces.

5. That the casualty might have been prevented or its effects minimized by the following:

a. Closing and securing the engine room stackhouse doors while the *Triple Crown* was at sca.

h. Loading the vessel in a manner to maintain sufficient freeboard at the stern to eliminate excessive seawater on the afterdeck in adverse weather during the anchor retrieval operation. The loading condition of the Triple Crown could have been prevented if the waterballast tanks which contained anchor chain, fuel, and potable water had remained available for reserve buoyancy. Improper loading may have been averted if the vessel had held a Certificate of Inspection and the Coast Guard had been notified of the proposed alteration, as required by applicable regulations for inspected vessels. Following the conversion and alteration of the M/V Triple Crown she was in excess of 300 gross tons, and was subject to inspection by the U.S. Coast Guard when operating on the high seas. Since the owner and the operator of the vessel were under control of the same corporation, the M/V Triple Crown, not carrying owners' cargo, was therefore also subject to inspection as a vessel in excess of 15 tons carrying freight for hire. A clear and definite statute or regulation applicable to enrolled and licensed vessels, similar to 46 USC 39 requiring registered vessels to be registered anew when altered in form or burden, might have facilitated detection of the alterations to the M/V Triple Crown.

6. That the two persons on board the *Triple Crown* at the time of the casualty, whose bodies have not yet been found, are presumed drowned.

7. That there is no evidence that any personnel of the Coast Guard or any other Government agency, contributed to the casualty. The rescue efforts of the Coast Guard and other participating units, especially the tug *Pacific Saturn*, were timely and comprehensive. The prompt, courageous action of Harold Young, Assistant Engineer aboard the tug *Pacific Saturn*, possibly saved the life of James Van Auken, deckhand aboard the *Triple Crown*. His heroic action is the subject of a separate report.

# RECOMMENDATIONS

1. That further investigation under the Suspension and Revocation Proceedings be initiated in the case of George R. Gaskill, Master of the M/V Triple Crown, License number 333 983, concerning his part in the casualty.

2. That further investigation under the Administrative Penalty Procedures be initiated regarding the evidence concerning violations of laws relating to vessels on the part of the owner, operators, and charterers of the M/V Triple Crown. 3. That additional investigations to detect or remedy tonnage violations be instituted in areas where vessels of a type similar to the M/V Triple Grown are operating. Publicizing the conditions that existed aboard the Triple Grown by dissemination of the report in the standard manner and by publication in the Merchant Marine Council Proceedings should also serve to alert the operators of other such vessels of possible violations of law and the dangers inherent in such operations.

4. That consideration be given to amending 46 USC 39 (requiring a registered vessel to be registered anew when changed in form or burden) to make the statute applicable to enrolled and licensed vessels without reference to 46 USC 252 (making requirements for a registered vessel applicable to an enrolled and licensed vessel). Such an amendment would result in a more explicit statute that might have a beneficial remedial effect.

28 April 1969.

# COMMANDANT'S ACTION

1. The record of the Marine Board of Investigation convened to investigate subject casualty has been reviewed and the record, including the Findings of Fact, Conclusions, and Recommendations is approved subject to the following comments and the final determination of the cause of the casualty by the National Transportation Safety Board.

# SYNOPSIS OF INVESTIGATIVE REPORT FINDINGS OF FACT

1. The M/V Triple Crown, while retrieving anchor and chain of the large offshore drilling rig the Blue Water II, to allow its movement to a new location, listed to starboard and sank stern first at or about 0345, P.s.t., 25 November 1968. Seven persons lost their lives. Two others are missing and presumed dead.

2. At the time of the casualty, the *Triple Crown* had on board eight anchors and approximately 26,000 feet of chain. Two anchors had been previously transferred to the *Blue Water II*. Three hundred to 500 feet of chain remained to be brought aboard to complete the retrieval operation. One anchor was stowed in a position preventing the closure of the starboard stackhouse door. The sea was moderate with 3- to 5-foot waves. Wind was out of the north at 30 knots. Seas were washing on deck because of the low freeboard at the stern.

3. Three to 5 minutes before the *Triple Crown* sank an abnormal starboard list was noticed. Soon thereafter water was seen entering the engine room through the starboard stackhouse door on the main deck. The list continued to develop rapidly until the vessel started to settle and sink by the stern.

#### REMARKS

1. Concurring with the Marine Board of Investigation, it is considered that the cause of this casualty was the flooding of the engineroom through the open stackhouse door by seas washing over the afterdeck due to the low freeboard at the stern. Under the circumstances, a moderate roll could have caused down-flooding through the open stackhouse door and the 3- to 5-foot seas prevailing could easily have broken over the stackhouse doorsill. This condition could have been prevented by keeping the stackhouse door leading to the engine room closed and unobstructed or hy maintaining freeboard and reserve buoyancy of the vessel by transferring anchors and other weight to the drilling rig at intervals during the anchor retrieval operation.

2. This action is not concerned with the investigation under the Suspension and Revocation Proceedings and Administrative Penalty Procedures recommended by the Marine Board of Investigation. These are separate procedures originated by Coast Guard facilities in the field with distinct and separate provisions for appellate review.

3. The Coast Guard districts in which similar anchor retrieval vessels are operating have been advised to examine these vessels to insure that water-ballast spaces are not being used for unauthorized purposes.

4. A study to determine the feasibility of changes in statutes, regulations, and procedures concerning the documentation of vessels as recommended by the Marine Board of Investigation is in progress at this time.

> W. J. SMITH, Admiral, U.S. Coast Guard, Commandant.

16 June 1969.

# ACTION BY NATIONAL TRANSPORTATION SAFETY BOARD

This casualty was investigated by a U.S. Coast Guard Marine Board of Investigation convened at Terminal Island, Calif., on December 3, 1968. A Member of the National Transportation Safety Board attended the proceedings. The National Transportation Safety Board has considered only those facts in the investigative record which are pertinent to the Board's statutory responsibility to make a determination of cause.

# ANALYSIS

The MV Triple Crown was a supply and anchor-handling vessel for offshore drilling rigs. The vessel was new and had been engaged in only one previous anchor-handling operation. At that time, the load of anchor gear handled was only about half as much as that involved in this casualty.

The Master of the *Triple Crown* and those supervising the various phases in the movement of the rig were well experienced in this type of operation and with similar vessels.

The Triple Crown was 159.5 feet in length, 40.1 feet in breadth, and 13.4 feet in depth. The bridge and quarters were located at the bow. The vessel was fitted with a gantry crane, which moved fore and aft on tracks along the bulwarks, and a winch, located forward, which were used to bring the anchors and chain aboard over the stern. Anchors and marker buoys were stowed on deck. The chain was stowed in ballast tanks which had been converted to chain lockers and openings had been cut in the deck with hawse-type fittings. Covers were provided for these openings but gaskets were not used during anchor-gear-handling operations. The conversion of these tanks was accomplished after the vessel had been admeasured and documented.

At the time of the casualty, the *Triple Crown* was engaged in retrieving the anchoring gear of a large offshore drilling rig which was to be towed to a new location. *Triple Crown* had arrived at the rig, located approximately 8 miles south of Santa Barbara, near midnight on November 23, 1968, and commenced anchor recovery operations shortly thereafter.

Sometime during November 24, 1968, one of the 10-ton anchors brought aboard was so placed on deck that the starboard stackhouse door to the engineroom could not be closed. There are two stackhouses, one on each side of the deck-edge and about one-third of the vessel's length from the stern. The stackhouses accommodate the engine exhausts and are fitted with watertight doors on the aft side with a sill, 24 inches high. The doors are 24 inches wide by 50 inches high and provide access into the forward part of the engineroom. The blocking of this door was brought to the attention of the Master and the anchorhandling personnel but no corrective action was taken.

After being relieved by the Mate, the Master made a tour of the vessel before retiring to his room at about 1:45 a.m. on November 25, 1968. Operations had commenced to bring the last of the anchors and chain (approximately 3,000 feet) on hoard. At that time, the vessel had an approximate 2° list to starboard. However, the Master was not concerned since the remaining weight coming aboard was to be placed on the portside and would compensate. During his tour, the Master went aft through a passageway to the engineroom and then up to the starboard stackhouse to observe conditions on the afterdeck. He noted that the door was still blocked open. He also noted seas breaking over the stern and washing forward to about as far as the stackhouse. He estimated the freeboard at the stern on the starboard side as about 12 inches. Sea conditions were moderate with 3- to 5-foot waves.

Operations continued on deck while the Master slept. The crew was engaged forward of the stackhouses while the chain was being brought aboard and stowed in the port forward chain locker. During this period it was noted that more water was coming on deck than previously. Water was particularly noted on the starboard side where it was coming through the freeing ports.

The Master awoke at approximately 3:45 a.m. and noted that the vessel still had a starboard list. He proceeded to the bridge with a feeling that something was wrong. The Mate advised that the vessel had continued to carry a starboard list and he did not know why. At this time, all of the anchors were aboard and all of the chain except for about four or five hundred feet. Sea conditions had remained the same.

After arriving at the wheelhouse, the Master's first thought was that the vessel was sinking by the stern. He sent a deckhand to get some help and close the stackhouse doors, and sent the Mate below to awaken sleeping personnel and have them come topside. The deckhand went below and through the centerline passageway aft to the engineroom. He found a solid stream of water of great volume coming through the starboard stackhouse door and noted approximately 1 foot of water above the floorplates in the forward starboard side of the engineroom. While he was returning to the wheelhouse to report to the Master, he noted that the list increased at a rapidly accelerating rate.

The vessel was settling by the stern, anchors and buoys started sliding across the deck, the vessel lurched sharply to starboard, and the bow rose as she sank quickly by the stern. From 3 to 5 minutes elapsed between the time it first became apparent to personnel that something was wrong until the vessel sank.

In analyzing the events, it appears that offsetting weight was entering the vessel during the latter part of the loading operation, since the list and trim were not changing as would be expected with the addition of weight to the forward portside. This additional weight could have been entering the vessel in the following manner:

a. By way of the nonwatertight chain locker covers.

b. Into the engineroom by means of a latent defect or as the result of some plate damage incurred in bringing anchors aboard.

c. Through the open stackhouse door.

The low freeboard and starboard list permitted seas to break over the stern and roll forward, also causing deckedge immersion and flooding as the vessel rolled. The amount of water on deck increased as the draft increased with the loading of the vessel. The open stackhouse door would permit the ingress of water to the engineroom in increasing amounts as the loading progressed. This would not only offset the addition of weight on the forward portside but would cause an increasing trim by the stern. When the situation had developed to the point that water was coming over the sill continuously, large-volume flooding would develop at a greatly increased rate, resulting in the motions of the sinking vessel as described in the record.

The Board also noted that apparently a continuous watch was not maintained in the engineroom and that this was probably related to the fact that the vessel's propulsion machinery could be controlled remotely from the wheelhouse. It appears that if a watch had been maintained, or if the engineroom had been equipped with a high bilge water alarm, the flooding would have been detected at an early stage.

# PROBABLE CAUSE

The National Transportation Safety Board finds that the probable cause of the sinking was the flooding of the engineroom through the starboard stackhouse door. The obstruction of the open door by an anchor, and the failure to have the anchor removed and the door closed when the situation was first noted, led to the foundering of the vessel.

The rapid deterioration of seaworthiness in the final minutes was a major factor in the loss of life, as the recovery of bodies indicates that at least seven of the nine dead or missing persons went down with the vessel.

# RECOMMENDATIONS

The Safety Board concurs with the Commandant relative to the recommendations of the Marine Board,

By the National Transportation Safety Board:

Adopted this 21st day of August, 1969:

/s/ John H. Reed, Chairman. /s/ Oscar M. Laurel, Member. /s/ Francis H. McAdams, Member. /s/ Louis M. Thayer, Member.

# CORRECTION

An error occurred in the article "Issue Numbers on Merchant Marine Officers' Licenses", which was published in the October issue of the *Proceedings*. On page 186, in the first table of figures, the issue number for the year 13 renewal of license as chief engineer was given as 3-9. The correct issue number is 3-6.

# DECK

# PLOTTING SHEET

Q. Construct a small area plotting sheet for 44° to 46° N. latitude with each degree of longitude equal to 2 inches.



Q. What entries must be made in a passenger vessel's official logbook relative to fire and boat drills?

A. Entries shall be made setting forth the date and hour, length of time of the drill, numbers on the lifeboats swung out, and numbers on those lowered, the length of time that motor- and hand-propelled lifeboats are operated, the number of lengths of hose used, together with a statement as to the condition of all fire and lifesaving equipment, watertight door mechanisms, valves, etc.

Q. Describe the warning placard required by regulations to warn persons approaching the gangway of a tank vessel fast to the dock during transfer of cargo.

#### November 1969

A. (1) Warning placards should be kept at hand for display while a vessel is fast to a dock during transfer of cargo, to warn persons approaching the gangway. The placard shall state in letters not less than 2 inches high substantially as follows:

# WARNING

No open lights No smoking No visitors

(2) Where poisonous cargoes are being transferred the warning sign shall also include the word "POISON" to indicate the nature of the liquid being handled.

# nautical queries

# ENGINE

Q. What are the causes of panting in a fuel oil burning boiler?

A. Panting is usually caused by one of the following: Deficiency of air, excessive oil temperature, pulsating oil pressure, or poor air-oil intermixture. Poor air-oil intermixture may be caused by poor furnace design, improper burner openings, poor register design, or severe warping of the burner parts.

Q. Explain the effect of raising the upper or adjusting ring of the nozzle-reaction-type safety valve. What will be the effect of raising the lower or nozzle ring?

A. The upper or adjusting ring is the principal means of blowdown adjustment and raising the ring shortens the blowdown. The lower or nozzle ring is adjusted at the factory and usually requires no resetting. The nozzle ring increases its power, eliminates simmering of the valve, and also increases the blowdown.

Q. The lubricating oil pump which supplies oil to the main bearings and governors of a turbinegenerator set is operated through gearing connected to the reduction gear shaft. How is oil pressure provided for the speed controls and bearings lubrication before the unit is started up?

A. A hand-operated oil pump is mounted on the side of the gear casing. Pump oil by hand in order to lift the controlling valves by hydraulic pressure of the oil and furnish the bearings with lubrication until the turbine is placed in operation and the geared pump is functioning to maintain the required pressure.

# NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 6-69

# 22 July 1969

Subject: Hazardous Cargoes; Literature Concerning

# PURPOSE

This circular provides interested persons with a list of publications that may serve as a hazardous cargo library.

# CANCELATION

Navigation and Vessel Inspection Circular No. 10-64 is hereby superseded and canceled.

#### DISCUSSION

Enclosure (1) to this circular contains a list of publications considered suitable for a hazardous cargo library. The information given in the publications includes physical properties (such as vapor pressure, vapor density, boiling point, and flash point), toxicity, firefighting techniques, and safety precautions, among others.

# ACTION

Enclosure (1) may be used as guidance.

# Enclosure (1) To NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 6-69

# LIST OF PUBLICATIONS

1. "Fire Protection Guide on Hazardous Materials," National Fire Protection Association, 1966, contains information about the flash point index of trade name liquids; fire hazard properties of flammable liquids, gases, and volatile solids; hazardous chemical data; a manual of hazardous chemical reactions; and a recommended system for the identification of the fire hazard of materials.

2. "Dangerous Properties of Industrial Materials" by N. Irving Sax, Reinhold Publishing Corp., New York, 3d edition, contains hazard analysis information about more than 10,000 common industrial and laboratory materials.

3. "The Condensed Chemical Dictionary," Arthur and Elizabeth Rose (ed.), Reinhold Publishing Corp., New York, 7th edition, contains shipping safety and trademark information for a large number of chemicals.

4. "Chemical Safety Data Sheets," Manufacturing Chemists' Association, 1825 Connecticut Avenue NW., Washington, D.C. 20009. These brochures are prepared for chemicals commonly transported and contain information concerning the chemical properties, shipping instructions, storage precautions, handling hazards, waste disposal, and health hazards and control.

5. "Industrial Hygiene and Toxicology," Frank A. Patty (ed.), Interscience Publishers, New York, 2d revised edition, contains information of a practical nature regarding hygiene and toxicology for chemical elements and compounds used in industry.

6. "Evaluation of the Hazard of Bulk Water Transportation of Industrial Chemicals, A Tentative Guide," National Academy of Sciences, National Research Council, Publication 1465, Washington, D.C., contains a systematic guide to rating the relative hazards of chemicals shipped in bulk over the waterways.

7. "Handbook of Industrial Loss Prevention," Mc Graw Hill Book Co., 330 West 42d Street, New York, N.Y., contains recommended practices for the protection of property and processes against fire, explosion, lightning, wind, and earthquake.

8. "Safety and Accident Prevention in Chemical Operations," H. H. Fawcett and W. S. Wood, Interscience Publishers, New York, contains practical information regarding personal safety, industrial health, and loss prevention where chemicals are handled or used.

9. "Hygienic Guide Series," American Industrial Hygiene Association, 14125 Prevost, Detroit, Mich. These data sheets provide information concerning hygienic standards, properties, industrial hygiene practice, and specific first aid and medical procedures for many common industrial chemicals.

10. "API Toxicological Review," American Petroleum Institute, 111 West 50th Street, New York, N.Y., 2d edition. These brochures are published for individual petroleum chemicals and contain the properties, uses, toxicology, and treatment information relative to the chemical reviewed. The commodities contained in the series are aromatic petroleum naphtha, benzene, butadiene, copper naphthenate, cyclohexane, gasoline, kerosine, naphthalene, naphthenic acids, styrene, sulfur dioxide, sulfuric acid, toluene, and xylene.

11. "Radiological Emergency Procedures for the Non-Specialist," U.S. Atomic Energy Commission, U.S. Government Printing Office, Washington, D.G. (1969). Procedures to be followed in the event of an accident involving radioactive materials.

12. "Miscellaneous Chemical Munitions," U.S. Army, RM 3-300. Describes the properties of various chemical munitions and gives the precautions necessary for their safe handling.

13. "CG-388, Chemical Data Guide For Bulk Shipment By Water," U.S. Coast Guard, U.S. Government Printing Office, Washington, D.C. This guide contains physical, chemical, fire and explosion hazards, health hazards, and reactivity data for a significant number of chemicals shipped by water. 14. "Chemical Safety Slide Rule," National Safety Council, 425 N. Michigan Avenue, Chicago, Ill. 60611. Lists the flash point, severity and types of hazards, precautions, first aid, NFPA health hazards, NFPA flammability, NFPA reactivity, oral toxicity, action on skin, and references for 176 industrial chemicals.

# TONNAGE

(Continued from page 213)

of States, the combined merchant fleets of which constitute not less than 65 percent of the gross tonnage of the world's merchant shipping have accepted it. A comparatively high percentage of the world's fleet was required to be represented in order to ensure that the system would be very widely applied and accepted. Otherwise, it might become just another of a number of systems in existence.

The Convention will apply to ships engaged on international voyages; new ships; existing ships which undergo such alterations as would result in substantial changes in their existing gross tonnages; existing ships if the owner should request; and to existing ships 12 years after the date on which the Convention comes into force even if the owner has not elected to have the Convention apply to his ships. In that case, however, the ships will retain their existing tonnages for the purpose of the application to them of relevant requirements under other existing international conventions.

The Delegations attending the Conference appeared generally to believe that they had adopted a Convention which will provide a system of tonnage measurement superior to those now in use.  $\ddagger$ 

# REEXAMINATION

(Continued from page 214)

in either one or both. However, if a person has to take a partial examination to make up one or two subject deficiencies, he may, if he chooses, make up a failure in Radar Plotting and/or Practical Signaling at the time of the partial examination.

Although it may appear that this policy change is directed only to deck officers because the deck license examination has certain mandatory requirements, such as passing Rules of the Road, this change is applicable to engineers as well with the same upper limit of no more than two subject failures.

Not every license applicant knows everything there is to know about every subject the minute he sits down to take his examination. Usually there are one or two subjects which are not his strong points. So, if he fails a subject, he will now be given an opportunity to study, concentrating his efforts on an area, which may have been his weakness. This review should strengthen his knowledge, proving beneficial to the individual as well as the merchant marine industry in which he serves.

The man who earns this license will possess it with pride and continue to consider it as a mark of prestige.  $\ddagger$ 

# AMENDMENTS TO REGULATIONS

# ACCEPTABLE HYDRAULIC COMPONENTS

Nonductile hydraulic components which have passed high impact shock tests. Unless otherwise noted, the material is cast iron.

Manufacturer	Valve type	Identity	Maximur allowabl working pressure
Double A Products Co., Manchester, Mich. 98158 Do	Check. Hydraulic control do	D-04 WAP-06 YP-06	3, 00 3, 00 2, 00

November 1969

# Approved Equipment

# Commandant Issues Equipment Approvals; Terminates Others

U.S. Coast Guard approval was granted to certain items of lifesaving, and other miscellaneous equipment and materials. At the same time the Coast Guard terminated certain items of lifesaving, and other miscellaneous equipment and materials.

Those interested in these approvals should consult the Federal Registers of September 12 and 25, 1969, for detailed itemization and identification.

# STORES AND SUPPLIES

Articles of ships' stores and supplies certificated and canceled from September 1 to September 30, 1969, inclusive, for use on board vessels in accordance with the provisions of Part 147 "Regulations Governing Use of Dangerous Articles as Ship's Stores and Supplies on Board Vessels" are as follows:

### CERTIFIED

Bull & Roberts Inc., 785 Central Ave., Murray Hill, N.J. 07974: Certificate 857, dated August 29, 1969, HYDRAZINE.

Apollo Chemical Corp., 250 Delawanna Ave., Clifton, N.J. 07014: Certificate 858, dated September 5, 1969, APOLLO TC-30.

Alken-Murray Corp., 111 Fifth Ave., New York, N.Y. 10003: Certificate 859, dated September 5, 1969, ALKEN AOC.

#### CANCELED

Turco Products Inc., 24600 South Main St., Wilmington, Calif. 90746: Certificate 544, dated September 30, 1969, TURCO DE SLUDGIT

Magnus Chemical Division Eco-

nomics Laboratory Inc., Marine District, Osborn Building, St. Paul, Minn. 55102: Certificate 259, dated September 30, 1969, MAGNUS MAGSOL No. 5; Certificate 225, dated September 30, 1969, MAG-NUS TRICON SOC No. 2; Certificate 226, dated September 30, 1969, MAGNUS MAGSOL No. 4; Certificate 390, dated September 30, 1969, MAGNUS TRICON SPECIAL FOT-X.

Robert G. Allen Co., 127 Cronin Rd., Glens Fall, N.Y. 12801: Certificate 101, dated September 30, 1969, ALLENITE.

The Klenzoid Corp., 1604 Girard Trust Co. Bldg., Philadelphia, Pa. 19101; Certificate 388, dated September 30, 1969, KLENZOID FUEL OIL STABILIZER.

Chartres, Inc., Box 52305, New Orleans, La. 70150: Certificate 431, dated September 30, 1969, NO. 66 SEA WASH.

Wright Chemical Corp., 1319 Wabansia Ave., Ghicago, Ill. 60622: Certificate 409, dated September 30, 1969, MARINE FUEL OIL CON-DITIONER.

Todd Chemicals, Inc., P.O. Box 3922, Seattle, Wash. 98124: Certificate 378, dated September 30, 1969, S-34 DEGREASER.

Residex Corp., 225 Terminal Ave., Clark, N.J. 07066: Certificate 305, dated September 30, 1969, RESIDEX No. 2 (TUMBLEBUG); Certificate 306, dated September 30, 1969, SAFTICIDE.

National Chemical Co., 12520 Cerise Ave., Hawthorne, Calif. 90250: Certificate 232, dated September 30, 1969, TYFOSOL 50.

Armour Industrial Chemical Co., Box 1805, Chicago, Ill. 60690: Certificate 514, dated September 30, 1969, MARINE ARMOHIB.

Fuels Research Corp., 2114 Curtis St., Denver, Colo. 80205: Certificate 461, dated September 30, 1969, BSC-1000.

Highland Laboratories, Inc., 6140 South Eastern Ave., Los Angeles, Calif. 90022: Certificate 708, dated September 30, 1968, ELECTRICAL CLEANER.

Midland Laboratories, Dubuque, Iowa 52001: Certificate 115, dated September 30, 1969, MID-LAND EV-R-GLO SELF-POLISH-ING WAX.

Maltby Co., 8468 Warner Dr., Culver City, Calif. 90230: Certificate 710, dated September 30, 1969, RUST DISOLVING PENE-TRANT.

Hysan Products Co., 919 West 38th St., Chicago, Ill. 60609: Certificate 502, dated September 30, 1969, HYSAN AEROSOL DEGREASER.

Lehn & Fink Industrial Products Division, Sterling Drug Inc., 225 Summit Ave., Montvale, N.J. 07645: Certificate 741, dated September 30, 1969, GRIMEX 100; Certificate 743, dated September 30, 1969, GRIMEX SUPREME.

Chemicals Specialties Sales Corp., Industrial Division, 75 Hillside Rd., Fairfield, Conn. 06430: Certificate 714, dated September 30, 1969, CH-22.

Pennsalt Chemical, 3 Penn Center Plaza, Philadelphia, Pa. 19102: Certificate 459, dated September 30, 1969, PENNSALT 3023 HEAVY FUEL ADDITIVE; Certificate 584, dated September 30, 1969, PENN-SALT 3005 NEUTRALIZER; Certificate 456, dated September 30, 1969, PENNSALT 3016 INJECTOR AND BURNER TIP CLEANER.

Reslabs, Inc., 3631 South Ashland Ave., Chicago, Ill. 60609: Certificate 419, dated September 30, 1969, NO. 110 EMULSION CLEANER-DE-GREASER; Certificate 427, dated September 30, 1969, NO. 210 HEAVY DUTY CLEANER.

Dubow Chemical Corp., 100 Rockaway Ave., New York, N.Y. 11500: Certificate 615, dated September 30, 1969, DUBOW ELECTRICAL SOLVENT S751; Certificate 620, dated September 30, 1969, DUBOW OIL SPILL REMOVER S761.

Orb Industries, Inc., P.O. Box 544, Media, Pa. 19063: Certificate 533, dated September 30, 1969, TEECO MALATHION RESIDUAL IN-SECTICIDE ORB MALATHION RESIDUAL INSECTICIDE; Certificate 552, dated September 30, 1969, TEECO INSECT SPRAY or ORB NO. 207 INSECT SPRAY.

Octagon Process, Inc., 595 River Rd., Edgewater, N.J. 07020: Certificate 465, dated September 30, 1969, OCTAGON SAFETY SOLVENT 3116; Certificate 361, dated September 30, 1969, KLEARALL 90 OC-TAGON SAFETY SOLVENT.

# AFFIDAVITS

The following affidavits were accepted during the period from August 15, to September 15, 1969:

Graham-White Sales Corp., Salem, Va. 24153 FITTINGS.<sup>1</sup>

Mosser Industries, Inc., P.O. Box 1846, Allentown, Pa. 18105 VALVES.<sup>2</sup>

# AFFIDAVIT CHANGE

The Affidavit listing for Kerotest Manufacturing Corp. will be changed to include the 4" Doc Dapter universal flange coupling for use at maximum operating pressure of 275 p.s.i. and operating temperature of 450° F.

### CHANGE OF NAME

From: Daniel Orifice Fitting Co., P.O. Box 19097, 9720 Katy Rd., Houston 24, Tex.

To: Daniel Industries, Inc., P.O. Box 19097, 9720 Katy Rd., Houston, Tex. 77024.

# CHANGE OF NAME AND ADDRESS

From: K & F Machine and Manufacturing Co., 1500 Southeast 89th St., Oklahoma City, Okla. 73149.

To: K-F Prince Valve, Inc., 2927 Monitor Ave., Norman, Okla. 73069.

<sup>&</sup>lt;sup>1</sup> Maximum allowable working pressure of 200 p.s.i. at a maximum allowable temperature of 250° F. <sup>2</sup> Butterfly valves only.

# 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 will be furnished by mail to subscribers, free of postage, for \$2.50 per month or \$25 per year, payable in advance. The charge for individual copies is 20 cents for each issue, or 20 cents for each group of pages as actually bound. Remit check or money order, made payable to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1969 are now available from the Superintendent of Documents, price: \$3.75.

# CG No.

#### TITLE OF PUBLICATION

- Specimen Examination for Merchant Marine Deck Officers (7-1-63). 101
- 108 Rules and Regulations for Military Explosives and Hazardous Munitions (5-1-68).
- 115 Marine Engineering Regulations and Material Specifications (3-1-66). F.R. 12-6-66, 12-20-67, 6-1-68, 12-18-68. 123 Rules and Regulations for Tank Vessels (5-1-69).
- 129 Proceedings of the Merchant Marine Council (Monthly).
- 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, 169 9-7-66, 10-22-66, 12-23-67, 6-4-68.
- Rules of the Road-Great Lakes (9-1-66). F.R. 7-4-69. 172
- 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). F.R. 12-6-66, 1-6-67, 9-27-67, 7-12-68, 6-5-69, 7-26-69.
- 182 Specimen Examinations for Merchant Marine Engineer Licenses (7-1-63).
- Rules of the Road-Western Rivers (9-1-66). F.R 9-7-66, 5-11-67, 12-23-67, 6-4-68. 184
- Equipment Lists (8-1-68). F.R. 11-7-68, 11-8-68, 11-16-68, 11-19-68, 11-20-68, 12-11-68, 12-18-68, 190 2-11-69, 2-18-69, 2-21-69, 2-26-69, 3-15-69, 3-27-69, 4-4-69, 4-12-69, 4-19-69, 4-25-69, 4-26-69, 4-28-69, 5-3-69, 5-9-69, 6-18-69, 6-19-69, 7-1-69, 7-15-69, 7-17-69, 9-12-69, 9-25-69. Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (5-1-68). F.R. 11-28-68.
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- 200 Marine Investigation Regulations and Suspension and Revocation Proceedings (5-1-67). F.R. 3-30-68.
- Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4-1-57). 220 227
- Laws Governing Marine Inspection (3-1-65). 239
- Security of Vessels and Waterfront Facilities (5-1-68).
- 249 Merchant Marine Council Public Hearing Agenda (Annually).
- 256 Rules and Regulations for Passenger Vessels (5-1-69).
- 257 Rules and Regulations for Cargo and Miscellaneous Vessels (1-3-66). F.R. 4-16-66, 12-6-66, 1-13-67, 12-9-67, 1–26–68, 1–27–68, 2–10–68, 4–12–68, 6–1–68, 10–2–68, 12–18–68, 12–28–68, 7–4–69. Rules and Regulations for Uninspected Vessels (3–1–67). F.R. 12–27–67, 1–27–68, 4–12–68, 12–28–68, 3–27–69.
- 258
- 259 Electrical Engineering Regulations (3-1-67). F.R. 12-20-67, 12-27-67, 1-27-68, 4-12-68, 12-18-68, 12-28-68.
- Rules and Regulations for Bulk Grain Cargoes (5–1–68). 266
- 268 Rules and Regulations for Manning of Vessels (5–1–67). F.R. 4–12–68.
- 293 Miscellaneous Electrical Equipment List (9-3-68).
- 320 Rules and Regulations for Artificial Islands and Fixed Structures on the Quter Continental Shelf (11-1-68). F.R. 12-17-68.
- 323 Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1-3-66). F.R. 12-6-66, 1-13-67, 12-27-67, 1-27-68, 4-12-68, 11-28-68, 12-18-68, 12-28-68.
- 329 Fire Fighting Manual for Tank Vessels (7-1-68).

#### CHANGES PUBLISHED DURING SEPTEMBER 1969

The following have been modified by Federal Registers:

CG-190, Federal Registers, September 12 and 25, 1969.

