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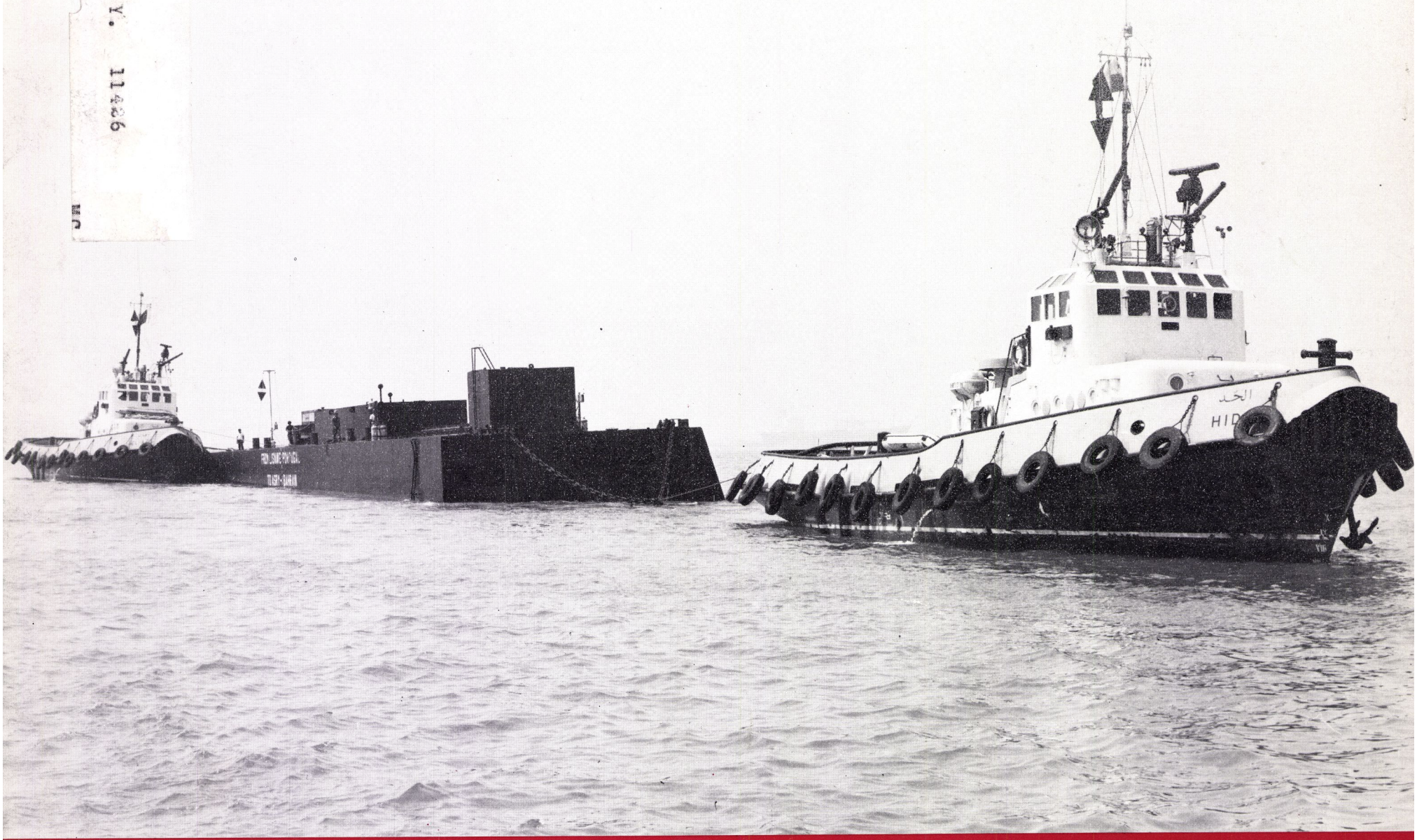
11426



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(SEE PAGE 10)

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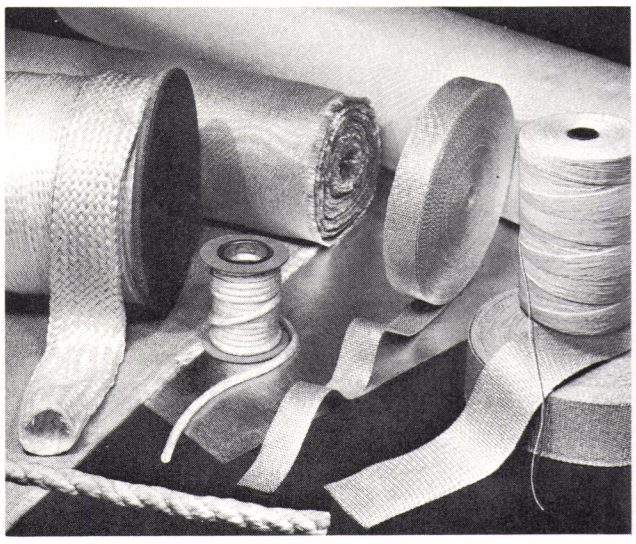

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MarAd Releases Report On Cavitation Erosion

The Maritime Administration has released a technical report titled "An Investigation of Methods to Reduce or Eliminate Cavitation Erosion of Ship Propellers," recounting experiments conducted by Bell Aerospace Textron to determine the effects upon the erosive nature of ship propeller cavitation caused by rotation through a wake.

Experiments were performed with a three-bladed model propeller in a water tunnel at the David Taylor Naval Ship Research and Development Center. Commercial protective coatings were evaluated, as well as the effects of ships' wakes.

The report makes a number of conclusions concerning the effect of characteristics of wakes upon erosive impact intensity of cavitation. The report recommends that additional research be conducted to further determine the critical wake characteristics affecting cavitation erosion, and that further research into protective coatings should be performed.

The report is available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161, for $5.50 per copy. Its order number is PB268899/AS.

Argentine Shipyards Get Boost From Spain

The Argentine shipbuilding industry has received a $250 million line of credit from the Banco Exterior of Spain.

The president of the Banco Exterior, **Jose Garcia Hernandez,** met with officials of the Argentina National Development Bank in Buenos Aires recently to sign the agreement. The funds will pay for new ship construction.

Argentina has added two ships to its rapidly expanding merchant fleet — the Almirante Storni, a cargo vessel, and the Ciudad de Ensenada, a grain and mineral carrier.

The country's state-owned ship company, ELMA, also announced it expects to add six more vessels to the fleet in the near future to handle an expected increase in shipping.

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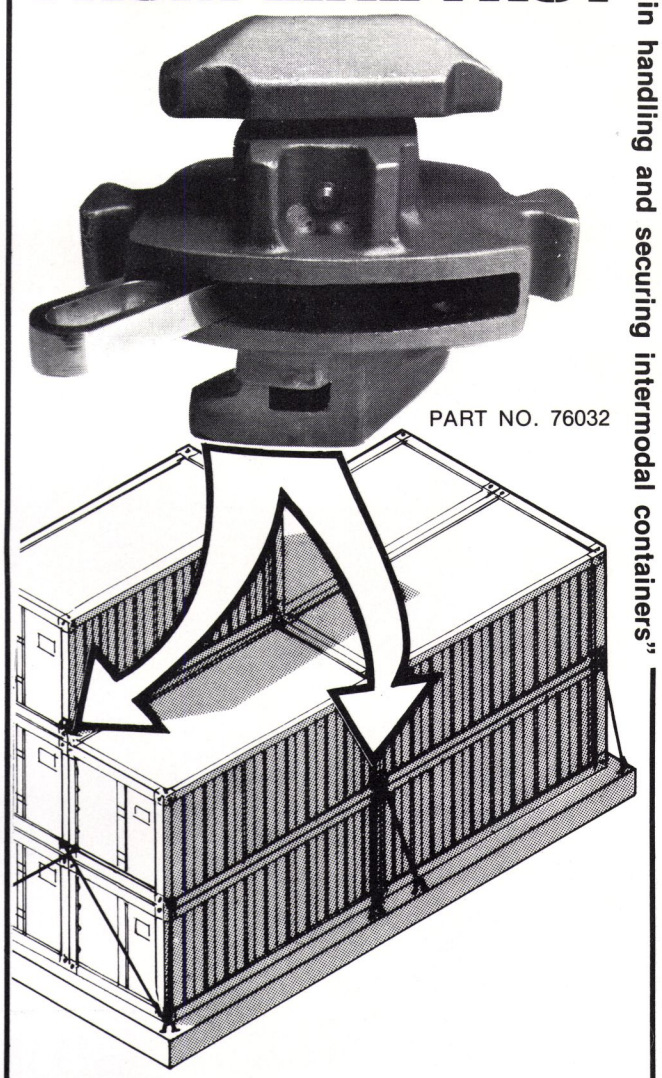

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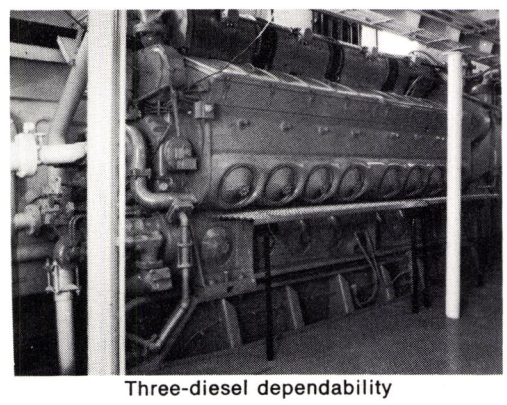

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Estimated Foreign Cost Of Two LNG Carriers $115.5 Million Each

The Maritime Subsidy Board (MSB) has issued a final opinion and order in Docket No. A-117, concerning determination of the estimated foreign construction cost of two 125,000-cubic-meter liquefied natural gas (LNG) vessels. The determination was made in connection with the application by LACHMAR, Inc. for construction-differential subsidy (CDS) to aid in the construction of two such vessels.

The MSB made the following determinations, among others: (1) That Western Europe is the fair and representative shipbuilding center on which to base the estimated foreign construction cost of the vessels; and (2) That the estimated final foreign price for the construction in Western Europe of the two vessels would be $115.5 million each.

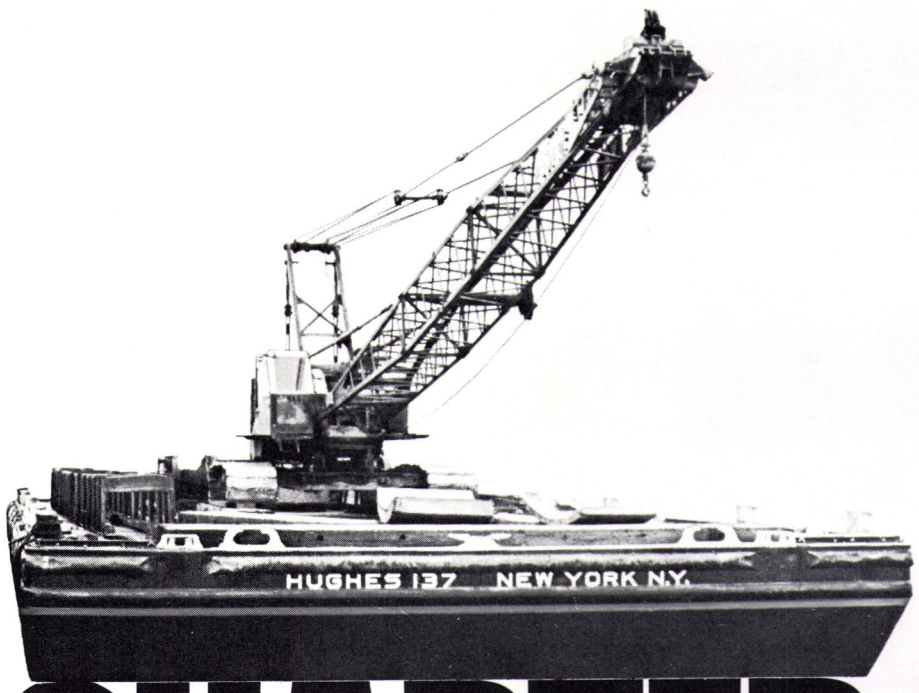
The determinations were made pursuant to Section 502(b) of the Merchant Marine Act of 1936, as amended, which requires that the fair and reasonable estimated foreign cost be determined by finding: the type of vessel proposed for construction with CDS assistance; and the fair and representative foreign shipbuilding center for the presumed construction under similar plans and specifications (excluding national defense features).

On July 23, 1976, pursuant to the direction of the MSB, a notice was published in the Federal Register of the intent to recompute the estimated foreign cost of the vessels. Comments from interested parties were invited. Data were received from Morgas, Inc. on behalf of LACHMAR.

The two LNG vessels are to be constructed for LACHMAR at a negotiated estimated final price of $155 million each by General Dynamics Corporation's Quincy, Mass., shipyard. LACHMAR is a partnership consisting of Morgas, Inc., Pantheron, Inc., and Pelmar, Inc. They are subsidiaries of Moore-McCormack Bulk Transport, Inc., General Dynamics Corporation, and Panhandle Eastern Pipe Line Company, respectively.

Upon completion in December 1979, and March 1980, the ships will be operated by Gastrans, Inc., which is also a subsidiary of Moore-McCormack Bulk Transport. The ships will be used to carry LNG from Algeria to Lake Charles, La.

Each of the two vessels will be 936 feet long, 143 feet abeam, and have a draft of 36 feet.



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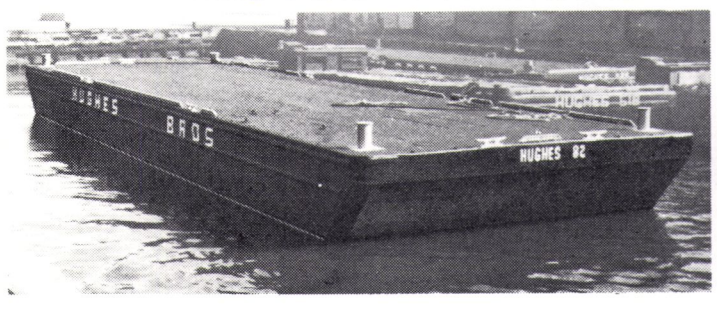
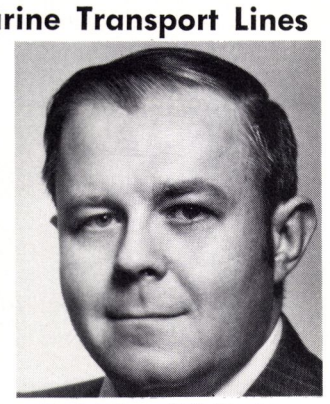


Capt. Edward Knutsen Named Vice President Marine Transport Lines



Capt. Edward W. Knutsen

Capt. **Edward W. Knutsen** has been elected a vice president of Marine Transport Lines (MTL), 60 Broad Street, New York, N.Y. 10004, with primary responsibility in the area of administration.

Fred S. Sherman, chairman of the board of MTL, who announced the election, noted that Captain **Knutsen** brings an extensive maritime background to his new assignment. Prior to joining MTL, a subsidiary of GATX Corporation, Chicago, Ill., Captain **Knutsen** sailed as a master of American merchant vessels, and served ashore with steamship industry and as Assistant Superintendent and Commandant of Midshipmen at the United States Merchant Marine Academy.

Captain **Knutsen** holds a B.S. degree from the U.S. Merchant Marine Academy, and a Master of Business Administration degree from Pace University. He is active in the U.S. Naval Reserve, and the Council of American Master Mariners.

Bethlehem Steel Names G.Y. Marriner Manager San Francisco Yard

Gayne Y. Marriner

The appointment of **Gayne Y. Marriner** as general manager of Bethlehem Steel Corporation's San Francisco (Calif.) Yard was announced by **William C. Brigham,** vice president in charge of shipbuilding.

Mr. **Marriner** is succeeding **Patrick G. Filip,** whose retirement has been announced. The new general manager is advancing from assistant general manager.

A native of Los Angeles, Mr. **Marriner** was graduated from the California Maritime Academy in 1957 with a degree in marine engineering. He spent the next three years in the U.S. Navy.

He then joined the San Francisco Yard as a production scheduler, and two years later became planning engineer for new construction at the yard. In 1963, Mr. **Marriner** was promoted to sales engineer at the yard, and subsequently held the positions of project administrator, estimator, project manager and marine sales engineer.

In 1976, he was promoted to assistant general manager of the yard. While employed at the yard, Mr. **Marriner** studied at Golden Gate University and was graduated in 1965 with an MBA degree.

Professionally, Mr. **Marriner** is active with The Society of Naval Architects and Marine Engineers, The Propeller Club, Mariners Club of California, and Binnacle Club.

AMPAC To Build Four Container Feeder Ships At Cost Of $92 Million

American Pacific Container Line, Inc. (AMPAC), 501 Army Street, Pier 80, San Francisco, Calif., has applied for a Title XI guarantee to aid in financing the construction of four container feeder vessels.

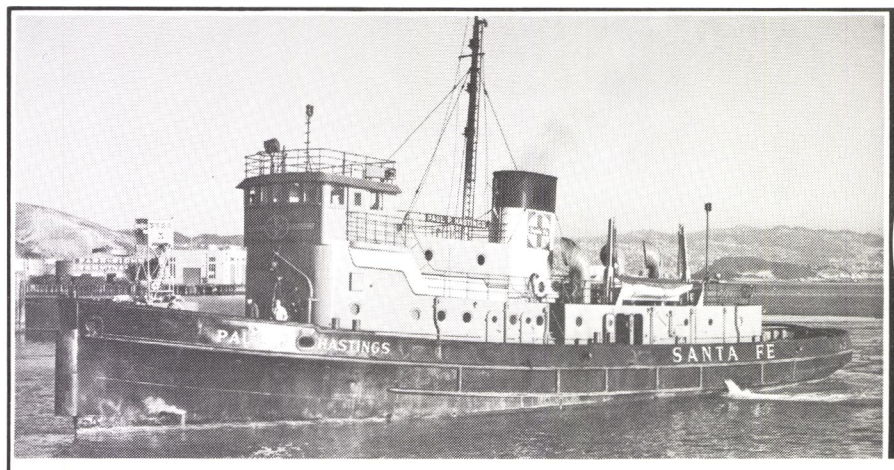
Each of the vessels will be 496 feet in length, 75 feet abeam, and have a container capacity of 806 TEUS (20-foot equivalent units). AMPAC plans to use them for operation on the Pacific Coast, encompassing service to and from ports in the United States, Canada and Mexico. The four ships will replace three older U.S.-flag vessels and two to four foreign-flag vessels contemplated to be used in this service by AMPAC and Canadian Intracoastal Container Line, Inc.

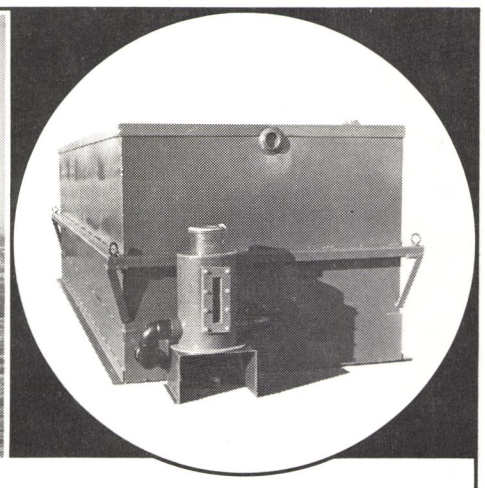
AMPAC proposes to handle its Pacific Coast feeder service through a proprietary agency known as Pacific Coastal Steamship Company, which will be controlled, but not wholly owned, by AMPAC. The operators will have offices in Seattle, Wash., and Los Angeles, Calif.

A shipbuilder for the four vessels has not yet been determined. The estimated cost is $23 million per ship.

Canadian Section To Hold Fall Meeting At Harrison Hot Springs

The Society of Naval Architects and Marine Engineers, Pacific Northwest Section, British Columbia Area, will hold its fall meeting at the Harrison Hotel, Harrison Hot Springs, B.C., the weekend of October 7, 8 and 9, 1977. The technical session will consist of a paper titled "Vibration Analysis in Shipbuilding," prepared and presented by Dr. **Roy Hooley** of the University of British Columbia. Recreational activities include swimming, indoor mineral water pools, curling, golf and tennis (weather permitting), and dancing.





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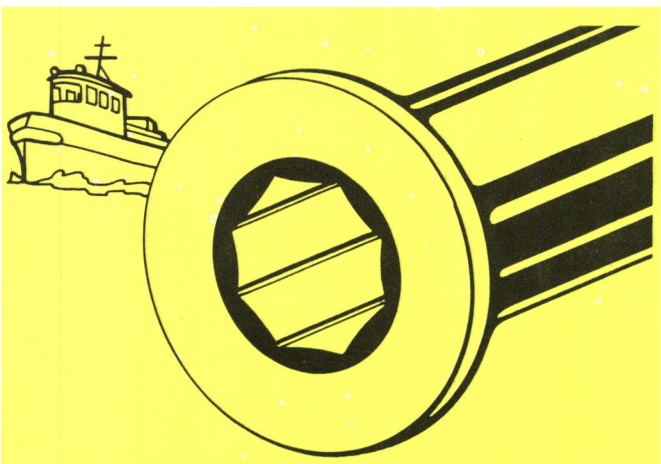

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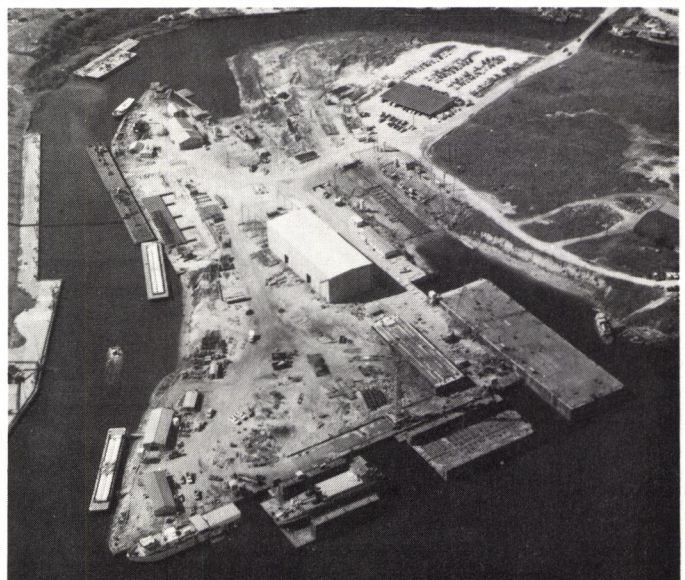

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Frank Piccione Joins Todd Marketing Staff

Frank J. Piccione

Frank J. Piccione has joined Todd Shipyards Corporation as a marketing representative, it was announced by **John B. Burguieres,** vice president-marketing of the corporation.

Mr. **Piccione,** most recently assistant Eastern sales manager for the Port of Galveston, has extensive experience in marine sales and will enhance Todd's current marketing program, according to Mr. **Burguieres.**

Prior to his tenure with the Port of Galveston at its New York office, Mr. **Piccione** served with Constellation Navigation, Inc., where he was sales manager with the Peralta Shipping Corp.

SNAME New York Section Announces Program For 1977/1978 Season

The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers has announced its program of technical meetings for the 1977/1978 season. The schedule is as follows:

September 29, 1977 — Paper: "Farrell Lines '85' Class Container Ships," by **Thomas Sartor Jr.,** Farrell Lines Incorporated, and **Robert P. Giblon,** George G. Sharp, Inc. The meeting will be held at the U.S. Coast Guard Officers' Club, Governors Island, N.Y. This will also be past chairman's night.

October 20, 1977 — Paper: "A Conceptual Data Base for Port and Shipping Developments," by **Kenneth W. Fisher,** Fisher Maritime Transportation Counselors, Inc. The meeting will be held at the Buttonwood Restaurant, 55 Water Street, New York, N.Y.

November 10-11, 1977 — 85th Annual Meeting and Banquet, to be held at the New York Hilton Hotel, Avenue of the Americas and 53rd Street, New York, N.Y.

December 14, 1977 — Paper: "Video Tape Approach to Marine Safety — Maine Engine Throttle Failures, Boiler Flame Failures," by **Paul P. Daulerio Jr.,** Texaco Inc. The meeting will be held at the Downtown Athletic Club, 19 West Street, New York, N.Y. This will be a joint meeting with The Society of Marine Port Engineers and The Institute of Marine Engineers.

January 12, 1978—Paper: "Advanced Surface Craft Economic Model," by **James M. Pruett,** Louisiana State University. The meeting will be held at the New York Coliseum, Columbus Circle, New York, N.Y.

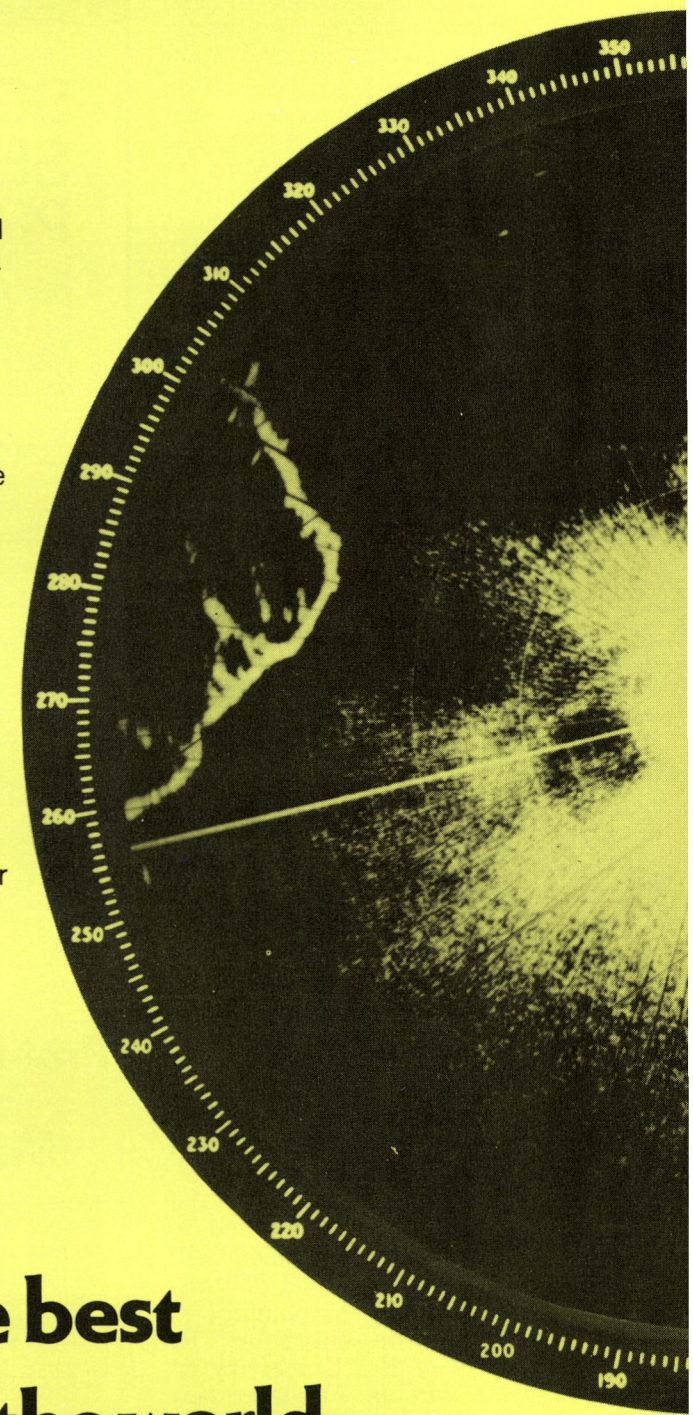
February 15, 1978 — Paper: "Factors Affecting the Design and Construction of Offshore Terminals," by **Edward H.Y. Han,** and **Dennis V. Padron,** Dravo-Van Houten Associates, Inc. The meeting will be held at Fraunces Tavern, Broad and Pearl Streets, New York, N.Y.

March 14, 1978—Paper: "The Diesel Engine-Prime Mover for Marine Transport Systems: Application, Economy, Service and Maintenance," by **Jan Arie Smit,** Sulzer Bros. Ltd. The meeting will be held at the Buttonwood Restaurant, 55 Water Street, New York, N.Y.

April 13, 1978 — Paper: "The Practical Effects on Efficiency and Performance of Using Fuel Additives and Conditioning Equipment with Marine Boilers," by **Norman L. MacIntyre,** Seaworthy Engine Systems. The meeting will be held at the Seamen's Church Institute, 15 State Street, New York, N.Y.

May 1978 — Date, Papers, Authors and Place to be announced.

A breakthrough in video processing



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Marathon Manufacturing Adds $61 Million To Drilling Rig Backlog

Marathon Manufacturing Company, Houston, Texas, has announced that with firm construction contracts negotiated in August for four of its offshore jackup drilling rigs, a total of $61 million has been added to its marine construction backlog.

The contracts for Marathon jackup rigs are with the Penrod Drilling Company and Keydril Company, both Texas-based firms.

Prior to the four new contracts, Marathon's marine backlog was at $72.7 million and with the additional $61 million, the Marathon offshore drilling rig backlog is at $133.7 million. In addition, Marathon has two pending agreements totaling $29.3 million to cover the construction of two of its jackup drilling rigs. Contract signing is expected shortly. When these contracts are complete, the marine backlog will amount to $163 million.

Included in the $61 million are three offshore rigs being built for Penrod Drilling Company. One unit will be a Marathon-class 116-C, a large cantilever-type jackup rig, and the second rig will be a Marathon-class 82-SD-C, a shallow-draft cantilever jackup rig. Both units will be built at Marathon's Vicksburg, Miss., yard, with deliveries scheduled for November 1978, and March 1979. The third Penrod unit will be a Marathon-class 116 to be built at the firm's Clydebank, Scotland, shipyard. It is scheduled for delivery in October 1978. This unit utilizes the purchase option for a second rig Marathon granted the British National Oil Corporation when BNOC signed a speculative rig contract in April of this year. The speculative rig, also a Marathon-class 116, has been purchased by Penrod Drilling Company, and is scheduled for delivery from the Clydebank yard in June 1978.

A fourth contract has been signed with Keydril Company for a Marathon-class 116 rig to be built at the firm's Brownsville, Texas, shipyard. The rig has been designated the Key Galveston, and is scheduled for delivery in May 1978.

The recent strength of the offshore drilling rig construction market, especially for Marathon-type rigs, leaves the company with one 1978 delivery position remaining in its Singapore yard for which construction could start immediately, and space in its other three yards for delivery positions in 1979, in which construction activity could start mid to late 1978.

Marathon Manufacturing Company is a multiproduct firm serving industries in marine construction and transportation, heavy equipment and steel products, as well as a group of diversified companies producing chemicals, batteries, consumer goods, and providing construction services.

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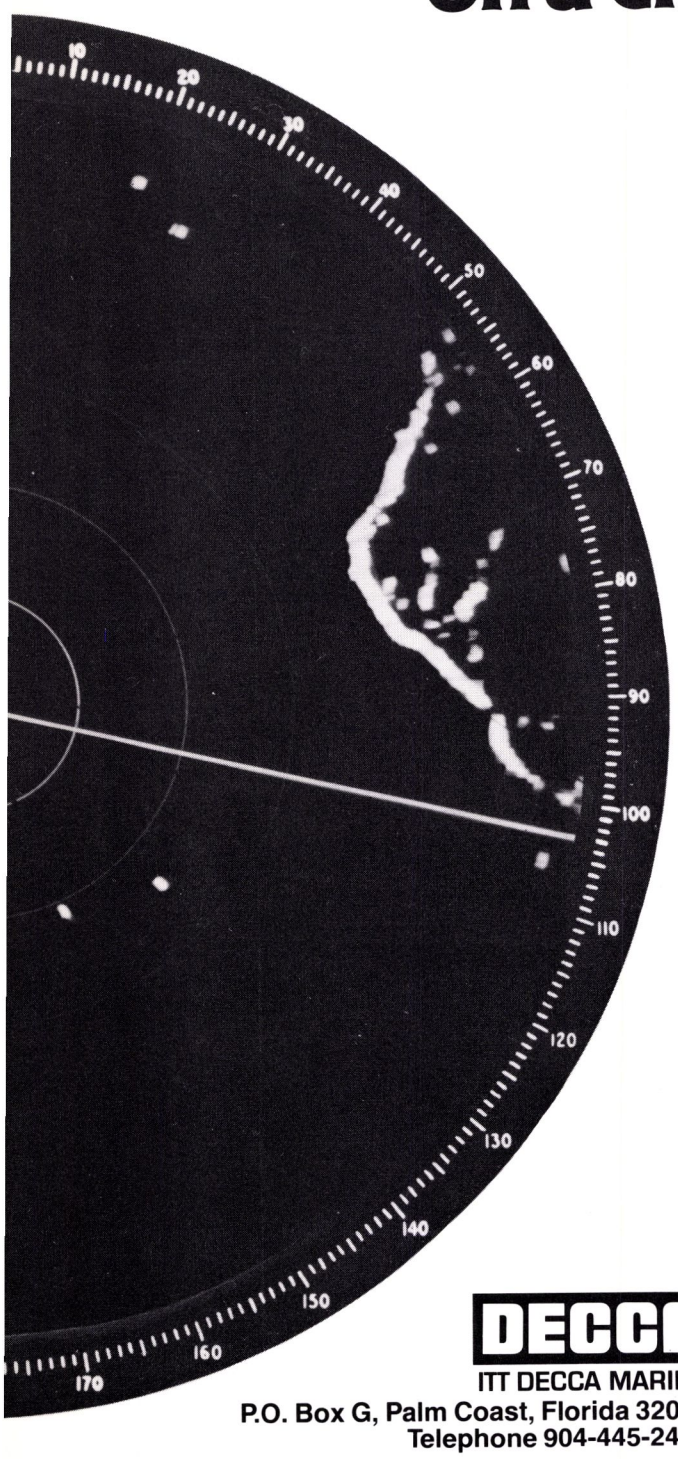

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American Atlantic Modifies Description Of New Vessel Service

The Maritime Subsidy Board has approved a request by American Atlantic Shipping, Inc. (American) to modify the description of designated service for three 2,000-dwt breakbulk vessels now being built for American at Equitable Shipyards, Inc., New Orleans, La. The three ships are being constructed with the assistance of a construction-differential subsidy awarded on May 6, 1977.

The description of designated service has been changed from "between Miami and various ports throughout the Caribbean" to the following: Designated service, as used herein, shall refer to any voyage between any port on the U.S. East Coast, or Gulf Coast, and any port on the Caribbean Sea, West Indies, the Guianas and the Amazon River, in any order of rotation whatsoever, as approved by the U.S. Coast Guard.

The change was made to ensure that the earlier, incorrect description could not be construed as legal restriction of American's operating range with specified manning.

Role Of Ro/Ro Shipping In Dry Cargo Trade

The past two to three years have seen a continuing growth of interest in ro/ro vessels, with a relatively small but nevertheless steady stream of orders for this type of ship—both large and small — being placed with shipyards in Europe and Japan. Ro/ro handling was first introduced onto the European short-sea trades 30 years ago, and the concept has been successfully applied since the mid-1960s on a number of long-distance routes, for instance on the North Atlantic and between Europe and Australia. It is therefore rather surprising that it is only fairly recently that the changing conditions of international trade should have focused so much attention on ro/ro. It is true to say, however, that the difficulties which have emerged from the rapid opening up of trades to the developing countries in the Middle East and elsewhere have highlighted the relative advantages of ro/ro vis-a-vis other transportation modes. However, despite its apparent adaptability, the future of ro/ro is by no means assured. There is a consensus of opinion that the optimum advantage of ro/ro handling can only be achieved over short distances, and that it becomes increasingly less economic over longer routes; so it is felt that with the completion of various port development schemes in the Middle East, in particular, its usefulness on any large scale may be only transitory.

Whatever the realities of the situation, the value of the ro/ro vessel in the present world market, the considerable ingenuity which is constantly being expended on design, and its evident potential for developing countries, where congestion is a perennial problem, more than justifies an in-depth assessment of its present and future role both in deep-sea and short-sea trades. The purpose of the present survey is to examine the employment and operation of ro/ro vessels, highlighting costs and performance, as well as other important aspects of their competitiveness with other shipping types.

The HPD survey of "RO/RO SHIPPING: An Appraisal of its Role in Dry Cargo Trade," includes:

The development of ro/ro as part of a widespread movement toward unitization, and a brief comparison of ro/ro with other modes of unit transportation—containerships, barge carriers, pallet ships;

The growth of the ro/ro fleet and the impetus behind its development, identifying the main centers of interest in this type of tonnage, and the extension of operational patterns, which has had a fundamental influence on design;

The various classes of ro/ro vessel, ranging from the short-sea combined passenger/freight ferry and pure ro/ro-cargo ferry, to the highly developed deepsea designs, including discussion of dimensions, speed, cargo-handling capability, etc., and considering the difference in employment for each of these types of vessel;

The potential size of the ro/ro fleet, examining trends in new-building orders, and in the potential employment of contracted tonnage;

An examination of the short-sea ro/ro operations, looking at the ownership of vessels, major routes and cargo types, and the progress which has been made in ship design to meet the demands of these trades, with special reference to Northern European operation;

A review of the major deepsea trades, and the vessels which have been built — or are being built — to serve them. Cargo capacity, vessel dimensions and other vessel characteristis are detailed in a systematic manner, and the contribution of ro/ro space to these trades, by comparison with cellular capacity, is discussed;

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the usefulness of ro/ro handling and indicating the extent of ro/ro and other services into the Middle East and Nigeria;

The cost of acquiring ro/ro vessels — with special reference to ro/ro cargo vessels, both deepsea and short-sea types — including discussion of newbuilding and second-hand costs, and comparing them with equivalent prices for containerships and general cargo vessels;

The operational outgoings experienced by operators of ro/ro tonnage, including items such as manning, insurance, repairs and maintenance, etc., and offering comparison with costs for other vessel types, and

The trading patterns of ro/ro vessels, examining vessel efficiency, possible shortcomings in this type of tonnage through examining their performance on various trades, and offering comparison with cellular and other tonnage.

"RO/RO SHIPPING: An Appraisal of its Role in Dry Cargo Trade" can be obtained at a price of U.S. $160 by writing to HPD Shipping Publications, 34 Brook Street, London W1Y 2LL, England.

Port Of New Orleans Presents Key To City To Egyptian Official

The Governor of the large state of Giza in Egypt recently met with New Orleans, La., trade officials and expressed the desire for "full cooperation and a better understanding which will, hopefully, lead to fruitful negotiations in the future."

Ahmed Abdel Akher, left, Governor of the State of Giza, Egypt, receives a certificate of honorary citizenship and a key to the City of New Orleans from **Basil J. Rusovich Jr.,** president of the International Trade Mart and co-chairman of the Mayor's Committee on International Trade and Relations. Governor **Akher** was guest of honor at a dinner of local trade officials.

Gov. **Ahmed Abdel Akher** was presented a certificate of honorary citizenship and key to the city by **Basil J. Rusovich Jr.,** president of the International Trade Mart of New Orleans and co-chairman of the Mayor's Committee on International Trade and Relations.

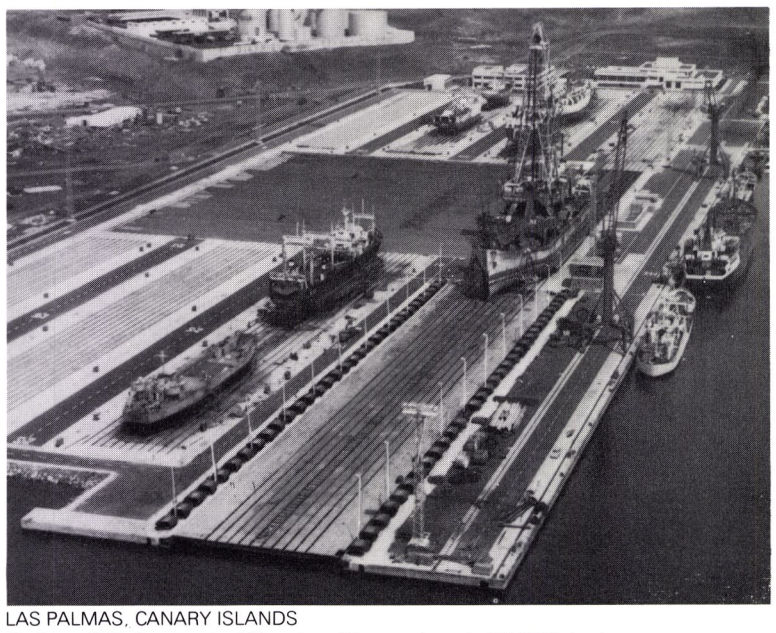
"It is very useful to meet with our friends in New Orleans," said Governor **Akher.** "It creates better understanding and draws us close together."

The State of Giza has a population of 2,600,000, and lies directly across the Nile River from Cairo. Giza is the site of the great Pyramids and the Sphinx, and received well over a million visitors last year, the Governor stated.

Mr. **Rusovich** told the visiting official that the Port of New Orleans and surrounding areas are intensely interested in increased trade and closer relations with Egypt and the other Arab nations. Mr. **Rusovich** was the leader in the establishment of an American-Arab Chamber of Commerce office in New Orleans.

"There is tremendous interest in Egypt as evidenced by the excitement over the coming King Tut exhibit of treasures and objects of art at the New Orleans Museum of Art," Mr. **Rusovich** said.

Col. **Herbert R. Haar Jr.,** associate port director, presented a framed photo of the Port of New Orleans to Governor **Akher.** Colonel **Haar** noted that trade with Egypt through the Port of New Orleans totaled more than $121.5 million last year.



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Morris Guralnick Associates, Inc. Name Hubert E. Russell

Morris Guralnick Associates, Inc., naval architects and engineers of San Francisco, Calif., have announced the appointment of **Hubert E. Russell** to the position of assistant chief engineer. Mr. **Russell** has been a project manager with MGA for 2½ years, and will be in charge of the engineering establishment at the San Francisco office.

MGA is the largest private firm of naval architects in the West, with offices in San Diego, Calif., as well as San Francisco. Among his duties for MGA, Mr. **Russell** was project manager for the engineering of the new cryogenics vessel Cornucopia for Collier Carbon and Chemical, a task which this firm shares with Todd Shipyards Corporation.

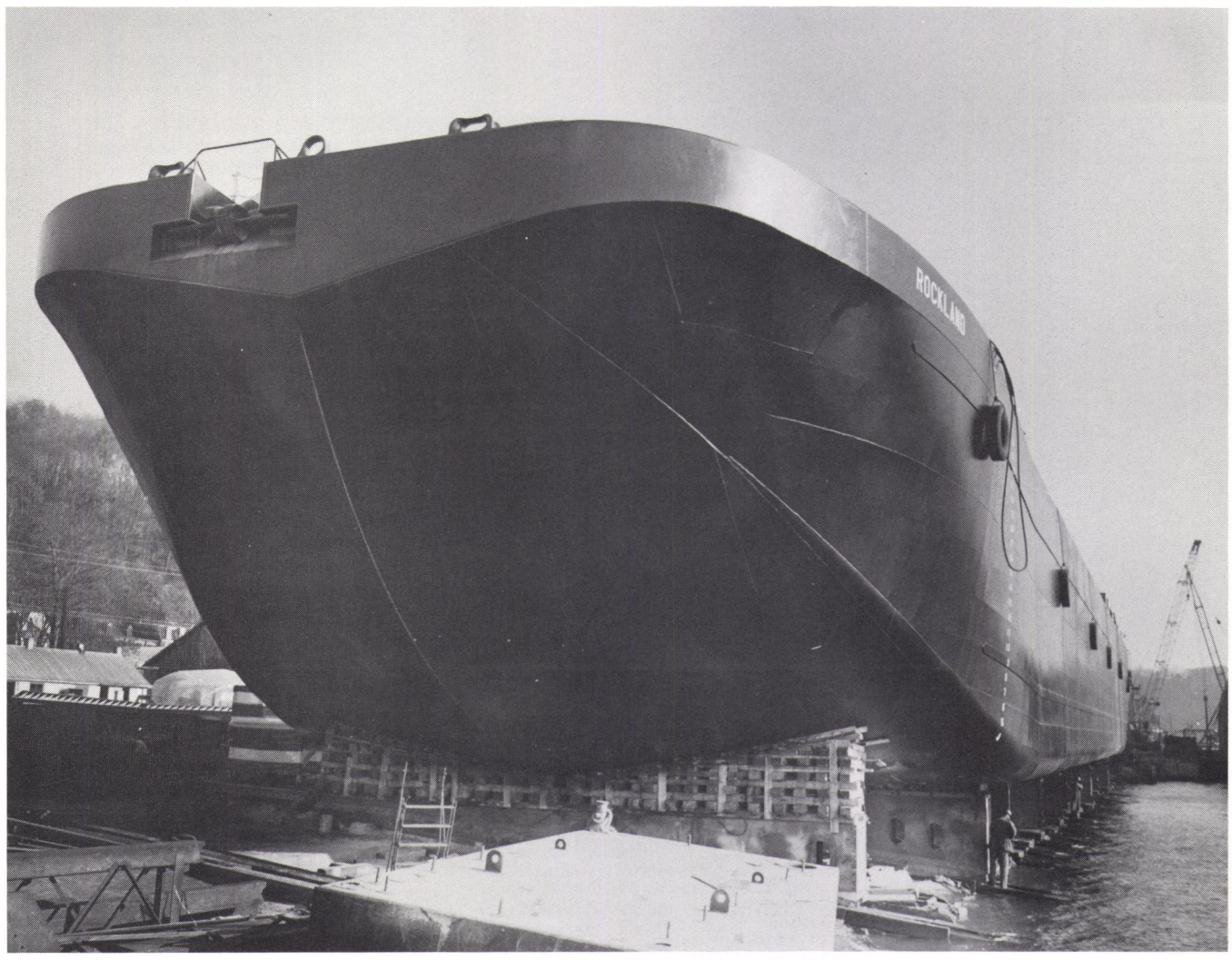
Mr. **Russell** holds a B.S. degree in marine engineering which he obtained from the U.S. Coast Guard Academy in 1950, and an M.S. degree in naval engineering from the Massachusetts Institute of Technology in 1956. After spending six years at sea in Coast Guard ships, he was selected to serve as project manager for the design of the 3,400-ton Hamilton-Class cutters, the first major Coast Guard design since 1942. These ships incorporated such advanced features as gas turbine propulsion and controllable-pitch propellers. Cutters Rush, Midgett, and Morganthau of this class are presently stationed in San Francisco Bay. Following delivery of these vessels from Avondale, he received a Coast Guard commendation.

Hubert E. Russell

Mr. **Russell** was selected in 1966 to be chief naval engineer for the Seattle Coast Guard District. He received the Coast Guard Achievement Medal for his meritorious work in this position.

Since retirement from the Coast Guard in 1970, when he had attained the rank of commander, Mr. **Russell** was manager of engineering for Airco Temescal, Berkeley, before joining MGA. He also worked for Lockheed Shipbuilding in Seattle, where his responsibilities included coordination of engineering and production of the newest U.S. icebreaker, the Coast Guard cutter Polar Star.

In addition to the honors mentioned, Mr. **Russell** is a registered mechanical engineer in California and holds memberships in The Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, the American Society of Mechanical Engineers, and the engineering honorary societies Tau Beta Pi and Sigma Xi.



When bigger barges are built, Wiley will build them.

A case in point: Pittston Marine's new tank barge, a floating oil field over 315 feet long was recently built by Wiley. Designed for manned coastwise service or unmanned ocean service, the "Rockland" carries up to 70,000 barrels of Grade A petroleum products and lower, with approximately 3.4 miles of heating coils for hot oil.

Deep well pumps are on the deck, with drive engines in an all-weather enclosure. A recessed house for quarters and galley is heated and air-conditioned.

The "Rockland" is the latest in the Wiley built deck, tank, dump, crane and coal barges; clamshell dredges; tugs and towboats; tankers, passenger and fishing vessels. With Wiley's broad marine capabilities, we can custom-build to your specifications.

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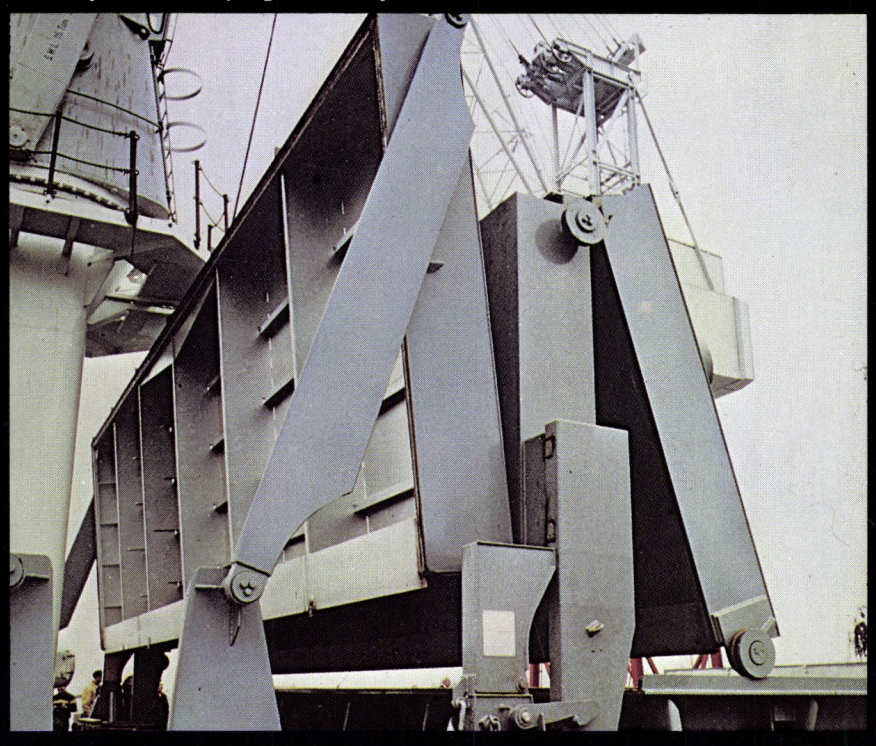
MSB To Compute Foreign Cost Of Ro/Ro Self-Propelled Barge

The Maritime Subsidy Board has authorized Federal Register publication of a notice that it intends to compute the estimated foreign cost of the construction of one self-propelled roll-on/roll-off barge vessel for Cumberland Shipping Co., Inc.

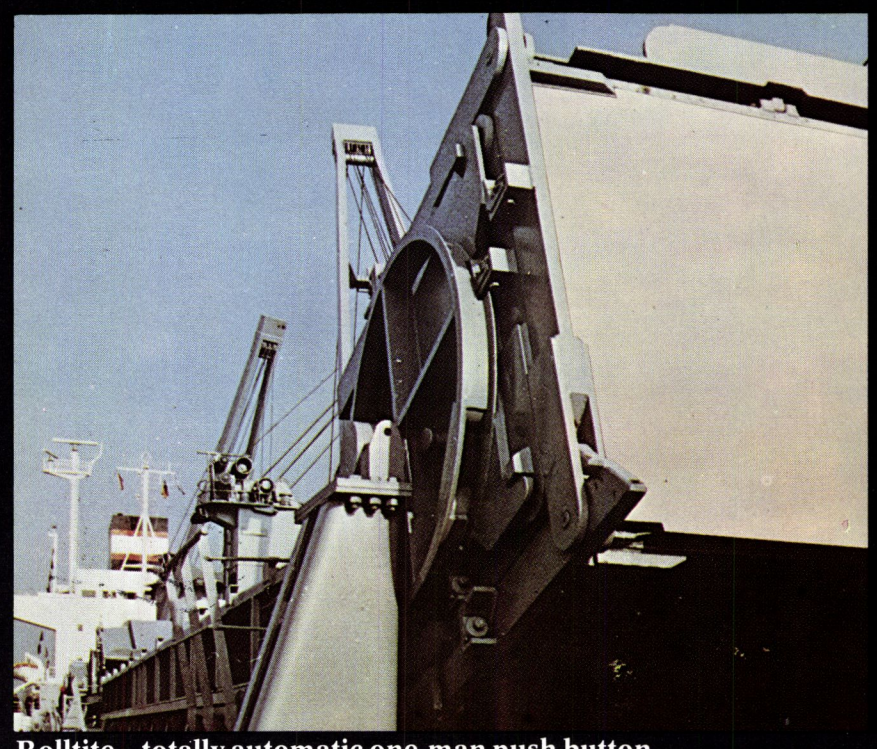
Cumberland applied in July 1976 for construction-differential subsidy to build the vessel, which will be 440 feet long with a capacity for 113 forty-foot trailers, or 54 trailers and 118 forty-foot containers. The applicant is a newly formed, wholly owned subsidiary of Seatrain Lines, Inc. The vessel will be built at Seatrain Shipbuilding Corp., New York, N.Y.

MacGregor quarter, slewing and stern ramps together with a full range of access and transfer equipment for 'go-anywhere' Ro-Ro flexibility

Direct Pull is MacGregor's latest fully automatic folding hatch cover for geared ships, offering substantial savings over hydraulically operated systems.



After sales service on a global scale is recognised by MacGregor as essential. The organisation has some 60 service stations throughout the world each with comprehensive stores and highly-trained technical staff. MacGregor also offers full maintenance contracts



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How Shell's Tornus
keep thousands of work boats

Oil has helped churning ahead for over ten years.

Since 1965, Tornus Oil has been helping tugs and towboats stay on the job in oceans, harbors, the Gulf and inland waterways. There's good reason why.

Look at the critical engine parts below, photographed after extended periods of service. All were on Tornus Oil for 18,000 to 23,000 hours. All showed normal wear and were exceptionally clean and free of power-robbing deposits.

With Tornus, the oil gets dirty, the engine stays clean. And cleanliness is extremely important in keeping power up and fuel consumption down.

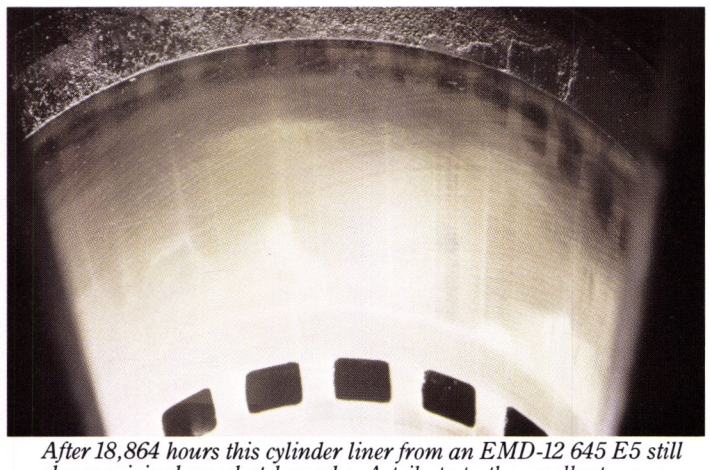
Caprinus® R Oil may help your fleet even more.

Shell's Caprinus R Oil can help extend oil drain intervals *indefinitely* in EMD power, and stretch the service life of oil filters. It offers excellent alkalinity retention to combat corrosive combustion products and help reduce frequency of overhauls. Caprinus R is Shell's answer to the need for extra high performance in modern high-output, medium-speed diesels.

Get all the facts. Write for our brochures on Tornus Oil and Caprinus R Oil. There's information in them that could help you trim operating costs. Write Shell Oil Company, Mgr. Commercial Communications, One Shell Plaza, Houston, Texas 77002.

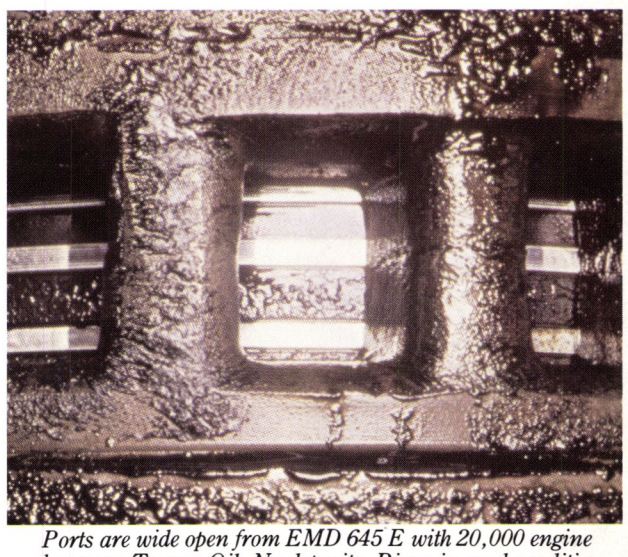
Come to Shell for answers

Engines in hard-working inland waterways towboats, (above), and ocean-going tugs (left) have their work cut out for them. So does the engine oil. High-dispersancy Tornus Oil protects main engines against wear, helps promote operating efficiency.

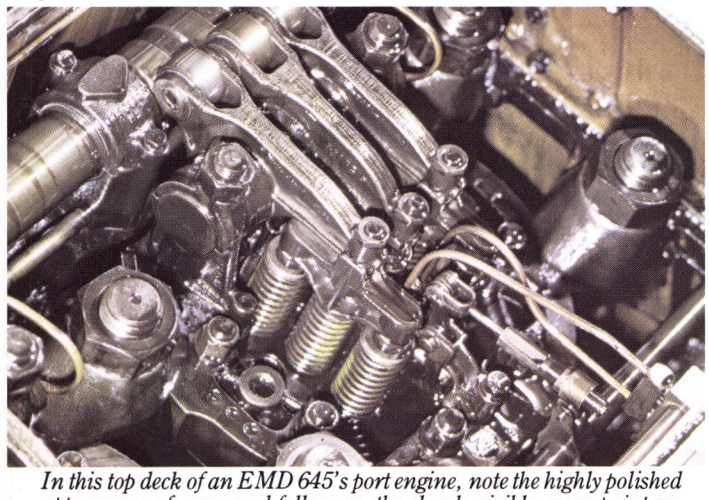


After 18,864 hours this cylinder liner from an EMD-12 645 E5 still shows original crosshatch marks. A tribute to the excellent wear protection of Shell Tornus Oil.

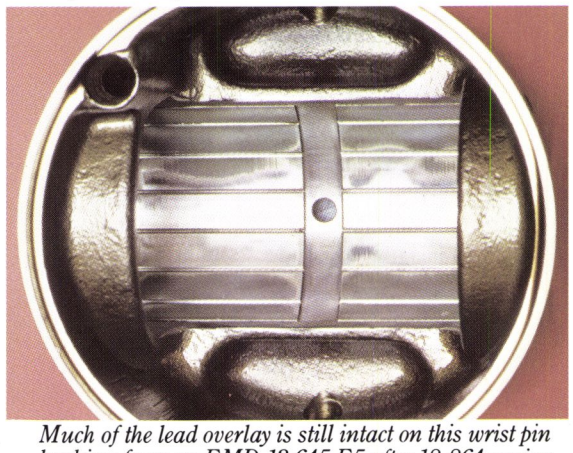
After over 23,000 hours, piston #1 of the starboard engine of an EMD 16-645 E7 shows light lacquer on skirt; rings in good condition, none stuck; only normal drag lines. Tornus Oil fights wear and lacquer buildup.



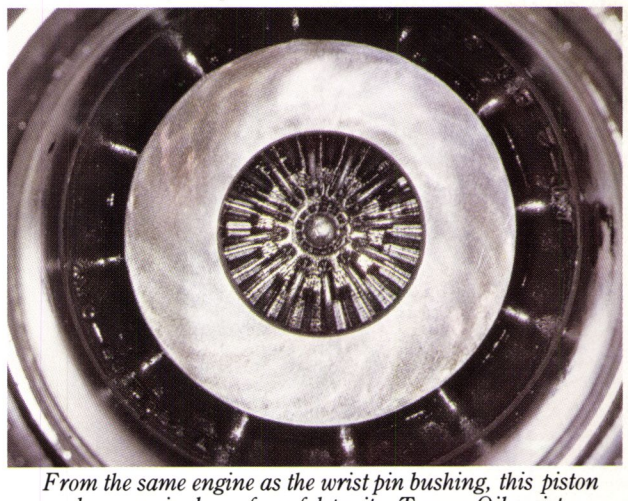
Ports are wide open from EMD 645 E with 20,000 engine hours on Tornus Oil. No deposits. Rings in good condition without need for replacement.



In this top deck of an EMD 645's port engine, note the highly polished appearance of cams and followers, the clearly visible green paint on the spring. Yet this engine has never received an oil changeout in 18,852 hours.

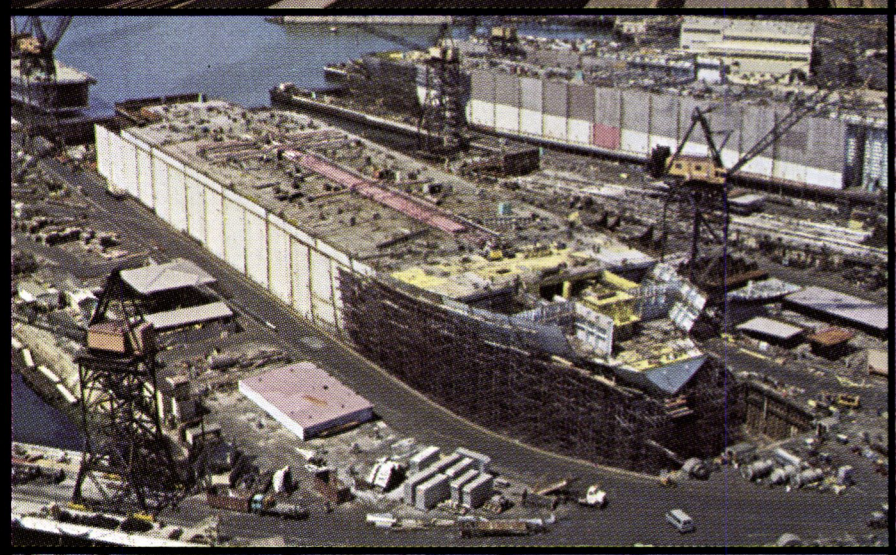


Much of the lead overlay is still intact on this wrist pin bushing from an EMD-12 645 E5 after 18,864 engine hours. No feathering of silver into the grooves. Tornus Oil has provided excellent lubrication.



From the same engine as the wrist pin bushing, this piston undercrown is clean, free of deposits. Tornus Oil resists sludge, lacquer and carbon deposition. This promotes cooler running pistons.

take a closer look...



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Hillman-Designed New Class Towboat Delivered To Exxon At Baton Rouge

Representing a new class of Hillman-designed towboats, the twin-screw M/V Exxon Mobile is powered by Colt Industries, Fairbanks Morse diesels.

The M/V Exxon Mobile was recently delivered by Hillman Barge and Construction Company, Brownsville, Pa., to Exxon Company, U.S.A., Baton Rouge, La. The vessel will operate out of the refinery there towing petroleum products to locations along the inland waterways and Gulf Coast.

The Exxon Mobile is the fourth of five such towboats constructed by Hillman Barge for Exxon Company, U.S.A. The Exxon Louisville and the Exxon Memphis were delivered last year; the Exxon Lake Charles, earlier this year. The Exxon Nashville is yet to be delivered. Representing a new class of Hillman-designed towboats, all five are nearly identical. Each vessel has hull dimensions of 120 feet by 30 feet by 10½ feet with a normal operating draft of 8½ feet. The Exxon Lake Charles, however, has an 8-foot-higher pilothouse to provide necessary visibility because of a special tow with which it will be used.

The new vessel is twin-screw with a total of 3,334 hp from Colt Industries, Fairbanks Morse 10-cylinder, Model 38D8 1/8 engines turning at 750 rpm. The engines drive through Western Model RH-27 reverse and reduction gears with 3.48:1 ratio. The four-blade stainless-steel propellers are 102 inches in diameter and were manufactured by Avondale to Hillman's design. The shafts are ABS-type steel, 10½ inches in diameter with Daman ceramaloy sleeves fitted in way of the Cutlass bearings and stuffing box.

The hull is divided longitudinally into seven independent watertight compartments to house 76,000 gallons of fuel oil, 6,500 gallons of potable water, 8,000 gallons of ballast, 4,300 gallons of slop, 4,300 gallons of sanitary water and 260 gallons of dirty lube oil. Self-standing tanks in the steering-gear room contain 1,000 gallons of engine lube oil, 290 gallons of reduction gear lube oil, 175 gallons of generator lube oil, 350 gallons of hydraulic oil, 175 gallons of cleaning fluid and 175 gallons of air filter oil.

Two Lima 125-kw generators driven by Detroit Diesel Model 6-71 engines were supplied by Keystone Diesel of Pittsburgh, Pa., and provide 440, 220 or 110-volt a-c power for all onboard systems. A General Electric "Pan-A-Trol" switchboard and motor control center are arranged for control and distribution of power.

In addition to the normal gauges supplied with equipment, the boat is equipped with a National Marine Service "Tugmonitor" which monitors all main engine and auxiliary systems. The main control panel is located in the engine room with remote stations in the pilothouse and the main deck stateroom, and an alarm bell in the galley. The system not only monitors machinery but also checks for other problems such as high bilge level or fire anywhere in the vessel. The system also has the capability of transferring generators either automatically or manually from the engine room or from the pilothouse.

The rudder and steering system consists of two interconnected steering rudders and four interconnected flanking rudders. The rudders are controlled by an air over hydraulic system designed by Hillman in conjunction with Wabco and Weinman Pump of Pittsburgh. Both rudder systems are operated by separate, powerful hydraulic units consisting of Vickers type PVB pumps. Each system has an identical backup pump and motor with transfer capability from the pilothouse.

The main deckhouse contains a paint locker, deck stores locker, double stateroom with private bath and closet, lounge, galley/messing area with pantry, partial bath, laundry, upper engine room and enclosed steering-gear room. Four double staterooms with closets and two semiprivate baths are located in the upper deckhouse.

In the pilothouse, navigation and communications equipment include Sperry radars, Elac fathometers, RF Communications UHF/VHF radios, C.A.I. single-sideband radio and a vocal intercom system all furnished by the customer and installed by We-Do Electronics of Pittsburgh. Also located in the pilothouse is a concealed toilet and a range-refrigerator-sink combination.

Decks in all crew staterooms and the pilothouse are covered with commercial-type carpeting, while all other decks in living spaces have vinyl linoleum covering. The entire vessel is of fireproof construction, with U.S. Gypsum "Novoply" wall paneling and fiberglass acoustical ceiling tile.

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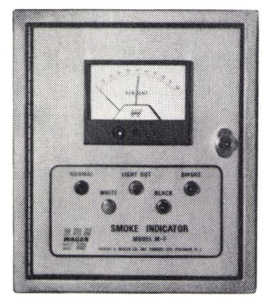

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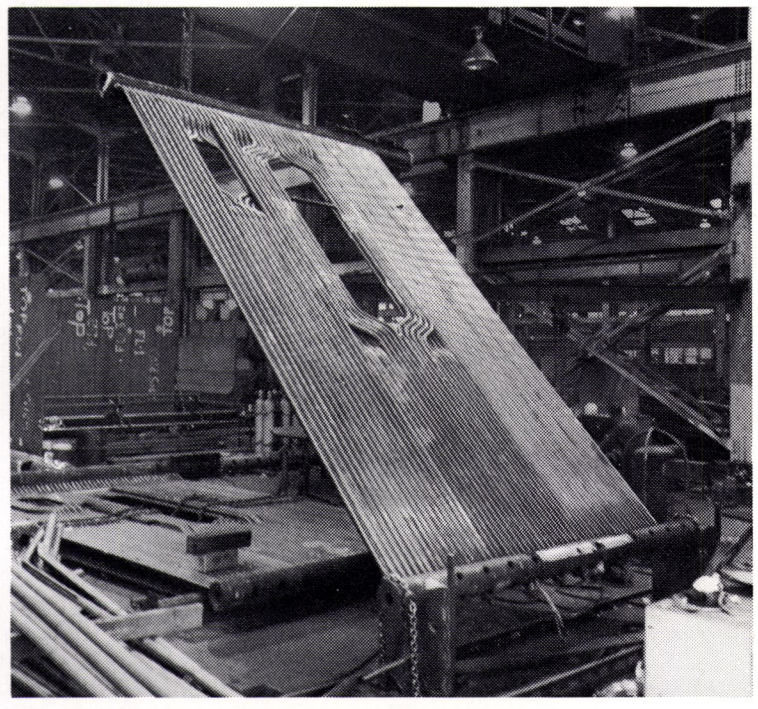
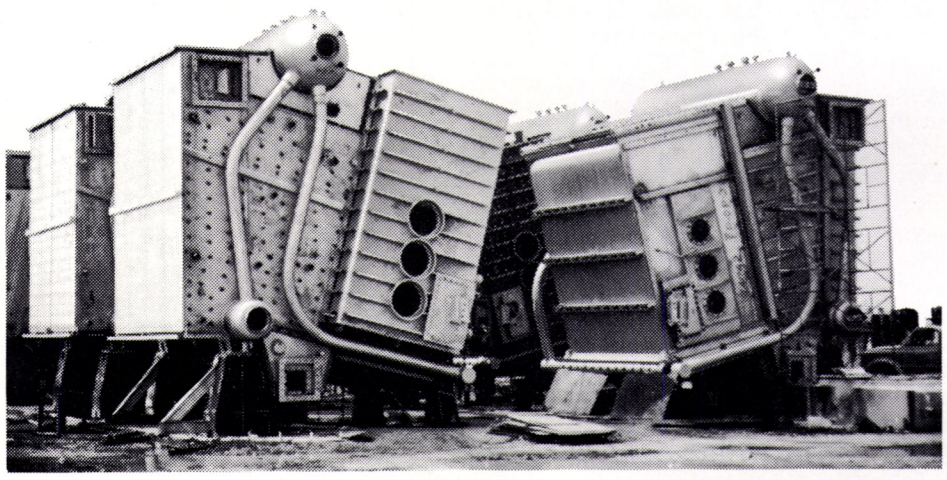


Sub-assembled furnace wall, utilizing welded wall construction.



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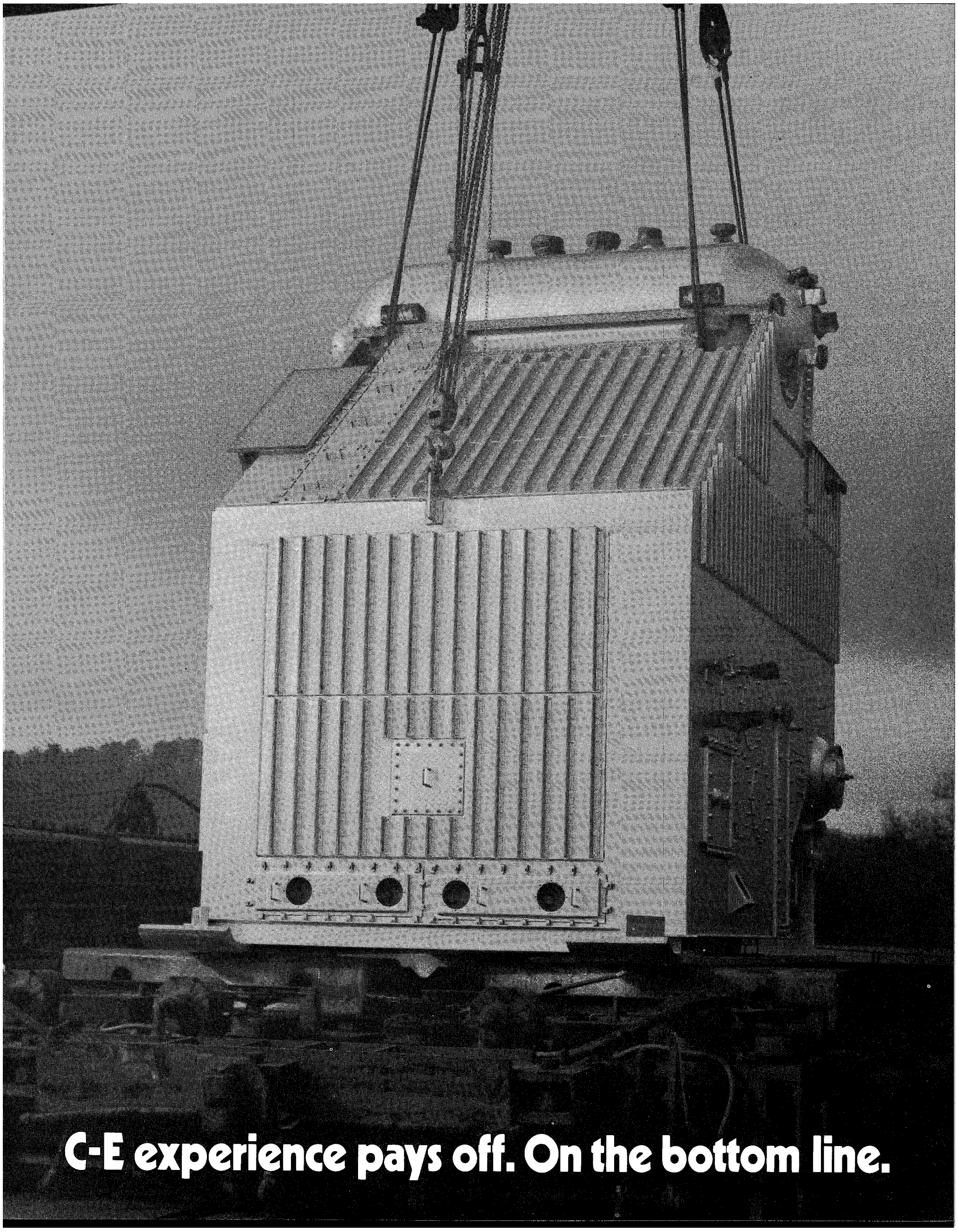
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Ideal for many ballast, hydrocarbon, and refrigeration system applications, Contro-Seal offers the economy and performance of a butterfly valve with the application flexibility of a ball valve.

The compact design and light weight of Contro-Seal valves reduce space requirements and make installation quick and easy. Seat replacement is simple, too, since no special tools are needed, and removal of the shaft and disc are not required.

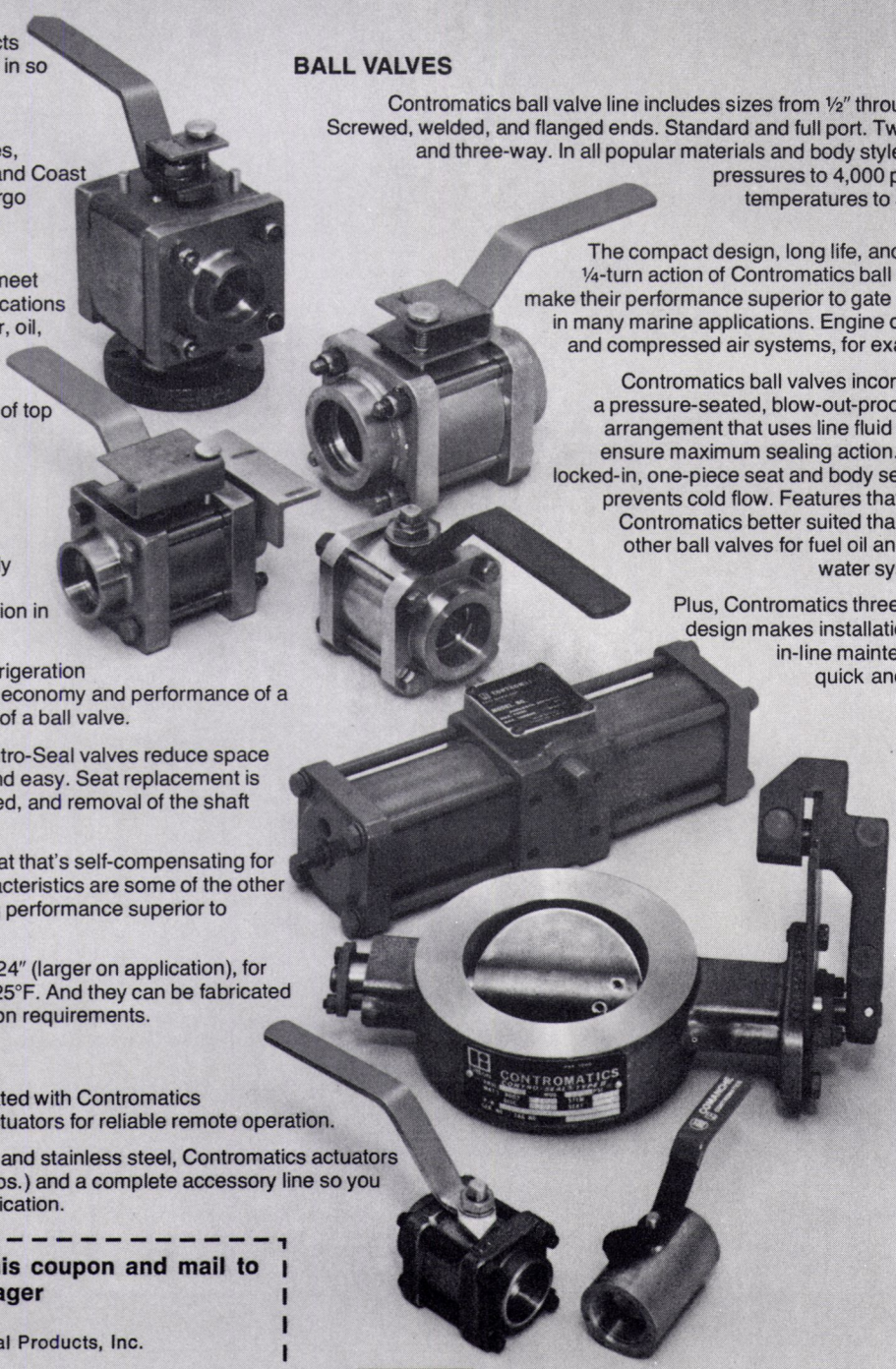
Bubble-tight shut-off in both directions, a seat that's self-compensating for wear, and excellent flow and throttling characteristics are some of the other features that make Contro-Seal's sea-going performance superior to that of other wafer-type valves.

Contro-Seal valves are available from 3″ to 24″ (larger on application), for pressures to 720 psi and temperatures to 425°F. And they can be fabricated from a variety of materials to meet application requirements.

VALVE ACTUATORS

All Contromatics valves can be fully automated with Contromatics double-acting or spring return pneumatic actuators for reliable remote operation.

Available in aluminum, ductile iron, bronze, and stainless steel, Contromatics actuators offer a wide torque range (87 to 60,230 in. lbs.) and a complete accessory line so you can choose the right actuator for every application.



BALL VALVES

Contromatics ball valve line includes sizes from ½″ through 8″. Screwed, welded, and flanged ends. Standard and full port. Two-way and three-way. In all popular materials and body styles. For pressures to 4,000 psi and temperatures to 550°F.

The compact design, long life, and quick ¼-turn action of Contromatics ball valves make their performance superior to gate valves in many marine applications. Engine cooling and compressed air systems, for example.

Contromatics ball valves incorporate a pressure-seated, blow-out-proof stem arrangement that uses line fluid flow to ensure maximum sealing action. And a locked-in, one-piece seat and body seal that prevents cold flow. Features that make Contromatics better suited than most other ball valves for fuel oil and fresh water systems.

Plus, Contromatics three-piece design makes installation and in-line maintenance quick and easy.

For more information, fill out this coupon and mail to Contromatics Marine Sales Manager

John LeProhon
Contromatics Division Litton Industrial Products, Inc.
222 Roberts Street
East Hartford, CT 06108

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$45-Million Subsidy Repayment Approved

The Maritime Subsidy Board (MSB) has approved the applications of Wilmington Trust Company to repay approximately $45 million in construction-differential subsidies (CDS) which the Maritime Administration previously awarded for the construction of two liquefied natural gas (LNG) vessels. The MSB also granted permission for the two vessels to be employed in the carriage of LNG between Indonesia and Japan.

In addition, the owners would be required to pay interest at the Treasury rate on the subsidy funds expended in construction of the vessels. The interest is estimated to be $2.7 million on one vessel and $2.3 million on the other. The estimated actual cost of the vessels are approximately $104.6 million and $105.4 million, respectively.

These vessels, each with a capacity of 125,000 cubic meters, were part of a three-ship program contracted for in September 1972 with the Quincy, Mass., shipyard of General Dynamics Corp., to be used for the importation of LNG from Algeria to New England and New York. However, that gas importation project (known as Easco) was canceled earlier this year, resulting in the transfer of these two vessels to the Indonesia-Japan trade.

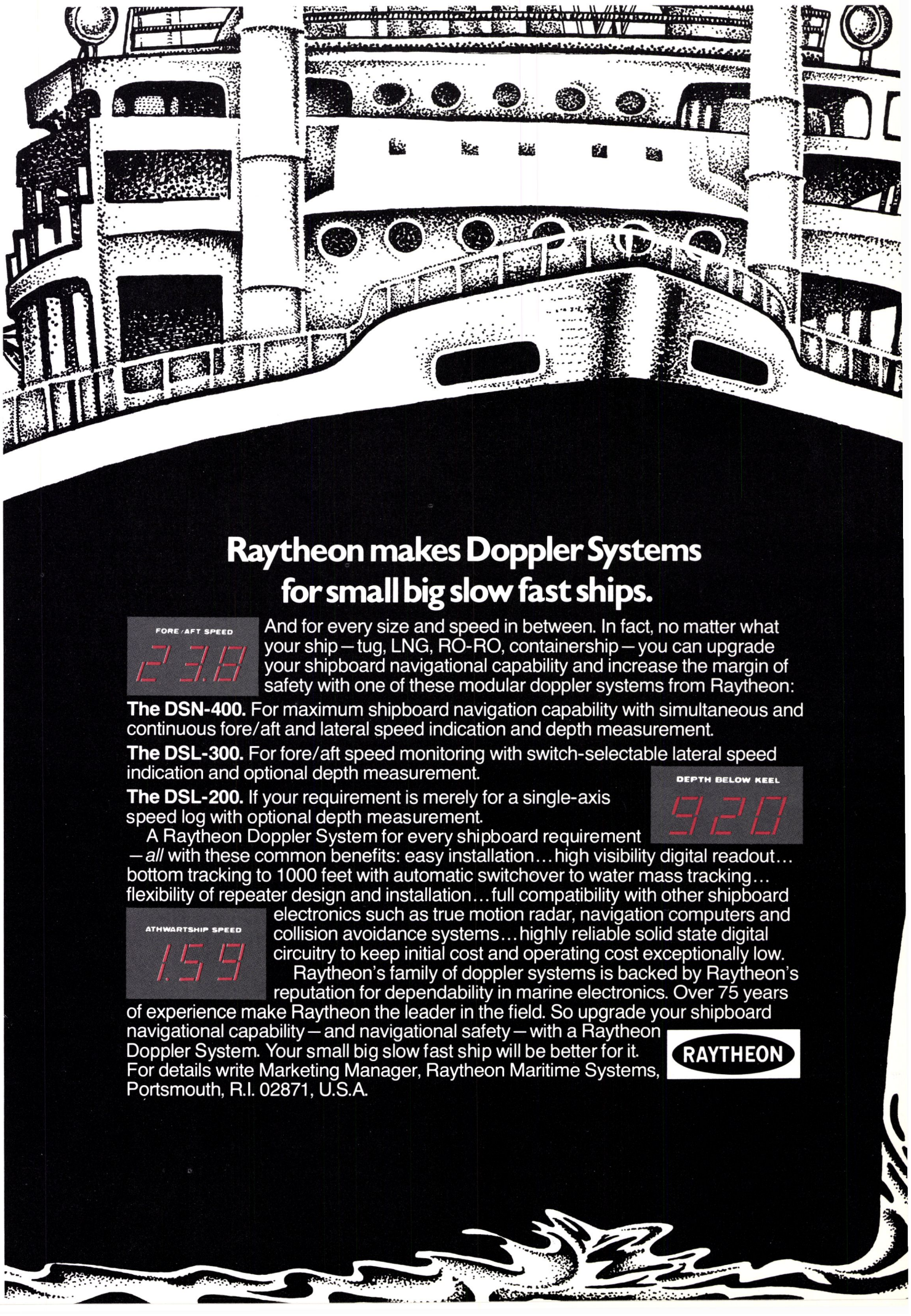
The repayment of CDS plus interest, which would be deposited in the United States Treasury upon delivery of the vessels, is due to this change in employment of the vessels from U.S. foreign trade to a foreign-to-foreign operation. The two vessels, as yet unnamed, are tentatively scheduled for delivery in late 1977.

The Wilmington Trust Company is the owner-trustee of both vessels under trust agreements with the equity owners, consisting of subsidiaries of Citibank, N.A., First Chicago Leasing Corporation, and GATX Corporation. The vessels are bareboat chartered to U.S. citizen operating companies—Summit II and Summit III — and time-chartered to domestic subsidiaries of Burmah Oil Shipping, Inc., a Delaware corporation, which is a subsidiary of Burmah Oil Company, Ltd., a British corporation.

Under the revised agreement, Burmah would use the two vessels under a Transportation Agreement with the Indonesian national energy company, Pertamina, to carry LNG from Indonesia to Japan. These two ships would replace two other LNGs that had been contracted for in April 1976, also to be built by the General Dynamics Quincy shipyard. The contracts for these two vessels would be canceled.

In granting the approvals, the MSB established the additional conditions that the Government retain the right to the design and engineering data for the vessels and that the ships be subject to the purchase and requisition rights of the United States under the same compensation basis as for other vessels constructed under CDS. The vessels would continue to be owned by an American company and operated under the U.S. flag with American crews.

In a companion action, the Assistant Secretary approved an increase in the Title XI guarantees for the two vessels. If CDS were repaid, the maximum Title XI guarantee would increase from 75 percent to 87½ percent, as provided by Section 1104 of the Merchant Marine Act of 1936, as amended. Based on redetermined actual costs, including the interest payments, the Title XI guarantees will be about $91.5 million for one ship and $92.2 million for the other.



Bethlehem Steel Shipbuilding Names Roland V. Danielson —Hollinshead De Luce Retires

The retirement of **Hollinshead de Luce,** manager of ship development and sales in Bethlehem Steel Corporation's shipbuilding department, has been announced by **William C. Brigham,** vice president in charge of shipbuilding.

At the same time, Mr. **Brigham** announced that **Roland V. Danielson** will become manager, ship development and sales and assume the responsibilities for new ship design development and marketing, which have been fulfilled by Mr. **de Luce** since 1962.

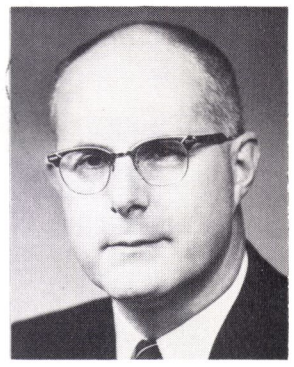
Mr. **Danielson,** presently assistant manager, ship development and sales, will remain at the Sparrows Point, Md., shipyard, and the new construction sales office in New York City will be discontinued.

Mr. **de Luce** is completing 38 years of service with Bethlehem Steel. A native of Bayville, N.Y., he was graduated from Webb Institute of Naval Architecture and began his career with Federal Shipbuilding and Dry Dock Company, and then Fairbanks, Morse & Company. He joined Bethlehem in 1939 in what was then the design department of the Fore River (Mass.) Yard, and which later became the central technical division (CTD).

Continuing work in CTD, Mr. **de Luce** was appointed assistant naval architect in 1948, naval architect in 1958, and chief naval architect in 1959. Mr. **Brigham** noted that it was during the postwar period of 1949-62 that CTD developed twice as many merchant and naval designs as all other U.S. shipyards combined, and one-third more than all independent naval architect firms combined.

"Thirty-seven percent of all oceangoing ships built in U.S. shipyards during this period were built to CTD designs," he said.

Roland V. Danielson



Hollinshead de Luce

Transferred to Bethlehem's New York office in 1962, Mr. **de Luce's** prime responsibility was the development and marketing of Bethlehem standard ship designs and negotiation of contracts for the ships.

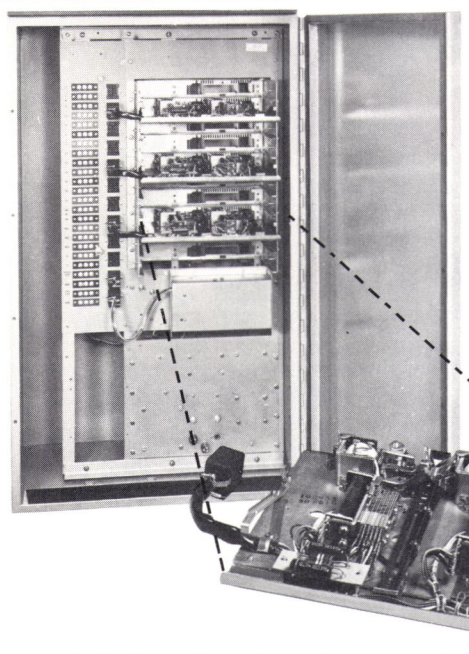
He has been active in various maritime organizations including The Society of Naval Architects and Marine Engineers, American Bureau of Shipping, and Marine Technology Society.

A native of Cambridge, Mass., Mr. **Danielson** joined Bethlehem Steel in 1942 as a member of that year's training program for college graduates, following graduation from Massachusetts Institute of Technology.

His initial assignment was at Bethlehem's former Quincy, Mass., shipyard, and then he was transferred to the central technical division as an assistant engineer in 1944. He received several promotions in CTD, becoming naval architect in 1961, and chief naval architect in 1962. CTD was moved to the Sparrows Point, Md., Yard in the 1960s, and Mr. **Danielson** was transferred there in 1964.

Four years later, he became chief of basic ship design and in 1971, he was appointed assistant manager, ship development and sales. In this position, he has provided liaison between the New York ship sales office, CTD, and the Sparrows Point Yard.

Mr. **Danielson** is a member of The Society of Naval Architects and Marine Engineers, and has served on American Bureau of Shipping committees and on the U.S. Coast Guard's chemical transportation industry advisory committee.



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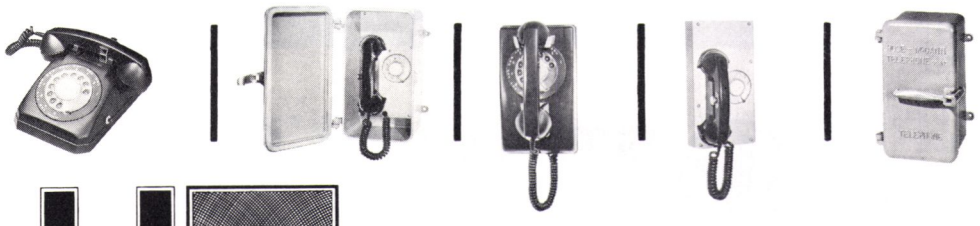

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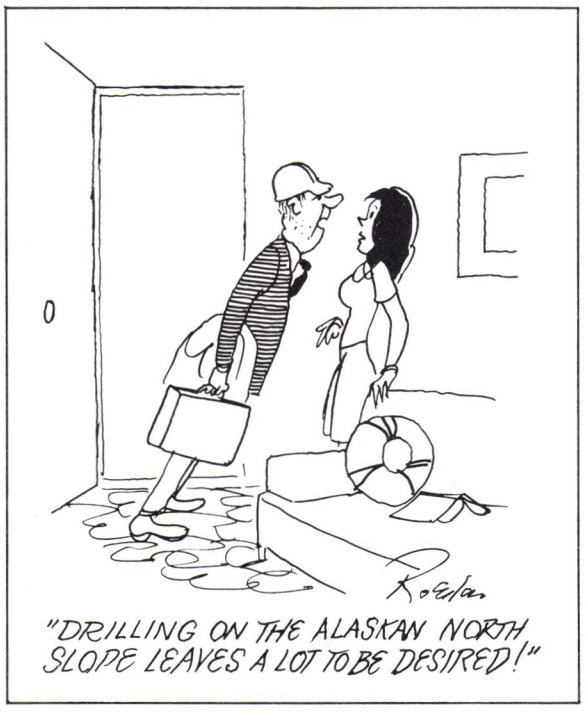

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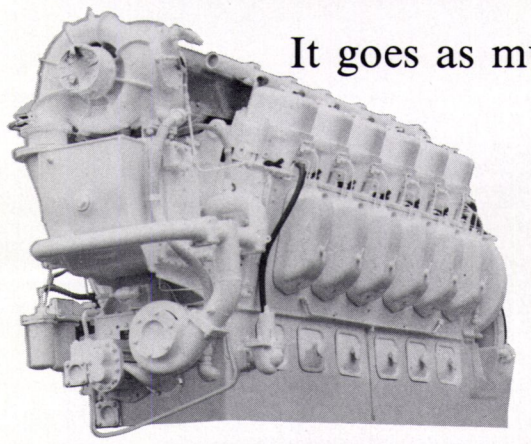

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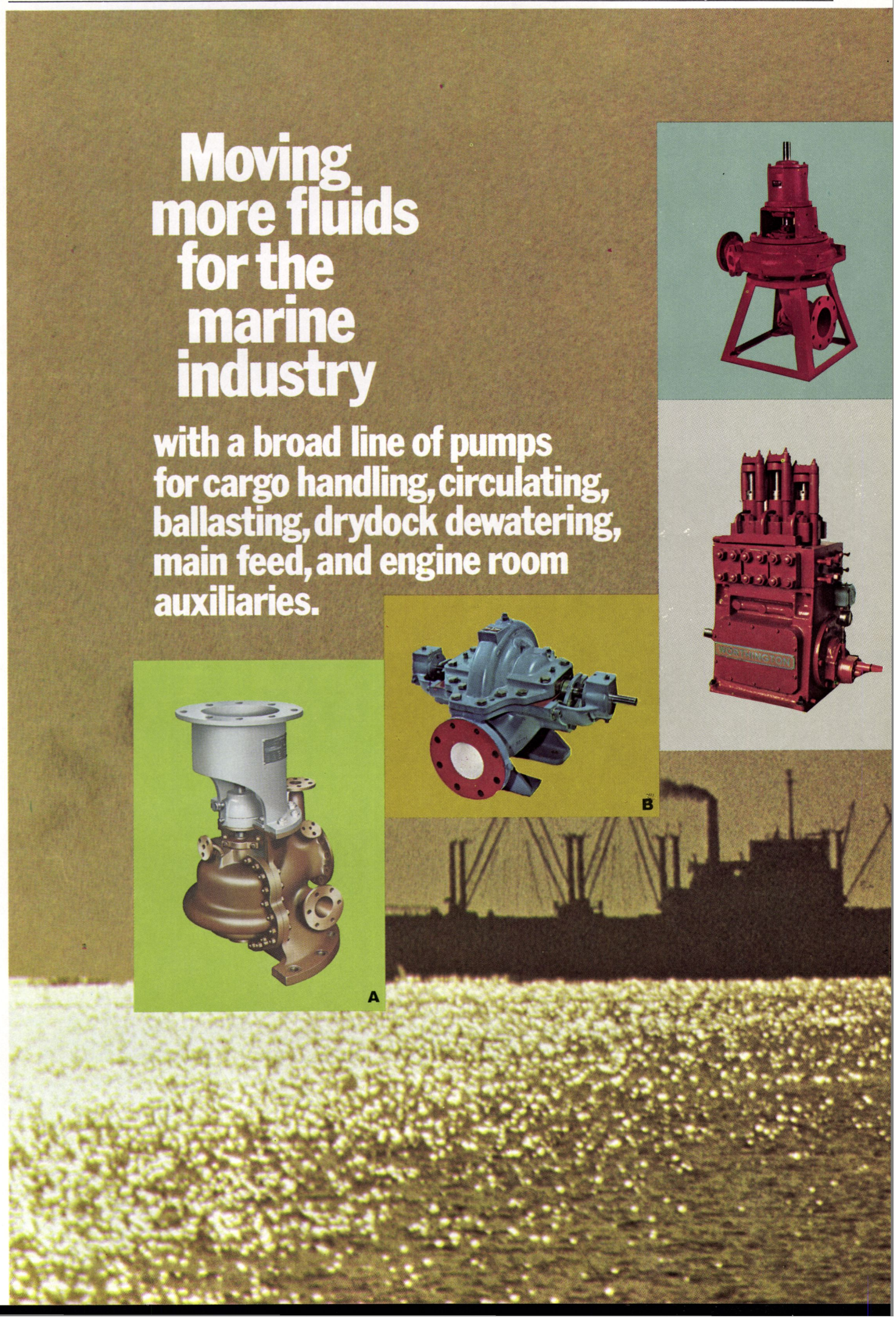
Perspectives On Third World Port Development

Within the last decade, containerization has transformed the appearance and operations of many ports in the developed world and has established a dominant position on virtually all deepsea general cargo routes between industrial nations. Despite some significant developments recently on routes to the Caribbean and Middle East, its impact on the ports and trade of the Third World generally remains limited. There are widespread doubts on the applicability of this sophisticated, capital-intensive system to the needs and resources of less developed countries, and the spread of containerization into the Third World arena is being fiercely resisted by more conventional forms of shipping (and in the Middle East by ro/ro). The most likely challenger on many routes is the modern multipurpose vessel—combining cost-saving series production with trading flexibility. Western shipowners and Third World national lines alike are confirming their faith in the future of these modern successors to earlier conventional tonnage by ordering them in large numbers. Will multipurpose ships succeed in halting the spread of container systems to the Third World? Or will the sceptics again be confounded (as they were by the rapid advance of containerization in the Western World a few years ago)? These and related questions are of great interest to investors, vessel operators and Third World port authorities and governments. "Perspectives on Third World Port Development," the latest in a long line of studies from HPD Shipping Publications, examines the factors involved and seeks to provide some answers.

Part I of the study reviews current problems in Third World ports, including congestion which, while it has been most dramatic in OPEC ports, is proving to be more endemic and long-lasting in the ports of the poorer developing countries. Congestion, to which under-investment is a contributing factor, is matched on the other side by the dangers of investing in the wrong sort of port facilities or of committing large amounts of capital too soon—e.g., to specialized container terminals which may remain grossly underutilized for several years. Either mistake can have near disastrous consequences for a developing country's trade and economic development. To establish the correct context for decisions on port investment and appropriate shipping technologies, the report reviews distinguishing features of Third World general cargo trade, existing port facilities, capital and labor endowments, inland transport infrastructure, and planning and managerial resources.

In Part II, the report goes on to compare the two main contenders for the deepsea general cargo traffic of developing countries—modern multipurpose shipping and fully cellular systems. Semi-containerships (an intermediate lift-on/lift-off shipping mode) are also examined. The significant features of each system are analyzed, including vessel characteristics and costs, compatibility with Third World trade flows, and drafts compared with depths of water in Third World ports. Port terminal requirements and costs are contrasted. One finding is that the level of containerizable traffic required to justify individual cellular services is considerably below that justifying investment in a specialized container terminal. The potential contribution of multipurpose berths, and other ways of bridging this gap—common in Third World ports—are assessed. The report identifies the current stage of container terminal development in developing countries and reviews plans for further specialized facilities. Another finding is the importance of effi-



cient inland transport. Delays in returning containers to the port can easily make the whole system uncompetitive through their effect on the required box:containership slot ratio. Other factors, such as trade imbalances and consequences of containerization for port employment may be less of a constraint than is commonly supposed. The report contrasts the implications of containerization and multipurpose shipping for inland transport, dock labor and port planning and management.

Developing countries are frequently criticized for investing too much in national fleet development and not enough in improved port facilities. Part III of the study investigates the facts behind this apparent bias and reveals the crucial importance of the distribution of benefits from port investment. Most of the benefits from improved port facilities flow initially to vessel operators who may see cargo-handling costs and turnaround times for existing ships reduced, or may be able to operate larger, more sophisticated vessels (such as containerships) as a consequence of the port improvements. Developing countries may shun major port investment, with its sizable demands on limited capital resources and possible adverse effects on port employment, unless they are assured of a share of the overall benefits which the investment brings. This will principally depend on port pricing policies, the rate-making practices of liner conferences and market elasticities—all topics which are covered in this 90-page study, which concludes by suggesting how the right balance between general cargo ports and shipping investment can be achieved.

"Perspectives on Third World Port Development," No. 54 in a series of reports on various aspects of shipping prepared by the Research Division of HPD Shipping Publications, 34 Brook Street, Mayfair, London W1Y 2LL, England, is available at a single copy rate of U.S. $75, or on a subscription basis at U.S. $275 for the current series of reports Nos. 51-60.

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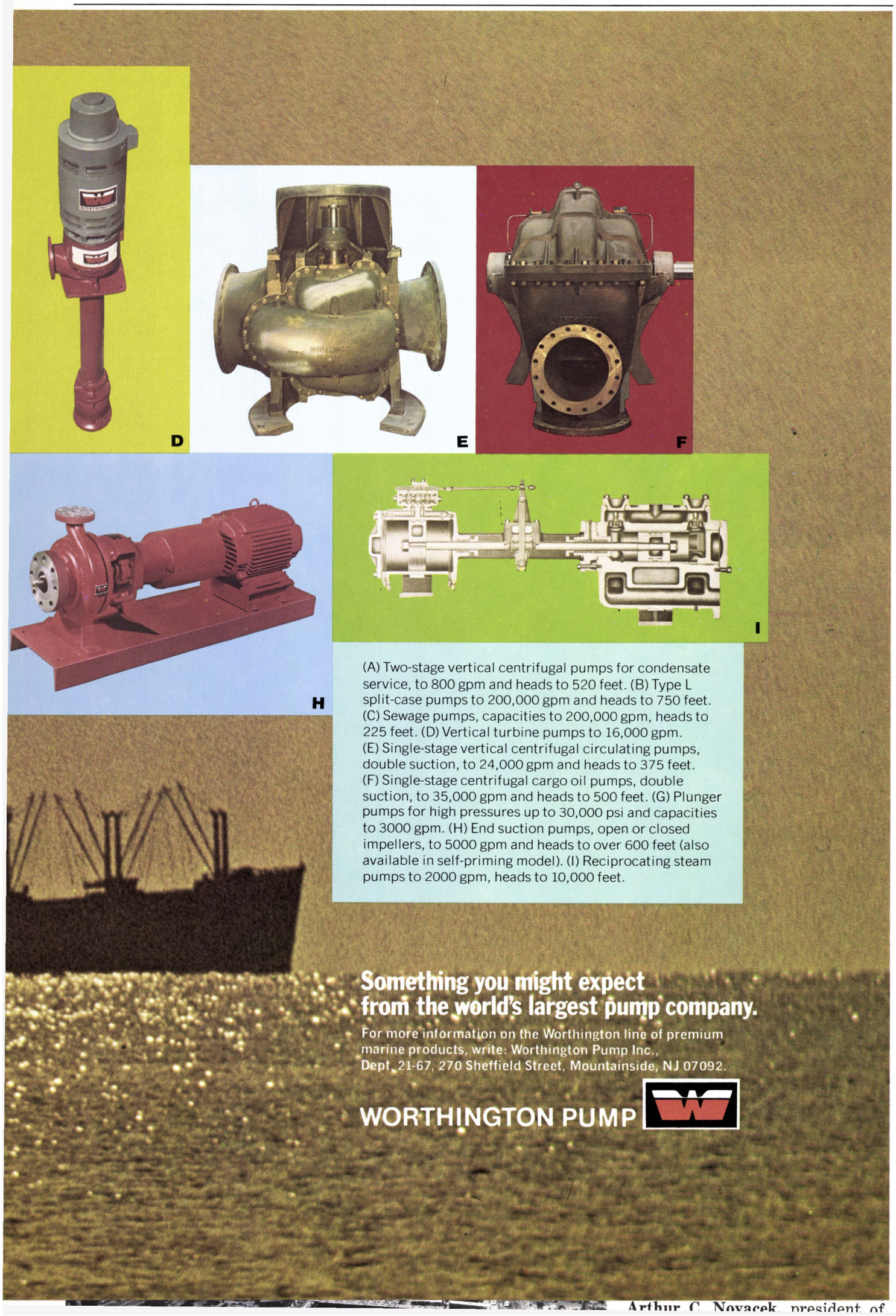


(A) Two-stage vertical centrifugal pumps for condensate service, to 800 gpm and heads to 520 feet. (B) Type L split-case pumps to 200,000 gpm and heads to 750 feet. (C) Sewage pumps, capacities to 200,000 gpm, heads to 225 feet. (D) Vertical turbine pumps to 16,000 gpm. (E) Single-stage vertical centrifugal circulating pumps, double suction, to 24,000 gpm and heads to 375 feet. (F) Single-stage centrifugal cargo oil pumps, double suction, to 35,000 gpm and heads to 500 feet. (G) Plunger pumps for high pressures up to 30,000 psi and capacities to 3000 gpm. (H) End suction pumps, open or closed impellers, to 5000 gpm and heads to over 600 feet (also available in self-priming model). (I) Reciprocating steam pumps to 2000 gpm, heads to 10,000 feet.

Arthur C. Novacek, president of ... Md. Mr. Costello will report di-

Farrell Sale And Leaseback Agreement Approved By MarAd

The Assistant Secretary, U.S. Department of Commerce, Maritime Administration, has approved the request by Farrell Lines Incorporated (Farrell) to enter into a sale and leaseback agreement for two containerships being built with the aid of construction-differential subsidy and a Title XI guarantee.

The vessels, Austral Pioneer and Austral Puritan, are presently under construction at Bethlehem Steel Corporation's Sparrows Point, Md., shipyard. They are scheduled for delivery in November 1978 and February 1979, respectively.

Under the sale and leaseback agreement, Farrell will assign its rights and obligations under the construction contracts for the vessels to the United States Trust Company of New York (Shipowner). The Shipowner will act as owner/trustee of the vessels under trust agreements, with wholly owned subsidiaries of the Bank of America National Trust and Savings Association as the equity participants.

Farrell will then bareboat charter the two container vessels under a separate 24-year charter for each of the ships. The terms of the sale and leaseback proposal are subject to approval by the Maritime Administration.

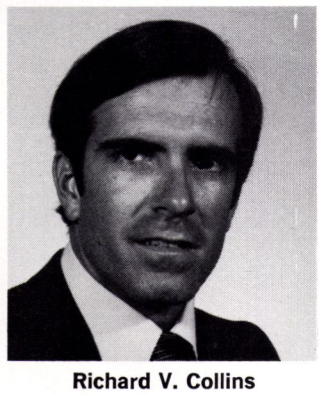
Delta Steamship Names Badger And Collins

James F. Badger has rejoined Delta Steamship Lines, Inc., as vice president-market research, according to an announcement by Capt. **J.W. Clark,** president of the New Orleans, La.-based line. **Mr. Badger** served previously with Delta Line (1967 to 1974) in various managerial capacities.

James F. Badger

In his new position, Mr. **Badger** will be involved with all phases of the company's marketing operations. A native of Gaffney, S.C., Mr. **Badger** attended graduate school at the University of South Carolina, and Tulane and was a candidate for a doctorate in economics at Tulane University in New Orleans.

Captain **Clark** also announced that **Richard V. Collins,** who has been with Delta since 1973, has been promoted to the position of assistant to the president.



Richard V. Collins

Mr. **Collins** is a 1966 graduate of the United States Merchant Marine Academy, holds an unlimited master's license and attended Northwestern University, where he earned a master's degree in business administration in 1973, when he first joined Delta. His most recent position with Delta was as assistant vice president-market research.

Delta Steamship Lines, Inc., 1700 International Trade Mart, New Orleans, La. 70150, owns and operates a fleet of ultramodern vessels that offer service between U.S. Gulf of Mexico ports

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51st Annual Propeller Club Convention And 1977 American Merchant Marine Conference Set For Galveston, Texas, Oct. 10, 11, 12, 13 And 14

"The American Merchant Marine—Lifeline to Peace and Progress" is the theme of the 51st Annual National Convention of The Propeller Club of the United States and the 1977 American

Meeting, Holiday Inn; 9 a.m., Women's Propeller Club Meeting, Holiday Inn; 9 a.m., Opening of the Convention—Welcomes: **Wallace R. Hogan,** general convention co-chairman; **William H.**

Scene," the Honorable **Richard J. Daschbach,** Chairman, Federal Maritime Commission, Washington, D.C.; "Conflicting Maritime Policies and Regulations," **Ernest J. Corrado,** Chief Counsel, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Washington, D.C.; "Expansion of Maritime Promotional Activities," **Robert E. O'Brien,** president, Moore McCor-

Menton, general manager, Marine Division, Exxon Company, U.S.A., Houston, Texas. Panelists: "Marine Safety and Inspection Standards in U.S. Waters," Adm. **Owen W. Siler,** USCG, Commandant, U.S. Coast Guard, Washington, D.C.; "A Ship Pilot's View of Navigation Problems," Capt. **Ernest J. Clothier,** president, American Pilots Association, Washington,

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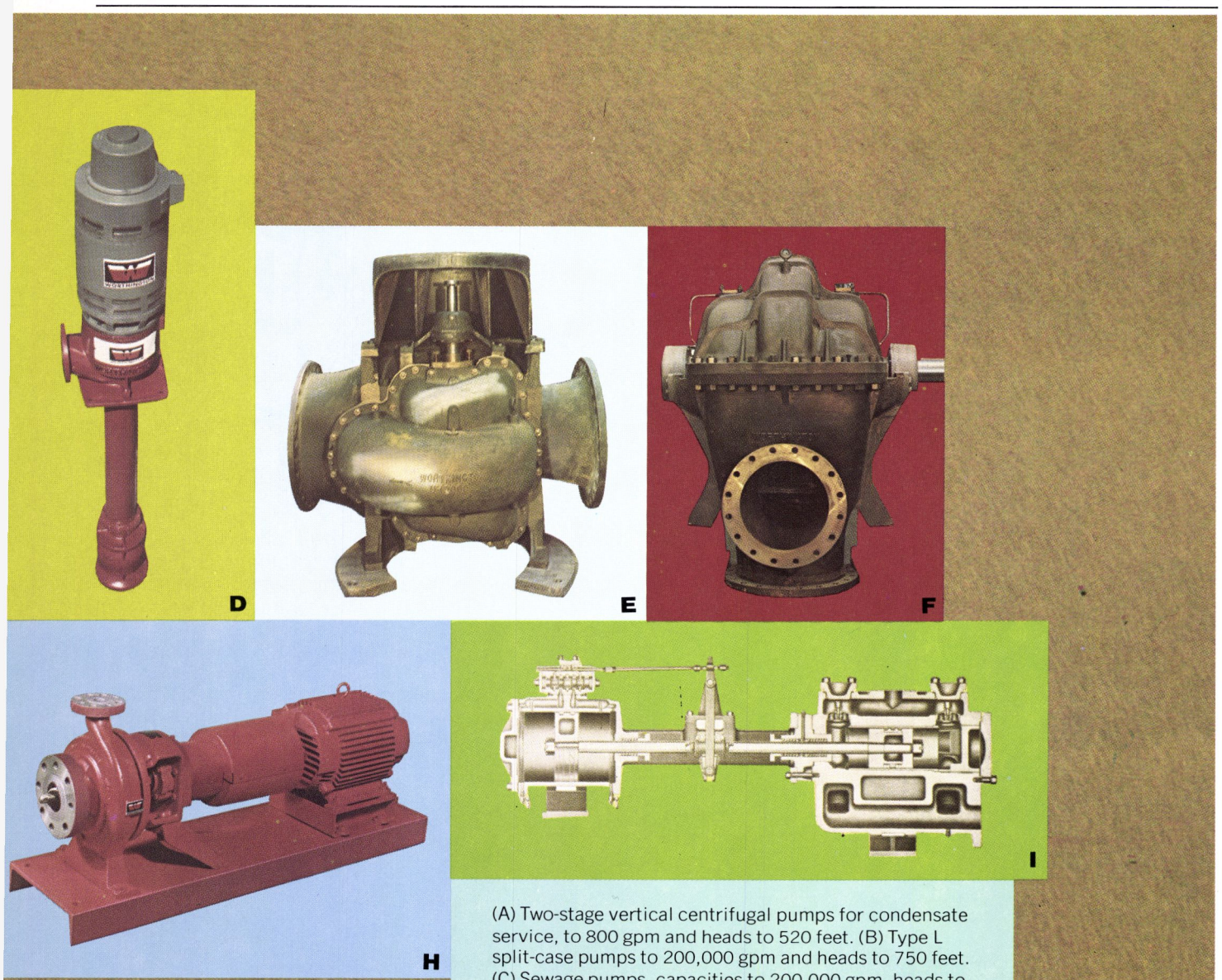

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Inland Well Service is a subsidiary of Texas International Company of Oklahoma City, Okla. Inland owns and operates nine barge-mounted workover/drilling rigs in the Gulf of Mexico.

Farrell Sale And Leaseback Agreement Approved By MarAd

The Assistant Secretary, U.S. Department of Commerce, Maritime Administration, has approved the request by Farrell Lines Incorporated (Farrell) to enter into a sale and leaseback agreement for two containerships being built with the aid of construction-differential subsidy and a Title XI guarantee.

The vessels, Austral Pioneer and Austral Puritan, are presently under construction at Bethlehem Steel Corporation's Sparrows Point, Md., shipyard. They are scheduled for delivery in November 1978 and February 1979, respectively.

Under the sale and leaseback agreement, Farrell will assign its rights and obligations under the construction contracts for the vessels to the United States Trust Company of New York (Shipowner). The Shipowner will act as owner/trustee of the vessels under trust agreements, with wholly owned subsidiaries of the Bank of America National Trust and Savings Association as the equity participants.

Farrell will then bareboat charter the two container vessels under a separate 24-year charter for each of the ships. The terms of the sale and leaseback proposal are subject to approval by the Maritime Administration.

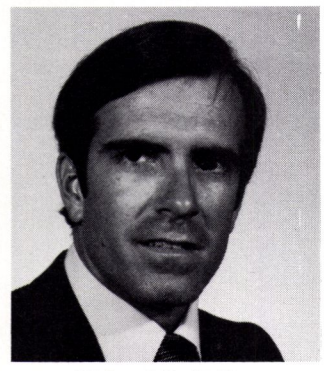
Delta Steamship Names Badger And Collins

James F. Badger has rejoined Delta Steamship Lines, Inc., as vice president-market research, according to an announcement by Capt. **J.W. Clark**, president of the New Orleans, La.-based line. Mr. **Badger** served previously with Delta Line (1967 to 1974) in various managerial capacities.

James F. Badger

In his new position, Mr. **Badger** will be involved with all phases of the company's marketing operations. A native of Gaffney, S.C., Mr. **Badger** attended graduate school at the University of South Carolina, and Tulane and was a candidate for a doctorate in economics at Tulane University in New Orleans.

Captain **Clark** also announced that **Richard V. Collins**, who has been with Delta since 1973, has been promoted to the position of assistant to the president.



Richard V. Collins

Mr. **Collins** is a 1966 graduate of the United States Merchant Marine Academy, holds an unlimited master's license and attended Northwestern University, where he earned a master's degree in business administration in 1973, when he first joined Delta. His most recent position with Delta was as assistant vice president-market research.

Delta Steamship Lines, Inc., 1700 International Trade Mart, New Orleans, La. 70150, owns and operates a fleet of ultramodern vessels that offer service between U.S. Gulf of Mexico ports and the east coast of South America, Central America, the Caribbean and West Africa. Recently, Delta and Prudential Lines, Inc., signed a letter of intent by which it is expected that Delta will acquire Prudential's Latin American trade services.

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Moisture tolerance	Can apply to damp surface	requires dry surface
Number of coats	1	2-3
Curing time	None	48 hours
Flash point during application	Over 400° F	Under 110° F
No-rust guarantee	3 years	None known

Chart comparison based on in-service ballast tank applications.

*This guarantee does not cover applications where our specifications were not followed or to in-service vessels where Fluid Film may have been applied over loose, non-adhering rust/scale. It also does not cover any area where the material was removed.

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THREE IN ONE — This photo of three liquefied natural gas (LNG) carriers in various stages of construction at Tenneco's Newport News Shipbuilding, Newport News, Va., was taken atop the yard's 900-ton crane recently during the launch of the El Paso Arzew, the ship with bunting draped on its bow. In the background is the El Paso Southern, launched in January. In the foreground is the El Paso Howard Boyd, third of the three LNG carriers being built at the world's largest shipyard. The 1,600-foot dock can simultaneously accommodate one and a half ships.

CCN Of Brazil Launches New Type Bulk Carrier

The first export vessel of a new design of 26,500-dwt bulk carriers has been launched from the Maua yard of the leading Brazilian shipbuilder, Companhia Comercio e Navegacao (CCN).

The vessel, named the Alexandros G. Tsavliris, will be owned by the Greek Tsavliris Group. She was sponsored at the launching by **Mrs. Claire A. Tsavliris.**

The ship, the first vessel to be ordered in Brazil for Greek account, is one of two Prinasa 26/15s ordered at CCN by the Tsavliris Group. The second vessel, to be called the Claire A. Tsavliris, is due to be delivered to her owner in December.

Prinasa 26/15s for export include two for Interoceanica of Valparaiso, Chile, and two for the Greek Kalamotusis Group. Brazilian owners, other than Lloyd Brasileiro and Netumar, who have Prinasa 26/15s on order are Paulista, Alianca and Frota Amazonica.

The Prinasa 26/15 was designed jointly by CCN's own naval architecture company, Prinasa, and Sener of Bilbao, the Spanish engineering company.

The vessel is capable of carrying general cargo, containers, iron ore and an unlimited variety of other goods. Equipped with a 13,300-bhp diesel engine, it can develop a service speed of 15.4 knots at 85 percent MCR. The ship length overall is about 568 feet, molded breadth 87 feet, and molded depth 44 feet. She has five holds.

CCN is currently constructing a series of 42 SD-14s, (23 of which have been delivered), 13 Prinasa 121s (four delivered), and 22 Prinasa 26/15s (one delivered).

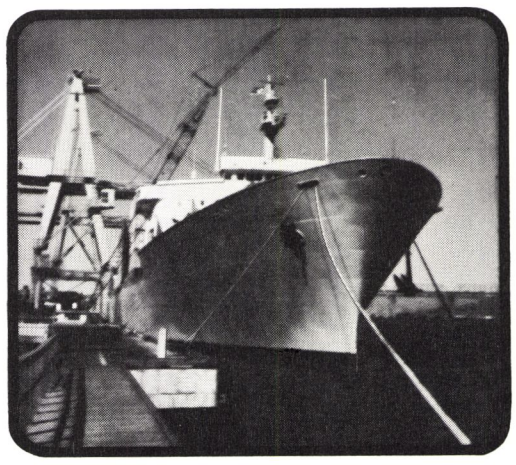
The Prinasa 26/15s are being constructed on CCN's modernized slipway, and the SD-14s and Prinasa 121s in the graving dock which has been converted to newbuilding under the yard's recent £16 million (approximately $28,000,000) expansion and modernization program.

MORAM Opens Branch Office In Baltimore

MORAM Agencies has announced the opening of a branch office in Baltimore, with the purpose of providing better service in view of the expansion of the activities of MORAM's representations in that area.

In making this announcement, **Arthur C. Novacek,** president of MORAM, commented that not only does FESCO have approximately two monthly calls in Baltimore with its Southeast Asia vessels, but that BLASCO Mideast vessels are also calling there at least on a monthly basis, plus a monthly call by Baltic Mideast ro/ro vessels.

The Baltimore office will be headed by **Rick Costello** as branch manager, and is located at 237 East Redwood Street, Baltimore, Md. Mr. **Costello** will report directly to **Edward Stellin,** who is vice president, operations.



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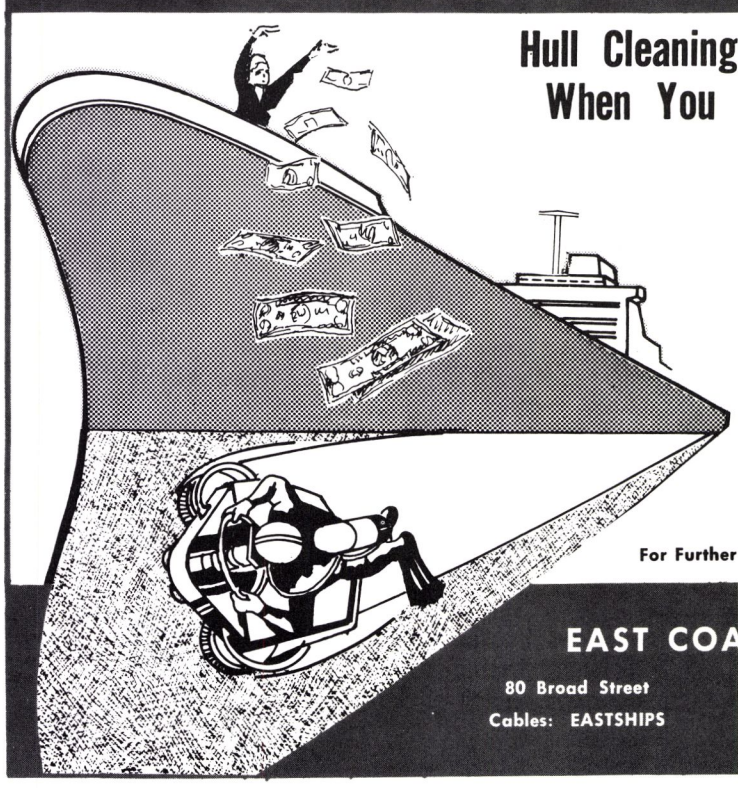

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51st Annual Propeller Club Convention And 1977 American Merchant Marine Conference Set For Galveston, Texas, Oct. 10, 11, 12, 13 And 14

"The American Merchant Marine—Lifeline to Peace and Progress" is the theme of the 51st Annual National Convention of The Propeller Club of the United States and the 1977 American Merchant Marine Conference, which will be held October 10, 11, 12, 13 and 14, 1977, at the Moody Civic Center in Galveston, Texas. The general convention co-chairmen are **Wallace R. Hogan,** assistant vice president, Designers & Planners, Galveston, and **William H. Johnson,** vice president-Marine, Commonwealth Oil Refining Co., Inc., San Antonio, Texas. Conference chairman is **John T. Gilbride,** chairman, Todd Shipyards Corporation, New York, N.Y.

Pre-Convention Agenda

October 10 — Monday — Pre-convention Golf Tournament, Galveston Country Club; 9 a.m., Buses depart from the hotels; 10:30 a.m., Tee-Off Time; Post Tournament Reception and Awards.

October 11 — Tuesday — Pre-Convention 12-noon luncheon — National Board of Governors and National Executive Committee; 1:30 p.m., Joint Meeting — National Board of Governors and National Executive Committee; 2-9 p.m., Registration; 6 p.m. to 1 a.m., Early Arrivals Reception — Refreshments, heavy hors d'oeuvres, dancing.

Agenda

October 12 — Wednesday — 7:45 a.m., Women's Propeller Club Port Presidents Breakfast Meeting, Holiday Inn; 9 a.m., Women's Propeller Club Meeting, Holiday Inn; 9 a.m., Opening of the Convention—Welcomes: **Wallace R. Hogan,** general convention co-chairman; **William H. Johnson,** general convention co-chairman; **L.B. Prino,** president, Propeller Club of Galveston; **Lloyd A. Strickland,** national president, The Propeller Club of the United States, vice president, Lykes Bros. Steamship Co., New Orleans, La.; 9:15 a.m., First Convention Business Meeting, Presiding: **Lloyd A. Strickland,** national president.

11:30 a.m., Buses depart from the Moody Center for Ladies Luncheon at Ashton Villa, followed by a historical tour of Galveston; 11:15 a.m., Luncheon Reception; 12 noon, Port of Galveston Luncheon, Presiding: **Charles S. Devoy,** Port Director, Galveston; Welcome: the Honorable **John G. Unbehagen,** Mayor of Galveston; Introduction: **Lloyd A. Strickland,** national president; Speaker: the Honorable **Jack Brooks,** Chairman, Committee on Government Operations, U.S. House of Representatives, Washington, D.C.

2 p.m.-4:45 p.m., First Conference Session. Presiding: **John T. Gilbride,** conference chairman; 2 p.m., Conference Panel. "Rising Tide of Maritime Regulation and Administration," Moderator: **W.M. Amoss Jr.,** president, Lykes Bros. Steamship Co., New Orleans, La. Panelists: "Shipping Regulation on the International Scene," the Honorable **Richard J. Daschbach,** Chairman, Federal Maritime Commission, Washington, D.C.; "Conflicting Maritime Policies and Regulations," **Ernest J. Corrado,** Chief Counsel, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Washington, D.C.; "Expansion of Maritime Promotional Activities," **Robert E. O'Brien,** president, Moore-McCormack Lines, Inc., New York, N.Y. 3:30 p.m., Conference Panel. "American Shipbuilding — National Security and Welfare," moderator: **Edwin M. Hood,** president, Shipbuilders Council of America, Washington, D.C. Panelists: "Myths and Facts About American Shipyards," **John F. Sullivan,** president, Bath Iron Works Corporation, Bath, Maine; "Adequacy of the Shipbuilding and Ship Repair Mobilization Base," **Ralph W. Cousins,** president, Newport News Shipbuilding & Dry Dock Co., Newport News, Va.; "U.S. Shipbuilding—An Economic Force," **C. Larry French,** president, National Steel & Shipbuilding Co., San Diego, Calif.; "Recent Influences on Shipyard Activities," **Leonard Erb,** president, Ingalls Shipbuilding, Pascagoula, Miss.

6:30 p.m.-1 a.m., National President's Reception—Refreshments, heavy hors d'oeuvres, dancing.

October 13—Thursday—7 a.m., Port Secretaries Breakfast, Flagship; 9 a.m., Women's Propeller Club Meeting, Holiday Inn; 9 a.m.-11:45 a.m., Second Conference Session. Presiding: **John T. Gilbride,** conference chairman; 9 a.m., Conference Panel. "Merchant Marine Safety and Oil Pollution," Moderator: **O.R. (Buddy) Menton,** general manager, Marine Division, Exxon Company, U.S.A., Houston, Texas. Panelists: "Marine Safety and Inspection Standards in U.S. Waters," Adm. **Owen W. Siler,** USCG, Commandant, U.S. Coast Guard, Washington, D.C.; "A Ship Pilot's View of Navigation Problems," Capt. **Ernest J. Clothier,** president, American Pilots Association, Washington, D.C.; "Role of Satellites in Maritime Shipping," Dr. **William J. Thaler,** Director, Office of Telecommunications, Executive Office of the President, Washington, D.C. 10:30 a.m., Conference Panel. "Domestic Waterborne Shipping — Under Fire," Moderator: **R.J. Pfeiffer,** president, Matson Navigation Company, San Francisco, Calif. Panelists: "Waterway User Taxes and Locks & Dam 26 on the Mississippi—Two Separate Issues," **Frank T. Stegbauer,** chairman, American Waterways Operators, Memphis, Tenn.; "Great Lakes Shipping—A Vital Lifeline," the Honorable **James L. Oberstar,** Committee on Public Works and Transportation, U.S. House of Representatives, Washington, D.C.; "Coordination in Domestic Transportation Policies for Progress," **William C. McNeal,** consultant, Water Transportation, New Orleans, La.

11:30 a.m., Ladies Luncheon and Style Show, Holiday Inn; 11:45 a.m., Luncheon Reception; 12:30 p.m., American Marine Industries Luncheon. Presiding: **William H. Johnson,** convention co-chairman. Introduction: **James J. Reynolds,** president, American Institute of Merchant Shipping, Washington, D.C. Speaker: the Honorable **Robert J. Blackwell,** Assistant Secretary for Maritime Affairs, U.S. Department of Commerce, Washington, D.C.

6 p.m.-1 a.m., Galveston Port Western Dance at Seawolf Park on Pelican Island. Refreshments and Dinner—Transportation provided to and from hotels.

October 14 — Friday — 8 a.m., Women's Propeller Club Board of Governors; 9 a.m., Women's Propeller Club Business Meeting; 9 a.m.-11:45 a.m., Third Conference Session. Presiding: **John T. Gilbride,** conference chairman; 9 a.m., Conference Panel. "Maritime Industry—More than Shipping," Moderator: **Thomas B. Crowley,** president, Crowley Maritime Corporation, San Francisco, Calif. Panelists: "Fishing — A National Resource," **Robert W. Schoning,** Director, National Marine Fisheries Service, NOAA, U.S. Department of Commerce, Washington, D.C.; "Offshore Industry—Progress—Past and Present," **Paul L. Kelley,** vice president, Zapata Corporation, Houston, Texas; "Marine Manufacturers Role in Marine Industry," **Frederick W. Hassett,** marketing manager, Westinghouse Corp., Sunnyvale, Calif. 10:30 a.m., Conference Panel. "Cargoes—Survival for American Flag Shipping,"

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Moderator: **Thomas J. Smith,** president, Farrell Lines Incorporated, New York, N.Y. Panelists: "Energy Transportation Policy," **Shannon J. Wall,** president, National Maritime Union of N.A., New York, N.Y.; "The American Shipper and American Ships," **Marc Haines,** vice president-Orient Operations, Mattel Toys, Inc., Hawthorne, Calif.; "U.S. Flag Shipping — Cargo Equity," **M. Lee Rice,** president and chief executive officer, Ogden Transportation Corp., New York, N.Y.

11:45 a.m., Luncheon Reception. 12:30 p.m., American Merchant Marine Conference Luncheon. Presiding: **Wallace R. Hogan,** convention co-chairman. Conference Summary and Introduction: **John T. Gilbride,** conference chairman. Speaker: the Honorable **John M. Murphy,** Chairman, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Washington, D.C. 2:30 p.m., Final Convention Business Meeting. Presiding: **Lloyd A. Strickland,** national president.

6 p.m., Banquet Reception. 7 p.m.-1 a.m., Annual Banquet of The Propeller Club of the United States and the American Merchant Marine Conference (Black tie preferred). Dining, Refreshments, Dancing and Entertainment.

Bulletin Describes Heavy-Duty Oil Filtration Systems

Twin Disc, Incorporated, Racine, Wis., has announced new single and dual heavy-duty oil filtration systems that are compatible accessories for use in many types of hydraulic systems as well as with Twin Disc Power-Shift Transmissions and Twin Disc Marine Transmissions. Twin Disc recommends these medium pressure oil filtration systems to ensure proper performance and long component life. They are available in 30 or 60-gpm capacities, with 25-micron (nominal) filter elements.

Twin Disc Oil Filters for hydraulic oil, lubricating oil and diesel fuel can be integral or remote mounted. The filter systems are easily installed in the field, or can be specified when ordering new transmissions. For optimum efficiency, Twin Disc Model MA-678 or MA-679 differential pressure gauges are recommended to indicate when the easily replaceable filter element should be changed.

Approved Twin Disc Renewal Parts including filters, filter elements and differential pressure gauges are available from the worldwide network of Twin Disc Authorized Distributors. For more information on Twin Disc's new line of oil filtration systems, request bulletin 600 from **Jack N. Yetter,** Twin Disc, Incorporated, Racine, Wis. 53403.

Eight-Page Brochure Describes National's Fully Hydraulic Cranes

National Supply's line of fully hydraulic cranes for offshore operations is described in a new eight-page brochure. The three models covered—OS-105, OS-215, and OS-435—offer maximum API load ratings, respectively, of 85,900 pounds, 126,000 pounds, and 170,500 pounds. All feature National's innovative variable pressure hydraulic system for optimum operator control and crane safety. Boom hoist, main hoist, and fast line hoist and swing have separate hydrostatic circuits so three functions (swing, boom hoist and main line on whip line hoist) can be operated simultaneously with no loss in speed and power. Unique hydraulic power-down provision allows control over heaviest loads without assistance from the friction brake, saving unnecessary component wear. The brochure contains five pages of charts and tables giving dimensions, capacities and performance specifications for each of the three crane sizes.

Write to **William D. Marmack,** National Supply Company, 1455 West Loop South, Houston, Texas 77027, for National Pedestal Cranes Bulletin No. 624.

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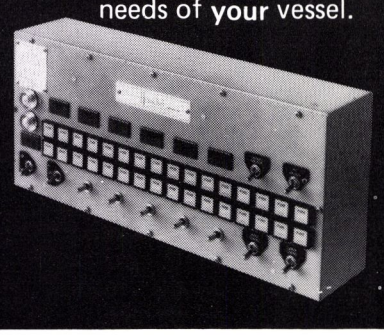

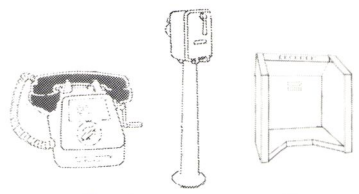

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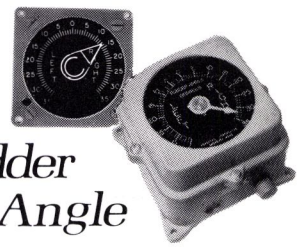

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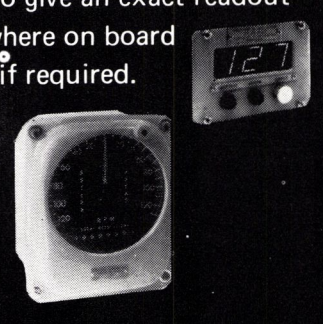

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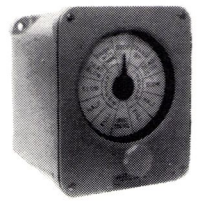
These Engine Order Telegraphs have become a familiar symbol of precise ship control.



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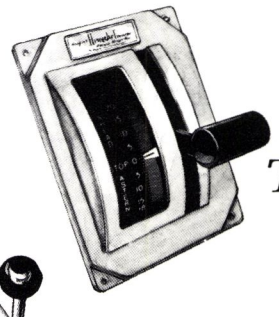

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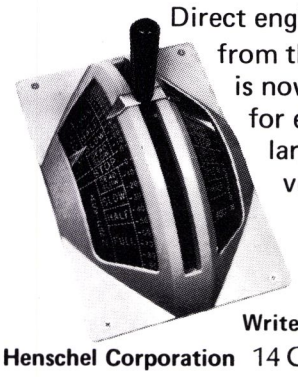

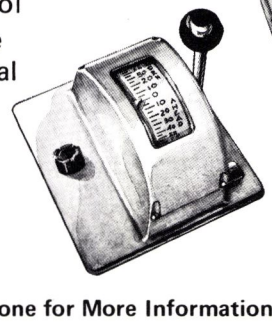

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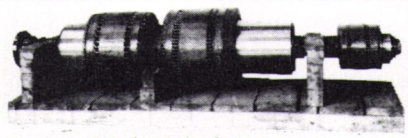

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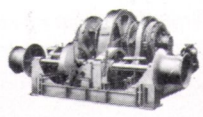

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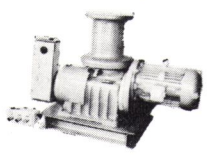
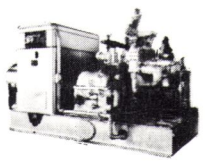
Duty 10,000 lbs @ 60 FPM



MOTOR: 10 HP—totally enclosed—fan cooled—continuous duty—horiz. flange mounted — special shaft & oil seal fitted—440/3/60—1760 RPM. CONTROL: Marine type watertight pushbutton — forward/reverse/stop—watertight starter box. DIMENSIONS: Barrel 10" diam.—top flange 14½" diam.—bottom flange 16½" diam.—ht. of spool 16"—approx. 26" wide & 36" long.

IMMEDIATE DELIVERY FROM STOCK

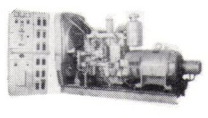
G.E. 600 KW GEARED TURBO GENS.



450/3/60/1200 RPM—961 amps —type AT1—0.8 PF. TURBINE: FSN-FN-20 6-stage — 525 lbs/825°F—superheat 355°/371°F. GEAR: 10033/1200—RPM 1033 — total — 6390 lbs. steam/hr. steam flow.

75 KW CUMMINS EMERGENCY DIESEL GENERATOR SET

as removed from U.S.N. Ship "Pecos"



ENGINE: Electric starting 6-cylinder Cummins, radiator cooled, with alarms. GENERATOR: 75 KW — 93.8 KVA — 440/3/60 — 1200 RPM — 120 amps. Field circuit 125 volts — 15.4 amps — with free-standing switchgear.

C4-S-A1 KAISER VESSEL

MACHINERY

Formerly Operated By Bethlehem Steel Co.

- 1 H.P. Westinghouse turbine — S.H.P. 4500 — 5358 RPM — 440# — 740°TT — instruction book 6535.
- 1 L.P. Turbine Rotor
- 3 Worthington-Moore 400 KW aux turbine rotors — seven stage—6097 RPM—form S6
- 1 Set reduction gears—type 14x10—single reduction double helical—6097/1200—for aux turbo generator sets
- Also quantity of boiler safety valves 1½" & 2" Consolidated
- 1 Set HP & LP couplings for Westinghouse HP & LP turbines — 9000 SHP normal — 9900 SHP maximum
- Two main stop valves — boiler — 600 series — 5" Crane
- Pumps

9 x 12 2-SPEED ALL-STEEL

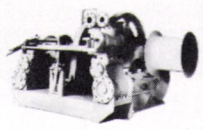
STEAM WINCHES

for use as

MOORING WINCHES

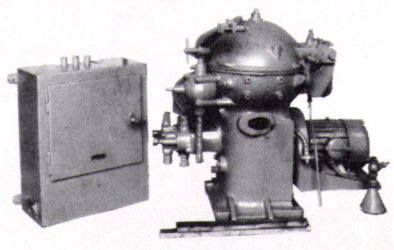
OR GENERAL USE

20,000 LBS @ 110 FPM — 7450 LBS @ 250 FPM



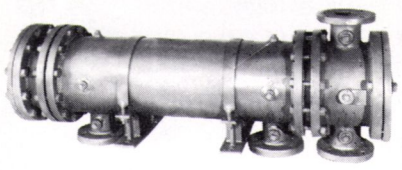
DRUM CAPACITY: 1250' of 1" wire in 9 layers or 2200' of 3/4" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies. Drum brake—contracting band type—asbestos lining—foot operated. WINCH DIMENSIONS: 12' long—8' wide —5'10" high. Reconditioned by U.S. Navy. Equal to new.

FUEL OIL OR LUBE OIL PURIFIER



De Laval — 600 GPM — type B-1529C-60 — with 3 HP 440/3/60 motor. Mfg by German De Laval. Has new stainless steel bowl. Spare parts available.

LUBE OIL AND FRESH WATER COOLERS



LUBE OIL COOLER

42.5 Square feet—weight 660 lbs—87 tubes 5/8" 0.049.

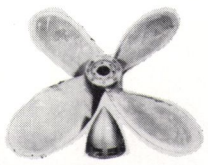
FRESH WATER COOLER

75.2 Square feet—weight 800 lbs—102 tubes 5/8" 0.049.

SUITABLE FOR ENGINES UP TO 900 BHP

FOR LST VESSELS

- **PROPELLERS — Port & Starboard**

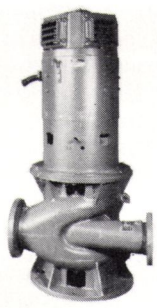


Also for tugs & motor vessels having LST propellers. 7.0' Diameter — 4.583' pitch. Weight 1820 lbs. Available: 2 Starboard (reconditioned) 2 port (reconditioned) 1 port (new). Bronze.

- **FIRE & BILGE PUMPS**

Manufactured by Gould — horizontal centrifugal — bronze. 4" Suction—3" discharge—250 GPM @ 100 PSI—2200 RPM—30 HP 230 VDC motor with magnetic starter.

- **BALLAST PUMPS**



Gardner-Denver — bronze — vertical — total suction lift 15' — 8" suction — 6" discharge — 1500 GPM @ 25 lbs — 1750 RPM. MOTOR: 30 HP — 230 VDC — 112 amps — made by Century.

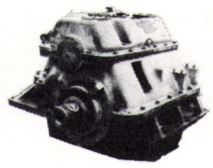
- **ANCHOR WINDLASS MOTORS**

Vertical — 20 HP — 230 volts D.C.

- **RAMP WINCH MOTOR**

20 H.P. gearhead deck ramp winch motor.

- **PORT & STARBOARD REVERSE AND REDUCTION GEARS**



1 Set — with Airflex clutch. Ratios — 2.48:1 forward — 2.52:1 astern. Suitable for use with 12-567A & 12-278A engines. Port & starboard units.

MATCHED PAIR 12-278A G.M. ENGINES

900 HP @ 744 RPM — 8¾" x 10½" — 12 cylinders — VEE type on common base with reduction gear — 2.48:1—Falk—port & starboard. Will sell separately.

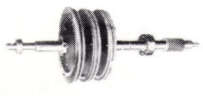
- **MISCELLANEOUS**
  - Bronze Triplex Strainers
  - Pneumatic Control Stands
  - Combination Lube Oil & Fresh Water Pump for Reduction Gear

SPECIAL OFFER

T-2 AUXILIARY GENERATOR ROTORS

G.E. AUX. TURBINE ROTORS DORV-325M — 5645 RPM

For G.E. 525 KW TURBO GENERATOR SETS



Very little use. In like-new condition. Balanced, and with A.B.S. Certificate.

STATIONARY BLADING AVAILABLE

KNOWN 'ROUND THE WORLD

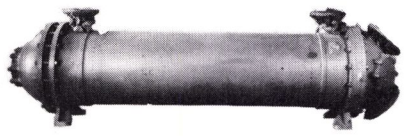
THE BOST

313 E. BALTIMO

Main Office: (301) 5

ROSS COOLERS

ALL EX-LST UNITS—FORMERLY USED WITH 12-278A & 12-567A ENGINES



TYPE 1596 — 317 SQ. FT.

12-567A use — water-to-water — flanged — 2-pass. 196 Cupro nickel tubes — 5/8" diam. — 18 Bwg. Copper shell — cupro-nickel heads. 5" seawater inlet — 4" freshwater inlet. Centers of fresh water inlets 84" — overall cooler length 9' 7-3/8".

TYPE 1566 — 252 SQ. FT.

12-567A use. Oil to water — flanged — Shell OD 16". 2-Pass — 196 Cupro-nickel tubes — 5/8" diameter — 18 BWG. 5" Seawater inlet — 3" oil inlet. Centers of oil inlets 55".

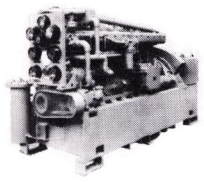
TYPE 1460 — 160 SQ. FT.

2-Pass — 15" diameter — 80" overall — 5" seawater inlet — 3" oil inlet — 5/8" tubes. Centers of oil inlets 49¼". Copper shell.

TYPE 848 — 75 SQ. FT.

Single pass — copper shell — 8" diameter — oil inlet & outlet 1½" — overall length 60".

100 KW GBD-8 DIESEL GENS.

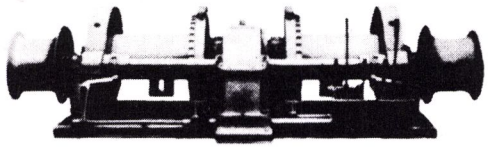


From LST vessels. 120/240 VDC — 417 amps — stab shunt — 1200 RPM —Delco gen.—self-excited. ENGINE: Superior GBD-8 — 8 cyl — 5½x7 — 150 HP — 30 volt electric starting. Reconditioned to ABS. Dry wt 10,000 lbs — DAL 124" — 65-11/16" high — 42" wide. Ht necessary to pull piston 68". Fuel consumption 0.620 lbs/hr

DOUBLE-DRUM TOWING-MOORING-UTILITY WINCHES

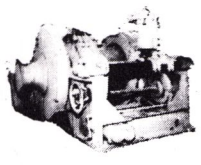
DUTY:

30,000 LBS @ 50 FPM
15,000 LBS EACH DRUM
USING BOTH DRUMS SIMULTANEOUSLY



DRUM: 22" diameter — 36" face — 2500 feet of 1¼" wire. Equipped with spooling device. MOTOR: 75 HP — 230 VDC — under-deck mounted — 262 amps — 1140 RPM. Complete with all controls — mfg by Commercial Iron Works. Winch heads declutchable. OAW 16'9" — OAH 57" OA Depth 7'7".

100,000 lb. Almon Johnson Constant Tension Mooring Winches



1 Available. In very good condition. Series 232 mooring & anchoring winches — automatic self-tensioning. Wide range from 100,000 lb line pull at 10 FPM to 26,000 lbs at 400 FPM. Gypsy line pull 12,000 lbs at 125 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP — 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab. shunt — 181 amps — max. RPM 1900. Cutler-Hammer brake — 18" — type NM.

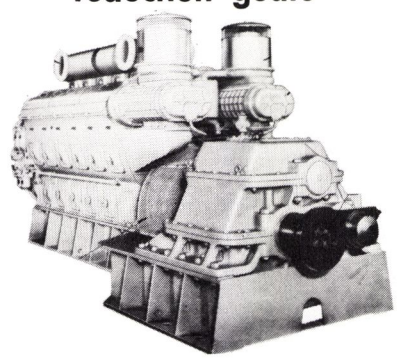
ON METALS CO.

E ST. • BALTIMORE, MD. 21202

9-1900 Marine Dept.: (301) 355-5050

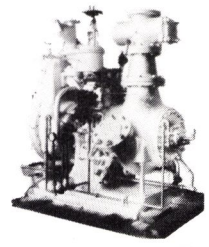
MATCHED PAIR 900 H.P. G.M. 12-567A DIESEL ENGINES

with Falk reverse and reduction gears



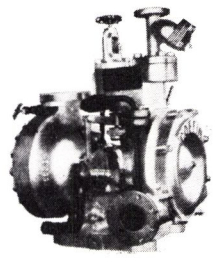
ENGINE: 12-567A — 8½x10 — VEE type — 2-cycle — 747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse and reduction—2.48:1 forward—2.52:1 reverse.

COFFIN FEED PUMPS — ALL SIZES — TYPE DE



3 TYPE DE-2
540 GPM 1870' NET HEAD
8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

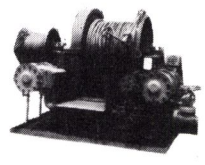
2 TYPE DE-B 214 GPM 2070' NET HEAD
7040 RPM — 241 HP. Steam pressure 597 PSI — superheat 100°-300°F. Typical serial No. DEB 1-25-37



TYPE CG

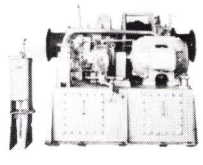
2 TYPE CG 350 GPM 1880' NET HEAD
7220 RPM—311 HP. Steam pressure 580 PSIG—0°-100° superheat. Exhaust 15 lbs—typical serial #5437-CG-8-8-33

12 x 14 AUTOMATIC STEAM TENSIONING MOORING WINCHES



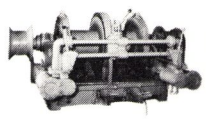
CAPACITY: First layer 20,000 lbs. @ 100 FPM, 16,000 lbs. @ 150 FPM. Drum will stow 1500 ft. of 1½" wire rope in 9 layers. Overall width 8' 4½"—overall length 8½'. 3" Steam connection — 4" exhaust. Drum 2' diameter—drum width 2' 6¾". Manufactured by American Engineering Co.

50 H.P. ELECTRO-HYDRAULIC SINGLE DRUM SINGLE GYPSY MOORING OR CARGO WINCHES



7400 LBS at 220 F.P.M. — up to 700 feet of 1" wire. With hydraulic brake assembly. 50 HP — 440/3/60 squirrel cage Reliance motor—1180 R.P.M.—66 amps — Frame CC445N. Water Bug hydraulic pumps and motor. "A" end size 5 — "B" end size 5. Complete with deck mounted control.

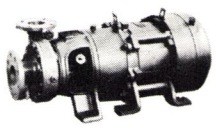
7 x 10 CLYDE DOUBLE DRUM WINCH



Drum 8500 lbs. @ not less than 120 FPM; 13,000 lbs. at no specified speed. Gypsy head 22,500 lbs. static pull. Foot brake to hold 17,000 lb. pull. Steam cylinders with standard 250 P.S.I. DIMENSIONS: 9' 5¾" wide over winch heads—5' 10½" wide over bedplate—4' 1" deep over bedplate—6' 5" overall (brake pedal, etc.)—2" steam—2½" exhaust. Drums 16" diameter—20" wide—33 13/16" over flanges. Rebuilt by U.S.N. equal to new.

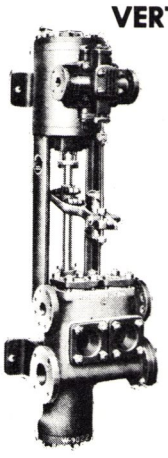
PUMPS

INGERSOLL-RAND FIRE & FLUSHING PUMPS



Reconditioned — with A.B.S. — 200 G.P.M. — 100 P.S.I. discharge. Suction 3½" — discharge 3" — 3500 RPM — bronze construction — flanged. MOTOR: 20 H.P. — 440/3/60/3600 RPM — G.E. type KF — Frame 326 — full load amps 28.

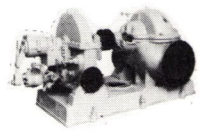
UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



7½x4x10—3" suction—2" discharge—1¼" steam—1½" exhaust. OAH 5'2"; OA depth 23"; OAW over air dome 2'2". Weight about 800#. Suitable for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.

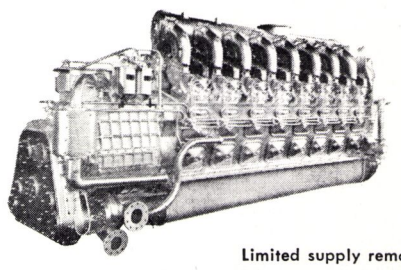
$795

TURBINE-DRIVEN CIRCULATOR



6300 GPM at 25' or 4000 GPM at 35'. Pump — 12 x 14 — 75 HP turbine — 600 lbs — 5 lbs back pressure — 1200 RPM. Turbine manufactured by Whiton — type B.K.S. Pump manufactured by Lawrence

G.M. 16-278A 1700 H.P. DIESEL ENGINES



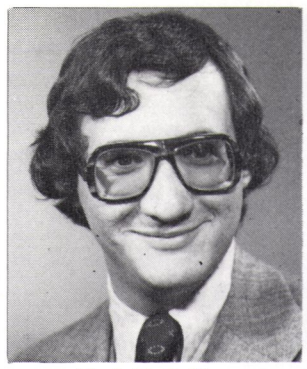
Limited supply remaining

Complete, clean and in very good condition. As removed from U.S. Naval vessels. 1700 HP @ 750 R.P.M. Your inspection invited.

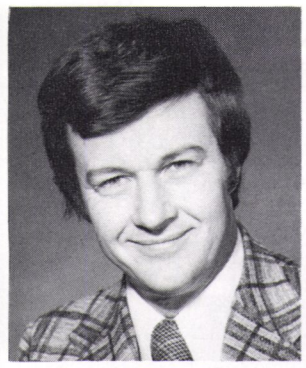
INQUIRE ABOUT ANY ITEMS YOU NEED!

Sperry Marine Systems Appoints Three

Albert M. Sims



Mark H. Schlam



Ronald G. Garber

John V. Walsh, vice president and general manager of Sperry Marine Systems, Great Neck, N.Y., has announced three marketing appointments.

Albert M. Sims has joined Sperry Marine Systems as marketing manager for Underwater Systems. He will be responsible for marketing such products as PADS (Parametric Array Doppler Sonar), SLMM (Submarine Launched Mobile Mine), and CAPTOR Mine Guidance. Mr. **Sims** was formerly with EDO Corporation.

Mark H. Schlam also joined Sperry Marine Systems as a senior marketing representative. He will concentrate on Collision Avoidance and Integrated Navigation Systems.

Ronald G. Garber has accepted a position as marketing representative, Far East. Mr. **Garber** was formerly with Olivetti.

All three gentlemen will be located at Sperry Marine Systems Worldwide Headquarters in Great Neck.

Sperry is a division of Sperry Rand Corporation.

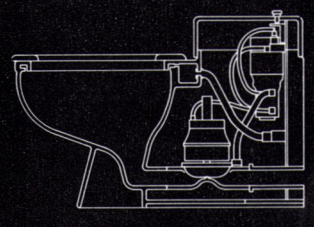
There is a big difference in Marine Sewage Systems

ENVIROVAC is the quality leader.

Colt has been a leader and pioneer in marine sewage systems for over 12 years. ENVIROVAC systems are being used on over 28 U.S. built vessels of all types and sizes with the highest degree of reliability. It is U.S. Coast Guard approved and installed on the 4 newest Coast Guard vessels and retrofitted on others.

In quality comparisons you can readily see the superiority of ENVIROVAC in its unique flush valve design... vitreous china toilets... special bowl design that provides clean and thorough flushes with only three pints of water... and its highly efficient, trouble-free vacuum system. All controls and the discharge valve are also easily accessible without dismantling toilet.

Get the big quality difference story on ENVIROVAC Vacuum Sewage Systems, today. Write or call Colt Industries, Water and Waste Management Operation, Beloit, Wisconsin 53511. 608/364-4411.



U.S.C.G. Certificate No. 159.15/1016/1/III

Colt Industries
Water and Waste
Management Operation

Todd Shipyards Los Angeles Division Lays Keel For First Of Six U.S. Navy Frigates

Participating in keel-laying were, left to right: **E. Petersen,** Todd FFG program manager; **S.C. Jones,** general manager, Todd Shipyards; Capt. **J.D.. Beecher,** PMS-399 NAVSEA; Capt. **E.A. Miller,** Supervisor of Shipbuilding; **H. Schaefer,** assistant general manager, Todd, and Comdr. **R.A. Radecki,** SupShip Project.

Todd Shipyards Corporation, Los Angeles (Calif.) Division, recently laid the keel for the first of six Guided Missile Frigates for the U.S. Navy.

The official certification of the keel was performed by Capt. **Edmund A. Miller,** USN, Commander, Long Beach Naval Shipyard and Supervisor of Shipbuilding, Conversion and Repair.

This keel-laying marks the first principal event of a building program which presently consists of six vessels, with options to build three or four more; options which could be exercised before the end of this year. Todd's Seattle (Wash.) Division is also currently building six similar vessels, two of which will be delivered to the Royal Australian Navy.

The vessel for which this first keel was laid will be commissioned the USS Wadsworth (FFG-9) in January 1980.

The Navy recently announced that its present planning includes construction of a total of 74 FFGs, and has awarded contracts for 18, including 11 to be built by Todd. With its capacity to deliver four ships per year, Todd Los Angeles expects to obtain a fair share of the remaining contracts to be awarded.

Assisting Captain **Miller** at the ceremony was Capt. **John D. Beecher,** USN, the Navy's Project Manager for FFG construction, and **Stuart C. Jones,** general manager of Todd Los Angeles.

Jordanian Resort Feasibility Study Awarded To Genstar

Genstar Limited, One Place Ville Marie, Montreal H3B 3R1, Canada, has announced that as a first step into the international construction management field, it has received an $850,000 contract from the Hashemite Kingdom of Jordan to proceed immediately with a feasibility study on the development of a resort complex at Aqaba, Jordan.

The cost of the project has been estimated in the range of $250,000,000. Aqaba is a major port city on the Gulf of Aqaba at the northern extremity of the Red Sea.

Genstar Limited, based in Montreal, is a diversified operating company which manufactures cement, building materials, chemicals and fertilizers, and is engaged in housing, land development, commercial property development and management, construction, tug and barge transportation, shipbuilding and ship repairs, import-export of industrial minerals, and venture capital investment.

Ackermann Named Gulf Manager For Alcoa Steamship

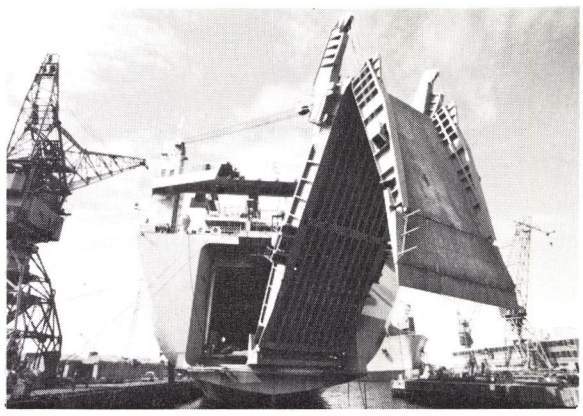
G.C. Halstead, president of Alcoa Steamship Company, Two Pennsylvania Plaza, New York, N.Y. 10001, has announced that **J.T. Drake,** manager of the firm's Mobile, Ala., office, has retired after 36 years of service with Alcoa. Captain **Drake** will be succeeded by **L.P. Ackermann**. Mr. **Ackermann,** who is moving to Mobile from a previous assignment at the company's New York headquarters, will function as Gulf manager with responsibility for all Alcoa Steamship Company activities in the Gulf area.

Accompanying Mr. **Ackermann** from New York to Mobile will be **W.H. Swartout,** who will assume the position of assistant Gulf manager. Both Mr. **Ackermann** and Mr. **Swartout** are long-service employees of the line.

Mr. **Halstead** stated that the decision to increase the size of the Mobile staff was based on recognition of the Gulf area's growing importance as a center of international trade.

MacGregor Slewing Ramps Successfully Tested

The MacGregor slewing ramp was recently tested in Kiel. It is shown here being slewed to port.



It is shown here being slewed to starboard on the ro/ro containership Reichenfels.

For two 14,300-dwt ro/ro container vessels building at Howaldtswerke Deutsche Werft AG, Kiel, for the German owner Deutsche Dampfschifffahrtsgesellschaft "Hansa," Bremen, MacGregor has supplied a comprehensive array of ro/ro equipment. The most spectacular item is, undoubtedly, the stern access ramp which was introduced on the market under the name MacGregor Machbridge 90 Slewing Ramp.

The reason for the worldwide interest in this type of ramp is that it represents the ultimate solution in ro/ro berthing versatility. In addition to the classical method of using the ramp for ro/ro traffic with the ship being berthed directly stern-to a purpose-built quay, the slewing ramp allows direct ro/ro access irrespective of whether the ship is berthing with her port or starboard side along the pier.

The first vessel to be so fitted is the Reichenfels, and her slewing ramp was recently tested to the full satisfaction of the owners and of Germanischer Lloyd, the classification society responsible for the ship.

The second ramp has now been installed on the following ship, the Rheinfels, and delivery of the two vessels is scheduled for this month and November, respectively.

For those not familiar with the MacGregor slewing ramp, originally patented back in 1972, it comprises three main components: the three-section ramp itself, the turntable at the ship's stern, and the two large hydraulic driving winches. When fully extended, the ramp has a total length of about 115 feet, section 1 being approximately 66 feet long, section 2 about 36 feet and section 3 with finger flaps 13 feet long. The ramp design with a 23-foot-wide trackway allows two trailers with a maximum weight of 80 tons each to pass at the mid-point of the ramp, one entering and one leaving the ship.

The slewing ramp on the DDG Hansa ships can be placed on the pier anywhere in a range from 33 degrees off the centerline on one side through right astern to 33 degrees on the other side. In cases where it is not possible to use the fully extended ramp with the ship berthing stern-to, vehicles can enter the ship via the so-called "short ramp version," i.e., only section no. 1 will serve as a ramp, whereas sections 2 and 3 remain locked under section no. 1.

The ramp is hinged to a turntable at the ship's stern, which turns on a kingpin and runs on a ground slide ring. Slewing of the ramp is achieved by the same two winches which are provided for the lowering and raising maneuvers of the ramp. This method of operation is very similar to that of a heavy-lift derrick. Consequently, it is basically a simple arrangement and one that will be very familiar to Hansa crews.

For all operations of the ramp, the lowering/extending, the slewing movement, and the raising/folding to stowing position can be done from either of two control stands by means of two levers only.

Lowering of the main first section of the ramp is achieved by the two hydraulic winches arranged at the port and starboard masts on the upper deck, whereas extending of the second and third sections will be done by means of two additional winches arranged one each side of the first section.

Slewing of the ramp can be started as soon as it has reached an opening angle of 30 degrees. This is done by running two main winches in opposite directions. With one winch pulling and the other paying out, the effect of this synchronized operations is to slew the ramp in the desired direction.

For a complete description of the MacGregor Machbridge 90 Slewing Ramp, write to **Henri Kummerman,** MacGregor International, 28 Chemin Du Pommier 1218, Geneva, Switzerland, or to **John A. Nydegger,** MacGregor-Comarain, Inc., 135 Dermody Street, Cranford, N.J. 07016.

Kockums Obtains License For New LNG Containment System

Kockums Shipyard, Malmo, Sweden, has obtained the production rights to Gaz Transport/McDonnell Douglas Corporation's containment system for use in construction of LNG carriers and floating storage installations. The rights obtained by Kockums are exclusive for Sweden, Norway and Denmark, and are the result of a licensing agreement.

The Gaz Transport/McDonnell Douglas Corp. combined system is a further development of the proven membrane system and employs polyurethane foam as an insulation material. Polyurethane foam has a high insulating capacity, so that the thickness of the insulating layer can be reduced by 50 percent in comparison with materials used earlier, while maintaining the previous boil-off rate. This provides the vital benefit of minimal ship size for a given cargo capacity.

Kockums Shipyard is a pioneer in the field of LNG transport. As early as 1969, the shipyard delivered two LNG carriers that were built with the membrane technique. These two gas carriers were the largest in the world for several years and have been in regular service between Alaska and Japan since delivery. Kockums is now building two LNG ships of 133,000 cubic meters each, using the Gaz Transport Membrane System. The system to be used for future newbuildings will vary, depending on factors such as ship size and length of series.

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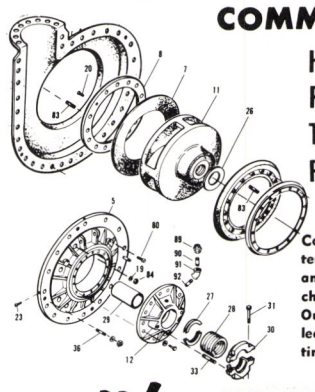

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Skagit Corporation Announces European Dealership Agreement

Skagit Corporation of Sedro-Woolley, Wash., and Rigging International Offshore Limited of the United Kingdom, have entered into a dealership agreement on Skagit's standard line of marine and construction hoists, according to a joint announcement by **Ralph A. Clack,** president of Skagit Corporation, and **Denny A. McLeod,** president of Rigging International.

Mr. **McLeod** noted that **A.W. Benham,** director of Rigging International Offshore Limited, and **S.L. Smith,** managing director of Rigging International Offshore Limited, will be responsible for all phases of this agreement.

Under the agreement, Rigging will provide sales, lease, and application engineering in the United Kingdom, Norway, Denmark, Sweden, Holland, Belgium, and France. The Skagit models covered by this agreement include: BU-18, G-70, RB-80, RB-90, MD-97, RB-150, DTW-100, and DTW-150.

These well-known Skagit models will be available from Rigging on either a "buy" or "lease" basis, with Rigging furnishing the necessary "after sales" support to customers in the designated areas.

Skagit will make its sales and engineering personnel available as needed to assist Rigging in providing support to Rigging's customers.

Skagit Corporation, a subsidiary of The Bendix Corporation, is a worldwide supplier of heavy-duty marine and construction hoists, mooring systems for offshore drilling and construction vessels, marine deck machinery, and logging equipment.

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FMC Marine & Rail Lays Keel For Ro/Ro Barge To Carry 374 Forty-Foot Truck Trailers

The Marine and Rail Equipment Division of FMC Corporation, Portland, Ore., recently laid the keel for the first of two large deck cargo barges being built for Crowley Maritime Corporation, San Francisco, Calif. The giant roll-on/roll-off triple-deck trailer barges will be operated in the Caribbean by Trailer Marine Transport Corporation, one of the Crowley companies.

Present at the keel-laying ceremony were, from left: **Doug Hendrix,** ABS principal surveyor, Portland office; **John Horner,** ABS on-site surveyor; **Charles H. Johnson,** FMC Division president, and **William R. Galbraith,** FMC Division vice president, sales.

Charles H. Johnson, Division president at FMC, said: "This barge job marks our largest construction contract since our shipyard launched the last gas turbine tanker. We expect to deliver the first barge in March 1978, and the second in June."

Each barge has a capacity of 374 forty-foot truck trailers held in place by fifth wheel devices on the barge. The barge dimensions are 580 feet long, 105 feet wide and 57 feet high, making them the largest ro/ro barges in the world.

Based in San Francisco, Crowley is a major international marine transportation firm. In recent years, FMC has built several barges for Crowley, including oil barges and deck cargo barges. During Alaska pipeline construction, Crowley was a principal hauler of equipment to Alaska.

The Marine and Rail Equipment Division of FMC is a manufacturer of two types of transportation equipment in Portland: a wide variety of marine equipment and railroad freight cars.

Headquartered in Chicago, Ill., FMC Corporation is a major producer of chemicals and machinery for industry and agriculture. The company is one of the nation's hundred largest industrial corporations, with sales in 1976 of $2.14 billion. Worldwide, FMC has approximately 40,000 employees located at 127 production facilities in 32 states and in 13 foreign countries.

United States Navigation Elects LaPenna Vice President

United States Navigation, Inc., 17 Battery Place, New York, N.Y. 10004, has announced that the board of directors have elected **G.J. LaPenna** as vice president of the firm.

Mr. **LaPenna** is a veteran member of the firm, with particular experience in various liner, marketing, container and overall traffic functions.

The company is general agent for Hapag-Lloyd, Scindia, Ivaran, and Mamenic Lines, as well as local or sales agent for Koctug and Mexican Line interests.

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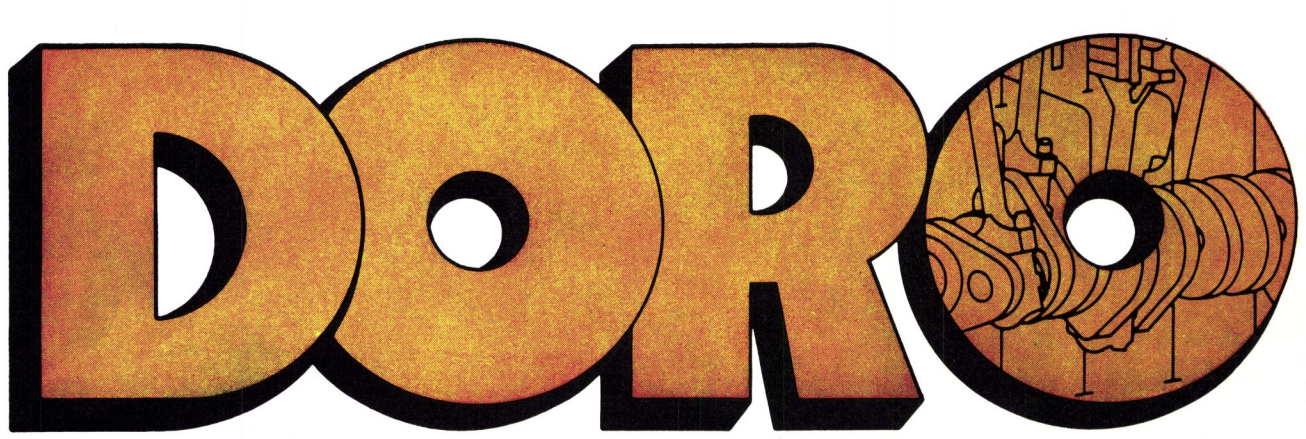

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Egyptian Shipyard Receives License To Build Willard Boats

The Willard Company, Costa Mesa, Calif., has announced that it has signed a protocol agreement to license the Egyptian Shipbuilding and Repairs Company of Alexandria, Egypt for the manufacture of fiberglass boats.

The Egyptian company is a government-owned operation which presently builds only steel ships.

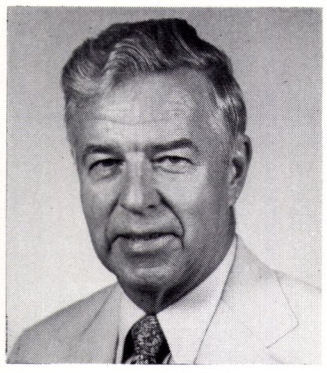
Under the protocol agreement, Willard will build prototypes of boats for the Egyptian company, then supply technology related to their fiberglass manufacture and design for production in Egypt on a royalty basis.

Following project-by-project negotiations, the Egyptian company plans to proceed with advanced fiberglass versions of lifeboats, fishing boats, pilot boats, service boats, water taxis and oceanographic research vessels. Boats will be built both for the Egyptian government and for sale to other governments in the Mediterranean and Arab regions.

The Willard Company is a pioneer California boatbuilding company and has manufactured some of the largest fiberglass boats ever built — up to 120 feet in length. It is currently producing a new class of Coast Guard fireboat, custom yachts, stock sailboats, and offshore trawlers.

Willard president **Jack B. Hochadel** noted that the agreement with the Egyptian Shipbuilding and Repairs Company is only one of several the company is negotiating to market its fiberglass expertise in the Middle East, including its fiberglass curtainwall system as well as boats.

Bergeron Industries Names Captain Tatman



Capt. Alfred J. Tatman

Capt. **Alfred J. Tatman,** USCG (ret.), has been named East Gulf representative for Bergeron Industries, Inc., **William T. Bergeron,** executive vice president, announced.

Captain **Tatman** was graduated from the U.S. Coast Guard Academy in 1946 with a Bachelor of Science degree in marine engineering. He also received a Master of Science degree in international affairs from George Washington University.

After an extensive career in the U.S. Coast Guard, which included several command positions, Captain **Tatman,** upon retiring in 1975, joined the Louisiana Shipbuilding & Repair Association where he served as president.

Captain **Tatman** will maintain his office at Mobile, Ala., where he will be responsible for sales and business development in the East Gulf area.

Bergeron Industries, Inc. has offices at St. Bernard, La., with shipbuilding and repair facilities at Braithwaite, La., on the Mississippi River near the Port of New Orleans.

Triad Salvage, Inc. Dismantling Two Vessels

Robert I. Weiner, vice president of Triad Salvage, Inc., has announced that the company has assumed the operation of the ship dismantling division of Acme Scrap Iron & Metal Co. of Ashtabula, Ohio. Triad, now engaged in the shipwrecking operations of the M/V Polaris and the Chicago Trader, plans to continue ship dismantling operations in Ashtabula. Officers of Triad Salvage, Inc., P.O. Box 111, Ashtabula, Ohio 44004, are **James L. Cordell,** president; **Robert I. Weiner,** vice president, and **Nicholas A. Zappitelli,** secretary-treasurer.

Robert Gwinn Joins Gulf International Marine Corporation

Gulf International Marine Corporation has announced the appointment of **Robert Gwinn III** as traffic manager of this New Orleans-based international towing and marine transportation company. In making the announcement, **Don J. Domangue,** president of Gulf International Marine Corporation, stated that "Mr. **Gwinn** will be charged with the responsibility of coordinating the movement of all marine equipment involved with the operations of the firm. We are very pleased to have someone of Mr. **Gwinn's** caliber in our organization."

Mr. **Gwinn** was previously with Federal Barge Lines of St. Louis, Mo., and had prior service with that firm in Houston, Texas, and New Orleans. He will be based in Gulf International Marine Corporation's world headquarters, 1440 Canal Street, Suite 1619, New Orleans, La. 70112.

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According to executive vice president **Richard L. Schultz,** this 66th convention marks the first AAPA annual meeting to be held in a Latin American country. Past conventions have been held 11 times in Canada and twice in Caribbean nations, reflecting the organization's hemispheric membership. AAPA was established in 1912, and is believed to be the oldest port association in the world. With a present membership of about 400, AAPA consists of over 125 public agencies representing most of the major ports of the Western Hemisphere. The remainder of the membership is divided between Associate Members, who are individuals involved in port administration, and Contributing Members, companies serving the port industry.

The Comision Nacional Coordinadora de Puertos, the Mexican port agency, will serve as official host to the AAPA convention delegates and their wives. In addition to the business sessions, a varied social program is also planned.

Luncheon guest speakers during the American Association of Port Authorities convention will include Brig. Gen. **Robert E. Mathe,** Chief, Infrastructure Division, Inter-American Development Bank, October 24; Ing. **Jorge Diaz Serrano,** managing director, Petroleos Mexicanos, October 25, and **Conrad H.C. Everhard,** president, Dart Containerline, Inc., October 26.

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On October 27, the final day of the AAPA convention, the winners of the Annual Environmental and Communications Competition will be announced and 1977-78 officers elected.

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Our new CA-35MS/Mk II uses the same reliable synthesizer, programming unit, and power supply. The difference is in the transceiver. Broadband tuned circuits permit each of its 10 bands to cover a full 10% bandwidth. It can be programmed to accommodate any 40 standard marine frequencies, or virtually any marine frequency from 2 to 23 MHz. It can also be programmed for any mode: simplex or half duplex, USB, compatible AM, RTTY, or CW.

The control console puts channel and mode selection at your fingertips. Turn a thumbwheel selector and you're instantly on frequency with 1/2 part per million stability. No crystals, no warm-up, no retuning, no problems. Frequency changes within a given band can be made in minutes—even at sea—simply by plugging a different program card into the console's programming drum.

Hundreds of skippers can vouch for it. The Mk II system, with its fully compatible 1,000 watt servo tuned linear amplifier, 150 and 1,000 watt antenna couplers and complete accessories, is described in a new folder. Phone or write for it today.

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Tanker Design Change Approved By MSB

The Maritime Subsidy Board (MSB) has approved a design change for four 35,000-dwt tankers built for Zapata Tankers, Inc. The tankers, which were constructed by Todd Shipyards Corporation, San Pedro, Calif., are the Zapata Patriot, Zapata Ranger, Zapata Courier, and Zapata Rover. They were built with construction-differential subsidy (CDS) assistance and delivered on April 1, 1976, July 27, 1976, January 25, 1977, and January 28, 1977, respectively.

The change involved installation of equipment and components for an unattended engine room on each of the four tankers, which were the first diesel designs ever to receive CDS. The incorporation of this feature will decrease the total amount of operating-differential subsidy projected over the lives of the ships.

An unattended engine room will give engineers time to perform maintenance when they would have been standing watch, thereby reducing overtime. It will also reduce shore maintenance and downtime.

The MSB determined that the increased cost for the change ($297,216 for the Zapata Patriot, and $218,128 for each of the other three tankers) is a fair and reasonable cost and will be the basis for CDS participation. The total Maritime Administration share of the changes will be $408,521.

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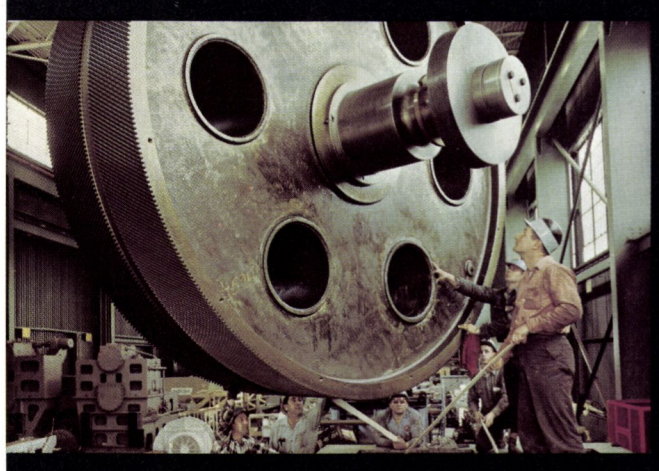

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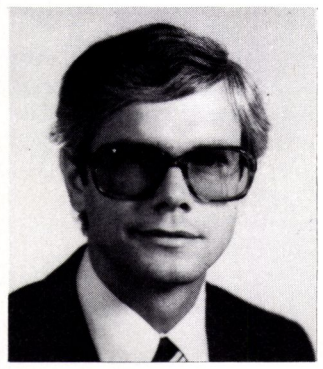
Dravo Corporation Appoints S.M. Reich



Stanley M. Reich

Stanley M. Reich has been appointed assistant general hull/structural superintendent for Dravo Corporation's Engineering Works Division. Mr. **Reich** will be primarily responsible for the boatyard and marine ways.

Mr. **Reich,** a graduate of Pennsylvania State University in civil engineering, has previously served as Dravo's superintendent of the structural shop, and production engineer.

Mr. **Reich** is a past president of the Dravo Chapter of the National Management Association.

Dravo's Engineering Works Division operates one of the nation's largest shipyards at Neville Island, near Pittsburgh, Pa., and is also one of the world's leading manufacturers of bulk materials handling equipment.

New Marine Brochures Available From Worthington Compressors

The marine and Government marketing department of Worthington Compressors, Inc. has literature packages now available for prospective seagoing users of Worthington C and X model lines of small reciprocating air compressors.

Available in sizes from 5 to 25 hp, the modern, short-stroke compressors feature efficient, low-maintenance reliability for a variety of marine applications such as providing general shipboard air, instrument air, and combustion control.

For larger demands, literature is available describing the company's M line of radial air compressors, a superior two-stage design offering minimum vibration and high efficiency in air-cooled models from 25 to 100 hp. These brochures contain illustrations, cutaway drawings and detailed specifications. For free copies of all three booklets, write **W.H. Vedder,** Worthington Compressors, Inc., 333 Elm Street, West Springfield, Mass. 01089.

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has been announced by **Edmund L. Hukill,** president of Tug Barge

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kawa, deputy general manager, Shipbuilding Business Planning

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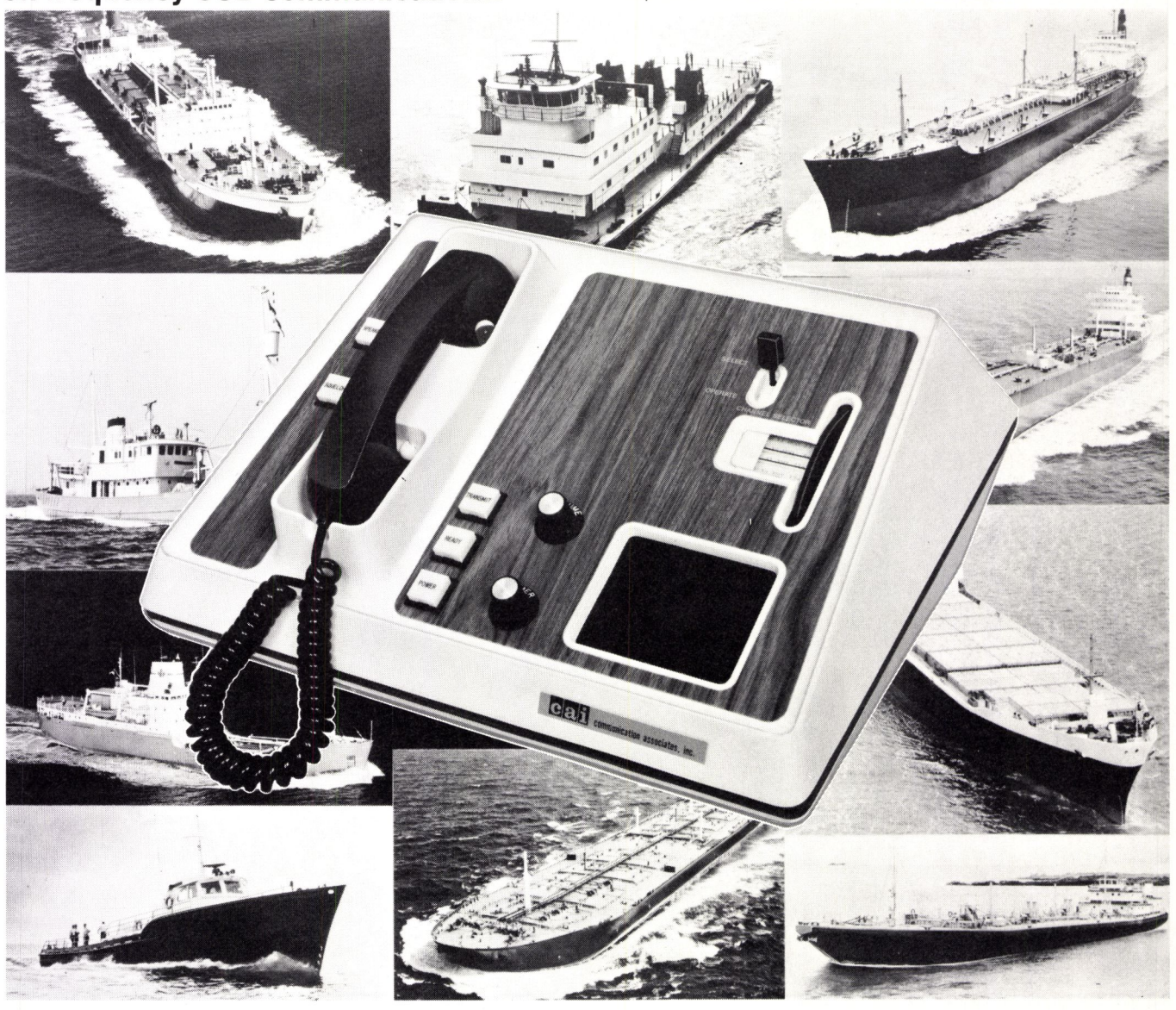

Tanker Design Change Approved By MSB

The Maritime Subsidy Board (MSB) has approved a design change for four 35,000-dwt tankers built for Zapata Tankers, Inc. The tankers, which were constructed by Todd Shipyards Corporation, San Pedro, Calif., are the Zapata Patriot, Zapata Ranger, Zapata Courier, and Zapata Rover. They were built with construction-differential subsidy (CDS) assistance and delivered on April 1, 1976, July 27, 1976, January 25, 1977, and January 28, 1977, respectively.

The change involved installation of equipment and components for an unattended engine room on each of the four tankers, which were the first diesel designs ever to receive CDS. The incorporation of this feature will decrease the total amount of operating-differential subsidy projected over the lives of the ships.

An unattended engine room will give engineers time to perform maintenance when they would have been standing watch, thereby reducing overtime. It will also reduce shore maintenance and downtime.

The MSB determined that the increased cost for the change ($297,216 for the Zapata Patriot, and $218,128 for each of the other three tankers) is a fair and reasonable cost and will be the basis for CDS participation. The total Maritime Administration share of the changes will be $408,521.

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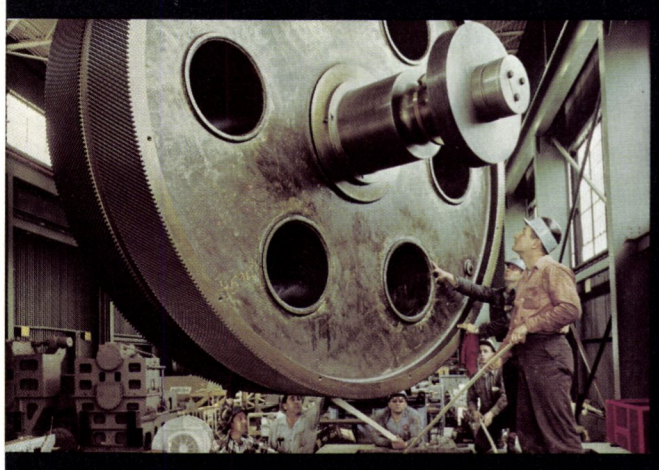

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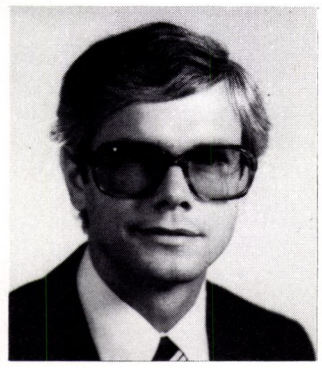
GENERAL ELECTRIC

Dravo Corporation Appoints S.M. Reich



Stanley M. Reich

Stanley M. Reich has been appointed assistant general hull/structural superintendent for Dravo Corporation's Engineering Works Division. Mr. **Reich** will be primarily responsible for the boatyard and marine ways.

Mr. **Reich**, a graduate of Pennsylvania State University in civil engineering, has previously served as Dravo's superintendent of the structural shop, and production engineer.

Mr. **Reich** is a past president of the Dravo Chapter of the National Management Association.

Dravo's Engineering Works Division operates one of the nation's largest shipyards at Neville Island, near Pittsburgh, Pa., and is also one of the world's leading manufacturers of bulk materials handling equipment.

New Marine Brochures Available From Worthington Compressors

The marine and Government marketing department of Worthington Compressors, Inc. has literature packages now available for prospective seagoing users of Worthington C and X model lines of small reciprocating air compressors.

Available in sizes from 5 to 25 hp, the modern, short-stroke compressors feature efficient, low-maintenance reliability for a variety of marine applications such as providing general shipboard air, instrument air, and combustion control.

For larger demands, literature is available describing the company's M line of radial air compressors, a superior two-stage design offering minimum vibration and high efficiency in air-cooled models from 25 to 100 hp. These brochures contain illustrations, cutaway drawings and detailed specifications. For free copies of all three booklets, write **W.H. Vedder,** Worthington Compressors, Inc., 333 Elm Street, West Springfield, Mass. 01089.

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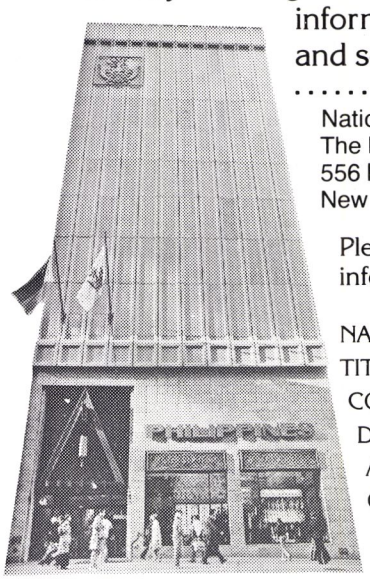
There, the Philippine National Seamen Board has mounted a special exhibit on today's Filipino seaman.

There you will see and hear—in terms of his background, training and on the job performance—why the Filipino seaman is already manning 18 per cent of the world's ocean going vessels.

There you can get detailed answers to all your questions from ranking officials of the National Seamen Board.

If, on the other hand, you can't make it there, you can get much worthwhile information simply by filling out and sending us the coupon below.



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National Seamen Board Exhibit, New York Philippine Center, August 4th to October 4th.

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Mitsubishi Receives Tug Barge Systems' License To Build

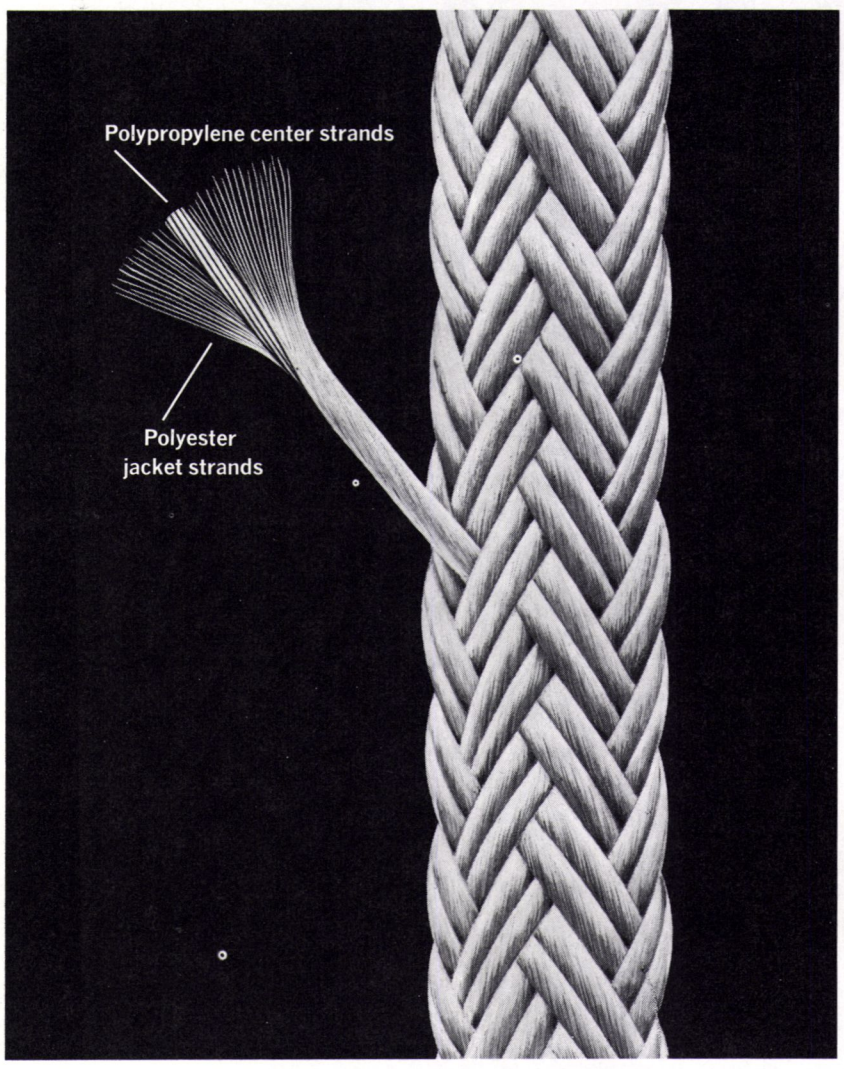
Mitsubishi Heavy Industries, Ltd., Tokyo, a major Japanese shipbuilding company, has received a license from TBSI Limited to construct rigidly connected tug-barge units, utilizing the patents owned by Tug Barge Systems Inc., New Orleans, La., it has been announced by **Edmund L. Hukill,** president of Tug Barge Systems Inc.

The TBSI System, a relatively new concept in deepsea shipping, permits an unrestricted ocean towing vessel and an unmanned barge to be joined together by employing a patented rigid connection, which permits no relative motion between the tug and the barge. The TBSI System has the added advantage of being able to disconnect the tug from the barge almost immediately.

Mr. **Hukill** also stated that the primary term of the license is for a period of five years, and that Mitsubishi Heavy Industries, Ltd. obtained the right to sublicense the utilization of the TBSI patents to any of the Mitsubishi affiliated shipyards located in Japan.

Signing the agreement on behalf of Mitsubishi was **T. Ishikawa,** deputy general manager, Shipbuilding Business Planning Department of Mitsubishi Heavy Industries, Ltd., Tokyo. Mr. **Ishikawa** said that Mitsubishi has seven shipyards throughout Japan, and that this TBSI license will be used primarily at their Nagasaki and Kobe shipyards. Mr. **Ishikawa** expressed great pleasure in signing this license agreement, stating that his company expects to use the agreement to its best advantage in expanding their sales market.

New Dura-Plex Barge Line has the guts to outlast all others.



Built-in abrasion resistance enables Samson Dura-Plex Braid to stand up to chafing, scraping, and rubbing longer than any other barge line you can use.

Dura-Plex has the guts because it's a 12-strand braid with each strand having a tough polyester jacket over a polypropylene center. These "composite" strands are then braided together using Samson's exclusive patented Parallay™ construction.

Result: Dura-Plex is an extremely durable and strong rope. Stronger, size for size, than 3-strand Manila, polypropylene, or other synthetic blends, Dura-Plex can handle significantly higher working loads.

Samson Dura-Plex also provides four other important features for barge lines. It has lower stretch than other ropes, which means low snapback. Firm, round construction holds better on bitts and cleats. Torque-free and non-kinking makes it safer and easier to handle. And it's the fastest splicing of any rope.

Dura-Plex is extremely cost effective for tie-up, breast, lock, and mooring lines. Sizes from ¼" to 4" diameter; tensiles from 1,940, to 337,000 lbs.

For complete data, including comparative tensile strengths, write Samson Ocean Systems, Inc., 99 High St., Boston, MA. 02110. In Canada, contact Canada Ropes Limited, Richmond, B.C.

SAMSON OCEAN SYSTEMS, INC.

FMC Names Robert Dunn Supervisor Service Construction Equipment

Robert L. Dunn

Robert L. Dunn has been named supervisor service for FMC Corporation, Construction Equipment International Division.

Mr. **Dunn** assumes responsibility for coordinating parts and service activities for Link-Belt® cranes, excavators, and related products in the international market place. In addition, he is also responsible for the training of FMC international distributor service personnel.

Joining FMC in 1947, Mr. **Dunn** has served as field service representative, service training supervisor, and product specialist hydraulics and diesel pile hammers.

Offshore Logistics Asks Aid To Build Four 210-Foot Vessels

Offshore Logistics, Inc., 900 East University, P.O. Box 5-C, Lafayette, La., has applied for a Title XI guarantee to aid in financing the construction of four 210-foot offshore towing/supply vessels.

Each vessel will have a deck cargo capacity of 600 long tons, below-deck capacity of 6,000 cubic feet of dry cement or mud, 121,000 gallons of fuel oil, 300,000 barrels of drilling water, and 22,000 gallons of potable water. Accommodations will be provided for eight crewmen and 11 passengers. The vessels will have 3,000 hp and service speeds of 12 knots. Estimated actual cost is $3.35 million per vessel, or $13.4 million for the project.

The company will operate the new vessels in conjunction with its existing fleet to service offshore drilling operations around the world.

Norshipco Dedicates New $5-Million Repair Pier

Norshipco's new 1,030-foot-long Pier 1, following dedication ceremonies. The new pier will be used to repair large ships and also serve as a mooring pier for the $15-million drydock now under construction in Brazil.

Norfolk Shipbuliding and Drydock Corporation (Norshipco), Norfolk, Va., has dedicated its new $5-million, 1,030-foot pier for general ship repair, marking completion of the initial phase of an expansion program expected to nearly double the yard's current 2,200 employment within four years.

The pier, which will be used for repair of larger vessels than could be serviced by Norshipco in the past, will also serve as a mooring pier for Norshipco's $15-million steel floating drydock, now under construction in Brazil.

John L. Roper III, Norshipco president, said that the firm has added 300 workers in the last few months because of the expansion program, and that he expects the new pier and drydock to double Norshipco's annual sales within the next 10 years.

He said: "We recognized that with the larger ships entering Hampton Roads, and with those on the drawing boards and under construction, it was necessary for Norshipco to expand our facilities to remain competitive in the world market."

Norfolk Mayor **Vincent J. Thomas** said: "The new facilities here, when completed, will make Norfolk Shipbuilding and Drydock Corporation competitive with every shipyard in the world. We cannot stray from the fact that this area's greatest future lies in its port and maritime commerce industries."

Earl J. Shifflet, Virginia's Secretary of Commerce and Resources, also spoke at the dedication, calling the pier and drydock "a supplement to the $8-million in port improvements contained in the state bond referendum."

Earlier this year, Norshipco announced a multimillion-dollar six-year contract with El Paso Marine Company, a subsidiary of the El Paso Company, Houston, Texas, for annual drydocking and repairs to liquefied natural gas (LNG) carriers. The contract with El Paso is for nine 125,000-cubic-meter LNG carriers, each approximately 940 feet long with a beam of 140 feet. Shipbuilder for the first three LNGs is Chantiers de France-Dunkerque, Dunkerque, France; for the second three, Avondale Shipyards, Inc., Avondale, La.; and the final three, Newport News Shipbuilding and Drydock Co., Newport News, Va.

Norshipco president **John L. Roper III** uses a welder's torch to burn through a steel ribbon, marking the opening of the new Pier 1. Looking on are **Vincent Thomas,** Norfolk Mayor, and **Earl J. Shifflet,** Virginia's Secretary of Commerce and Resources.

Norshipco currently has under construction a 58,000-ton steel floating drydock, to be among the largest and most modern in the world. The $15-million drydock is being built by the Brazilian shipyard Ishikawajima do Brasil-Estalieros S.A. (Ishibras).

The floating drydock was designed by J.J. Henry Co., Inc., New York City naval architects and marine engineers. Construction and outfitting will require approximately 15 months. Delivery to Norshipco is expected in late 1978. Towing the drydock from Ishibras' Rio de Janeiro shipyard will take about 45 days.

The steel floating drydock will be 950 feet long, 160 feet between wingwalls and have a lifting capacity of 58,000 long tons. It will be equipped with automatic sensing and deflection instrumentation to insure the ultimate in safe drydocking.

The drydock will have the latest automatic cleaning and painting equipment, assuring that high-quality work can be done very quickly. This equipment is designed to produce very little or no disturbance to the environment.

Completion of the new pier is the first phase in the expansion of Norshipco's Berkley Plant. The pier was built by Tidewater Construction Corporation, Norfolk.

The drydock will be moored adjacent to the new pier and parallel to the channel of the Southern Branch of the Elizabeth River, allowing ships up to 1,200 feet long with a beam of up to 160 feet to enter the drydock directly without turning.

A booklet describing the new facilities can be obtained by writing to **Frederick A. Ganter,** Norfolk Shipbuilding and Drydock Corporation, 17 Battery Place, New York, N.Y. 10004.

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Fetzner Named President Sun Trading & Marine

Richard W. Fetzner, president of Sun Transport, Inc., has been named president of its parent, Sun Trading & Marine Transport, Inc. (S.T.M.T.), succeeding the late **Fred E. Buchanan.**

S.T.M.T., an operating unit of Sun Company, located at 200 West Lancaster Avenue, Wayne, Pa. 19087, is engaged in the trading, marine transport and terminalling of crude oil.

Mr. **Fetzner** holds a B.A. degree in geology from Augustana College, Rock Island, Ill., and an M.S. and Ph.D. degree in geology from the University of Wisconsin. He also holds an M.B.A. degree from Drexel Institute of Technology.

Mr. **Fetzner** joined Sun in 1958 as a research geologist and project leader at the research and development laboratory in Richardson, Texas. From 1962 to 1966, he was manager of the applied geologic research section there, and from 1966 was senior section manager of geological data processing.

In 1974, he was sent to Peru as president and general manager of Peruvian Sun Oil Co., and in 1975 was made manager of regional operations for Sun Oil International, Inc., responsible for Latin America and the Far East. He became president of Sun Transport, Inc., which operates Sun's tanker fleet, in November 1975.

He is a certified member of the American Association of Petroleum Geologists and American Institute of Professional Geologists, serves on the Central Committee on Transportation by Water of the American Petroleum Institute, tanker council of the American Institute of Merchant Shipping, and national executive commission of The Propeller Club of the United States. He is also a member of the Dallas Geological Society, and the Pennsylvania Geological Society. He has worked with the Boy Scouts of America and the Young Men's Christian Organization.

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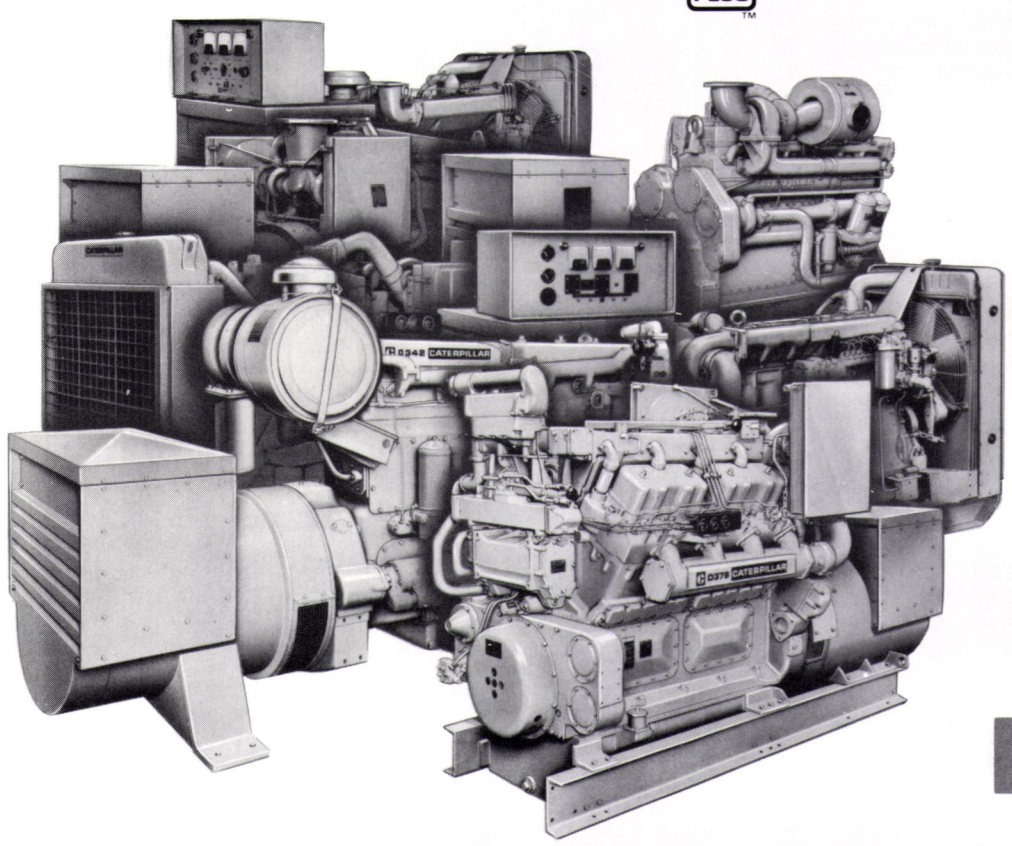

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Safety Of Nuclear Ships Subject Of Symposium In Hamburg, Dec. 5-9

The Nuclear Energy Agency (NEA) of the Organization for Economic and Cooperative Development, in collaboration with the International Atomic Energy Agency (IAEA), is sponsoring an International Symposium on the Safety of Nuclear Ships, in Hamburg, Federal Republic of Germany, December 5-9, 1977. The program includes eight technical sessions dealing with safety philosophy and design, safety research, past safety experience, risk assessment, manning and indemnity.

Participants to this symposium must be accredited by the competent national authority of their respective countries in order to attend. The mechanism for this has been established with the contact point being the U.S. Coast Guard. Accordingly, persons desirous of more information should contact Comdr. **John Deck III,** c/o Commandant (GMMT-4/82), U.S. Coast Guard, Washington, D.C. 20590, telephone (202) 426-2197.

Midland Marine Corp. Is New Company Name

James A. McQuilling, president of Midland Marine Brokerage, Inc., has announced the change of its name to Midland Marine Corporation. The scope of the corporation's activities now include marine transportation brokerage, equipment sales, leasing, worldwide shipyard representation, and marine and business consulting, and it was felt the shortened and more general name was more appropriate.

Midland Marine Corporation is located at One Penn Plaza, New York, N.Y. 10001, with branches in Houston, Texas and San Francisco, Calif.

Jane's Fighting Ships 1977-78 Revised Edition

The 1977-78 edition of Jane's Fighting Ships maintains the format initiated in the previous edition. In addition, a new section of ship silhouettes and a worldwide pennant list of major surface ships have been added to assist recognition. With complete revision of all data and well over 1,200 photographs and line illustrations, the book provides the most comprehensive and up-to-date reference book now available.

At a time when President **Carter's** Administration is conducting a searching inquiry into the defense needs of the United States, and against the background of endless arguments over defense spending in the NATO countries, the steady advance of Soviet forces in both quantity and quality has continued during the past year. An analysis of the role of the Soviet aircraft carriers of the Kiev class, armed with eight surface-to-surface missile launchers, both anti-air and anti-submarine missiles, as well as more conventional gun and A/S armament, both hull and towed sonar, in addition to their VSTOL aircraft and helicopters, suggests that these ships could well have an important intervention role in peacetime and will go far to augment the Soviet's capability to initiate sea-control of specific areas as the worldwide capabilities of the Western navies diminish with their shrinking numbers.

The comparative roles of submarines are highlighted, particularly in the ballistic-missile field. The Soviet submarine program has continued at the rate of some 12 a year, six SSBNs being of the "Delta I" and huge "Delta II" (16,000 tons) classes. An improved version of their basic missile, the SS-N-8, was launched in November 1976 to a range of 5,600 nautical miles, allowing a coverage of nearly half the world from a firing position off northern Soviet bases. At the same time, trials of a new missile, SS-NX-18, were carried out to a range of 4,600 nautical miles. This liquid-fueled rocket with a triple warhead is being deployed in the "Delta" class during 1977. It appears probable that their 1,300-nautical-mile SS-N-6 missiles will be replaced this year by the new SS-NX-17, a solid-fueled weapon with a range of 2,400 nautical miles. This gives the USSR a capability unlikely to be matched by the West until the 1980s. Although the Soviet surface fleet has an increasing A/S and missile potential and has insured itself with anchorages and berthing facilities throughout the world, giving it the capability to deploy in security to all the major strategical maritime area, it is now facing the facts of obsolescence as well as man-power problems.

In the United States, the immediate results on naval appropriations are not entirely clear, but it does seem that the nuclear strike-cruiser program is likely to be deleted for the time being, submarine programs are being adjusted and the hydrofoil program has been canceled at one craft. At the same time, the characteristics of the next class of aircraft carriers show a return to conventional propulsion for ships designed to carry about 60 aircraft, a change of policy advocated in this book four years ago. The plain fact is that after a slump in building, available numbers in the active fleet are rising, and this is vital for a navy with worldwide commitments. With an all-volunteer navy, the United States has the edge on so many rivals despite recurrent problems in certain spheres.

In NATO, problems of standardization and compatibility remain, and will become increasingly acute as the costs of weapons systems rise dramatically. With the life of ships now commissioned reaching into the 21st century, the problems of alternative types of propulsion to the oil-fueled boilers and engines become more acute and deserve urgent attention.

"Jane's Fighting Ships 1977-78." Edited by **John Moore**. 329 pages. Price $72.50. Jane's USA, a Division of Franklin Watts, Inc., 730 Fifth Avenue, New York, N.Y. 10019.

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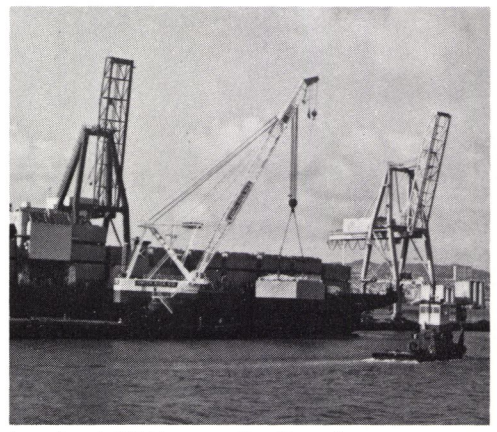
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Stanford Research Awarded $271,000 For Firefighting Study

The Department of Commerce has announced the award of a $271,508, eleven-month contract to Stanford Research Institute of Menlo Park, Calif., to compare the cost effectiveness of various marine firefighting programs.

The Maritime Administration (MarAd) and the National Fire Prevention and Control Administration, both agencies of the Department, will share the cost equally.

The purpose of the study is to enable the agencies to evaluate the impact of the National Marine Fire Protection Program proposed by Congressmen **Edwin B. Forsythe** (New Jersey), **Joel Pritchard** (Washington), and **Glenn M. Anderson** (California).

The legislation would authorize the Secretary of Commerce to establish firefighting teams composed of members of local fire departments. These teams would be specially trained to provide emergency assistance in fighting marine fires and to train ships' crews and local firemen in shipboard firefighting techniques. MarAd would have administrative control of the program, and the U.S. Coast Guard operational control.

Stanford Research Institute will compare the costs and benefits of the proposed program with alternatives to determine the most effective, efficient, and economical way of improving marine fire protection.

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The kind of workers who'll stick with a job until it's completely and totally finished. Then take pride knowing their work will satisfy the ship's owner and the regulatory people.

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Add it all up. You'll understand why we're getting a solid reputation as the nicest yard in the South. And that's all the "Public Relations" we need.

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Drew Appoints O'Brien Technical Manager Ameroid Marine

William F. O'Brien

Raymond M. Burke, group vice president, Drew Chemical Corporation, Parsippany, N.J., recently announced the appointment of **William F. O'Brien** as technical manager, Ameroid Marine. He will be responsible for technical support to the division's activities on a worldwide basis. Reporting to Mr. **O'Brien** are the technology and applications group in Parsippany, and satellite technical operations in Drew's subsidiaries in Singapore, Hong Kong, and Japan.

Mr. **O'Brien** majored in chemical engineering at Carnegie Mellon Institute in Pittsburgh, Pa. He is a registered professional engineer in Illinois, and a member of The Society of Naval Architects and Marine Engineers. Prior to joining Drew, Mr. **O'Brien** was associated with Calgon Corporation, Exxon Chemical, and Gamlen Chemical Company.

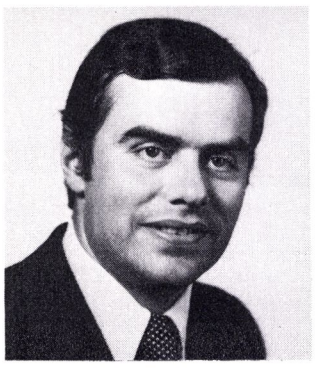
Falcon Cargo Ships Requests Transfer Of ODS Application

Falcon Cargo Ships, Inc., 277 Park Avenue, New York, N.Y., has requested the transfer of its application for operating-differential subsidy (ODS) to Equity Carriers, Inc. Equity Carriers is a wholly owned subsidiary of Falcon Equities, Inc., which is also the parent corporation of Falcon Cargo Ships.

Falcon's ODS application was submitted in June, along with a construction-differential subsidy (CDS) application. The company plans to build and operate with Government assistance five dry-bulk cargo ships of approximately 37,000 deadweight tons.

Falcon will be the owner of the proposed vessels and will bareboat charter them to Equity. Equity will time-charter two vessels to Char Ching Marine Co., Ltd., and three to Good Harvest Marine Co., Ltd. These two companies are located in Taiwan. The ships will be used to carry various bulk cargoes between U.S. ports and the Far East.

Dravo Appoints Croyle Superintendent Structural Shop



Toby E. Croyle

Toby E. Croyle has been appointed superintendent of the structural shop for Dravo Corporation's Engineering Works Division, Pittsburgh, Pa. 15222.

Mr. Croyle, a graduate of the University of Pittsburgh with a degree in civil engineering, joined Dravo in 1972. He most recently served as assistant superintendent of the boatyard. Prior to that, he held the positions of production engineer in the structural shop and production engineer in the machine shop.

Dravo's Engineering Works Division operates one of the nation's largest inland shipyards at Neville Island, near Pittsburgh, and is also one of the world's leading manufacturers of bulk materials handling equipment.

T.A. Williams Opens Office In New Orleans

T.A. Williams

T.A. Williams has announced the opening of his newly formed company, Marine Inspection Services, with offices at 1820 St. Charles Avenue, New Orleans, La. 70130. The company is designed to offer a unique service to shipowners, barge, tug, towboat owners, naval architects and marine engineers. The company will offer inspection service for new construction, conversions, major repairs and overhauls.

Mr. Williams has had broad experience in the marine field for the last 35 years in varying capacities. These include engineer, project engineer, project manager, contract manager, yard plant manager, vice president of operations, outfitting superintendent, owner's representative and port engineer.

This firm will be affiliated with R.E. Hall & Associates, who have long been serving the industry.

Renegotiation Board Erred In Computing Lockheed Steel Usage

Robert W. Haack, chairman of Lockheed Aircraft Corporation, confirmed that **Goodwin Chase,** chairman of the Renegotiation Board, had advised him—with respect to **Mr. Chase's** public allegation of overcharging by Lockheed on certain Navy shipbuilding contracts—that he "erred in the translation of dollar amounts in question to pounds of steel."

Upon reviewing the Renegotiation Board's data, as well as that supplied by Lockheed auditors and the public auditing firm of Arthur Young & Company, and assuming the accuracy of the auditor's computations, **Mr. Chase** also said "my figures for the amount of unaccounted-for steel are overstated."

Mr. Haack stated further that chairman **Chase** had alluded to a number of unresolved issues relating to ship claims and settlements, and that he had invited the Defense Contract Audit Agency to help the Renegotiation Board in its overall review of these matters. **Mr. Chase** expressed the hope that Lockheed would cooperate in such an audit, and **Mr. Haack** stated that Lockheed would, as in the past, be of whatever assistance possible.

Armco's Technical Library

Your Complete Source for Plate and Structural Steel Data

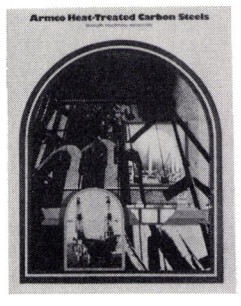
Comparative Data—Armco Heat-Treated Carbon Steels

Armco Steel	ASTM Designation	Yield Strength* ksi (min)	Tensile Strength* ksi	Toughness (Nil Ductility Transition temp, F)	Weldability
LTM-N	A 633 Gr A & B	42	63/83	−70	excellent
LTM-QT	A 678 Gr A	50	70/90	−80	best of 50-ksi group
CT-N	A 633 Gr C	50	70/90	−70	very good
Lo-Temp	A 537 Cl 1 & A 633 Gr D	50	70/90	−60	good
CT-QT	ASTM Spec. Pending	60	80/100	inquire	very good
Super Lo-Temp	A 537 Cl 2 & A 678 Gr B	60	80/100	−70	good
VNT-N	A 633 Gr E	60	80/100	−50	good
QTC ®	A 678 Gr C	75	95/115	−70	good
VNT-QT	ASTM Spec. Pending	75	90/110	−50	good

*Both yield and tensile strength decrease in thicker sections.

When you specify Armco, you're buying more than just special steel. You're also getting total technical assistance with the engineering data you need. This comparative table on our heat-treated steel plate properties is an example of our effort to keep you informed about the Armco steels you use.

Remember, we have a whole library of engineering data to support all our product lines, including alloy steel bars and plates, wide flange beams, and heat-treated carbon and alloy steel structural shapes, among others. For technical data on any Armco product, call our Houston office and ask for Steel Marketing: Phone 713/621-7700.



For more information on the Armco heat-treated plates featured above, send us the coupon for your free copy of our 28-page catalog shown here: Armco Steel Corporation, Dept. H-27, 1455 West Loop South, Houston, Texas 77027.

Gentlemen:

Please send me a copy of your Heat-Treated Carbon Steel Plates Catalog.

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For more information, contact Gerry Gutman, Al Carlson, or Jack Provenzano.

Placement of these securities has been arranged by the undersigned.
This announcement appears as a matter of record only.

New Issues August, 1977

$14,077,000

United States Government Guaranteed Ship Financing Bonds

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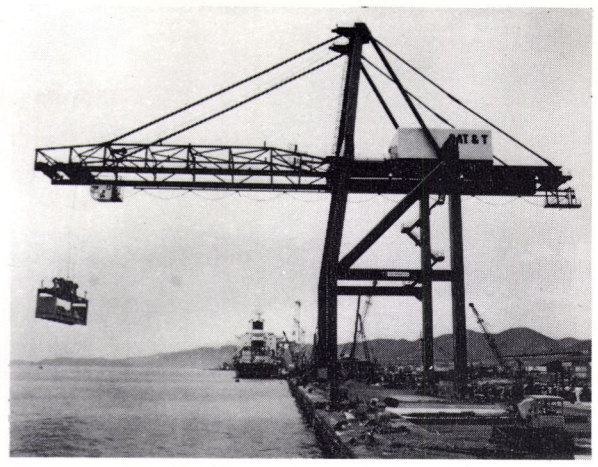
Kidder, Peabody & Co. Incorporated **Hoppin, Watson Inc.**

First Container Crane For Port-Of-Spain, Trinidad

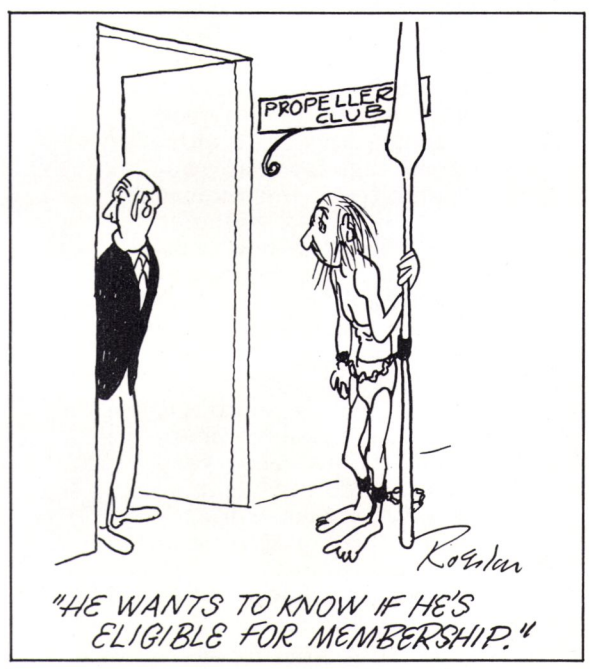


Paceco 40-LT Portainer recently dedicated in Trinidad.

The Port-of-Spain, Trinidad, recently held key handing-over ceremonies for its newly installed container-handling crane.

The new Portainer® crane built by Paceco, Inc., a subsidiary of Fruehauf Corporation, is the first of two 40-long-ton-capacity cranes to be erected at the port. A second Paceco Portainer crane is awaiting shipment for later installation. Both cranes were built by Paceco's Gulfport Plant. The Minister of Works, Trinidad and Tobago, **Hector McClean,** accepted operating keys from Paceco's general sales manager **Meryl W. Stratton.** Port officials and consulting engineers also attended the ceremonies.

The Minister of Works, Trinidad and Tobago, **Hector McClean** (right), accepts operating keys from Paceco's general sales manager **Meryl W. Stratton.**



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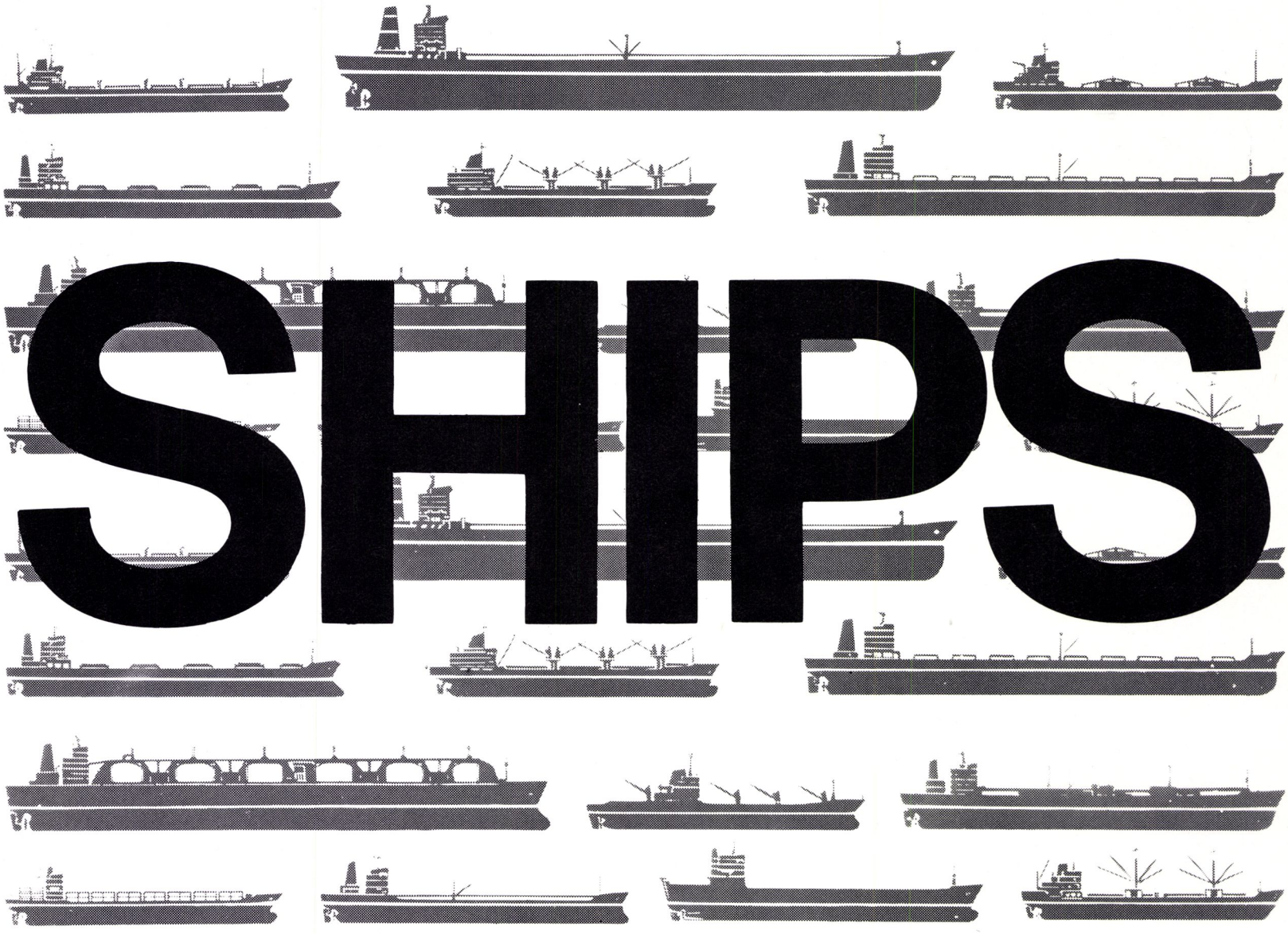

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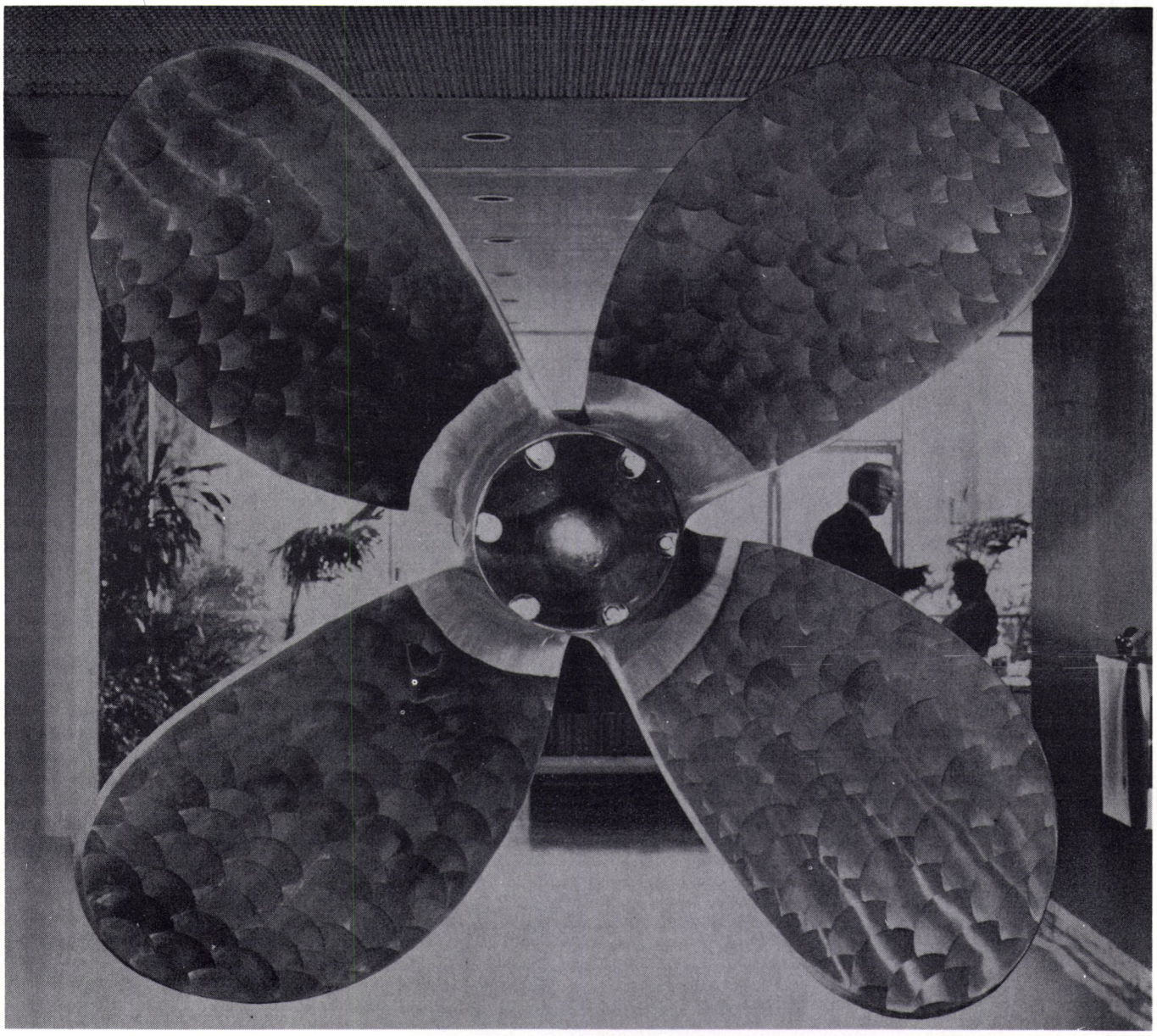
Pott Industries Names Miller VP Offshore Marine Services Div.

Pott Industries Inc. has announced the appointment of **Dwight W. Miller** as vice president of Pott's Offshore Marine Services Division. This division is headquartered in New Orleans, La., and includes Gulf Mississippi Marine Corporation, DeFelice Marine Contractors, Inc., and Offshore Fleet, Inc. Operating a fleet of approximately 82 vessels, this division provides marine services worldwide to the offshore industry, with principal operations in the Gulf of Mexico, the Middle East, and the North Sea.

Gulf Mississippi Marine Corporation of New Orleans at the same time announced the following appointments: **Richard Edgerly** as traffic manager; **Jack Brodie** as manager of Gulf Fleet Egypt, responsible for the company's operations in the United Arab Republic of Egypt; **H. Larry Aycock** as manager of Gulf Fleet Saudi Arabia, responsible for the company's operations in the Kingdom of Saudi Arabia, and **Arthur Rackley** as marine coordinator for Gulf Fleet Saudi Arabia.

Offshore Fleet, Inc. also announced the following appointments: **Bruce Kilgore** as vice president, **B.B. Breland** as sales and administrative manager, and **Larry Hogan** as marine superintendent.

Pott Industries Inc. is now a wholly owned subsidiary of Houston Natural Gas Corporation.



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Avondale takes stainless steel and manufactures the finest propellers in the world... as simple as that. As shipbuilders we know the importance of a wheel that gives tremendous service, but, at the same time, is easy to repair when repairs are necessary.

Avondale propellers never leave the shop until we are satisfied that their casting, machining, polishing, non-destructive testing and balancing insure the highest quality.

That could be the reason why you'll find Avondale manufactured propellers giving great service in all parts of the world.

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QUICK REPAIR DIVISION
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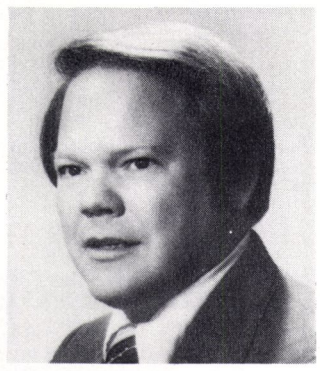
National Marine Service Appoints Dewey H. Bitney



Dewey H. Bitney Jr.

Dewey H. Bitney Jr. has been appointed manager, marine sales, for the Products Division of National Marine Service Incorporated, **David A. Wright**, president of the company, has announced.

In his new capacity, Mr. **Bitney** will direct the marine sales activities for the Division's products, which include engine room monitoring equipment, a marine digital tachometer, and vessel bilge water disposal systems. He will also assume responsibility for the development of the Products Division's marine marketing program.

A 1964 graduate of Western Michigan University, Mr. **Bitney** joined National Marine in 1974 as a sales representative for the company's marine products. He remains headquartered at National Marine Service Incorporated, 1750 Brentwood Boulevard, St. Louis, Mo. 63144.

Matson Navigation Executive Changes

Robert T. Colson, formerly senior vice president of Matson Navigation Company, San Francisco, Calif., has been named executive vice president-general manager of Alexander & Baldwin, Inc., Honolulu, Matson's parent company.

Mr. **Colson** now is responsible for all operating activities of the company, except those of Matson Navigation Company.

Robert J. Pfeiffer, formerly senior vice president of A&B, has been named executive vice president-ocean transportation of A&B, and continues as president of Matson Navigation Company.

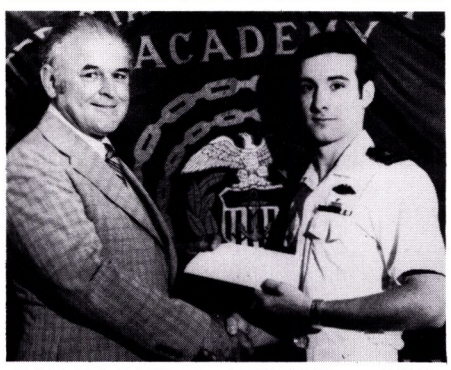
James P. Gray will resume his former position as president of Matson Terminals, Inc., and will continue to serve as president of Matson Agencies, Inc., and as a senior vice president of Matson Navigation Company in charge of the freight division.

Wesley D. Wheeler Associates Ltd. Name Walter Gregorek VP

Walter J. Gregorek

Walter J. Gregorek has been appointed vice president of Wesley D. Wheeler Associates, Ltd., international maritime consultants, 104 East 40th Street, New York, N.Y. 10016, according to **Wesley D. Wheeler,** president. The firm, established in 1974, offers the marine industry a highly experienced and efficient consulting, design and operations staff to provide shipowners and operators with complete technical assistance in all phases of ocean transportation. The company has recently expanded its activities by becoming exclusive USA representatives for ship construction and repair for the Astilleros Espanoles, S.A. group.

Prior to joining Wesley D. Wheeler Associates, Ltd. Mr. **Gregorek** was associated with Marine Transport Lines in market development, and served as director of operations planning for Prudential Lines, Inc. Mr. **Gregorek** graduated from the United States Merchant Marine Academy with a Bachelor of Science degree in marine engineering. He also holds an MBA degree in economics from Fairleigh Dickinson University.



CARGOCAIRE AWARD — Midshipman **Lee A. Kineaid** (deck), class of 1977, is shown being presented with the Annual Cargocaire Award by Capt. **Leo J. Crotty,** sales manager of Cargocaire Marine Systems, Cargocaire Engineering Corp., Amesbury, Mass., at the awards convocation of the U.S. Merchant Marine Academy, Kings Point, N.Y. The Cargocaire award is presented each year to the deck midshipman who submits the most outstanding cargo project during his third class sea year. Cargocaire Engineering manufactures dehumidification equipment used widely throughout the marine industry.

Detroit Diesel Offers New Workboat Engine Catalog

A new catalog describing the Detroit Diesel engines available in marine workboat models has been published by Detroit Diesel Allison.

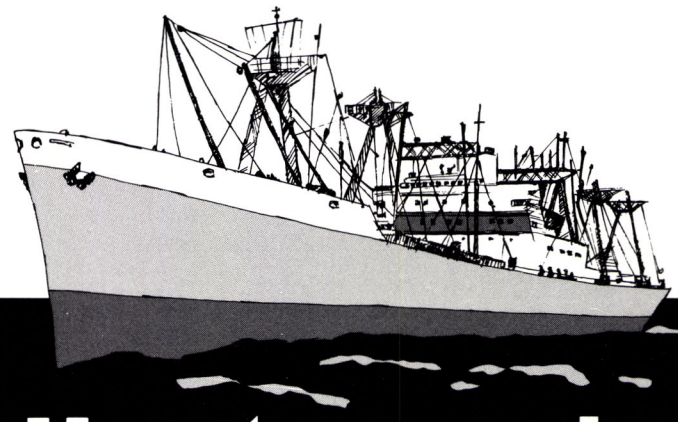
The 12-page, full-color brochure explains the features and advantages of the Detroit Diesel two-cycle design, and discusses all four engine series offered for workboat use—the Series 53, 71, 92, and 149.

Specifications for 16 engine models comprising the marine workboat line are given.

Detroit Diesel auxiliary marine power is also detailed, and specifications for 22 auxiliary power models are listed.

Free copies of the marine workboat models catalog, number 6SA117, can be obtained from authorized Detroit Diesel Allison distributors, or by writing to **Don Downham,** Detroit Diesel Allison, P.O. Box 81, Birmingham, Mich. 48012.

For the first time, an international version of the brochure containing translations in Spanish, French and Arabic is also available. To receive the international edition, specify number 6SA130.



How to comply with today's rules on sewage treatment without going overboard.

Selecting the right shipboard sewage treatment system can be risky. You can install an inexpensive USCG Type I system. Spend more for a system that fulfills Type II requirements. Or you can invest a lot more in a no-discharge Type III unit. There are holding tanks to consider. There are also ways to adapt existing piping arrangements.

It's easy to go overboard and spend too much money on a system you don't really need. Or waste money on one that won't fulfill your requirements.

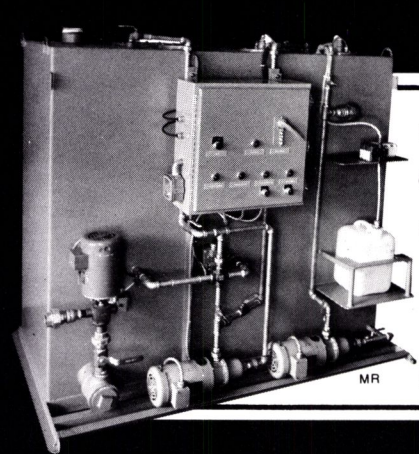
SIGMA takes the risk out of choosing a sewage treatment system. We make a full line of pre-engineered, flow-through systems for cargo and passenger vessels, tankers, LNG's, fishing and work boats, even off-shore drilling rigs.

More importantly, SIGMA engineers can put the facts in focus . . . plan the system that best suits your needs. For example, we may suggest one of our compact USCG Type I units that is delivered on skids, ready to operate, or multiple modules for flexibility and ease of installation. Of course, we can satisfy more advanced requirements, too. We'll even custom build a system if you and our engineers determine it's the most cost-effective system for you.

All SIGMA sewage treatment systems are easy to install, dependable and virtually maintenance-free. And all the controls are right up front. Our systems are moderately priced and USCG-certified. Compared to biological units which must be operated continuously, SIGMA equipment only has to be activated when a vessel is within territorial limits.

So why go overboard on a sewage treatment system? We're ready to go to work to help you plan the most efficient system for your operations.

Complete and mail the form below, and a SIGMA representative will contact you with a preliminary recommendation, at no charge. In the meantime, we'll send you our new SIGMA brochure.



Name _____ Title _____

Company _____ Tel. no. _____

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☐ New construction or ☐ Existing vessel ☐ Sewage only or ☐ All wastewater

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Capt. James F. McNulty New Dean At Maine Maritime Academy

Capt. **James F. McNulty**, U.S. Navy (ret.), has been appointed as Academic Dean at Maine Maritime Academy in Castine, replacing the retiring Dean, Capt. **Edward E. Conrad.**

Captain **McNulty** is a native of Lawrence, Mass., and is a 1953 graduate of Massachusetts Maritime Academy. He served at sea as a licensed engineer with the Gulf Oil Company prior to entry into the United States Navy in November 1953 as ensign, USNR.

While under Navy sponsorship, Captain **McNulty** attended Tufts University where he received an undergraduate degree in history and government. He later attended George Washington University, earning a master's degree in international relations, and the University of Rhode Island, where he completed the Master of Marine Affairs Program in 1975.

Captain **McNulty's** 23-year career as a naval officer included service in destroyers and amphibious ships as deck watch officer and navigator, and two years as commanding officer of the ocean salvage tug USS Kiowa. Other sea service included duty as executive officer of the Guided Missile Destroyer USS Robison, and as commanding officer of the Guided Missile Frigate USS Farragut. Ashore, he served as instructor in marine engineering at the Naval Destroyer School, Newport, R.I., and as lecturer in International Affairs and Professor of Naval Operations at the U.S. Naval War College.

In 1970 and 1971, Captain **McNulty** served as Special Assistant to the Chief of Naval Operations, Adm. **E.R. Zumwalt Jr.** His final assignment prior to retirement from the Navy in June was as Chief of Staff and Executive Assistant to the President, U.S. Naval War College.

Captain **McNulty** holds the Legion of Merit, Meritorious Service Medal, Navy Commendation Medal (Gold Star in Lieu of Third Award), Combat Action Ribbon, and various campaign and service medals.

When you're in America, do as the Spanish, French, Germans, Swedes and Russians do...

Call (201) 494-3530 to get 24-hour service on any of your Siemens automation equipment.

Our servicemen in North America, on-call around the clock, are Siemens factory-trained. Totally equipped to handle all problems on your Siemens shipboard automation systems. Completely familiar with your Siemens electronic controls, generators, electrical systems, your power plant—anything.

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SNAME California Sections 21st Annual To Be Held In Carmel

The California Sections of The Society of Naval Architects and Marine Engineers will have their 21st Annual Joint Meeting at the Highlands Inn, Carmel, Calif., on September 30, October 1 and 2. The Technical Session will consist of the following papers:

(1) "Improvements in the Ship Design Process," by **Douglas C. MacMillan,** Fellow, former president of George G. Sharp, Inc.

(2) "Propulsion Plant Standards," by **Alfred Isaacson,** M. Rosenblatt & Son.

(3) "Aspects of the National Shipbuilding Research Program," by **L.D. Chirillo,** Todd Shipyards Corporation.

In addition to the foregoing, there will be the usual full social schedule at the "Golf Capital" of the world.

For further information, contact **James A. Stasek,** W.B. Arnold Co. Inc., 439 Bryant Street, San Francisco, Calif. 94107.

Electro-Nav Speed Log Brochure Now Available

Electro-Nav, Inc. recently appointed sole American distributor for BEN Speed Logs, is offering a new four-page brochure describing uses, features and characteristics of this equipment.

The brochure explains speed log operation, details main and interconnecting equipment by type of service and function, and lists specifications and performance data.

For your copy of this brochure, write to **Robert Negron,** Electro-Nav, Inc., 1201 Corbin Street, Elizabeth Marine Terminal, Elizabeth, N.J. 07201.

Tacoma Boatbuilding Receives $52-Million U.S. Navy Contract

The U.S. Navy has awarded a $52.5-million contract to the Tacoma Boatbuilding Company, 1840 Marine View Drive, Tacoma, Wash. 98422, for the design and construction of patrol chaser missile boats.

Richard Daschbach Named Federal Maritime Commission Chairman

Richard J. Daschbach of Walpole, N.H., and Great Falls, Va., was sworn in as Chairman of the Federal Maritime Commission (FMC) August 29 in a public ceremony at Commission headquarters in Washington, D.C. The Honorable **Norma Holloway Johnson,** a judge of the Superior Court of the District of Columbia and former law school classmate of the new Chairman, administered the oath of office.

Mr. **Daschbach** was nominated by President **Carter** to the Commission on July 27, and confirmed by the Senate on August 2. The President designated Mr. **Daschbach** to succeed **Karl E. Bakke** as Chairman of FMC on August 5.

A graduate of Georgetown University and Georgetown University Law Center, Mr. **Daschbach** has served since 1969 as Maritime Counsel to the Senate Committee on Commerce. Immediately prior to his work for the Commerce Committee, Mr. **Daschbach** was an OEO Legal Services attorney in Keene, N.H. He previously worked for the Department of Commerce's Area Redevelopment Administration and the Economic Redevelopment Administration. In addition, Mr. **Daschbach** served as Legislative and Research Assistant to United States Senator **Russell B. Long** (D-La.).

Lockheed Shipbuilding Names Albert Winslow

Albert E. Winslow, formerly a product assurance group leader for the Research & Development Division of Lockheed Missiles & Space Company, Inc. in Sunnyvale, Calif., has been named director of Quality Assurance for Lockheed Shipbuilding and Construction Company in Seattle, Wash.

Mr. **Winslow** holds a B.S. degree in electrical engineering from the University of Connecticut and an M.B.A. degree from the University of Santa Clara. He holds State of California rating as a professional quality engineer and American Society for Quality Control certification as a quality and reliability engineer.

Mr. **Winslow** worked 11 years as a design engineer and reliability project quality control engineer for Eastman Kodak Company prior to joining Lockheed at Sunnyvale in 1971.

Keene Brochure Describes Marine Discharge Control System

A Marine Discharge Control System that prevents the discharge of oily bilge water on inland waterways is described in a new illustrated brochure available from Keene Corporation's Fluid Handling Division.

Features of the system include easy installation with simple piping, disposable filter elements for less maintenance, and no need for backwashing, blow-down or steam cleaning. (A large superstructure decal also indicates the vessel meets all discharge control regulations.)

The new eight-page booklet contains descriptions, specifications, diagrams and illustrations for five models of the Keene system for both fresh and saltwater operation. There is also a comparison chart that indicates the system meets American Board of Shipping (ABS) and International Marine Coordinating Organization (IMCO) requirements for foreign and domestic vessels.

For additional information and a copy of the brochure, write to **James Sypitkowski,** Fluid Handling Division, Keene Corporation, Bohannan Avenue, Greeneville, Tenn. 37743.

Kockums' LNG carriers; the seven-year shuttle

Kockums delivered two of the world's largest LNG tankers as long ago as 1969. LNGC Polar Alaska and LNGC Arctic Tokyo have cargo capacities of 71 500 m^3 each. We used the membrane technique developed by Gaz Transport.

Ever since they were delivered, both vessels have been working regular schedules between Alaska and Yokohama, where the gas is converted to power, light and heat. We've been an interested observer, day after day. And what we've seen has made us increasingly proud of our work.

Because after seven years' continuous operation and 6 1/2 million tons of LNG – cooled down to minus 162 C° – the original performance estimates have been surpassed by a generous margin. And our technical evaluations have been justified in full; neither the tanks nor the hull have shown the slightest sign of fatigue, and corrosion has been nil. Which means that we sleep soundly at night.

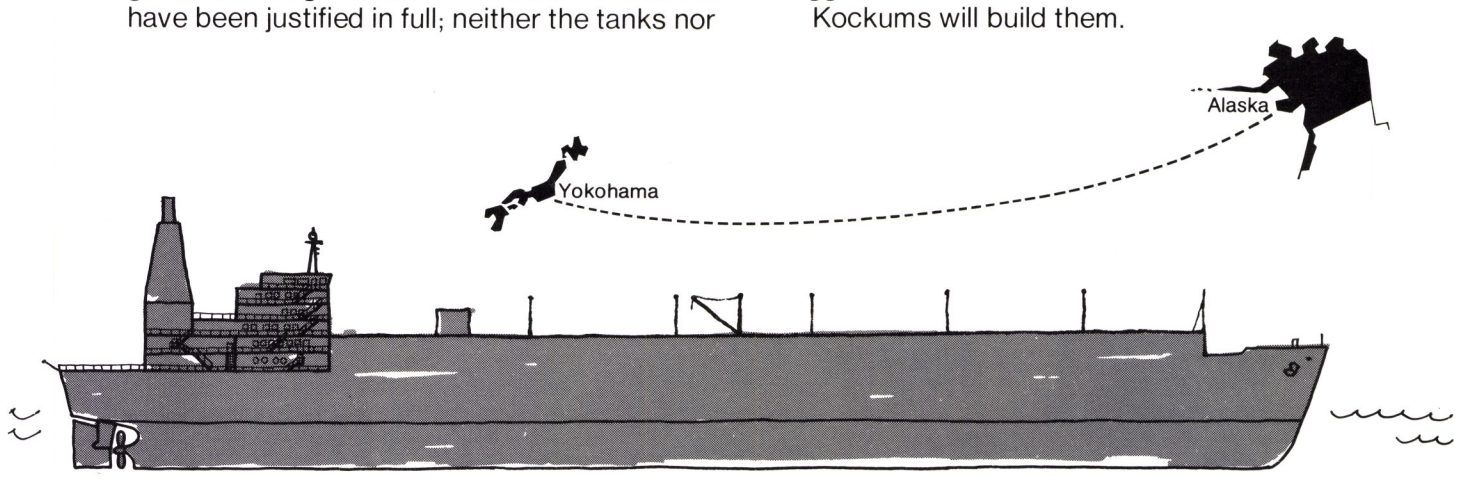
But we don't sleep during the day. We're anxious to maintain our position as one of the most technically advanced shipyards in the world.

We run an intensive research and development programme for gas tankers. With the help of a laboratory containing the last word in modern equipment, staffed by more than forty specialists. Among other things, we've developed the membrane technique even further. We're still convinced of its superiority.

But we're not blind stubborn. If you think you've got a better tank system, we'll build you a gas carrier accordingly. On condition that the technical qualities of the system meet our specifications.

So we're in a good position. Equipped with a winning combination of knowledge and experience; a combination that's highly profitable for someone who needs large LNG carriers. Of any size – 133 000 m^3, 167 000 m^3, or even bigger.

Kockums will build them.



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Kockums Shipyard

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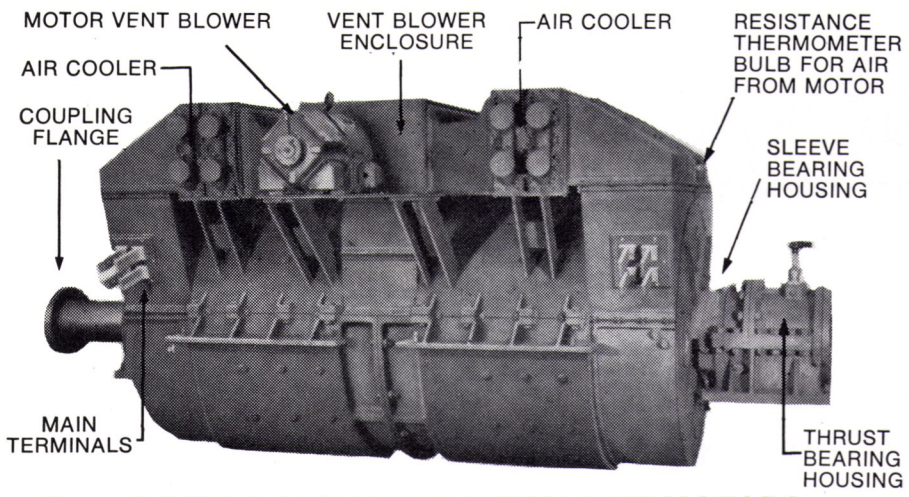
4 only–2700 H.P. MOTORS

415 volts D.C.—280 RPM, Totally Enclosed



These DOUBLE ARMATURE SUBMARINE MOTORS would be excellent for: Drill Ships/Platform, Dredge Pump Drives or Mine Hoist Motors.

2 — Motors have been A-1 Reconditioned by a manufacturers shop and carry A.B.S. Certification.

2 — Motors are used and will be removed from a Submarine in the very near future.

1 only–3 Drum CLYDE HOIST

Model 10 with Swinger

ADDED FEATURES

POWER: G.M. 8V-71 Diesel with 3 Stage Torque Converter 11,500 series and Air Compressor.

OP. CONTROLS: All Air. Air Paul and Air Friction Brakes with Controls console mounted at operators stand.

CLUTCH: Internal expanding band friction, two shoes, 50″ dia. and 6″ wide.

BRAKES: External contacting, single band, two piece construction, 57″ dia. and 7″ wide.

BEARINGS: Drums are taper roller bearing mounted. All shafts turn in Anti-friction bearings.

SWINGER: Two drum attached type with slack take up.

Less than 1,000 Hours operating time on Unit — Ready to work NOW!

HOIST SPECIFICATION

MODEL: Frame 10—3 drum with 2 drum swinger.

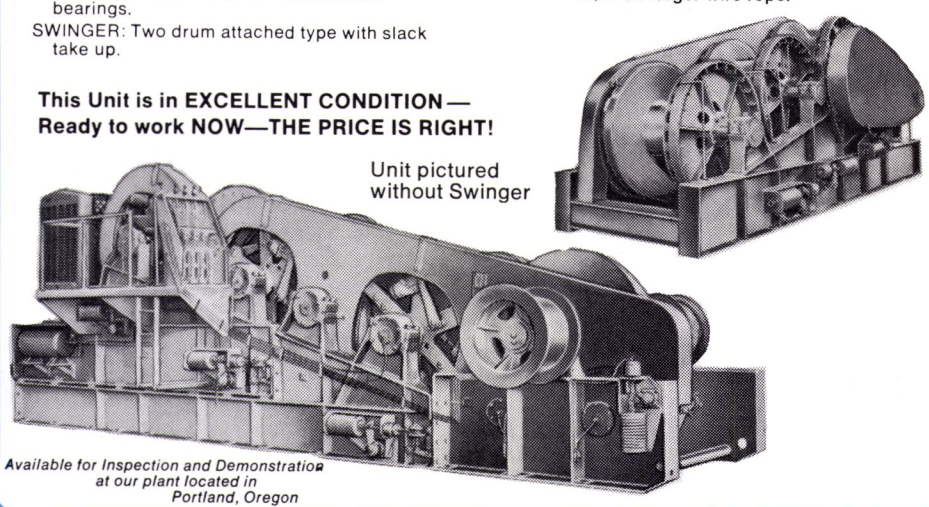
LINE PULL: 30,000 Lbs.

DRUM SIZE: Dia. 25″—lgth. 36″—Flgs. 57″

DRUM CAP.: 4170 Ft. of 1⅛″
3500 Ft. of 1¼″

RATING: 37,500 lbs. S.L.P. at 150 FPM—Sec. on larger wire rope.

This Unit is in EXCELLENT CONDITION — Ready to work NOW—THE PRICE IS RIGHT!



Available for Inspection and Demonstration at our plant located in Portland, Oregon

2–SHIP DISCHARGERS

• PORTABLE—Bulk Cargo • BUHLER—Type SKT-11″

TWO (2) IN STOCK
Ready to go . . .

Complete with 440 volt, 3 phase, 60 cycle power panel, Control Stands and approx. 100 ft. of Power Cable with Crouse Hinds Connectors.

• Reasonably Priced
• Ready to work NOW!
• Immediate Shipment

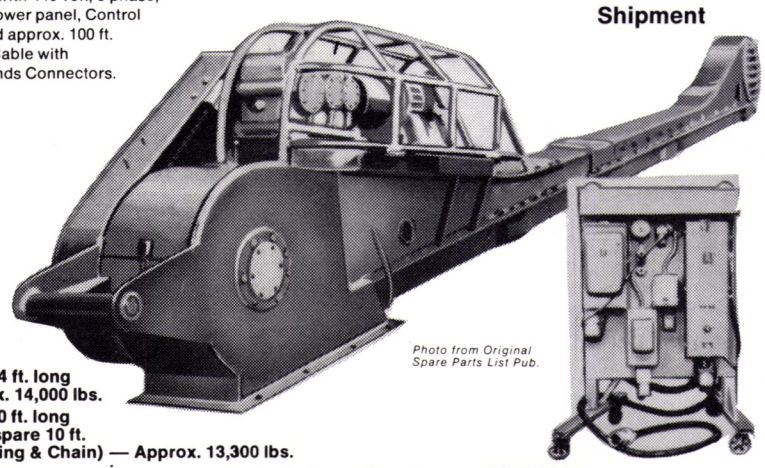


Photo from Original Spare Parts List Pub.

1 — Only 54 ft. long approx. 14,000 lbs.
1 — Only 40 ft. long (with spare 10 ft. of Tubing & Chain) — Approx. 13,300 lbs.

Each with 75 HP, TEFC Motor, 220/440 volts, 3 phase, 60 cycle and Twin Disc Fluid Coupling and Gear Reducer.

Model: 14.5 HCMR-16.

CAPACITY: Up to 150 Tons of Wheat per hour (prox. Max. Material Size 2″ to 3″).

Will Handle — Grain, Soy Beans, Phosphate, Nitrate, Potash, Kaolin, China Clay, Fertilizer, Alfalfa Pellets and other similar bulk materials.

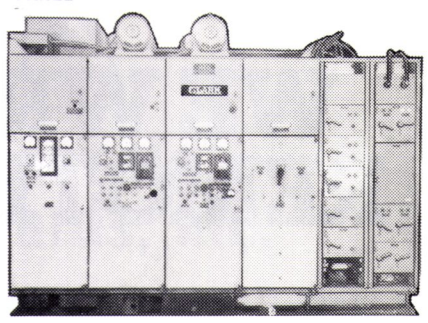
CONDITION
USED-EXCELLENT and priced to move NOW!

WRITE FOR FREE BROCHURE

4 only–2500 C.F.M., 125 P.S.I. AIR COMPRESSORS

Solve your air problems with these units and save!

CONTROL PANEL



Manufactured by Clark—Model CMA, Horizontal Opposed Cylinder Design. Powered by 500 H.P. Synch. Motor, 2400/4160 volts, 3 Phase, 60 Cycle, 600 RPM, and includes Starter.

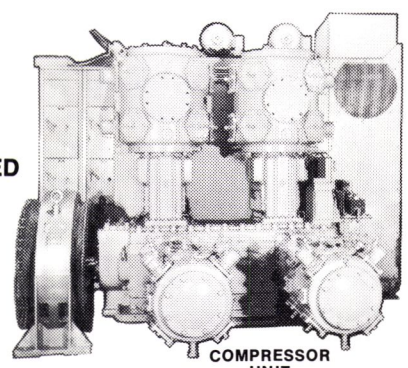
Equipped with Self Contained, Closed Water System, Radiator Cooled.

1 — UNIT IS COMPLETELY OVERHAULED

1 — UNIT, USED — AS IS

2 — UNITS ARE INSTALLED IN A RAILWAY CAR.

2 — Railway Cars are available for these units, if so desired.



COMPRESSOR UNIT

These Compressors are skid mounted, packaged units. They were originally installed in railway cars as Emergency Air Supply on the West Coast by the Navy Bureau of Yards and Docks.

Ideal for Shipyard or other large volume air consumers.

For additional information and Quotation, Please Contact:

Hugh Sturdivant
Sales Manager, Marine & Industrial Sales Div.
Phone: 503/228-8691
Telex: 36-0503 • Cable: "ZIDELL"

Marine and Industrial Sales Division of

ZIDELL EXPLORATIONS, INC.
3121 S.W. Moody
Portland, Oregon 97201

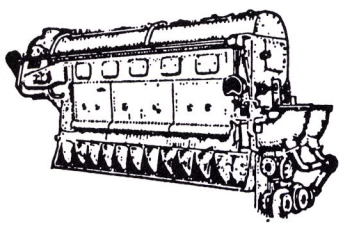
SHIPBOARD EQUIPMENT

From

ZIDELL EXPLORATIONS INC.

Contact: Hugh Sturdivant
3121 S.W. Moody Ave., Portland, Ore. 97201
Telex: 36-0503 • Cable "ZIDELL"
PHONE: A/C 503 • 228-8691

MARINE DIESEL ENGINES



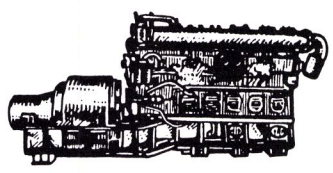
MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-⅛ — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8½" bore, 10" stroke, Air Start.. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

MARINE DIESEL GENERATORS

4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.



3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

TURBINE GENERATORS—AC and DC Voltage

A. C.

4 — 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 — 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, 525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATI.

2 — 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.

D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

7 — 300 KW, ALLIS-CHALMERS Turbines, 440 PSI, 5645 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, WESTINGHOUSE Turbines, 440 PSI, 5920 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, TERRY Turbines, 440 PSI, Type TM-5, 5965 RPM, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

1 — 300 KW, ALLIS-CHALMERS Turbine, 440 PSI, 470 HP, 8000 RPM, with Allis-Chalmers Generator, 300 KW, 240/240 Volts DC, Type HO, 1200 RPM.

1 — 250 KW, DE LAVAL Turbine, 440 PSI, 360 HP, 10,000 RPM, with Crocker-Wheeler Generator, 250 KW, 240/120 Volts DC, Type CCD, 1200 RPM.

12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

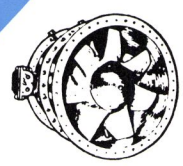
DELAVAL, 450 PSI, 750°F, 300 KW, 120/240 DC.

FAST REPLIES ON YOUR INQUIRIES!

A partial listing of our stock from EX-NAVY and MARITIME VESSELS

Certifications to A.B.S. or Lloyd's a routine

SEE OUR 2-PAGE SPREAD IN ALTERNATE ISSUES OF M.R.



Rebuilt and Guaranteed

AXIAL FLOW FANS

LaDel, Sturtevant, etc.

In 440 AC, in 115 DC, and in 230 DC, and in sizes 1 HP through 20 HP. Completely reconditioned.

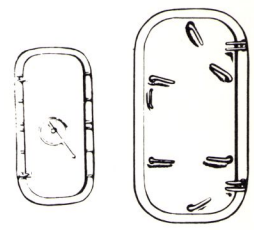
EXAMPLE LISTING:

Size A¼	Size A3	Size A8
Size A½	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

Electro-Mechanical STEERING GEAR

1—SPERRY No. 2, 5 HP, 230 Volts DC, complete with Steering Winch, Controller Panel, Ballast Resistor, Electro-Mechanical Steering Stand—with Steering Wheel (with Pull-out Knob).

STEEL WATERTIGHT DOORS

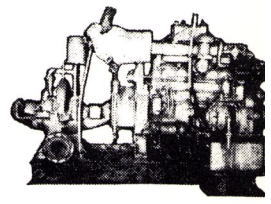


Used, Good Condition, Trimmed Frames.

Many sizes available, priced reasonab Some Typical Prices shown below. Plea Inquire for other sizes.

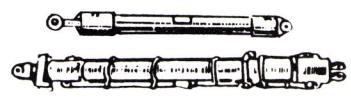
26"x48"-4 Dogs—**$60.00 ea.**
26"x57"-6 Dogs—**$80.00 ea.**
26"x60"-4 Dogs, 6 Dogs—**$86.00 ea.**
26"x66"-6 Dogs, 8 Dogs—**$100.00 ea.**
26"x66"-Q.A. Type—**$175.00 ea.**

FIRE PUMPS

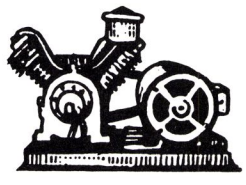


2—BUDA, Model 6-LD-468, Diesel Engin 6 cylinders, 100 BHP, Marine, Gardn Denver, centrifugal Pumps, Bronze, ho zontally split case, 1000 GPM, 280' head, suction and 5" discharge.

HYDRAULIC CYLINDERS



Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45½"	double
10"	26"	3.75"	58½"	double
2"	8"	1½"	20"	double
2.5"	15"	1.12"	25½"	double
3"	8"	1.37"	15½"	double
6"	8"	4"	144"	double



AIR COMPRESSORS

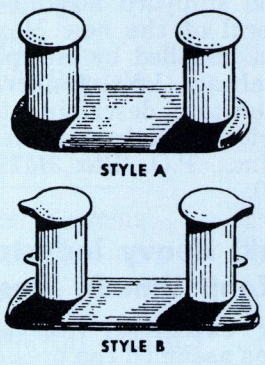
1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5¾x5, with Diehl Motors, 45 HP, 230 Volts DC, 870 RPM, 167 Amperes.

3—INGERSOLL - RAND, Size 5x5x4x4, 50 CFM, 150 PSI, with G.E. Motor, 20 HP, 440/3/60.

1—INGERSOLL - RAND, Model 40B, 155 CFM, 110 PSI, 870 RPM, with 40 HP Motor, 230 DC.

2—WORTHINGTON, 20 CFH, 3000 PSI, 4 stage, 585 RPM, with Worthington Steam Turbine, 47 HP, 5502 RPM.

DOUBLE BITS



STYLE A

STYLE B

Used, clean, good, suitable for reuse. Predominantly 12" and 14" sizes, 2 styles, Many other sizes in stock, ranging from 6" to 18".

Specify quantity, size and style required for fast quotation.

ANCHOR CHAINS

USED - GOOD

1⅜" Size	2¼" Size
1½" Size	2⅜" Size
2 1/16" Size	

FOR MARINE VALVES AND FITTINGS: A/C 503, 228-8691, ASK FOR "VALVE DIVISION."

FOR ELECTRICAL EQUIPMENT: A/C 503, 228-8691, ASK FOR "ELECTRICAL DIVISION."

PORT ENGINEER

TAMPA, FLORIDA

Expanding international steamship-liner organization has opening in Tampa, Florida, for Port Engineer experienced in diesel and shipyard maintenance. Must have First Class Steam and Motor Certificate. Some travel required.

All responses will be held in strict confidence. Please send resume indicating salary history and requirement to:

Uiterwyk Corporation,
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Chief Engineer — Marine
4000 H.P. Minimum
Good Starting Salary
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8-Hour Day, 40 Hours per week
Permanent Position

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N. Cape May, New Jersey 08204

Attention: William G. Evans

(TEL: 609-886-2719)

SHIPYARD SUPERVISORS

A medium-size ship repair and ship building company located in a very desirable area is presently seeking qualified candidates for the following positions:

Production Manager

Requires extensive shipyard management experience in all areas of ship repair and new construction. Must be an aggressive self-starter capable of establishing production planning, scheduling and cost control programs, and monitoring performance of all departments.

Estimators

Prior shipyard experience in estimating commercial repair, navy repair and new construction. Consideration will be given to candidates who may presently be working as junior estimators and lack promotional opportunities.

Facilities Engineer

Engineering background in the shipyard industry. Capable of plant layout and design. Must be familiar with working with capital appropriation request systems and writing justification for expenditures.

Production Supervisors

Steel Fabrication, New Construction and Repair.
Welding
Painting and Sandblasting
Machinery Installation and Repair
Production Planning and Scheduling

Resumes held in strictest confidence and must contain salary history and requirements.

Box 916 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016
An Equal Opportunity Employer

ESTIMATOR

Must have engineering degree. Familiar with all phases of new construction estimating of ships up to 300′. Repair yard estimating helpful. Advancement possibility—excellent.

Salary — open.

Excellent fringe benefits.

Send resume:

Atlantic Marine, Inc.
P.O. Box 138
Jacksonville, Fla. 32226

Phone: 904-251-3111

DOCK MASTER

Major East Coast yard has opportunity for experienced Dock Master. Large scale repair work will challenge your skills and provide for continued growth. Prefer experience with floating docks and all types of ships. Please submit resume and salary history in confidence to:

BOX 917
An Equal Opportunity Employer
Male/Female/Handicapped

SUPERVISORY OCEAN SYSTEMS ENGINEER

Coast Guard Research and Development Center, Groton, Connecticut. Chief, Ocean Systems Branch. Serves as the Center's principal research engineer in Ocean and Systems Engineering and as its principal supervisory authority over related areas of tethered, fixed or buried ocean structures, devices and hardware. Requires broad, progressive knowledge of both Ocean and Systems Engineering through advanced degrees or equivalent training and experience as well as management capability. Career Civil Service Position. Salary $28,700 to $37,300. Submit SF-171, U.S. Employment Form to Civilian Personnel, Code MREN, USCG R&D Center, Avery Point, Groton, CT 06340. Closing Date 30 November 1977.

Equal Opportunity Employer (M/F)

WANTED
SHIPYARD SUPERINTENDENT

To assume total responsibility for new construction and repair operations of medium size shipyard. Send resume in confidence to:

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NEW CONSTRUCTION SUPERVISOR

Container operator with new building program seeks individual to represent owners for hull and machinery inspection, plan approval, etc. at foreign shipyard (Japan or other Far Eastern country) during construction period (1978-1979); thereafter to work at company's South Florida facility in **Port Engineering** capacity. This is an excellent opportunity with a well established and continually expanding company. Send resume to:

Box 819 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016

SUPERINTENDENT ENGINEER

For Fleet of Fully Automated Tugs up to 5000 H.P. each in Caribbean, engaged in ship docking, Point-to-point and Deepsea towing, require Superintendent Engineer with Chief Engineer's license.

Box 922 Maritime Reporter/Engineering News
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MARINE SALES MANAGER

Prestigeous N.Y. ship supply firm seeking aggressive individual with proven sales/management background. Marine Supply experience helpful including warehouse and inventory supervision. Excellent future for motivated person. Salary open.

Box 915 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016

Port Engineer — Owners of four vessel fleet desire engineering administrator with experience in high speed diesel and heavy fuel engines. To assume responsibility for maintenance programs, repairs, purchasing. Some design and shipyard experience desirable. Houston will be home base but overseas training and travel will be required. Resume and salary requirements to:

Box 920 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016

MACHINERY INSTALLATION SUPERVISOR

Bay Shipbuilding Corporation is seeking an aggressive supervisor with demonstrated skills in organization, administration and operational details related to shipboard machinery installation. The successful applicant will have at least three (3) years experience in direct line supervision with detailed knowledge of large bore diesel engines, optical alignment and boring bar practice, rigging and heavy lifting. A thorough understanding of the interrelationship of shipbuilding trades is essential.

Submit resume including salary history and references to:

Personnel Department
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605 N. 3rd Avenue
Sturgeon Bay, Wi. 54235

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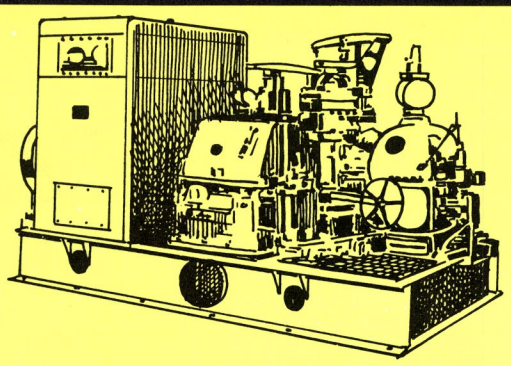
Let us know your needs! Call Jeff Feder.

ALL ITEMS CAN BE FURNISHED WITH A.B.S. OR LLOYDS' CERTIFICATES

TURBO GENERATORS



750 KW GENERAL ELECTRIC TURBO GENERATOR UNIT

Turbine: Type FN3-FN24, seven (7) stage, 10033 RPM. **Reduction Gear:** Single helix, single reduction, 10033/1200 RPM. **Generator:** 750 KW, Type ATI, 450 V, 3 phase, 60 cycle. Steam conditions 525 lb. psi gage at 825 degrees F. total temp. at throttle and one (1) lb. psi absolute back pressure at turbine exhaust flange.

600 KW GENERAL ELECTRIC TURBO GENERATOR UNIT

Turbine: GE type FN, 6-stage, 10.033 RPM. **Reduction Gear:** GE triple-helix, triple reduction, 10033/1200 RPM. **Generator:** GE type ATI, 600 KW, 6-pole, 0.8 pf, 450 VAC, 3 phase, 60 cycle, 1200 RPM. **Exciter:** GE type MPLI, 7.5 KW, 120 VDC, direct connected. **Air cooler:** Surface type, for generator, complete with control panel.

538 KW WESTINGHOUSE TURBO GENERATOR UNIT

Complete with L.O. Coolers and exciters. **Turbine:** Westinghouse 538 KW, 5010 RPM. Inlet pressure 435 psi. Temp. 750 degrees F. TT. Exhaust pressure 28½ hg. vac. **Generators:** (1) 400 KW, 450 VAC, 3 pole, 60 cycle, PF 80%, 1200 RPM, ship's service. (2) 32.5 KW, 125 VDC, 1200 RPM, variable voltage exciter. (3) 110 KW, 125 VDC, 1200 RPM, constant voltage generator. (4) 5 KW, 125 VDC, 1200 RPM, ship's service Generator-Exciter. **Reduction Gear:** Ratio 5010/1200 RPM.

535 KW GENERAL ELECTRIC TURBO GENERATOR UNIT

Complete with L.O. Coolers and exciters. **Turbine:** General Electric Mfg. drawing P-8453535, 3 stages, type DORV-325, 5645 RPM, rating 535 KW, inlet pressure 590 lbs., Superheat 325 degrees F., exhaust pressure 1¾ ABS. **Reduction Gear:** General Electric, type S-162-D, Class, 535 KW, Mfg. dwg, T-8453535, 5645/1250 RPM. **Generator:** General Electric, Dwg, T-8453535, type ATB-976, KNA 500, 450 volts AC, 3 phase, 60 cycle, 400 KW, 642 amps, 1200 RPM, PF .8, Frame 976, Exciter 120 volts DC. Control panel: General Electric, Dwg. 6367270, Type XF-100492, 6 circuits, 450 volts AC.

525 KW GENERAL ELECTRIC AUXILIARY TURBO GENERATOR UNIT

Complete with L.O. Cooler. **Turbine:** General Electric 525 KW, Type DORV-325M, 5645 RPM. **Reduction Gear:** General Electric Type S-162-D, 5645/1200 RPM, single helical. **Generators:** General Electric. (1) Type ABT, 3 phase, 400 KW, 450 VAC, 1200 RPM. (2) Type MPC, 75 KW, 110 VDC, 1200 RPM, Exciter. (3) Type MPLI, 55 KW, 120 VDC, 1200 RPM, Generator. (4) Auxiliary DC generators.

COFFIN MAIN FEED PUMPS

Coffin Main Feed Pumps, single stage, centrifugal, Type CG-12A.
Capacity of Pumps:

H.P.	G.P.M.	Head	R.P.M.	Steam	Temp	S/N
324	400	1780	7200	600	540	4453-CG-8-33-33
334	383	1810	7200	526	500	5304-CG-8-8-33
320	350	1780	7200	525	500	4454-CG

Units available as-is or reconditioned w/A.B.S.

Coffin, turbine drive, Type F, 7200 RPM, 200 GPM, 150 HP, 150 psi w 1329 ft. head.

TURBINE ROTORS

5400 KW GENERAL ELECTRIC TURBINE ROTOR

ABS, 6275-31, AB-142-WD-8-10-44, 1701461 T8604259, 6275-31 67-KU-102032, A853BY 21 Jan. 1967.

5400 KW WESTINGHOUSE TURBINE ROTOR

ABS report 66KU11942 A853B, 6 Sept., 1966, Marks: 6275-45. AB-142 WD9-30-44, 170-1467, 8604259-1, 6275-45.

5400 KW ELLIOTT TURBINE ROTOR

ABS, 67-LA9644-830, AB-JCB-3-31-67, 9013039-9230P1, 66-KU-11895, A853 1071941, AB142 WDG-4-45.

PUMP UNITS

CARGO STRIPPING PUMP

(Steam) Worthington, vertical duplex, double acting, size 14" x 14" x 12", speed 46 ft./min., 700 GPM, 150 psi operating pressure. Bronze liquid end.

CARGO STRIPPING PUMP

Worthington (steam). Size: 16" x 14" x 18" 1400 GPM @ 110 psi. Bronze liquid end.

T2 RUDDER—w/A.B.S.

Large Inventory
T2 Tanker Equipment
Including
Turbines, Pumps, Motors,
Deck Equipment (Windlass 12 x 14)
Tail Shafts
Call us for your needs!

SEND FOR OUR NEW DIESEL PARTS CATALOG
IMMEDIATE PRICES ON REQUEST

MAIN CARGO PUMP UNIT

Pump: Ingersoll Rand, type 2 stage horizontal, size 6-GTM, 1750 RPM, 2000 GPM, 12" x 12", 100 psi @ 280 ft. head. With motor.

FUEL AND LUBE OIL PUMP

Pump: Quimby, size 2½ head screw, 1200/600 RPM, 15 GPM @ 325 psi disch. press. **Motor:** General Electric, Model 5KF364PP1, Frame 364, 7.5/3.75 HP, 1160/580 RPM, 440 volts AC, 10/9.7 amps, 3 phase, 60 cycle, complete with controller.

LUBE OIL SERVICE PUMP

Pump: Quimby, Type vertical rotex, size 4-B, 1150 RPM, 175 GPM @ 60 psi with 20 ft. head, 6" x 5". **Motor:** General Electric, Model 5KF365AJX1, Frame 365, 5 HP, 1170 RPM, 440 volts AC, 20 amps, 3 phase, 60 cycle, complete with controller.

MAIN CIRCULATING PUMP

C4, Warren type. 24 MFP, 18000 GPM, 690 RPM, 16 TDH vertical w/150 HP. 440/3/60 motor w/spare parts.

★★ ALSO AVAILABLE!! ★★

DC MOTOR

885 HP, 700/950 RPM, 230 V, 3085 amps, 120 V excitation @ 60°C rise. Shunt wound. Self aligning roller bearings. **DC Generator** for use with above motor for variable speed control constant torque also available. Rated 710 KW, 230 volt.
Ideal for drilling rig operation

NEW MAIN MOTOR FOR T2

Gen. Elect. #5690714 Type TSM-80, 6000 HP, 90 RPM, form H.L., 2300 volts, Amps. arm. 1160, P.F. 1.0, KVA 4625 phase 3 cycle 60, exciter volts 120, amps field 390 contin. @ 60°C. rise. Spare coils available (stator).

We are currently dismantling
- **T3/Victory/C3**
- **Cruiser (Toledo)**
- **Destroyer escorts**
- **Submarines**

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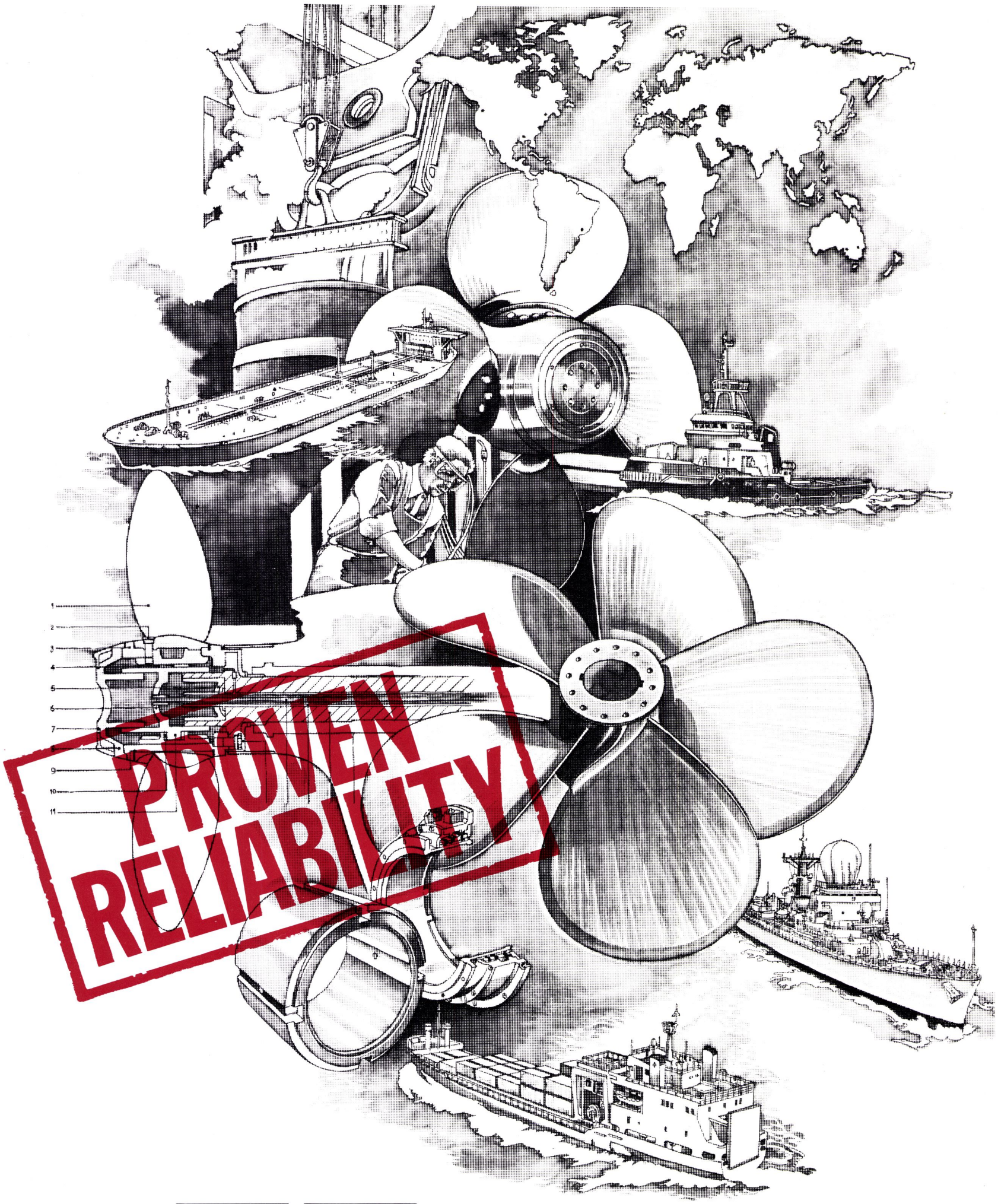

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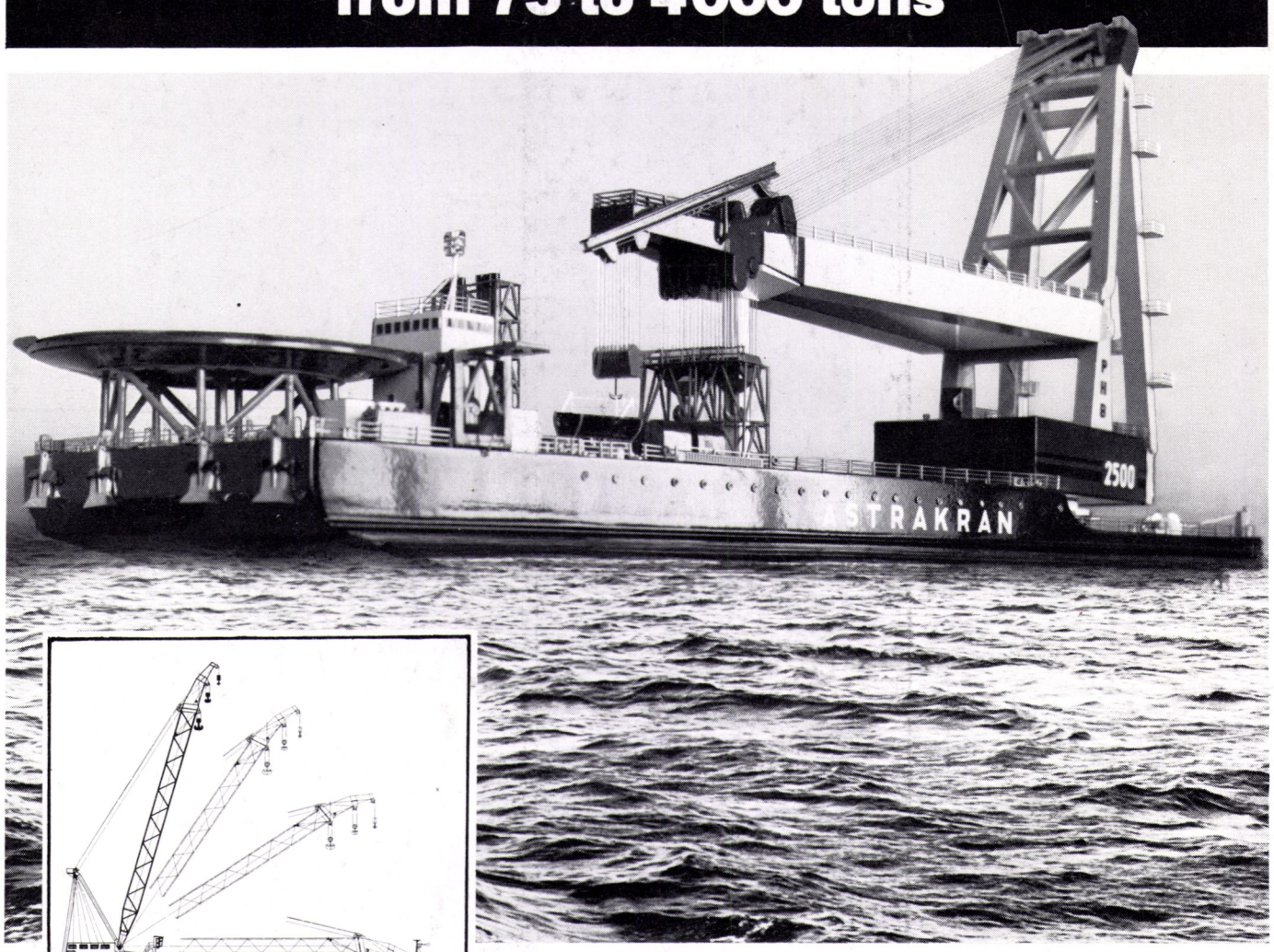

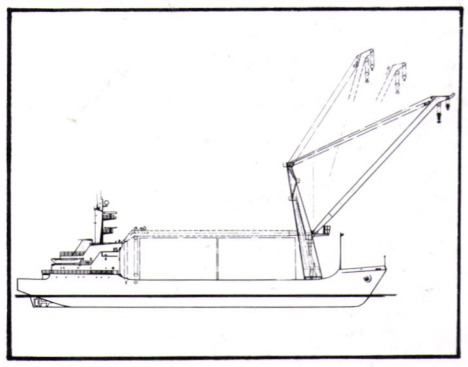

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