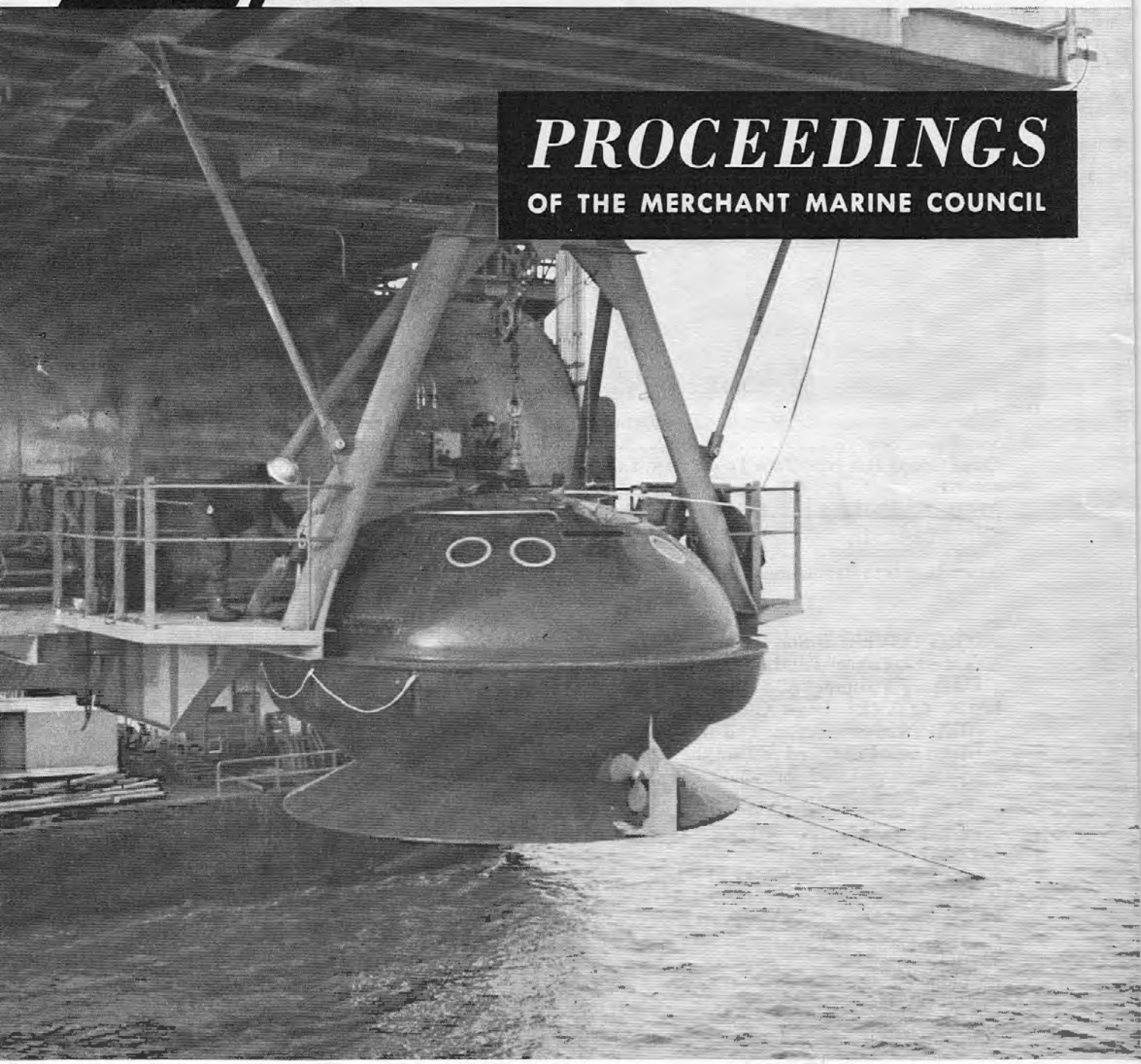
COAST GUARD



PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

Vol. 27, No. 9 CG–129 September 1970

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COVERS

FRONT COVER: Drilling Crews stowing the Brucker Survival Capsule in the "A Frame" launching platform. This is Phillips 66 Petroleum Company Platform "A" located in Cook Inlet, Anchorage, Alaska.

BACK COVER: Coast Guard HH–52 helicopter lifts tripod for ADAPTS after air-drop. This tripod will be placed on board a distressed vessel and used to haul the pumps, transfer hoses, and other equipment on board for rapidly offloading oil or other potential pollutants into floating rubberized bags.

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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The Bell Helicopter Company's "Huey Tug" lifting the Brucker Survival Capsule from the waters of Lake Arlington, near Fort Worth, Texas.

SURVIVAL AT SEA

John J. W. Riseling, Jr.

Safety Equipment Branch, U.S. Coast Guard Headquarters

The Brucker Survival Capsule and Launching System, a new concept in lifesaving appliances for off-shore drilling platforms, manufactured by the Whittaker Corporation, La Mesa, Calif.

THE SEA and all its beauty is a wonderful sight to see. Throughout history man has challenged her right to reign and so far has been unable to tame her. The sea in all its glory and beauty is not always calm and beautiful as it seems, much to man's sorrow. The sea in all of her womanly habits contains a savage environment that has tested man's finest skills and ingenuity. Men wise in her ways treat and look upon her with the greatest respect. From the beginning, man has used many ingenious methods of survival: trees, rafts, blown-up animal bladders, floats of all designs, ship's timbers, dories, fishing skiffs, collapsible boats, lifeboats, life floats, liferafts, buoyant apparatus, and inflatable liferafts. An idea first tried or patented around 1883 has come up again in man's challenge of the sea, namely the Brucker survival capsule.

The author's article on "Survival at Sea" represents the author's personal opinions only and does not necessarily represent the official views of the U.S. Coast Guard.

The "Brucker Survival Capsule and Support System" has been approved for installation on nonself–propelled drilling rigs, fixed structures and artificial islands as an alternate for lifeboat, inflatable liferaft or life float.

Rules and regulations for "Artificial Islands and Fixed Structures on the outer Continental Shelf", CG–320, Part 144, Lifesaving Appliances,

requires that there shall be at least two approved life floats of sufficient capacity to accommodate all persons at any one time. Approved lifeboats, approved liferafts, or approved inflatable liferafts may be used in lieu of approved life floats for either all or part of the capacity required. Taking into consideration that these rigs can be 150 miles or more offshore, severed from land connections, independent from all connections of mankind, relying on land, air, and sea support, their operations, and functions require that men who man them be a well-trained and efficient crew. Their billets, working platforms, both drilling and production platforms are usually 60 to 100 feet above the low water mark. In the case of disaster, fire or explosions, when the men have to evacuate they are dependent on what is at hand; service vessels (if any available) life floats, inflatable rescue boats. Mr. Milton Brucker, President of Life Spheres, felt that some new or old idea could be rejuvenated tn aid mankind in the survival at sea. After many years of experimentation and frustration, Mr. Brucker designed and built his Brucker Survival Capsule.

The capsule design can be plainly pictured as two cereal bowls, with one inverted on top of the other and the lower one having a skirt attached to it to aid in its stability. The capsule is approximately 13 feet 6 inches in diameter, 9 feet high, and with equipment on board weighs approximately 5,400 lbs. The capsule is of a fibrous glass reinforced plastic (FRP) construction, with the entire exterior pigmented international orange while the interior is pigmented an off-white. The styles of glass used are woven roving, cloth, mat, sprayed chopped fibers and these are qualified under their respective military specifications listed in 46 CFR 160.035. The resin used has met the fire retardant and self-extinguishing properties after one year's outdoor weathering. The laminate itself has exceeded the properties values contained in Military Specification MIL–P–17549, "Plastic Laminates, Fibrous Glass Reinforced, Marine Structural."

In addition to meeting all of the laboratory type testing such as: void content, resins to glass ratio, flexural (lengthwise and crosswise, wet and dry), and tensile strength test, the completed capsule fully equipped has successfully passed all of the required strength tests under 46 CFR 160.035–12 for F.R.P. lifeboats. Its present speed is 3 knots. The capsule, fully equipped and with weight added for people, has been dropped in a free-fall from 10 feet and 50 feet with only minor damage. It has been slammed against a concrete dock from a distance of 15 feet while suspended from falls 65 feet in length without any damage which would render it unserviceable. It has been flooded with water to the door openings and still had sufficient freeboard so that three or four men could stand on the peripherial flange and not get their feet wet. The capsule has heen operated in the open sea under various sea conditions and has maintained positive stability and maneuverability.

The dome contains radar reflective particles embedded in the laminate during fabrication. There are presently installed two sliding doors, 90° apart on the side and a scuttle type hatch located just off center of the top of the dome. These doors and hatch are capable of being opened or closed from inside or outside. There are eight dead light type ports fabricated from a fire retardant polycarbonate. The Rottmer Gear is attached to the center column at the top of the dome. This is operated from inside only by the use of a winch and ratchet, however, arrangements have been installed where the capsule may be released manually from the outside when the capsule is waterborne. Also located on the outside of the dume are the radio antenna and bracket for a Xenon blinker light. It should be noted that the manual release of the capsule, the antenna, and blinker light are all accessible from the top hatch. At the base of the dome section there is a periphery flange approximately 9 inches wide. This can be used for exercise or in case of emergency, when there may not be sufficient time in the evacuation of the rig to get the crew inside, they could stand on flange and hang on to the handrails mounted around the top of the dome. Below the periphery flange there is a lifeline that extends around the capsule in 3-foot bights. For obvious reasons there is no lifeline in the area of the propeller and rudder.

The exterior contains the hull, sponson, and skirt. The sponson and skirt are attached to the hull by glass and resin. These are secured with fasteners. The circular skirt which is attached to the base of the hull acts as a stabilizer. The design is such that the capsule remains stable in rough sea.

Ingress to the interior is hy two sliding doors as previously mentioned. When the capsule is stowed in the launching platform both doors face the platform catwalk. Inside of each door is a removable step to aid in en-

Mr. John J. W. Riseling, Jr., is an Equipment Specialist (Marine) in the Safety Equipment Branch (MMT–3), Merchant Marine Technical Division, U.S. Coast Guard Headquarters, a position he has held since 1959. His other major technical work experience has been with the Bureau of Ships, Material Control Division as a supply requirements officer, Material estimator for deck (hull) machinery, Washington dealer for Graymarine, Palmer, Murphy diesel engines, and Century boats.

He served on active duty from 14 May 1941 to 20 May 1947 in the U.S. Coast Guard. During his service period he advanced through all of the ratings to Chief Motor Machinist Mate. Prior to joining the Coast Guard he worked for the Office of Sanitary Engineering, District of Columbia. Mr. Riseling has had 27 years of Federal Service and is a member of the Society of Naval Architects and Marine Engineers. As a member of "SNAME" he has assisted in the revision of the "Technical and Research Bulletin No. 4–2a Standard Lifeboat Code," prepared by Panel 0–25 of the Ship Technical Operations Committee.

tering and leaving. Below the step is an outer peripherial seat with room for 22 persons. The center pedestal section seats six persons. It also houses the engine, fuel tank, food and water compartments, hydraulic accumulator, radio battery, toilet, and hydraulic hand pump for recharging the accumulator. The upper portion of the center pedestal section contains the engine panel, hydrotor control valve assembly, throttle and stowage space for the boat hooks and hydraulic pump handle. The center column has mounted to it the combination bilge and sprinkler pump, a platform or shelf that provides stowage space for the air purification KO_2 cannisters (MSA), tools, operation and service manuals, and distress signals, red parachute flares and pistol container, and on the opposite side the air purifier blower. Laminated to the interior overhead of the dome section are the air intake and exhaust plenum, including water separators and stowage space for the two-way radio that is installed (FCC approved). Also included and attached to the interior of the capsule are 8-inch dome lights (UL) and a compass.

The void space between the outer hull and the inner hull (outer peripherial seating area), except for the engine compartment is completely filled with polyurethane foam buoyancy material meeting military specification MIL–P–21929. The diesel engine is provided with a 2½ to 1 offset reduction gear. This is a standard engine accepted for use in Coast Guard approved lifeboats for merchant vessel service. There is full ocean equipment including food, water, and milk provided as required by the Rules and Regulations for the Lifeboats on Passenger, Cargo and Tank Vessels on International Voyages.

The capsule is stowed in a half-moon shaped launching platform and suspended from an A-frame. The launching system consists of a single fall with a hydraulic ram assembly and a fivefold or sixfold purchase having a lowering load of 10,500 pounds. This launching mechanism controls the descent of the capsule from 1 to 10 feet per second without any exterior power or help required. In this launching system there is a hydraulic control valve with a set orifice that controls the flow of the hydraulic fluid when the control valve is opened, which allows the capsule to descend at a preset rate of speed. This system allows everyone to leave the scene of disaster at the same time since no one is required to remain behind to operate the system.

Capsule waterborne from the Pan American Platform being operated during the fire and boat drill. This drill was conducted weekly when the crew was changed.

On 23 October 1969 a demonstration of the Brucker Survival Capsule and its airborne capabilities was performed at Lake Arlington, near Fort Worth, Tex. This demonstration was a joint venture of the Whittaker Corp. and Bell Helicopter Co.

The capsule was operated on the water demonstrating its maneuverability and various systems. It not

(*Continued on page 177*)

Coast Guard Has New Tool To Counter Tanker Oil Spills

Suzanne Montgomery, Associate Editor
Under Sea Technology Magazine

RECOGNIZING the complexity of the problem posed by oil spills at sea, there has been, so far, no one brash enough to come forth with an ultimate answer to prevention and control of oil pollution. But a new system, now in the final stage of development, to remove the oil cargo from a damaged tanker may well be a critical "bandaid" for use in averting a major pollution incident.

The Coast-Guard developed system basically involves the air-drop of pumping equipment and huge collapsible plastic bags next to a stricken tanker. The oil cargo is transferred to the 500-ton-capacity bags, which are then towed by surface craft to pier facilities.

The Air-Deliverable Salvage Pumping and Storage System (ASPSS) has been designed and developed by Ocean Science & Engineering, Inc., under an incentive contract awarded last summer. The three-part system, using off-the-shelf equipment, is now well along in a successful prototype test program. With a $1.5 million request in the fiscal 1971 budget, the Coast Guard plans to procure an operational system that could unload 20,000 tons of oil within 24 hours.

(Acronyms, although useful, are ever subject to change and it happened again. The ASPSS, discussed here, has just been redesignated by the Coast Guard. New name: ADAPTS (Air-Deliverable Anti-Pollution Transfer System).

The ASPSS consists of three subsystems: the air-delivery system for installation aboard one HC–130 aircraft and an HH–52 helicopter; the transfer and storage subsystem with 300 feet of transfer piping and a 1,000-ton storage capacity in the prototype; and the pumping subsystem with a 1,000 gallon-per-minute flow rate.

Assuming that 40 storage bags (a 20,000-ton capacity) comprise one operational system, Coast Guard project officer, Cdr. Robert J. Ketchel, points out that an ASPSS could not begin to unload one of the increasingly larger oil tankers now being built if it were in imminent danger of breaking up. However, the system might effectively handle a smaller vessel, and, in the case of a larger tanker, the ASPSS could be used to offload enough oil to get a ship off a shoal, for instance, or the cargo could be removed from individually damaged bunkers within the tanker.

Response time is, of course, critically important in deployment of the

salvage pumping system, and the Coast Guard hopes to have operations underway within 4 hours from notification of a potential spill. On-the-scene rigging of the pumps and bags is estimated to take 1 to 2 hours, but there are presently no real figures on this, Ketchel said. In order to keep costs down during the three full-scale tests carried out to date, officials have taken extra time to recover parachutes and pallets used in the air-drop.

Costs have still risen, however, well above the original $290,710 contract price. Instead of the initial plan for three full-scale tests at an estimated cost of $7,000 per test, project officials now feel that four or more tests, at a cost of about $34,000 each, are necessary. Model tests to aid in configuration of the storage bags also increased the overall project cost, and additional equipment items were included for handling of the pumping system. Latest unofficial estimate for the AS PSS development is about $500,000.

If granted its fiscal year 1971 request, the first task for the Coast Guard will be modification of its 14 C–130 aircraft with standard rail delivery systems for handling the ASPSS. This will cost an estimated $15,000 for each plane (more than $200,000 total) and with the remaining funds, the agency will buy as much of a "system" as possible. The Coast Guard will also have to train 6- to 10-man salvage teams for use with the available aircraft.

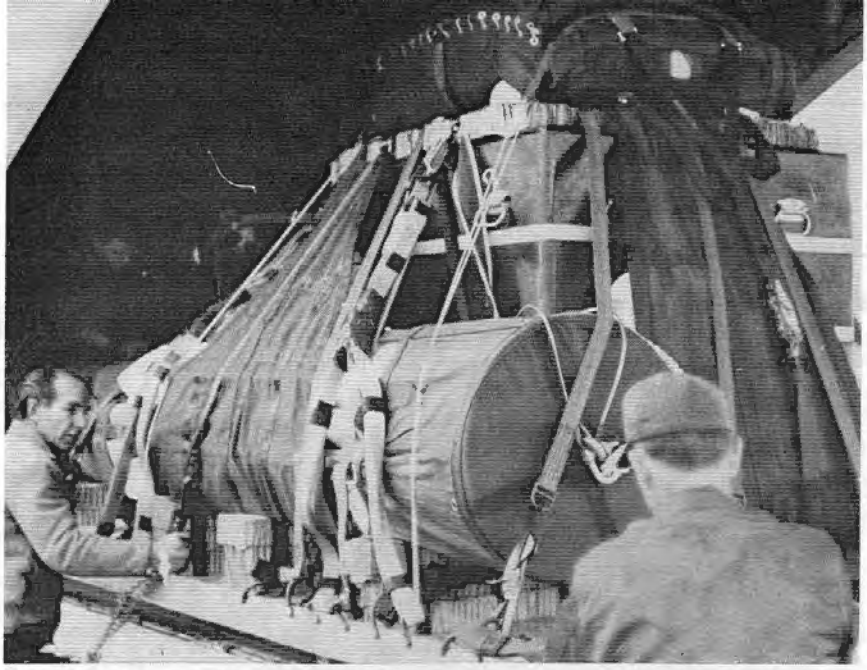
ASPSS components

Key to the oil salvage system is the collapsible rubber-coated nylon bags, being produced by Uniroyal under subcontract to OSE. The empty bag weighs about 8,600 pounds, including

Funds Requested in FY '71 For Operational Version Of Oil Transfer System, Designed To Offload Cargo From Stricken Tankers

300 feet of 6-inch-diameter hose, and has rough dimensions of 140 x 35 feet with a 6–7 foot draft. For delivery, the bag is packed in a crate 7 x 8 x 7 feet and loaded on a standard 9 x 12 foot pallet.

The 500-ton capacity storage container, shown stretched out at left, is packed into a 7 x 8 x 7 foot crate for delivery to the site of a potential oil spill. The huge rubber-coated nylon bags are expected to find application in other pollution-control systems. At right, salvage personnel hoist bag from water during full-scale prototype tests.



ADAPTS equipment pallet, carrying 1,000-gallons-per-minute submersible pump, fuel drum and A-frame is loaded aboard HC–130. A second pallet is used for storage bag.

The original Coast Guard RFP called for 1,000-ton capacity bags—twice the size of the present prototype—but physical limitations of the C–130 resulted in use of smaller bags, according to the Coast Guard. Additionally, manufacture of the larger 1,000-ton bags would have complicated production problems. Current plan is to achieve the same storage capacity by using smaller bags, but more of them.

The strength of the nylon-rubber container when filled with oil is critical and a matter of continuing concern to developers. While design specifications for the system call for use in 12-foot seas and 40-knot winds, officials have been unlucky enough to have had relatively good weather during all the full-scale tests. The agency indicates it will soon find some heavy seas for additional bag tests.

Under its subcontract, Uniroyal is building two bags at a cost of about $80,000. Theoretically, one bag is expected to be good for about two air-drop operations. Coast Guard officials are hoping for some heavy competitive bidding when it begins procurement of bags for the operational system.

Although developed for the ASPSS, the huge seaworthy bags are also promising for use as temporary storage containers with other pollution control systems, such as skimmer recovery devices.

Pumping subsystem

The 1,000-gallon-per-minute hydraulic submersible pump, built by Byron Jackson Pump Co., is also air-dropped at the site of a disabled tanker, along with a 450-pound fuel drum and a 300-pound A-frame for use in winching equipment aboard. The pumping system has a 40-horsepower diesel prime mover, produced by Avco Corp.'s Lycoming Division, and is hand-started to avoid sparks near a possible oil leak.

Coast Guard officials would prefer to use onboard power to pump the oil cargo if such power is available. This could perhaps cut an hour off the deployment time, but it will have to be an on-site decision for each operation.

Original plans called for the HH–52 helicopter to lift the equipment package aboard the tanker, but this was considered beyond the capability of the aircraft, and an A-frame winching system was added. In future planning, the Coast Guard's HHF–3 helicopter could lift the equipment, but there are not enough of these craft in the present inventory to be able to rely on them.

Operational procedure

For deployment, the entire ASPSS system is assembled on two pallets and loaded aboard the C–130. On one pallet is the pump assembly, prime mover, fuel drum, A-frame and an anchor assembly. Total weight is 4,800 pounds.

The second pallet, weighing about 13,000 pounds, carries the storage container and hosing, packaged in a plywood box, and an anchor assembly.

The equipment pallet, attached to one 100-foot-diameter G–11A parachute built by Pioneer Aerodynamic Systems, Inc., is dropped from 600 feet. All modules except the lifting frame are tied together. On water impact, a pyrotechnic cutter separates the parachute and pallet from the modules and the A-frame, which is floating free. A self-activating anchor secures the pumping system equipment while a helicopter lifts the A-frame to the deck of the vessel. The helicopter then delivers a messenger line attached to the equipment pack to the salvage crew, which winches the equipment aboard.

The storage container, dropped from an altitude of 800 feet, separates from its pallet in mid-air to avoid impact with a hard surface. Two G–11A parachutes are used with the container package and these are released on water impact. After a 100-second delay, the binding for the plywood box is released and an inflation squib valve is activated. The oil container module is also self-anchoring.

In initial tests, project officials used a 135-pound anchor for the container package and a 40-pound anchor for the equipment. These proved to be too heavy and 40-pound and 22-pound anchors will be tried.

The helicopter is then used to deliver the end of the fill hose to the vessel, either by attaching a messenger line or by lifting it aboard. Final step is attachment of the fill hose to the pump. ⚓

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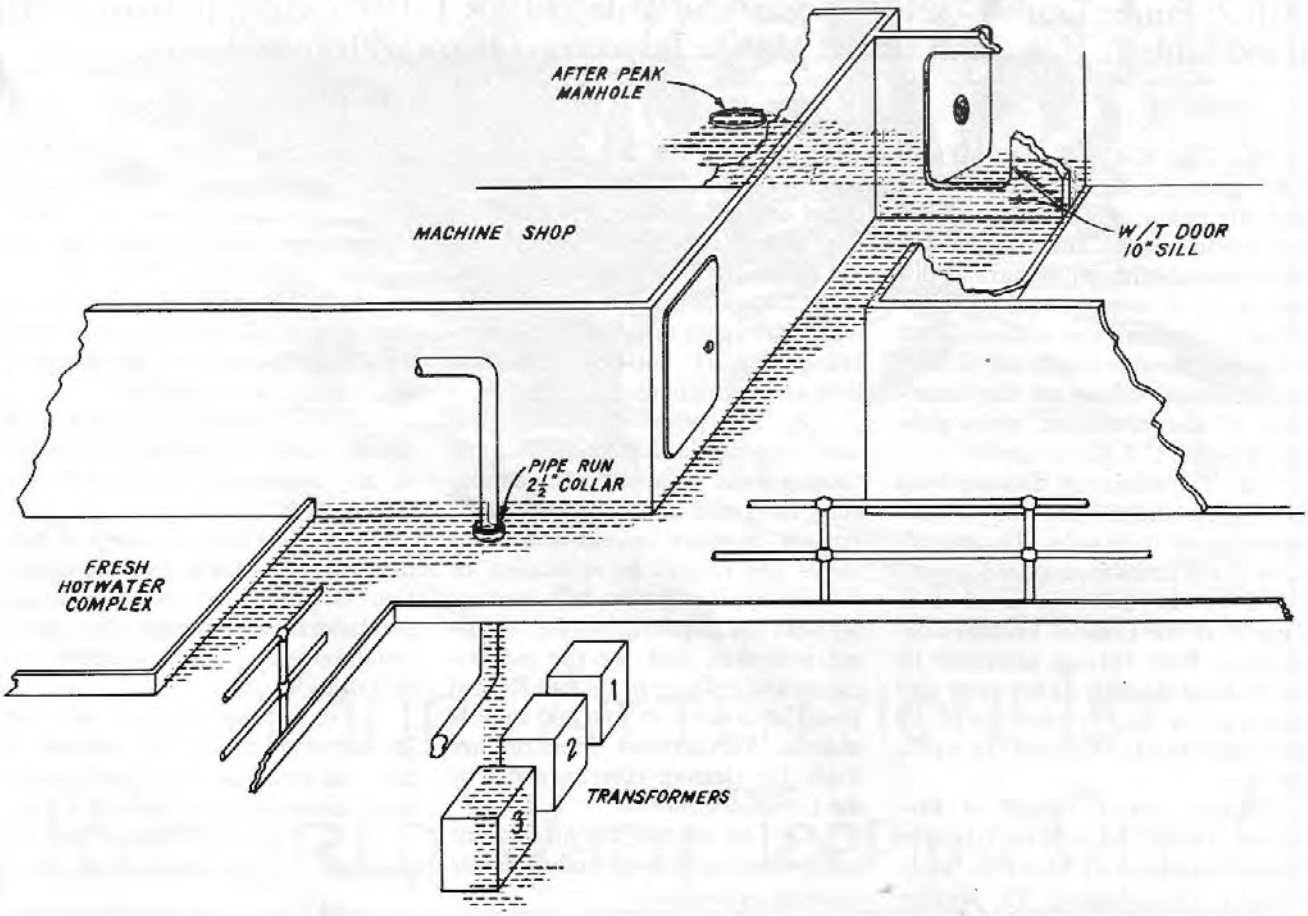
ENGINEROOM WATERFALL

On a CTC ship, water overflowed from an unwatched afterpeak tank and traveled almost 100 feet to destroy a transformer.

Shortly after departure from the loading port, the engineroom watch started filling the afterpeak to reduce hull vibration. The action was posted on the engineroom blackboard and was passed verbally to the next watch. The new watch became busied with a malfunctioning forced-draft fan and forgot the afterpeak. It filled and overflowed.

The ship was slightly down by the head. The overflow gravitated forward from the steering flat into the passageway to the engineroom, spilled over the coaming of the open water-tight door and continued to the cross platform. Here the slope of the deck led the water to starboard where it pooled in the angle between the machine shop bulkhead and the baseplate of the hot water pump complex. The pool deepened until the water overflowed the collar of a pipe-way in the deck, cascaded down onto No. 3 transformer immediately below, leaked into the transformer casing, and splashed over the electrical terminals. The transformer short-circuited into scrap, the accommodation circuits died and alerted off-watch people to the trouble below.

Comment: This is a classic "I forgot" accident; embarrassing to the engine watch, dangerous to the ship, and expensive to the Company. We report it to alert you to check around and above your ship's main electrical units to discover if there are any pipe runs or deck openiags that might channel an accidental waterflow onto this equipment. ⚓



—Safety Bulletin Chevron Shipping Co.

401-020—70——2

IMPORTANT! OIL POLLUTION QUESTIONS

The following questions reflect an increasing emphasis in Coast Guard merchant marine examinations concerning water pollution and its prevention. Personnel in the shipping and oil industries should carefully study anti-water-pollution laws and regulations. These questions and answers are based on: (1) The Refuse Act of 1899, 33 USC 407; (2) the Oil Pollution Act, 1961, as amended, 33 USC 1001–1015; (3) the Water Quality Improvement Act of 1970, Public Law 91–224; (4) the Oil Pollution Regulations, 33 CFR 151; and (5) CG–174, A Manual for the Safe Handling of Inflammable and Combustible Liquids. References (1) and (2) are found in Title 33 of the United States Code, available in public libraries. References (3) and (4) may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402; Public Law 91–224 is 20 cents and Title 33 CFR 1–199 is $2.50. Reference (5) is available at U.S. Coast Guard Marine Inspection Offices without cost.

Q. The Oil Pollution Act of 1961 prohibits the discharge of oil and oily mixtures in certain zones of the world's seas. These prohibited zones extend offshore for various distances up to several hundred miles. What is the minimum distance from the nearest land to which any of these zones extend? Where are the boundaries of the prohibited zones published by the U.S. Government?

A. The minimum distance from the nearest land to which any of these zones extend is 50 miles. The boundaries of the prohibited zones are published by the U.S. Government in Title 33 of the Code of Federal Regulations, Part 151, as amended by the Federal Register. They were also published by the "Proceedings of the Merchant Marine Council" in April, 1970.

(Editor's note: "Charts of Prohibited Zones" is published by the Inter-Governmental Maritime Consultative Organization, 22, Berners Street, London, W.I., England.)

Q. Under the laws and regulations of the United States, responsible vessel or shore facility personnel can be held liable for permitting or causing pollution of the oceans, seas, and U.S. navigable waters. Briefly describe the types of penalties for violating Federal anti-water-pollution laws and regulations.

A. The penalties against persons responsible for permitting or causing water pollution include monetary fines and imprisonment. Additionally, mariner licenses and documents are subject to revocation or suspension. If a person fails to comply with the requirements for reporting pollution, and for the maintenance and delivery of the Oil Record Book, he is liable to fine and imprisonment. Furthermore, violators are liable for cleanup costs incurred by the U.S. Government.

Q. List some of the precautions taken when topping off tanks in order to avoid an overflow.

A. 1. Adequate number of qualified personnel should be on duty.

2. A reliable means of communication must have been established between the vessel and the terminal.

3. The dock or terminal man should be given a standby order from 5 to 10 minutes before a change in the loading rate is desired.

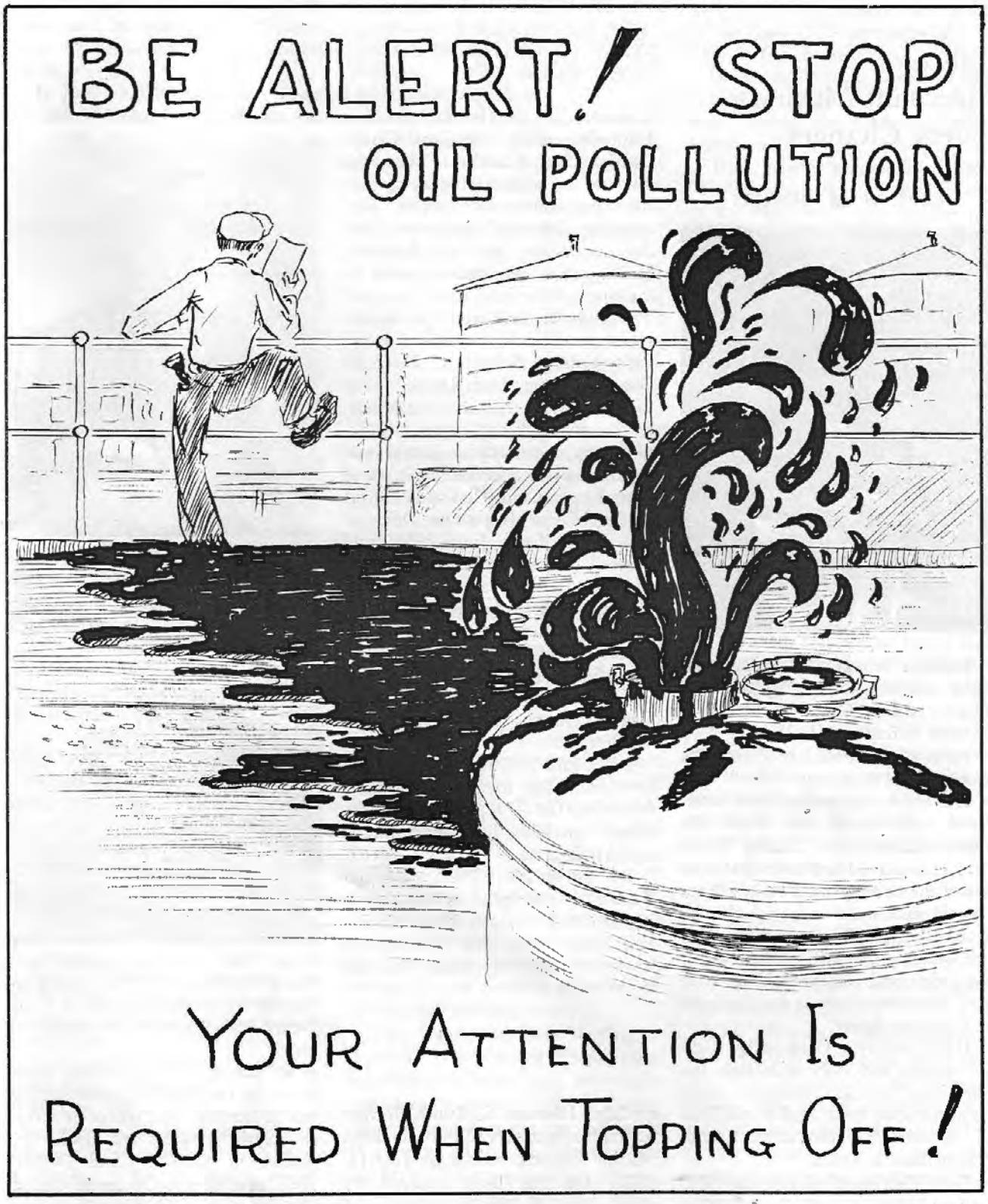
4. The dock or terminal man should notify the senior deck officer of any appreciable changes in the loading rate.

5. The man in charge of topping off tanks must give the operation his undivided attention which precludes his carrying out other duties simultaneously, such as reading vessel's draft.

6. During topping off, the loading rate should be reduced so that the flow can be carefully regulated in securing one tank at a time.

7. One tank should be left partially empty as a safety precaution.

(*Continued on page 176*)


BE ALERT! STOP
OIL POLLUTION
YOUR ATTENTION IS
REQUIRED WHEN TOPPING OFF!

Al Merrikan

Office of Merchant Marine Safety Changes

CAPT. W. M. BENKERT

Captain William M. Benkert has been assigned to Headquarters as Deputy Chief, Office of Merchant Marine Safety.

He is a 1943 graduate of the U.S. Coast Guard Academy.

His entire career has been interlaced with rough sea duty and marine safety duties. During World War II he served first as navigator on board the cutter *Haida* on Aleutians convoy and weather patrols in the North Pacific. He later commanded the cutter *Aurora* in the Aleutians campaign and remained in that region following the war in command of the cutter *Ewing*.

His World War II campaign service medals and ribbons include the American Defense; American Area; Asiatic-Pacific Area; and World War II Vietory. He also holds several commendation letters.

From October 1947 to June 1951, he was assigned as Hull and Boiler Inspector at the Merchant Marine Inspection office, 12th Coast Guard District, San Francisco. That was followed by a tour of duty first as Executive Officer and then as Commanding Officer of the cutter *Coos Bay,* operating out of Portland, Maine, on ocean station patrol in the North Atlantic.

Captain Benkert served as instructor at the Merchant Marine Safety Indoctrination School at the Coast Guard Academy from October 1953 to June 1957. During the next 2 years, he commanded the cutter *Minnetonka* on ocean station patrol and search and rescue in the Pacific out of Long Beach, Calif. He was in charge of the Marine Inspection Office at San Diego from June 1959 until ordered to the Merchant Vessel Inspection Division at Coast Guard Headquarters in August 1962.

From August 1962 to June 1965 he served as Assistant Chief, Merchant Vessel Inspection Division, Office of Merchant Marine Safety, at Coast Guard Headquarters in Washington.

From June 1965 to November 1967 he commanded the icebreaker *Eastwind* (WAGB–279), based as Boston, Mass., operating in both Antarctic and Arctic areas.

In November 1967, Captain Benkert was assigned as Commanding Officer, U.S. Coast Guard Marine Inspection Office New York, where he served until his present position. ⚓

Capt. Leonard E. Penso, former Executive Secretary of the Merchant Marine Council, retired on July 14, 1970. He has been relieved by Capt. James B. McCarty, Jr. ⚓

CAPT. J. B. McCARTY, JR.

Capt. James B. McCarty, Jr. has been assigned as Executive Secretary of the Merchant Marine Council, and member of the Council.

He is a 1936 graduate of Webb Institute of Naval Architecture in New York City with a Bachelor of Science Degree.

In March 1943, during World War II, he was one of the key personnel absorbed into the U.S. Coast Guard with the functions of the Bureau of Marine Inspection and Navigation. In 1943 he was commissioned in the Coast Guard Temporary Reserve as Lieutenant. In 1948 as a Lt. Commander he transferred to the regular Coast Guard. He was assigned as a Naval Architect in the Merchant Marine Technical Division at Coast Guard Headquarters for nearly 11 years.

In January 1953, he was transferred to the Marine Inspection Office at Norfolk, Va., where he served as Naval Architect and Senior Inspector of Materiel until October 1960, and then as Officer in Charge of that office until June 1962. During

the following year, he served as Chief, Merchant Marine Safety Division, First Coast Guard District, Boston, Mass.

In June 1963, he returned to Coast Guard Headquarters in Washington to serve first as Chief, Merchant Marine Technical Division until June 1968, and then in the post as Deputy Chief, Office of Merchant Marine Safety, and as Acting Chief, Office of Merchant Marine Safety where he served until his present assignment. ⚓

Capt. Eric C. Grundy, former Chief, Hazardous Materials Division, retired on September 1, 1970. He has been relieved by Capt. Robert G. Schwing. ⚓

CAPT. R. G. SCHWING

Capt. Robert C. Schwing has been assigned to Headquarters as Chief, Hazardous Materials Division, and member of the Council.

He is a 1945 graduate of the U.S. Coast Guard Academy.

Captain Schwing served on the cargo vessel USS *Enceladus* and the attack cargo vessel USS *Cepheus* during World War II, and the patrol frigate USS *Moberly* in 1946. He has commanded USCGC *Planetree* (1946–47), USCGC *Spruce* (1948), USCGC *Morris* (1959–50), USCGC *Mackinac* (1959), and the USCGC *Minnetonka* (1965–67).

From 1951 to 1956, he was assigned as Administrative Aide to the Chief, Office of Merchant Marine Safety at Coast Guard Headquarters.

In May 1957 he was assigned to States Marine Lines, for specialized industrial training.

He served as Commanding Officer, Marine Inspection and Captain of the Port, Guam from 1961 to 1963 and as Chief, Recreational Boating Safety in the 11th Coast Guard District, Long Beach, Calif., from 1963 to 1965.

In August 1967, Captain Schwing was assigned as Commanding Officer, U.S. Coast Guard Marine Inspection Office, Houston, Tex., where he served until his present position. ⚓

National Transportation Apprenticeship Conference Set for Denver

The National Transportation Apprenticeship Conference will be held at the New Albany Hotel in Denver from October 6 to 8, 1970, the U.S. Department of Labor announced recently.

This, the sixth annual meeting of the conference, will be attended by management, labor, and Government representatives of the air transport, maritime, U.S. Coast Guard, motor transport, and railroad segments of the transportation industry.

The marine segment has been organized into the Maritime Training Advisory Board and meets one additional time each year to discuss training problems for the industry. It is supported by all elements of the industry with approximately 50 representatives of management, labor, and the Government in attendance at the April 1970 meeting which was held in San Francisco.

Governor John A. Love and Denver Mayor William H. McNichols will welcome the conference representatives.

This year's conference theme, "Skilled Manpower—The Challenge of the Seventies," sums up the conference's dedication to meeting problems that could adversely affect the continuing growth and efficiency of one of the Nation's most vital industries.

The National Transportation Apprenticeship Conference meets each year to provide a forum that encourages the conferees to participate in the free exchange of ideas on training, training problems, and solutions to problems affecting the orderly growth and progressive development of the transportation industry. Special emphasis will be directed toward discussions of new training techniques and programs in the skilled crafts serving each segment of the industry.

Prominent representatives of Government and transportation industry, management and labor will address the conference.

Harold H. Brodeur, chairman of the conference management division, is Director of Industrial Relations Department, American Trucking Associations, Inc. Mr. Brodeur is also a member of the Federal Committee on Apprenticeship.

William W. Winpisinger, chairman of the conference labor division, is General Vice President, Transportation Industry, International Association of Machinists and Aerospace Workers, AFL–CIO.

The Manpower Administration's Bureau of Apprenticeship and Training, U.S. Department of Labor, is assisting the steering committee of the National Transportation Apprenticeship Conference in organizing and presenting the conference each year. ⚓

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3–70
20 April 1970

Subject: Implementation of Part 151, Subchapter O of Title 46, Code of Federal Regulations; Certain Bulk Dangerous Cargoes on Unmanned Tank Barges

PURPOSE

This circular provides instruction and guidance for the implementation of Part 151 of the new Subchapter O of Title 46, Code of Federal Regulations. Part 151 becomes effective on 1 June 1970.

RELATIONSHIP OF SUBCHAPTER O TO OTHER SUBCHAPTERS

The regulations of subchapter O apply to barges in conjunction with the regulations of either Subchapter D, Rules and Regulations for Tank Vessels, or Subchapter I, Rules and Regulations for Cargo and Miscellaneous Vessels. Every barge which carries in bulk any cargo listed in Table 151.01–10(b) of Subchapter O must be inspected and certificated under the provisions of either subchapter D or I, and the regulations of Subchapter O which may be in addition to, supplement, or modify requirements of the other subchapters.

APPLICATION OF SUBCHAPTER O TO EXISTING BARGES

Subchapter O provides the following periods of delay before the full requirements must be met on existing barges which have carried any cargo regulated by Subchapter O in the period of 1 June 1968 to 1 June 1970. Barges which are equivalent to such barges are provided the same periods of delay.

(*a*) The operating requirements of 46 CFR 151.45 must be complied with by 1 June 1971. However, owners, shippers, and operators are encouraged to begin using the required operating procedures as soon as possible.

(*b*) The venting and gaging requirements of Subchapter O must be complied with by 1 June 1971, except for barges to which paragraph 3d of this Circular applies.

(*c*) All remaining provisions of Subchapter O must be complied with by 1 June 1972, except for barges to which paragraph 3d of this Circular applies.

(*d*) Existing barges which have been constructed and certificated for the carriage of cargoes for which specific regulations existed in 46 CFR Parts 36, 38, 39, 40, or 98 at the time of construction or conversion, may continue to operate and will be certificated without required alteration to comply with provisions of Subchapter O. These barges must comply with the operating requirements of Subpart 151.45 by 1 June 1971. This provision applies to barges certificated to carry the following cargoes.

46 CFR, Part 36—Sulfur (Liquid)

38—Butadiene, inhibited
Ethyl chloride
Methyl chloride
Vinyl chloride

39—Acetone cyanohydrin
Allyl alcohol
Allyl chloride
Aniline
Carbolic oil
Chlorohydrin, crude
Epichlorohydrin
Methyl bromide
Motor fuel antiknock compounds containing lead alkyls
Phenol

40—Ethylene oxide
Propylene

98—Phosphorous
Sulfuric acid (including spent, oleum)
Hydrochloric acid
Phosphoric acid
Ammonia, anhydrous
Chlorine

CERTIFICATION OF EXISTING BARGES

(*a*) *Barges Certificated before 1 June 1970.*—Barges which are certificated before 1 June 1970 are not required to be recertificated until the current certificate expires.

(*b*) *Barges Not Certificated before 1 June 1970.*—Existing barges which are not certificated on 1 June 1970 but which carry cargoes which become regulated under Subchapter O on 1 June 1970 must be inspected and certificated before 1 June 1971. Barges carrying the following cargoes may belong to this category:

Caustic Soda
Caustic Potash
Carbon Tetrachloride
Chloroform

ADDITIONAL REQUIREMENTS AT FIRST INSPECTION AFTER 1 JUNE 1970

The Officer in Charge, Marine Inspection conducting the first inspection for certification or reinspection after 1 June 1970 of a barge carrying any cargo listed in Table 151.01–10(b) will determine the general requirements

that the barge must meet by 1 June 1971 and 1 June 1972. In order to determine the appropriate requirements, a complete list of proposed cargoes listed in Table 151.01–10(b) and, in most cases, some plan submittal will be required. Paragraphs 7 and 8 provide further detail of these submissions.

(*a*) For those barges which are scheduled to be reinspected during the period of 1 June 1970 to 1 June 1971, the Officer in Charge, Marine Inspection should be contacted at least a month in advance of the reinspection to determine the extent of submittals required.

(*b*) For existing barges not previously certificated, the initial inspection must include a drydock examination.

BARGE HULL TYPES

Each barge constructed or converted since 1 June 1964 which carries a cargo subject to Subchapter 0 must be assigned a hull type number, I, II, or III. The assignment of hull type numbers for existing barges will be made by the Officer in Charge, Marine Inspection subsequent to the barges' first inspection after 1 June 1970.

(*a*) *Existing Barges Having a Previous Hull Type Assignment.*—Barges which were constructed or converted in accordance with 46 CFR 32.63 or 98.03 shall retain the hull type number for which they were originally approved, provided that the service, such as oceans, Great Lakes, rivers, remains unchanged.

(*b*) *Existing Barges Which Have No Previous Hull Type Assignment.*—

(1) Existing integral tank barges for inland service which will not carry any cargo having a specific gravity of more than 1.05 may be assigned hull type III. In this case a limiting draft of not more than 0.9 times the barge hull depth may be assigned.

(2) Existing integral tank barges for inland service which will carry a cargo having a specific gravity of more than 1.05 may be assigned hull type III upon submission by the owner of plans and caculations demonstrating structural adequacy and intact stability, with a limiting draft determined from the equation of 46 CFR 151.10–5. Full free surface shall be considered in determining GM.

(3) Existing independent tank barges for inland service may be assigned hull type III upon submission by the owner of plans and calculations demonstrating structural adequacy and intact stability, with a limiting draft determined from the equation of 46 CFR 151.10–5. Full free surface shall be considered in determining GM.

(4) Existing tank barges for ocean service may be assigned a hull type III with limiting draft not greater than the load line draft.

(5) Existing tank barges may be assigned hull types I or II upon submission by the owner of plans and calculations demonstrating structural adequacy and compliance with appropriate stability and subdivision requirements.

SUBMISSION OF PLANS

Certificates of Inspection issued under Subchapter 0 are required to show the barge hull type (I, II, or III), the limiting draft, the maximum weight of cargo permitted, and the maximum cargo density. The determination of these values may require the submission of plans. When an application for inspection of a barge subject to Subchapter 0 is received, the OCMI will review the status of the barge and the extent of plans on file, and advise the owner as to what plans are required.

SUBMISSION OF LIST OF CARGOES TO BE CARRIED

A list of all Subchapter 0 cargoes to be carried aboard the barge should be submitted to the OCMI with the first application for inspection. The list should be developed carefully, taking into account the particulars of the barge. Unedited copies of Table 151.01–10(b) should not be submitted as this will only create delays in the inspection and approval of the barge.

CARGO COMPATIBILITY

The regulations state that cargoes which, when mixed with each other, react in a hazardous manner should be separated from each other by a cofferdam, empty tank, or mutually compatible cargoes. Additionally, tanks containing incompatible cargoes should not be served by common piping or vent systems. Guidance for determining compatibility will be provided in a forthcoming Navigation and Vessel Inspection Circular.

DANGEROUS CARGOES NOT LISTED IN SUBCHAPTER 0

(*a*) The regulations, 46 CFR 151.01–15, require approval of the Commandant prior to transporting in bulk any liquid or liquified gas which meets the definition of a dangerous cargo as contained in 46 CFR 151.01–1(c) and which is not named in either Table 151.01–10(b) or 151.01–10(d). Requests to transport a nonlisted product should be addressed to the Commandant (MHM) and should include a completed Form CG–4355, Characteristics of Liquid Chemicals Proposed for Bulk Water Movement. Enclosure (1) is a copy of Form CG–4355 which may be reproduced for use, or copies may be requested from the Commandant (MHM).

(*b*) Accurate and complete CG–4355 forms are necessary because the information provided is the basis for evaluation of the cargo. Any information on the form considered to be proprietary should be so marked and such information will be treated accordingly. In addition to the required information, recommendations on the method of transport, special material requirements, and safety precautions are desired and will be considered in the evaluation of the proposal.

Copies of this circular with Enclosure (1) may be obtained at the local marine inspection office or by writing Commandant (CAS–2), U.S. Coast Guard, Washington, D.C. 20591.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 4–70
15 June 1970

Subject: Powder Loads for Lyle Type Line Throwing Guns

PURPOSE

This circular is intended to inform the users of Lyle guns of the fact that many suppliers of the powder for the gun may in fact be furnishing modern high-explosive gunpowder in place of the genuine black powder actually required. This could create a hazardous condition for the personnel firing the gun.

BACKGROUND

The vessel regulations permit the continued carriage of the Lyle gun type line-throwing appliance on vessels contracted for prior to 19 November 1952 if the appliance was already in service on such vessels and it is in good and serviceable condition. The required equipment includes eighteen bags (2½ ounces each) of black powder marked "one-half normal charge for Lyle gun, 2½ ounces black powder." Present firearms control regulations make it increasingly difficult for suppliers to store and ship black powder, and as a result, many are supplying modern high-explosive gunpowder in lieu of the genuine black powder for which the Lyle gun was originally designed.

DISCUSSION

The modern high-explosive gunpowder develops considerably more force for a given amount than does black powder. The practice of increasing powder loads to achieve greater ranges when firing the gun's line throwing projectile is a practice that is acceptable only with black powder. If modern high-explosive gunpowder is used under the same circumstances, the Lyle gun will be in danger of bursting from the higher internal pressures generated. For this reason, all modern high-explosive gunpowders are unacceptable and great precautions must be exercised to insure that all powder loads delivered to a ship for a Lyle gun are in fact genuine black powder and bagged in loads of the amounts originally intended.

ACTION

All persons responsible for firing a Lyle gun should take precautions to insure that it will not be loaded with modern high-explosive gunpowder. All supply requests for powder loads intended for a Lyle gun should specify that only genuine black powder is acceptable. ‡

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nautical queries

(*Continued from page 170*)

8. All tanks should be shut off except the one being topped off. Be sure that the valve on the line to the next tank to be topped off is operable and have a man ready to open it at the same time that the valve to the tank which becomes filled is closed.

9. When closing a valve, it should be seated firmly, then opened slightly to wash away any foreign matter which may be under the gate, then closed firmly.

10. The liquid level in topped-off tanks should be checked frequently to make certain that the level is not rising.

11. Be sure terminal personnel are standing by to shut down when the last set of tanks is topped off.

Q. How is pollution from pumping bilges prevented?

A. All bilges should be kept clean; oil and sludge should not be allowed to accumulate. If there is any doubt that bilges are not oil free, they should be pumped only to a barge, to a shore tank, or to a suitable ship's tank.

Q. How is pollution from tank cleaning prevented?

A. All slop from tank cleaning operations should be handled as oil polluted ballast and discharged either to shore or to barges. Tank bottom sediment should not be piled on deck under such conditions as would permit the liquid content to flow over the side. The sediment when removed from tanks should be sent directly ashore or placed in covered oil-tight containers. When cleaning tanks on vessels having bulk cargo in adjoining tanks, all valves in lines interconnecting such tanks should be firmly closed and lashed.

Q. Vessels subject to the Oil Pollution Act, 1961, as amended, are required to keep a record of certain actions in connection with the use or handling of oil or oily mixtures. What is the name of the book required to contain this record? Where is one obtained?

A. The "Oil Record Book" is required to contain the record of these actions. It is available through U.S. Coast Guard Marine Inspection Offices.

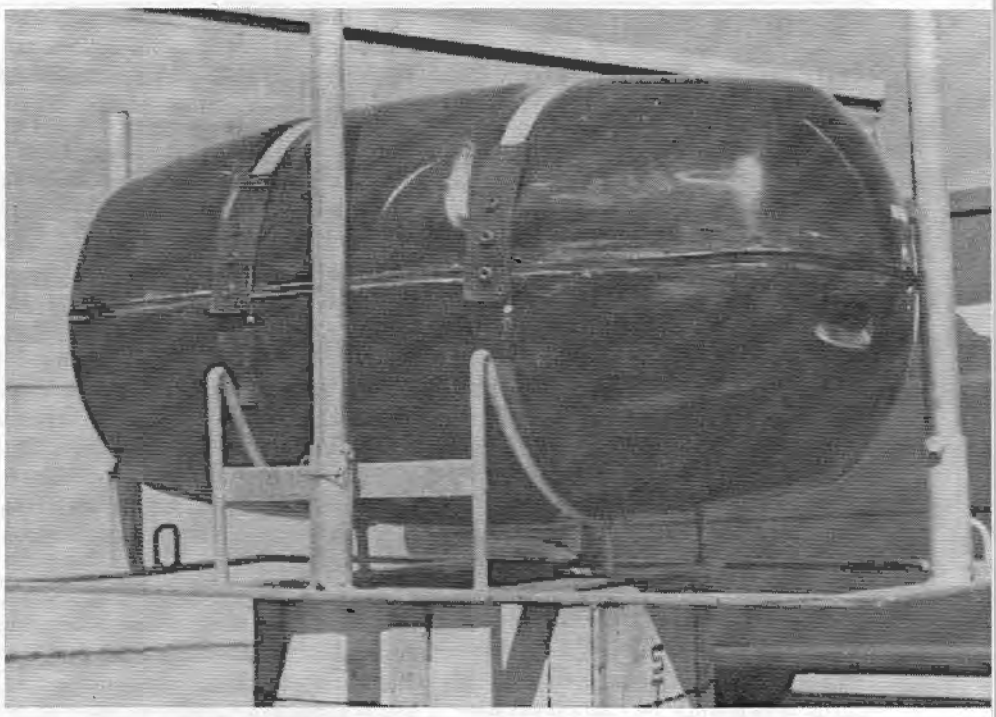
Q. A common tanker practice at sea is the discharge of oily water in connection with tank cleaning and deballasting. When a tanker carries the same type of oil voyage after voyage, what alternative procedure should be used to eliminate this undesirable source of pollution?

A. This polluting practice can be eliminated by "loading on top." After cargo has been discharged, the tanks are ballasted with water. The oily residue will gradually rise to the top of the ballast. By using a dielectric probe or other suitable device, the top of the clean water level is determined. Clean water can then be discharged leaving oil in the tank. Upon arrival at the loading berth, a new cargo is loaded on top of this oil for the next voyage. ‡

(*Continued from page 165*)

only appeared to be very sturdy but also extremely stable. The Bell Helicopter Co. using their "Huey Tug" lifted the 5,400-pound capsule from the water and demonstrated the ability of the capsule to be delivered by airlift to survivors. The capsule was dropped from altitudes of 10, 15, and 35 feet without sustaining any damage. With a single suspension pendant it was easily hooked onto the external cargo hook below the helicopter. Release of the capsule can be made from inside the capsule, on top of it, or from the helicopter when the strain is off the pendant or from within the helicopter with the strain on the pendant. The "Huey Tug" is capable of delivering the capsule at a weight of 6,000 pounds 125 miles and returning to its point of departure (no wind conditions). The tug experienced no difficulty in flying with the capsule with speeds up to 100 miles per hour. There was no tendency of the capsule to oscillate in flight. The "Huey Tug" was reported, by company representatives, to have lifted loads up to 8,000 pounds.

Plans are now being formulated to install a capsule on the U.S. Coast Guard Cutter *Evergreen* (WAGO 295). The *Evergreen* is presently concerned in oceanographic assignments and plans to use the capsule in SAR drift studies. While at sea and during these drift studies plans are being developed for conducting various tests with the capsule in order to aid in determining its equivalency to a lifeboat for use on merchant vessels. ⚓



A diagram of a open-topped rack of an Alternate Float-Free Installation without a Hydraulic Release was shown on page 14 of the January 1970 issue of the "Proceedings." The above photograph provided by the Commanding Officer, U.S. Coast Guard Marine Inspection Office, Houston, Tex., shows one of these installations that would be suitable on a deck with a high freeboard.

Special Notice To Mariners

The U.S. Naval Oceanographic Office has announced that commencing with Weekly Notice to Mariners 30/70 dated 25 July 1970, Marine information pertaining to the Intracoastal Waterway and other waterways and small harbors within the United States that are not normally utilized by oceangoing vessels will not be promulgated in the Weekly Notice to Mariners. *U.S. Coast Guard Local Notices to Mariners contain the information being deleted.*

The local Notices to Mariners issued as required, usually weekly, contain marine information within the boundaries of the various Coast Guard Districts and may be obtained, free of charge, by making application to the appropriate District Commander ⚓

Regulations for the Certification of Cargo Containers

The U.S. Coast Guard, marine safety agency of the Department of Transportation, announced new regulations for the certification of cargo containers for transport under customs seal. The regulations, which became effective upon publication in the Federal Register of July 31, 1970, carry out provisions of two international conventions and authorize delegations of certification tasks to qualified, nonprofit organizations.

Coast Guard Commandant, Adm. C. R. Bender, pointed out that the regulations are unique in that they are voluntary. There is no requirement that the containers be certificated; rather, compliance with them will facilitate the movement of sealed containers through foreign customs. The certification program is the result of long effort by industry and Government and should promote even greater utilization of containers in intermodal transportation.

The complete text of these changes was published in the Federal Register of July 31, 1970, and may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402; price 20 cents per copy. ⚓

Dangerous Cargo Information Card Manual Published

The Manufacturing Chemists Association, under the guidance of the Hazardous Materials Division, Office of Merchant Marine Safety, Headquarters, U.S. Coast Guard, and an MCA task group of safety experts associated with major chemical companies, has published a new manual containing basic safety information on 81 industrial chemicals. The purpose is to meet special operating requirements in 46 CFR 151.45 (the new Subchapter O) for unmanned barges carrying dangerous cargoes having hazards other than, or in addition to, conventional flammability. The manual is a collection of cards which must be carried on towboats and barges to provide information on properties, hazards, spills, and emergency procedures for each Subchapter O cargo.

These special operating requirements became effective on 1 June 1970, the same date that the entire Subchapter O regulations became effective. However, for certain existing barges the effective date of the operating requirements can be deferred but must be met no later than 1 June 1971. For further details in this matter, refer to section 151.01–25 of Subchapter O.

The "Cargo Information Card Manual" is available for $2.25 per copy, prepaid, from the Manufacturing Chemists Association, 1825 Connecticut Avenue, NW., Washington, D.C. 20009. Individual Cargo Information Cards are 10 cents each, both are subject to quantity discounts.

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 and terminations should consult the Federal Registers of July 18 and 21, 1970, for detailed itemization and identification.

FUSIBLE PLUG

The regulations prescribed in subpart 162.014, subchapter Q, specifications require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from June 15, to July 15, 1970, is as follows:

Lunkenheimer Corp., Cincinnati, Ohio 45214, HEAT NO. 761, 762, 763, 764, 765, 766, 767, 768, and 769.

STORES AND SUPPLIES

Articles of ships' stores and supplies of a dangerous nature certificated from July 1, 1970 to July 31, 1970, inclusive, for use on board vessels in accordance with the provisions of part 147 "Regulations Governing Use of Dangerous Articles as Ships' Stores and Supplies on Board Vessels" are as follows:

CERTIFIED

Economics Laboratory, Inc., Osborn Building, St. Paul, Minn. 55102. Certificate No. 883, dated June 23, 1970, MAGNUS MAGKLEEN No. 2.

Oakite Products, Inc., 50 Valley Rd., Berkeley Heights, N.J. 07922. Certificate No. 884, dated July 13, 1970, OAKITE FLEETLINE No. 205.

Research Products, Inc., 408 South Royal St., Mobile, Ala. 36603. Certificate No. 885, dated July 15, 1970, MARSOL No. 100.

Research Products, Inc., 408 South Royal St., Mobile, Ala. 36603. Certificate No. 886, dated July 15, 1970, MARSOL No. 75.

Research Products, Inc., 408 South Royal St., Mobile, Ala. 36603. Certificate No. 887, dated July 15, 1970, LUBRI-PEN.

AFFIDAVITS

The following affidavits were accepted during the period from June 15 to July 15, 1970:

Western Piping & Engineering Co., Inc., 1485 Yosemite Ave., San Francisco, Calif. 94124, FITTINGS.[1]

Lawler Automatic Controls, Inc., 453 North McQuesten Parkway, Mount Vernon, N.Y. 10552, VALVES.

Dresser Manufacturing, 41 Fisher Ave., Bradford, Pa. 16701, VALVES.[2]

Barber-Colman Co., 1300 Rock St., Rockford, Ill. 61101, VALVES.

Penco Division Hudson Engineering Co. 1114 Clinton St., Hoboken, N.J. 07030, VALVES.[3]

Sun Weld Fitting Co., 516 South Anderson St., Los Angeles, Calif. 90033, FITTINGS.

CHANGE OF ADDRESS

From: Wager, Robert H., 423 Valley St., South Orange, N.J. 07079.
To: Passaic Ave., Chatham, N.J. 07928.
From: Yarway Corp., Chestnut Hill, Philadelphia, Pa. 19118.
To: Blue Bell, Pa. 19422.
From: Contromatics Corp. 67 West St., Rockville, Conn. 06066.
To: 200 West Main St., Rockville, Conn. 06066.

[1] Basket-Type duplex strainers.
[2] "450" butterfly valves for water service only, MAWP 150 psi 190° F.
[3] Flex-Tact check valve 2½"–S" 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, 1970 are now available from the Superintendent of Documents price: $3.75.

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 (5–1–68). F.R. 6–7–68, 2–12–69, 10–29–69.
115	Marine Engineering Regulations and Material Specifications (3–1–66). F.R. 12–18–68, 6–17–70.
123	Rules and Regulations for Tank Vessels (5–1–69). F.R. 10–29–69, 2–25–70, 6–17–70.
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, 9–7–66, 10–22–66, 12–23–67, 6–4–68, 10–29–69, 11–29–69.
172	Rules of the Road—Great Lakes (9–1–66). F.R. 7–4–69.
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, 10–29–69.
182	Specimen Examinations for Merchant Marine Engineer Licenses (7–1–63).
184	Rules of the Road—Western Rivers (9–1–66). F.R. 9–7–66, 5–11–67, 12–23–67, 6–4–68, 11–29–69.
190	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. 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, 10–10–69, 10–11–69, 10–22–69, 10–31–69, 11–19–69, 12–13–69, 1–27–70, 1–30–70, 2–3–70, 2–26–70, 3–11–70, 3–14–70, 3–25–70, 4–14–70, 5–7–70, 5–27–70, 7–18–70, 7–21–70.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (5–1–68). F.R. 11–28–68, 4–30–70, 6–17–70.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5–1–67) F.R. 3–30–68, 4–30–70.
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 (5–1–68). F.R. 10–29–69, 5–15–70.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5–1–69). F.R. 10–29–69, 2–25–70, 4–30–70, 6–17–70.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (8–1–69). F.R. 10–29–69, 2–25–70, 4–22–70, 4–30–70, 6–17–70.
258	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, 10–29–69, 2–25–70, 4–30–70.
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, 10–29–69, 2–25–70, 4–30–70.
266	Rules and Regulations for Bulk Grain Cargoes (5–1–68). F.R. 12–4–69.
268	Rules and Regulations for Manning of Vessels (5–1–67). F.R. 4–12–68, 4–30–70.
293	Miscellaneous Electrical Equipment List (9–3–68).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (11–1–68). F.R. 12–17–68, 10–29–69.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (7–1–69). F.R. 10–29–69, 2–25–70, 4–30–70.
329	Fire Fighting Manual for Tank Vessels (7–1–68).

CHANGES PUBLISHED DURING JULY 1970

The following has been modified by Federal Registers:

CG–190, Federal Register, July 18 and 21, 1970.