

MARITIME REPORTER

AND
ENGINEERING NEWS



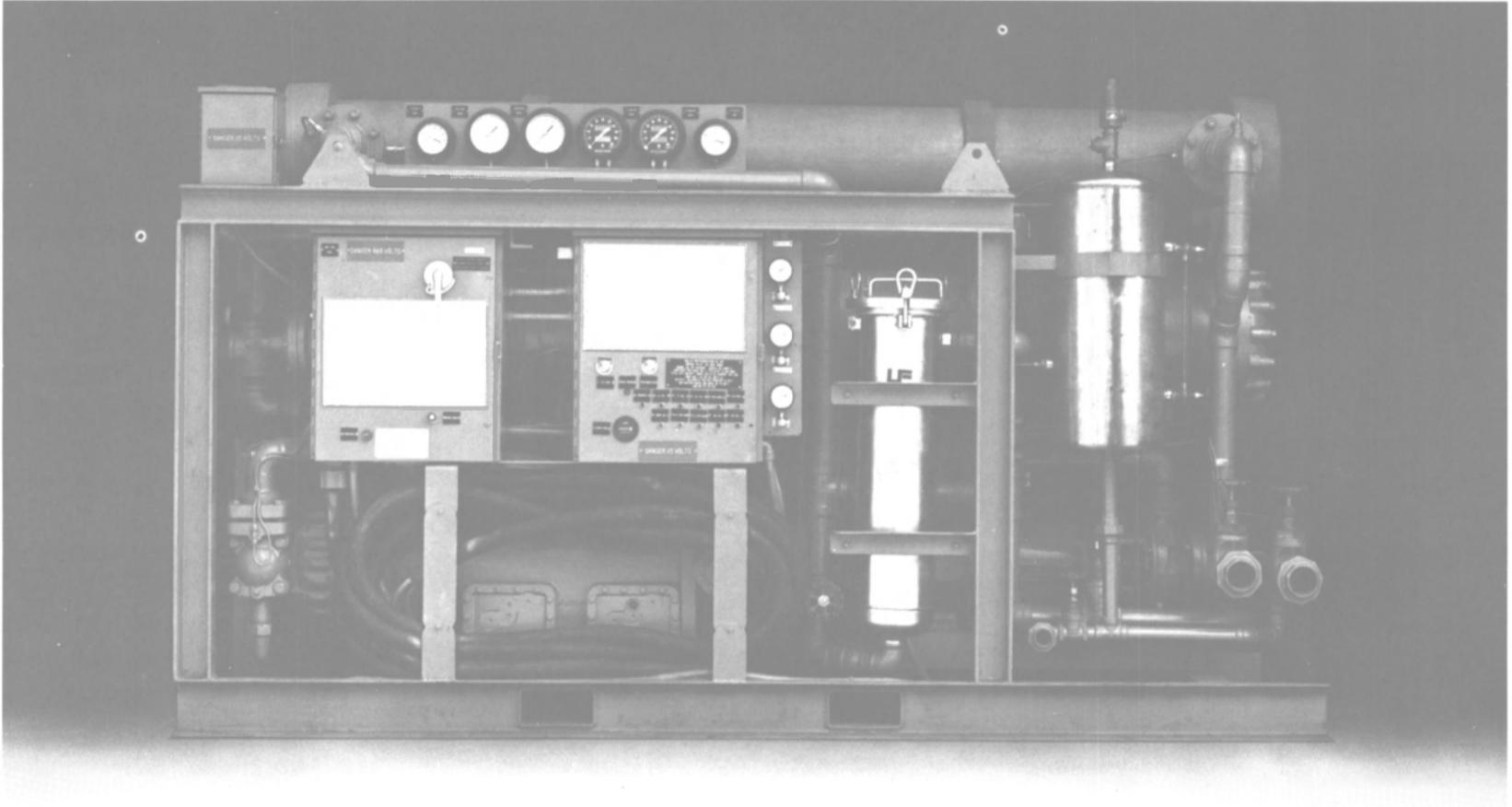
'C/Major'

**Swiftships Delivers
Detroit Diesel-Powered
Utility Boat To CO-MAR**
(SEE PAGE 10)

FEBRUARY 15, 1981

The Problem:

AIR CONDITION A GOVERNMENT SHIP FROM A PORTABLE DOCKSIDE CHILLED WATER UNIT



The Solution:

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Under contract to a U. S. Naval activity, Bailey Refrigeration Company designed and fabricated a complete air conditioning system on a portable steel base. After connecting input power and cooling water, the unit can provide 60 tons of chilled-water cooling to nearby ships through flexible hoses.

After fabrication, the plant was given a full 8 hour operational test in Bailey Refrigeration's Brooklyn shop on a Marine Pax Tester, designed and built by Bailey. The test included capacity verification (through the use of National Bureau of Standards certified thermometers and flow meters) and sound level monitoring (with N.B.S. certified

sound level metering). The tester enables full load operation of air conditioning and refrigeration plants up to 75 tons on a continuous basis. It is anticipated that future Bailey Pax will be tested prior to shipment.

While more unusual than most, this unit exemplifies Bailey's ability to specially design and fabricate marine air conditioning and refrigeration equipment to best fit our customer's needs.

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If so, call our Chief Engineer, George Gallagher, at 212-855-3958.



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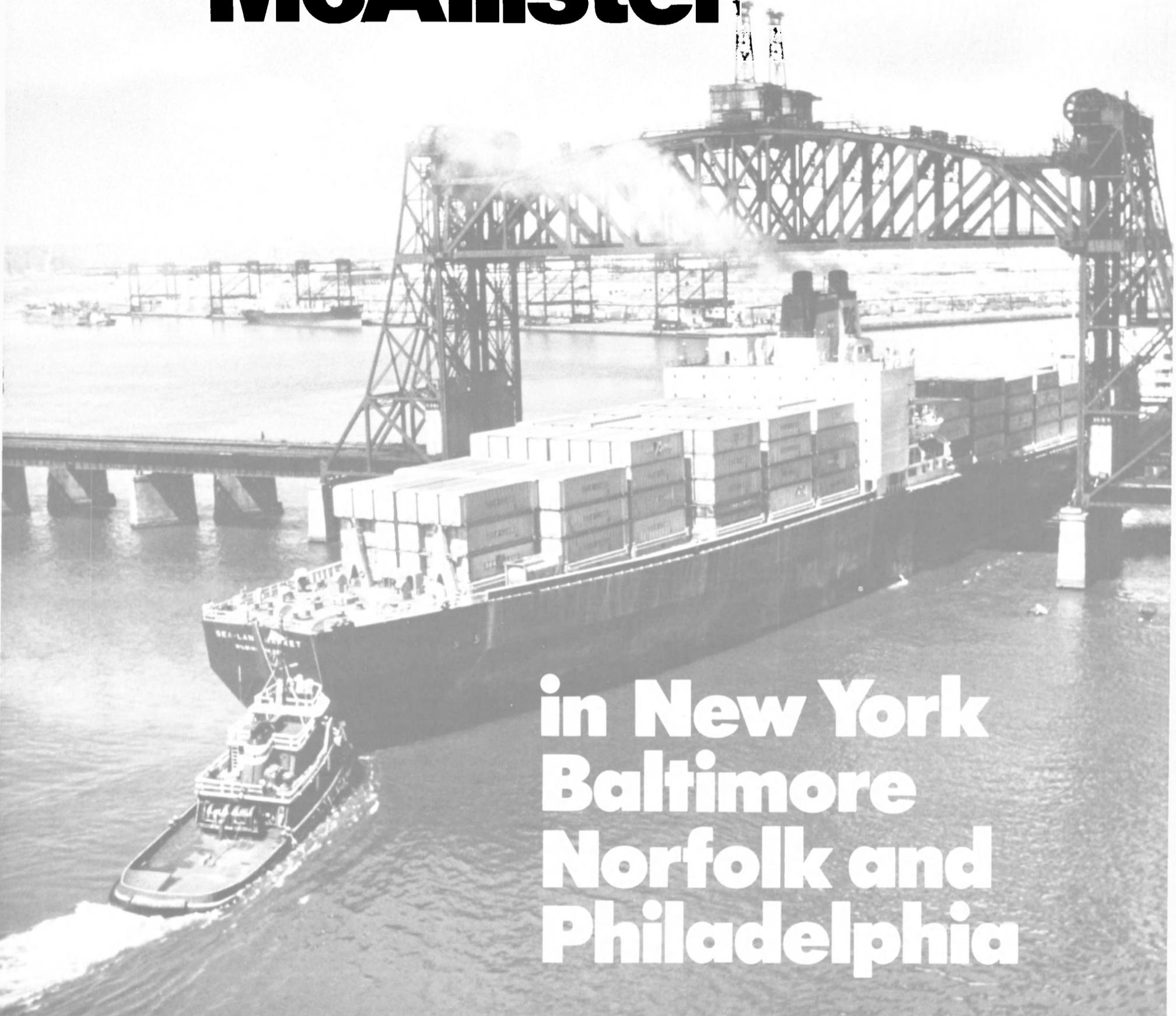
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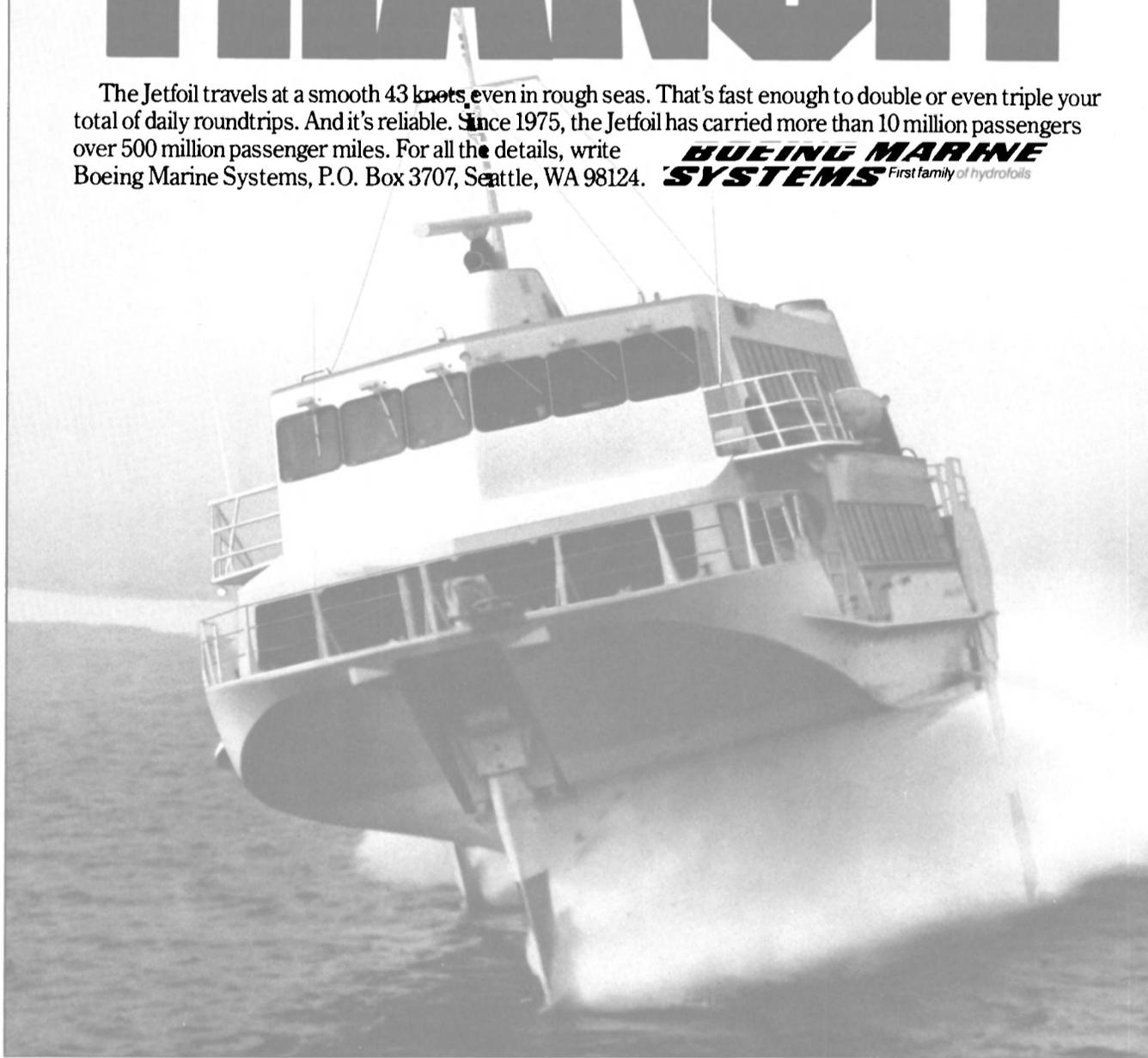
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Coastal Will Overhaul Navy Oiler 'Savannah' At Cost Of \$17.5 Million

Coastal Dry Dock and Repair Corporation, Brooklyn, N.Y., has been awarded a \$17,447,000 firm fixed-price contract for the regularly scheduled overhaul of the replenishment oiler USS Savannah (AOR-4). The Supervisor of Shipbuilding, Conversion and Repair, USN, Brooklyn, N.Y., is the contracting activity. (N62794-70-C-0010)

China Shipbuilding To Construct Two Ships For Evergreen Line

Evergreen Line has signed a contract with China Shipbuilding Corporation of Taiwan for the construction of two L-type, full containerships of 1,800 TEU capacity. They will be delivered in April and July 1983. The two vessels will be sister ships of the four L-type vessels currently serving Evergreen's European routes.

Evergreen also placed an order for two 30,000-dwt, handy-size bulk carriers with the Hakodate Dock Company in Japan for delivery in March and May of 1982. Evergreen is considering ordering more bulk carriers in the future.

Trinidad Corporation Sold To Apex Shipping

Barber Oil Corporation has announced the sale of its tanker operating subsidiary, Trinidad Corporation, for \$25.5 million to Apex Shipping, Inc., a subsidiary of Apex Oil Company, a privately held company based in St. Louis, Mo.

Barber shareholders adopted a plan of voluntary liquidation of the corporation late last year, which action contemplated sale of the corporation's assets in a series of transactions and the distribution of the proceeds to Barber shareholders. The corporation has completed sale of both its U.S. and Canadian oil and gas assets, its maritime assets, and its 50 percent interest in American Gilsonite Company. The corporation's only remaining significant assets are its coal operations in southwestern Virginia. Negotiations for sale of the coal assets are continuing.

**MARITIME
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AND
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ALL MATERIAL FOR EDITORIAL CONSIDERATION SHOULD BE ADDRESSED TO ROBERT WARE, EDITOR.

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A word from BRI Coverage Corp., The Independent Insurance Broker, on understanding risk today:

Risk Management Economics.

Risk used to be sort of an educated guessing game. You relied on insurance to provide "adequate protection", paid a premium, and that was it.

Today, risk has to be calculated. To the letter. Reliance on insurance just won't suffice anymore. Because claims that were unheard of years ago are being brought forth every day and won. The number and variety of these claims are greater, with the cost of settlements escalating geometrically.

No one can afford to be casual about risk anymore. The outrageous costs have shed a new light on risk. Particularly in the way that it's being handled. Management has begun to see risk for what it is — an important cost affecting the profitability of the company.

In the past, the term "risk management" was nonexistent, because insurance was an administrative function. A policy was written and the premium came out of a book. Basically, a company had only three options to save money: to change brokers, to change insurers or to change both. That was about all "managing risk" entailed.

The dramatic rise in the cost of insurance has necessitated a more sophisticated and disciplined approach to the management of risk.

Risk must now be identified in advance. In order to protect yourself, you can't afford to speculate — you have to be aware of every possible exposure.

Once identified and quantified you can see how much risk can be sustained and how much should be transferred. For every exposure, management has three options: to consider the risk as insignificant and not insure it, to transfer the risk entirely, or to strike a balance between self-assumption and transfer. The balance between not insuring, self insurance and full-insurance is one answer to cost-effective risk management. It opens up a new set of variables in the economics of risk management — variables such as taxes, investments and cash flow. In effect, the economics of successful risk management are dependent upon the methods of funding or non-funding you choose — the goal is to find the optimum position for your own circumstances.

Risk management has changed the meaning and economics of insurance. Those who truly manage risk use insurance as a tool, not as solution in itself. The proper application is entirely different — so are the results.

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tive brokers in the industry, knows this is the case. Rather than re-structure its present services and organization, BRI formed Risk Management Economics by bringing together a select group of highly-skilled financial and risk analysts. By working in close cooperation with these experts, our clients can refine and re-define the role of risk management in their company's insurance program. In so doing, it becomes possible to achieve more control over cash-flow, tighter supervision of claims and other risk expenses.

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Gulf Fleet's 102nd Vessel Is Powered By EMD Diesels

Gulf Fleet Marine Corporation has accepted delivery of the Gulf Fleet No. 44 (shown above), a 190 by 40 by 14-foot towing/supply vessel. She was built in Houma, La., by Quality Shipyards, Inc., another Gulf Fleet company, and represents the 102nd vessel in this rapidly growing fleet.

Powered by twin GM Electromotive Division 16-645E2 diesel engines that develop a total of 3,900 bhp at 900 rpm through Reintjes WAV 481 3:1 reduction gears, this vessel is capable of sustaining speeds up to 13 knots.

The No. 44 has a clear deck space of 96 by 32 feet, with a maximum deck cargo capacity of 522 long tons. Underdeck, she can carry up to 520 tons of drill water. The vessel has bulk tanks with a 5,800-cubic-foot capacity, as well as liquid mud tanks with a 1,250-barrel capacity that provide for the carriage of 189 tons of liquid mud. Also provided in

this versatile vessel are 1,250-barrel calcium chloride tanks.

Its towing package consists of a double drum SMATCO 66 DAW 200 towing winch with a drum capacity of 2,500 feet of 2-inch cable on each drum, and a 5-foot by 8-foot stern roller. With a measured bollard pull of 70,000 pounds, this vessel is classed by the American Bureau of Shipping as +A-1 (AMS), All Ocean Towing, and is built in accordance with specifications of the United States Coast Guard.

Gulf Fleet president **Richard M. Currence** attributes a great deal of the success and strength of the company to an extremely active construction program that he anticipates will continue. Gulf Fleet Marine provides a wide range of services to meet the needs of the offshore petroleum and offshore construction industries, and is one of the Houston Natural Gas group of companies.

Newport News Acquires Plant In North Carolina For Sub Support Work

Newport News Shipbuilding, a Tenneco company, has purchased a 412,000-square-foot manufacturing plant on 50 acres of land in Arden, N.C., near Asheville. The 12-year-old plant will be used for light machining operations to support an expanded program of overhauling submarines and surface ships for the U.S. Navy.

Edward J. Campbell, president and chief executive officer of Newport News Shipbuilding, said: "We are in the process of roughly doubling our capabilities for submarine overhauls, and have completed construction of a second drydock devoted to this work. We need additional light machining capacity to support this growing program, and the Arden facility is ideally suited for this type of work. We first considered the expansion of our operations here in Newport News, but suitable facilities simply were not available.

"We then conducted extensive economic studies of sites in Greeneville, Tenn., near our existing sheet metal facility, and later of the Arden facility. We determined that Arden was the more desirable location because of the size and layout of the existing plant and total acreage available for possible future expansion.

"There will be no reduction in work force at either Newport News or Greeneville as a result of acquiring the Arden facility."

Start-up operations are expected to begin at Arden in July.

Present plans call for a total work force there of about 300 people by the end of 1982. The plant was built in 1969 by Walker Manufacturing Company, another division of Tenneco Inc., for the manufacture of automotive exhaust components.

Conference Papers On Coal-Fired Ships Available From Polytech

"It may be said that a favorable economic argument for using coal as a ship's fuel can be demonstrated today in a number of bulk-carrying trades. Realistic predictions of future price trends in energy supplies suggest that the argument is likely to become even stronger in the 10-15 years that lie ahead. In this regard, we should not overlook the active development work now being undertaken in the field of more highly efficient (coal-burning) steam-generating plants." The above quotation summarizes the consensus of opinion of the recent Second International Coal Fired Ships Conference held recently in New York City.

The conference was sponsored by Shipping World & Shipbuilder and Polytech International and organized by Conference Organisers International Limited. Twelve economic and technical papers, prepared by U.S. and foreign experts on shipping and machinery, were presented during the two-day conference.

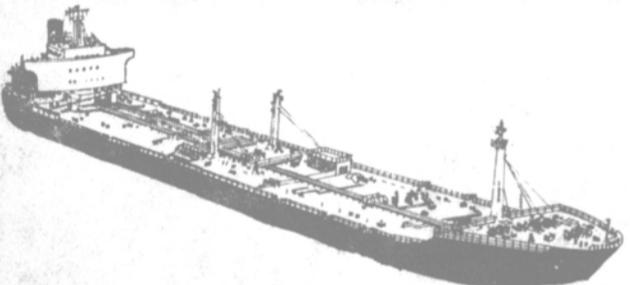
Copies of the papers may be obtained from Polytech International, Cardigan House, 1 Cardigan Street, Luton LU1 1RP, England at a price of \$63.

Kongsberg Relocates To New Facilities

Kongsberg North America, Inc. has moved to new and larger office and service facilities at 135 Fort Lee Road, Leonia, N.J. 07605. Their new telephone number is (201) 947-6788; telex 135115.

Kongsberg is the North American marketing arm of Kongsberg AS, a leading manufacturer of offshore oil exploration equipment and shipboard systems. Kongsberg is also the exclusive U.S. distributor for Robertson AS and Norcontrol, both divisions of Kongsberg. Robertson manufactures a wide variety of autopilots, the SKR-80 gyrocompass and steering systems for commercial vessels and recreational boats. Norcontrol manufactures computerized navigation and engine room systems for commercial ships.

Robertson products are sold in the U.S. and Canada through a network of 86 authorized marine electronics dealers in most major ports. Kongsberg and Norcontrol products are sold directly to the marine industry.



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\$67-Million Navy Order For Nuclear Components Goes To General Electric

General Electric Company, Machinery Apparatus Operation, Schenectady, N.Y., has been awarded a \$67,445,000 modification to a previously awarded cost-plus-fixed-fee contract for naval nuclear components. Work will be performed at various locations. The Naval Sea Systems Command is the contracting activity. (N00024-74-C-5009)

Port Of Galveston Announces Four Management Promotions

Galveston Wharves executive director C.S. (Chuck) Devoy has announced the promotion of four port management employees. The new appointments include the promotion of **Douglas J. Marchand** to general operations manager, **Ron Surovik** to chief engineer, **Mario R. Ermeta** to Midwestern sales manager and **John Y. Massey Jr.** to marketing manager. The combined service of these four men represents over 25 years of management experience with the Port of Galveston, Texas.

Mr. Marchand has served as assistant to the general manager since 1978. He joined the Wharves staff in 1970 and was responsible for the operation of the port's export crating division, Pier Point Packers, at the time of his promotion. Mr. Surovik has been with the port engineering staff since 1971. His most recent capacity was that of port engineer responsible for assisting in all the port's engineering and planning functions.

Mr. Ermeta has been with the Wharves' Houston sales office since 1976 as assistant Western sales manager. His responsibilities with the port involve the attraction of customers to utilize the Port of Galveston for shipping cargo. Mr. Massey was hired in 1978 as the Foreign Trade Zone manager for the Port. He was formerly employed as vice president of the Breton Corporation, a warehousing firm in the Kansas City Foreign Trade Zone.

Electro-Nav's New Watch Receiver Meets IMCO Requirements

IMCO Resolution A.383 mandates that seagoing vessels must be equipped with a watch receiver tuned to the 2182 kHz voice distress frequency, which must be monitored 24 hours a day while the vessel is at sea. Electro-Nav president **Robert E. Negron** recently unveiled his company's new EN2182-GR "Lifesaver" watch receiver, designed to comply with IMCO and with the provisions of most European maritime regulatory agencies.

Lifesaver has already been approved by the Greek Government's E.E.P. and Liberia's B.M.A.

"Lifesaver differs in several respects from the EN2182R Watch-receiver we introduced last year," said Mr. Negron. "The operator can choose to filter or mute incoming signals so as to minimize interference with his watch duties. An integral digital clock automatically lifts the filter or mute

during silent periods, and is mounted on the front panel where it can easily be seen at all times. And Lifesaver can receive EPIRB aircraft distress frequency transmissions. These operating characteristics are the very ones called for in the directives of most of the European regulating bodies."

The new watch receiver comes with its own integral speaker, and with provisions for a remote

loudspeaker with controls that permit comprehensive monitoring at any location aboard ship. Easy-to-mount antenna and mounting hardware are furnished with the unit; a deluxe whip antenna is also available. Installation is said to be simple, and can be performed by ship's personnel.

For further information on Electro-Nav watch receivers and ancillary equipment,

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A 10,000-psi jet of water promises to revolutionize routine on-board maintenance... especially rust and scale removal of surfaces to be painted.

Butterworth Systems now offers a modern alternative to the age-old chipping hammer. It's their MARINE LIQUA-BLASTER®



Diesel powered pump of a MARINE LIQUA-BLASTER onboard a vessel.

ultra-high pressure water-blasting equipment.

Especially developed for shipboard use at sea, the MARINE LIQUA-BLASTER unit uses a diesel or electric powered pump to generate a 10,000-psi jet of water that is directed by a fail-safe, hand-held gun at the surface being descaled.

"White-metal" cleaning.

On a badly rusted surface, "water only" blasting removes scale and debris, leaving a surface that is acceptable for standard maintenance painting. If a moderate amount of sand is automatically added to the water jet, a surface can be "white-metal" cleaned more effectively and more efficiently than it would be with dry-sand blasting in a shipyard. With the MARINE LIQUA-BLASTER unit, a rust inhibitor can be added to protect the "white-metal" surface against oxidation before painting.

Introducing the Butterworth Systems MARINE LIQUA-BLASTER® SHIP MAINTENANCE SYSTEM.



poop deck. The job was done as routine maintenance with interruptions for bad weather and all-hands tasks. In a little over two weeks the poop deck was "white-metal" cleaned and freshly painted.

Doing the same job in a shipyard would have cost \$13,750 at \$25 per square meter not including the incremental lay up time to accomplish this task.



Heavily rusted deck (below), after water blasting (left), and "white-metal clean after water-sand blasting (right)."

Get all the facts.

For full details and a copy of an eight-page report, "Shipboard Cleaning and Descaling with Ultra-high Pressure Water Blasting", write or call today.



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Better than dry-sand blasting.

Because of the high velocity of the water/sand jet, the sand impacts a rusted surface with a much greater force than with regular dry-sand blasting. The end result is faster cleaning using less sand. Respirators are not required since no dust is generated. Clean-up is also easier.

Other shipboard cleaning.

In addition to descaling rusted surfaces, a MARINE LIQUA-BLASTER unit can be used for a number of

other on-board cleaning jobs. These include cleaning condenser and boiler tubes, oil spray from machinery, galley grease filters, clogged ports, and the like. For these jobs, as well as rusted surfaces, a variety of guns, lances, round and fan jet nozzles are available.

Proven on-board use.

The experience on a 69,742-DWT tanker, is typical of other vessels that have used MARINE LIQUA-BLASTER equipment. Here, it was first used to clean a badly rusted 550-square-meter

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Larry Brown Named VP-Operations For Jacksonville Shipyards



Larry Brown

Arnold P. McIlwain, president of Jacksonville Shipyards, Inc., Florida, has announced the promotion of Larry Brown to the position of vice president, operations. Mr. Brown has been with Jacksonville Shipyards since 1971 after retiring from the United States Navy, having served as chief engineer of various vessels, as well as numerous assignments related to Naval shipyards and repair facilities.

Since coming to Jacksonville Shipyards, he has been assigned to different divisions and has held positions as coordinator, machinery superintendent, and general yard superintendent.

Tidelands Limited Seeks Title XI On Jackup Rig To Cost \$30.6 Million

Tidelands Limited IV, Houston, has applied for a Title XI guarantee to aid in financing the construction of a jackup drilling rig. The proposed builder, Bethlehem Steel Corporation's Sparrows Point, Md., yard, expects to complete the vessel in April 1982. The drilling barge will be used to drill for oil and gas in water up to 200 feet deep.

If approved, the guarantee will cover \$24.5 million, or 75 percent of the vessel's \$30.6-million estimated cost.

Report On Domestic Offshore Oil Published

Record levels of U.S. coastal energy development will result from higher world petroleum prices, domestic deregulation and an ambitious offshore leasing program among other factors, according to the just published second edition of the special report by TransTech Co. (marine consultants) entitled *Domestic Offshore Petroleum—Prospects and Opportunities for the 1980's*. The report has four chapters beginning with analysis of U.S. oil and gas requirements through the decade, examination of the case for increased offshore exploratory activity, projection of production levels by coast, and concluding with unit and dollar value growth forecasts of the main offshore equipment markets.

Markets examined are well materials, mobile drilling rigs, pro-

duction platforms, oil and gas marine pipelines, and transportation. Forecasts are developed using historic industry operating patterns, the 5 Year OCS Leasing Schedule, estimated levels of industry capital spending allocated to offshore, and from consideration of physical conditions in the new lease areas. The transportation market is segmented into anchor handling/supply vessels, fast crew/supply boats and heli-

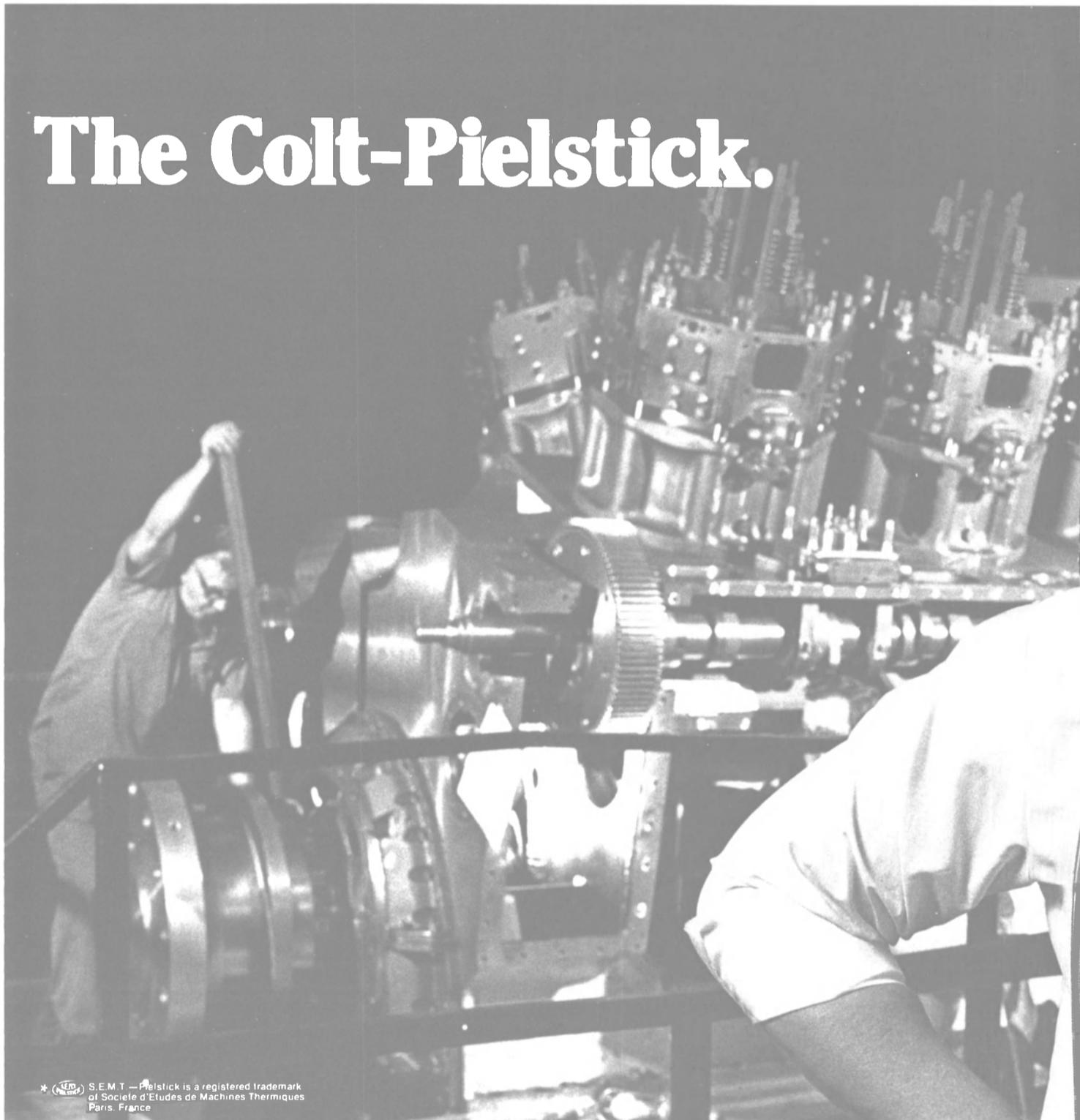
copters. A method of comparative economics is presented to enable evaluation of transportation alternatives and to predict growth of competing modes.

The 12 figures and 34 tables in the report form a base of important, factual information on major segments of the multibillion-dollar U.S. offshore energy industry. As a strategic planning and marketing tool, the report's emphasis is to present rationally

developed levels of growth from which organizations providing products and/or services to the offshore petroleum industry can better develop specific opportunities.

For your free brochure describing *Domestic Offshore Petroleum—Prospects and Opportunities for the 1980's* in greater detail, write G.F. Uttmark, Trans-Tech Company, Dept. MR., P.O. Box 9, Elwyn, Pa. 19063.

The Colt-Pielstick.



We speak softly because

There's been a lot of flag waving lately about who makes the best marine diesels, but the facts speak for themselves. Nothing comes even close to Colt-Pielstick* marine diesel engines manufactured by Fairbanks Morse.

No one comes close in experience. There are more than 2,200 Pielstick PC Series diesels in marine applications with a total of more than 73 million hours of operating experience.

No one beats us in heavy fuels. There are more than 1,700 Pielstick PC Series marine diesels for operation on heavy

fuel with more than 55 million hours of operation. In today's economy, that kind of experience can't be overlooked.

We're American-made. Fairbanks Morse builds Colt-Pielstick PC-2 Series marine diesels in Beloit, Wisconsin, with 100% American labor and components. Yet due to the internationality of the Pielstick license group, they can be serviced anywhere in the world by other engine builders.

No one offers more flexibility in horsepower ratings. Fairbanks Morse offers you heavy duty Pielstick 4-cycle marine diesels with a 6,000 to 27,000 bhp rating range. Our

Baxter Named President And Board Member Of The Foxboro Company

A new president and chief of operations and two new directors were elected recently by the board of directors of The Foxboro Company, Foxboro, Mass. According to Earle W. Pitt, chairman and chief executive officer of the process control manufacturer, Colin

I.W. Baxter has been elected president and chief of operations, and Mr. Baxter and executive vice president Charles A. McKay, director of technology, have been elected to the board of directors. Both Messrs. Baxter and McKay will report to Mr. Pitt, who retains the responsibilities of chairman and CEO.

In his new role Mr. Baxter will be responsible for all corporate operations, which include the

worldwide sales, manufacturing, systems, customer service, and analytical instrument divisions. Mr. McKay will be responsible for research, development, engineering, and marketing, also on a worldwide basis.

Mr. Baxter joined Foxboro in Canada in 1956; spent a period as a sales engineer with W. Arthur Fisher, Ltd., the Foxboro representative in New Zealand, and rejoined Foxboro in Massachu-

setts in 1960. In 1963, he was appointed general manager of the Far East and Pacific Area and managing director of Foxboro Proprietary, Ltd., in Australia. He became assistant U.S. general manager in 1971 and general manager in 1972. He was elected vice president in 1974 and executive vice president in 1978.

Mr. McKay, who became a Foxboro vice president in 1974, is a member of the company's corporate operating committee. As director of technology, he is responsible for the design and development of new products and systems, as well as the engineering maintenance of existing product lines. He served as chief electronic engineer, production manager, and general manager of the Van Nuys, Calif., division of The Foxboro Company (now the Valencia plant) before transferring to Foxboro, Mass., in 1968 as manager of electronic development and engineering. He was elected executive vice president in 1978.

Triple 'A' Yard Awarded \$10-Million Contract To Overhaul LSD

Triple "A" Shipyard San Francisco has been awarded a \$10,128,000 fixed-price contract for the regularly scheduled overhaul of the dock landing ship USS Fort Fisher (LSD-40). The Supervisor of Shipbuilding, Conversion and Repair, USN, San Francisco, is the contracting activity. (N62798-70-C-0011)

Crane Manufacturers Friedrich Kocks And Peiner Have Merged

Kocks Crane and Marine Company of Pittsburgh announces the merger of its parent company, Friedrich Kocks, with Peiner AG, a company of the Salzgitter group. Both companies have well-established reputations as producers of large cranes and material-handling equipment in Europe as well as North America. This merger augments the capabilities of both companies in the production of cranes to better serve the industry.

Friedrich Kocks is also known for its production of ship winches. This program will now be handled by the crane division and is expected to continue to increase its scope of manufacture under the new direction of Kocks Crane and Marine. The crane division has been manufacturing its products in the U.S. for more than 10 years, and under its program has qualified for and completed contracts for the National Aeronautics and Space Administration.

In addition, the Marine division office in Little Falls, N.J., will continue its activity in the industry under the direction of the Pittsburgh office to better coordinate activities throughout the U.S. and Canada.



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38D8-1/8 series opposed piston engines can deliver 700 to 4,200 horsepower. No one else comes even close.

So the next time you see a marine diesel manufacturer waving flags and shouting about superiority, don't be fooled.

They have to talk loudly... they don't have the Pielstick. We do.

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Colt Industries



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Fairbanks Morse

Engine Division

ON THE COVER

Swiftships Delivers GM-Powered Utility Boat To CO-MAR

Swiftships, Inc. of Morgan City, La., has announced the completion of a twin-screw, 115-foot steel utility boat named C/Major. This vessel is the second in a series of five contracted for by CO-MAR Offshore Corporation, also of Morgan City.

The C/Major was designed to CO-MAR's specifications for rugged use serving offshore oil rigs. According to Paul Haines, president of CO-MAR, "We are delighted to work with a company that can adapt its boats to our particular needs. The versatility Swiftships demonstrates is directly attributable to their experience in designing and building top quality boats."

Approved by the United States Coast Guard, the C/Major carries a propulsion system that combines two GM Detroit Diesel 12V149N engines, each rated 675 bhp at 1,800 rpm, with Twin Disc reduction gears to give the craft a trial speed of 13 knots. Two Delco 40-kw generators are driven by Detroit Diesel 4-71 engines.

The vessel's cargo deck is 50 by 21 feet, which allows a cargo capacity of 101 long tons above deck and 106 long tons below. It carries 24,200 gallons of fuel and 34,000 gallons potable water, both of which are transferable, and can house a five-man crew plus transport 17 other persons.

The vessel is certified for 200



Rugged utility vessel C/Major was completed recently by Swiftships for CO-MAR Offshore Corporation. The 115-foot craft is powered by twin Detroit Diesel 16V149N engines with total output of 1,350 bhp.

miles offshore. Its beam is 26 feet 6 inches, and the depth is 11 feet. It draws a maximum of 9 feet 9 inches fully loaded. Two 54 by 46-inch, four-blade bronze wheels were supplied by Columbian.

The electronics, supplied by Bibbins & Rice, include: a Furuno FR-711 radar; two radiotelephones, a Drake TRM-1 SSB and a Drake MRT-55 VHF; a 9,900 Loran by Texas Instruments; and Impulse 600 depth sounder; a YB-500 compass by Ritchie, and an Encoder-Necode 321AR.

The seaworthy craft is outfitted with full firefighting capabilities, including monitor, life-saving gear, and air-conditioning and heating throughout. It also features a complement of other navigational and safety equipment.

Having passed rigorous maneuvering tests and various other shakedown routines, the C/Major has begun operations for the petroleum industry in the Gulf of Mexico.

James Thompsen Heads Marketing Of Woolsey Commercial Products

James A. Thompsen has been appointed national marketing manager, commercial products, for Woolsey Marine, according to Seth R. Schneible, vice president of the 127-year-old marine coatings firm.



James A. Thompsen

In his new post Mr. Thompsen will direct sales and marketing of the complete line of Woolsey coatings for marine applications in the United States and overseas.

Prior to joining Woolsey Marine, Mr. Thompsen was marketing vice president of Jackson Engineering Shipyard on Staten Island, N.Y. In 1974 he founded and headed Thompsen Marine, Inc., a New York supply firm that subsequently was sold to outside interests. Earlier he held management positions with Hempel Paint Corporation, Cabot Corporation, and Amerace Corporation.

Mr. Thompsen is a graduate of the U.S. Maritime Academy and attended the Armed Forces College and City College of New York. He is a member of The So-

ciety of Naval Architects and Marine Engineers, the United States Naval Institute and The Propeller Club of the United States.

He is the author of more than 20 technical papers and industrial magazine articles. His work with U.S. Government agencies included technical research and development of plastic products and coatings for nuclear submarines, merchant and naval vessels.

Sun Ship To Focus On Ship Repair Work

Sun Company said that after a year-long analysis of the market for new ships and the competitive position of its Sun Ship subsidiary, the yard will withdraw from new ship construction activities and redirect its Chester, Pa., operations to a ship repair and industrial products facility. Sun Ship president Robert Campbell said the transition would last approximately 18 months as the yard's current new ship construction backlog is completed, and would eventually reduce Sun Ship's employment from its current 4,200 to approximately 1,100 persons.

There has been a general decline in new ship construction in the past 10 years, according to Mr. Campbell, and market projections indicate that this decline will continue. In addition to a poor market showing no signs of future growth, he stated that Sun Ship is no longer competitive in the industry, as in recent years the yard has required considerably more man-hours to build comparable ships than Sun's competitors. Mr. Campbell said that while his company had posted

large financial losses in recent years, the ship repair and industrial products parts of the business have been encouraging.

"Our studies have shown," Mr. Campbell said, "that while we clearly cannot be a profitable participant in the new ship business, the future markets for ship repair and industrial products such as heavy steel fabrication and machining can be stable and profitable, and we intend to work toward that goal. Our presence in Chester will be reduced from what we are today, but we will continue to strive to maintain what we hope will be a healthier presence in the future."

Robert Scott Named Assistant Vice President Of Gibbs & Cox, Inc.

James J. Convy, chairman of the board of Gibbs & Cox, Inc., a leading independent naval architectural firm, recently announced the appointment of Robert J. Scott as assistant vice president. He is also assistant head of the Washington Division, which provides engineering services to the U.S. Navy, Department of Energy, and other government and private clients.

Mr. Scott received his BS and MS degrees in naval architecture from the University of Michigan, and has been with Gibbs & Cox for more than 21 years. During this time, he has served the company in many technical and management capacities. Since his assignment to the Washington Division, Mr. Scott's project management responsibilities have included early-phase design stud-

ies of advanced Naval combatants, and ocean engineering studies related to ocean thermal energy conversion (OTEC) and other offshore systems. His responsibilities as assistant vice president include overall office management, client liaison, and maintenance of technical quality. Mr. Scott is currently chairman of the Chesapeake Section, SNAME, and chairman, Ocean Energy Committee, Marine Technology Section.

SUNY Maritime College Gets \$2,000 Grant From Gulf Oil Foundation

The Maritime College at Fort Schuyler Foundation recently received a \$2,000 Departmental Assistance Grant from Gulf Oil Foundation. School officials said the grant will be used for the Education Development Program of the College.

The purpose of Departmental Assistance Grants is to further special projects proposed by specific departments in colleges and universities. In addition to department assistance grants, other phases of Gulf's Aid to Education Program include undergraduate scholarships, graduate fellowships, employee gift matching, capital grants, and various special grants.

The check was presented to Adm. Sheldon H. Kinney, president of State University of New York Maritime College, by Donald C. Krom, Marine Department of Gulf Trading and Transportation Company. Mr. Krom is a 1959 graduate of the Maritime College.



Stop smoking. ITT Mackay now offers four ways to improve fuel efficiency.

ITT Mackay, known on the bridge for reliable marine communications systems, now enters the engine room. Featuring equipment manufactured by proven performers like the Wager Company and VAF Instruments, ITT Mackay now offers four products to meet your fuel conservation needs.

Smoke Indicator: Available in both visual and photoelectric models, the Wager smoke indicator can distinguish between white and black smoke. It indicates, at a glance, the direction of changes to boiler controls.

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Viscotherm® Viscosity Control: The Viscotherm unit has been proven effective and reliable in both diesel and steam propulsion plants for 20 years.

Fuel Metering: ITT Mackay offers both piston and vane type pos-

itive displacement meters which can measure flows from 0.05 gal/hr (piston) to 425 gal/min (vane).

If you're thinking about fuel conservation systems, either retrofit or new construction, think ITT Mackay. To find out more about ITT's engine room products, call or write: ITT Mackay, Dept. 370, 2912 Wake Forest Road, Raleigh, NC 27611. Or telephone (919) 829-3134.

ITT Mackay

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SAME's Philadelphia Post Elects Officers — Pistilli Named President

The Society of American Military Engineers (SAME), a professional engineering society which was founded in 1920 and is comprised of active duty military and civilian engineers who are dedicated to the defense of our country, has officially installed its new local officers for 1981.

Elected president of the society's Philadelphia post which comprises the Delaware Valley area, is Dr. **August D. Pistilli**, P.E., who is president of the American Dredging Company; vice president is Capt. **Robert J. McHugh Jr.**, CEC, USN, Commanding Officer, Northern Division-Naval Facilities Command; reelected secretary is **Stanley J. Snarski**, Assistant Chief of Operations Division-Army Corps of Engineers; and reelected as treasurer is **Edwin A. Kucerik**, project engineer-Army Corps of Engineers. Mr. **Kucerik** also re-

ceived an award for Outstanding Service.

Dr. **Pistilli** is replacing Col. **James G. Ton**, CE, U.S. Army, the past president. According to a SAME official, Colonel **Ton** has had a very distinguished and successful year as leader of a society which attempts to further the idea of the citizen/soldier; a concept which goes back to the time of George Washington.

The new president, Dr. **Pistilli**, holds the title of "Engineer of the Year" for 1980; an award from the American Society of Civil Engineers. As a Navy pilot in World War II, he was shot down three times. He also served on active duty during the Korean War and as a special consultant to the Defense Department in Vietnam during the TET offensive.

Attending the meeting was Comdr. **Steven C. Beuby**, CEC,



Newly elected officers of the Philadelphia Post, Society of American Military Engineers, are (L to R): reelected treasurer **Edwin A. Kucerik**, project engineer for the Army Corps of Engineers; newly elected president Dr. **August D. Pistilli**, president of American Dredging Company; recently elected vice president Capt. **Robert J. McHugh Jr.**, USN; and reelected secretary **Stanley J. Snarski**, assistant chief of the Operations Division for the Army Corps of Engineers.

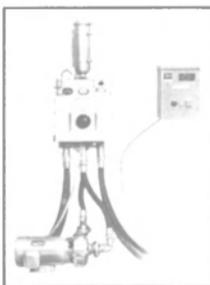
USN. He is the Indian Ocean Project Officer, Naval Facilities Engineering Command. He commented on the construction activity for the Indian Ocean Island of Diego Garcia, and he pointed out the strategic role played by this land in support of the United States efforts for the whole Middle East.

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Maritime Reporter/Engineering News

R.S. Wilson Appointed Curtis Bay Towing Vice President In New York



Robert S. Wilson

Robert S. Wilson has been elected a vice president of Curtis Bay Towing Company, according to an announcement by Malcolm W. MacLeod, president. Mr. Wilson will continue to operate from Curtis Bay's New York office, where he has been sales manager since 1962. During World War II he served as a U.S. Navy dive bomber pilot. Stationed aboard the USS Enterprise in the Pacific, he was awarded numerous decorations. In the Korean War he was attached to a Navy fighter squadron.

Curtis Bay operates a large modern fleet of 27 tugs in the Delaware River, Chesapeake Bay, and Hampton Roads areas.

Universal American Asks Title XI On Cargo Barge To Cost \$18.5 Million

Universal American Barge Corporation, a subsidiary of Universal American Shipping Corporation, Dover, Del., has applied for a Title XI guarantee to aid in financing the construction of a dry-bulk cargo barge.

Bay Shipbuilding, Sturgeon Bay, Wis., is the proposed shipbuilder, with delivery expected in August 1981. The 550-foot-long barge will be operated in coastal waters between Chesapeake Bay and Brayton Point, Mass. If approved, the Title XI guarantee will cover \$16,194,000, or 87½ percent of the vessel's \$18,508,000 estimated cost.

Waukesha Engine Will Manufacture Sulzer Diesels Under License

Waukesha Engine Division, Dresser Industries, Waukesha, Wis., will manufacture a new family of 1,500 to 4,800-bhp diesel engines under a license from Sulzer Brothers Limited of Winterthur, Switzerland, officials announced recently. Waukesha Engine, a 75-year-old supplier of diesel and gas engines for the worldwide petroleum and industrial markets, currently markets three smaller diesel series that cover a range of 39 to 1,617 bhp.

"The Sulzer diesel, designated

as the AT25 Series, will triple our horsepower range, allowing us to increase sales to our customers who require higher horsepower diesel units," states C.E. Lee, division president. "These include operators of large land-based drilling rigs, electric generating plants, and marine vessels. Also, we intend to offer the AT25 Series to the offshore drilling market, which is a new growth market during the 1980s.

P.C. Trombley, executive vice president-marketing and service, praised the Sulzer design for its reliability and exceptional fuel economy. "Tests run on dozens of these engine have documented the efficiency of the AT25 design in terms of gallons of No. 2 diesel fuel saved in a daily operating cycle. With diesel fuel costs continuing to rise, we envision sizable interest in the AT25 engine family from all markets—petro-

leum, marine, industrial and railroad."

Mr. Trombley said Sulzer had also tested AT25 engines running on heavy fuel oils, products which are sold for 15 to 30 percent less than No. 2 diesel fuel. "The AT25 Series is specially designed to run on heavy fuels," he said.

For further information on the Sulzer AT25 diesels,

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Pilot boat Elalat 9, delivered recently by Halter Marine to Marine and Transportation Services (Saudi), Ltd., is powered by twin Detroit Diesel engines developing total of 1,700 bhp for speed of 20 mph.

Halter Delivers Large Pilot Boat For Middle East Service

Halter Marine, Inc., New Orleans, recently delivered the 87-foot pilot boat Elalat 9 to Marine and Transportation Services (Saudi), Ltd. The lightweight, steel-hull vessel will transport pilots and pollution-control authorities to and from oil tankers at the giant Sea Island petroleum port off the coast of Ras Tanura, Saudi Arabia.

The Elalat 9 reaches speeds of 20 mph powered by her GM Detroit Diesel 116V-92TA diesel engines, each rated 850 bhp at 2,100 rpm. The reduction gears are Twin Disc MG-527 with a ratio of 2.92:1. The welded aluminum superstructure is insulated from the steel hull to prevent electrolytic corrosion. She has accom-

modations for six crewmen and is equipped with complete galley and mess facilities. A spacious lounge is also provided for the pilots.

The vessel has a fuel capacity of 6,000 gallons and fresh water capacity of 3,000 gallons. Two Detroit Diesel 3-71, 30-kw generators provide electrical power. One generator set is arranged for power takeoff to an Aurora pump and Elkhart fire monitor to pump 500 gpm of water for off-ship fire-fighting.

The Elalat 9 was built to American Bureau of Shipping requirements for small passenger vessels, and was certified +A-1, restricted to area of operation.

M.A.N.-GHH Sterkrade Completes Floating Dock For Jeddah Ship Repair

At its dock construction yard on the German North Sea coast, the GHH Sterkrade Division of M.A.N. recently launched a floating dock built for the Jeddah Ship Repair Yard in Saudi Arabia. The contract for this 19,000-ton dock was awarded to M.A.N.-GHH Sterkrade in 1979 by Messrs. Navelink S.A./Portugal, at a contract price of about DM 25 million (about \$12.5 million), which includes towage and mooring. Bearing Yard No. 79, it is the 38th dock to be built by the company in the past 26 years.

The dock's length overall is 215 meters, outside width is 41.5 meters, clear inside width is 33.5 meters, molded depth of upper deck is 15.9 meters, and immersion depth over keel block is 7.55 meters.

The dock can be used for the drydocking of ships weighing up to 19,000 tons, which corresponds

to about 60,000 dwt. Three longitudinal and five transverse bulkheads divide the bottom caisson into 24 watertight ballast tanks, which are evacuated by means of six M.A.N. bilge pumps of 3,000 cubic meters/hour unit capacity, lifting the dock with a 19,000-ton ship sitting on its keel blocks out of the water in about 90 minutes.

The dock was designed and built by M.A.N.-GHH Sterkrade according to the Rules under the survey of Lloyd's Register of Shipping.

Westinghouse Gets \$27-Million Navy Award For Nuclear Components

Westinghouse Electric Corporation, Plant Apparatus Division, Wilkins Township, Pa., has been awarded a \$27,016,000 modification to a previously awarded contract for naval nuclear components. The Naval Sea Systems Command is the contracting activity. (N00024-74-C-5010)

\$142-Million Contract For Two Tankers Awarded To Bath Iron Works

President John F. Sullivan Jr. of Bath Iron Works announced that the shipyard was awarded a contract of approximately \$142 million to build two tankers, with a potential for additional ships, by the Falcon I Sea Transport Company of Houston. The contract, signed recently in Washington, D.C., raised the business backlog of the shipyard to a peacetime record of approximately \$757 million.

The chief executive officer of the Bath, Maine, shipyard said the project will require about 1,000 workers at its peak, with the first ship to be delivered within 32 months, the second to follow five months later. He said his company has immediate openings for approximately 100 technical skills as a result of the contract, including naval architects; hull, mechanical, electrical and industrial engineers; loftsmen; designer-drafters; and production planners.

The 34,500-dwt, diesel-powered tankers, which will be chartered by Falcon to the Military Sealift Command, will measure 666 feet in length and have a carrying capacity of 225,000 barrels. They will be the first commercial ships built by BIW since it delivered the containership Resolute to Farrell Lines last year. The vessels will feature advanced environmental and safety systems to prevent oil pollution and reduce other environmental hazards.

FMC Coffin Pump Will Produce And Distribute TCU Turbochargers In U.S.

Coffin Turbo Pump, a Division of FMC Corporation, has signed a letter of intent to manufacture and distribute Turbo Charger Union b.v. (TCU) turbochargers in the U.S., announced John Burrows, operation manager.

TCU is based in Amsterdam, Holland, and has produced turbochargers for diesel engines for more than 35 years. TCU has over 10,000 successful installations. "FMC Turbo Pump Division," Mr. Burrows said, "has become the predominant worldwide supplier of marine boiler feed pumps by offering a quality product, backed up by a highly responsive and comprehensive parts and service network. TCU has an outstanding reputation for product quality and provides Coffin with a logical extension into the diesel and gas engine market." TCU has fitted its turbochargers to industrial, marine, and railroad applications, and services them worldwide.

TCU manufactures radial design turbochargers for applications from 800 to 2,600 hp, and axial design turbochargers for

applications up to 30,000 hp in single unit installations. The efficiencies of TCU turbochargers range up to 67 percent, said to be equal to or better than any turbocharger currently on the market. These high efficiencies can translate directly into significant engine fuel savings and/or in better control of engine emissions.

TCU turbochargers are also designed to minimize maintenance and repairs. They are rugged in construction, with fully floating plain bearings; they are air-cooled, which eliminates casing corrosion problems. The rotating assembly is easily removable for servicing without disturbing exhaust gas inlet and outlet connections.

For free brochures describing the FMC/TCU turbochargers, Write 75 on Reader Service Card

Free Analysis Kit For Fuel Savings Offered By Tracor

Tracor Instruments is helping shipowners combat high fuel expenses with the introduction of the Satellite Navigator II and the Automatic Omega II systems. Through precise navigation, fuel savings can be realized in several areas. Almost any shipowner can save money by fitting Tracor navigation equipment, the company states.

For a free fuel savings analysis kit that describes the return on investment by fitting satellite or Omega navigation systems,

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New National Officers Elected By Marine Technology Society

New national officers were elected recently by the members of the Marine Technology Society, Washington, D.C. President-elect is Gilbert L. Maton, president of Tracor Jitco, Inc. and a founding member of MTS. Ned A. Ostenson, director of the National Sea Grant College Program and deputy assistant director for R&D of the National Oceanic and Atmospheric Administration, was elected vice president-Eastern Region. Vice president-Southern Region is Bernard Le Mehaute, professor and chairman of ocean engineering and acting chairman of marine affairs at the Rosenstiel School at the University of Miami.

Secretary-treasurer is Henry O. George, controller of the Oceanic Division of Westinghouse Electric Corporation in Annapolis, Md. Richard M. Shamp, founder and president of Engineering Service Associates in Washington, was elected director of public affairs. He has been exhibits chairman for the MTS annual conferences for the past eight years.

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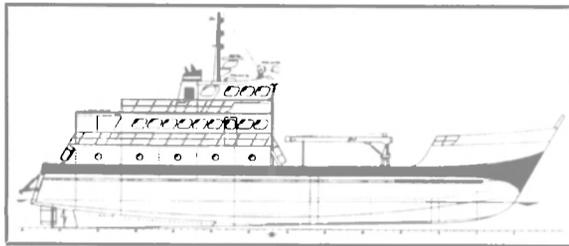
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Blancke Marine Awarded Design Contract For Inter-Island Combo Vessel



Vessel Profile

Blancke Marine Services of Sewell, N.J., has signed a contract with Victress Ltd. for the conceptual design of a passenger-freight-RO/RO vessel. The vessel is intended for inter-island use in the Bahamas. The vessel will carry passengers, mail, frozen/refrigerated foodstuffs, and vehicles.

The vessel is 125 feet in length. It has a molded beam of 33 feet and maximum loaded draft of 7 feet. There are passenger accommodations for 48 in 14 air-conditioned state-rooms. The vessel has a refrigerated capacity of 1,200 cubic feet and frozen capacity of 1,200 cubic feet. The dry cargo store capacity is 2,400 cubic feet. The vessel has roll-on/roll-off capability for four vehicles.

The vessel will be powered by twin GM Detroit Diesel 12-71TI engines rated at 540 bhp each; it will cruise at 12 knots. The vessel's electrical power system will be supplied by two Detroit Diesel 3-71, 40-kw generators. The bow door winch, stern anchor winch, and unloading crane are hydraulically powered.

Adaptable for para-military use as a landing craft for personnel and vehicles, the vessel has its propeller shafts located in skegs

for protection during beach landings. The two side skegs and the center line skeg provide a flat plane to give the vessel upright stability during beachings or drydocking. The vessel will have a 30,000-gallon fuel capacity, and carry 7,000 gallons of fresh water.

Victress Ltd. is a new shipyard being formed in Nassau, Bahamas. Victress intends to deliver fishing vessels, workboats, and pleasure craft to the world market.

Shipboard Habitability Conference Sponsored By SNAME April 7-9

To advance the science of shipboard habitability design and improve the quality of life at sea, The Society of Naval Architects and Marine Engineers will host an International Shipboard Habitability Design Conference on April 7, 8, and 9, 1981. The conference will be held at the Howard Johnson Motor Lodge in Arlington, Va., (10 minutes from downtown Washington, D.C.) This conference will bring together, from around the world, leaders in education, engineering, design, and construction to discuss shipboard habitability problems, design solutions, and new developments.

The registration fee is \$100 per person and includes admittance to all technical sessions, reception, and banquet, and a copy of the conference proceedings. Workshop seating is limited; therefore, registration applications will be accepted only on a first-come, first-serve basis.

The workshop arrangement will be utilized to stimulate meaningful dialogue and to facilitate the exchange of information and ideas. Consequently, active participation in the workshops is being solicited. Individ-

uals interested in presenting short discussion papers should contact **Joseph E. Castle**, chairman, SNAME Habitability Conference, P.O. Box 2194, Arlington, Va. 22202; (202) 692-1591.

Swiftships Takes Over Mangone Shipbuilding From Stewart And Stevenson



Jerry Hoffpaur (right), president of Swiftships, and **Don Godeau**, vice president and general manager of Mangone Shipbuilding Company, are shown following the announcement of Swiftships' acquisition of Mangone from Stewart and Stevenson Service, Inc. They are pictured during a tour of a coastal products carrier that was being completed for Sun Transport Company.

Swiftships, Inc. of Morgan City, La., has acquired Mangone Shipbuilding Company of Houston from Stewart and Stevenson Services, Inc., representatives of the companies announced. **Jerry Hoffpaur**, president of Swiftships, and **Ray Loden**, vice president of Stewart and Stevenson and president of Mangone, made a joint announcement of the acquisition. The new company will be a wholly owned subsidiary of Swiftships, and has been named Mangone Swiftships, Inc.

Mr. Hoffpaur said the move will enable Swiftships to expand production of large steel offshore service ships, a long-time Mangone specialty. He said they were particularly pleased to "add this internationally famous shipyard to our operations" because "Mangone shares our dedication to building vessels of exceptional quality, and their ships have an unequalled reputation in rough offshore waters including the treacherous North Sea." He pointed out that Mangone built a large number of tug/supply vessels for Norwegian companies starting in the late 1960s, all of which are still at work in the North Sea.

Mr. Loden, in his announcement, emphasized that Stewart and Stevenson is pleased to sell to an old established customer and expects the new relationship between the two companies to be mutually beneficial. Stewart and Stevenson is a major designer and manufacturer of total power packages for marine and other industries worldwide.

Don Godeau, vice president and general manager of Mangone for more than 14 years, said he is "as proud of Mangone's new association with Swiftships as I am of our old one with Stewart and Stevenson. The yard and key personnel, including all our craftsmen, will remain intact, and we are joining one of the best shipbuilders in the industry."

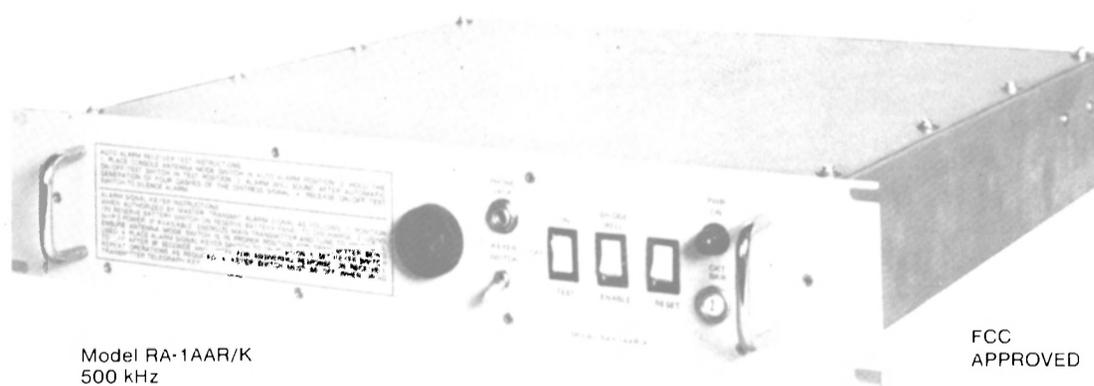
From its two shipyards in Louisiana, Swiftships has produced more than 300 vessels. The company has built a variety of offshore service ships, patrol boats, and military vessels for major companies all over the world as well as the U.S. Navy and Coast Guard and many countries internationally.

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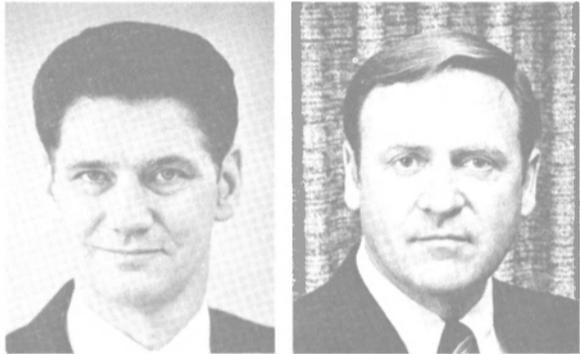
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**Petersen And O'Hara
Elected Vice Presidents
For Todd's L.A. Division**

Edwin J. Petersen has been elected vice president-programs and resources for the Los Angeles Division of Todd Pacific Shipyards Corporation. His new and expanded duties include broad overall responsibility for all aspects of the FFG program, including post shakedown availabilities, the DDGX program, Navy overhauls, industrial engineering and facility planning, management information services, and the yard development projects. Mr. Petersen will continue to report to H.K. Schaefer, vice president and general manager of the Los Angeles Division.



Edwin J. Petersen

John B. O'Hara

In a further move to strengthen Todd's West Coast operations, John B. O'Hara has been elected vice president-industrial relations to coordinate Todd's posture in this area between the Seattle, San Francisco, and Los Angeles Divisions. While he retains his present responsibilities as director of industrial relations for the Los Angeles Division, he assumes additional duties to guide and standardize the industrial relations aspects for the other two divisions in the areas of labor relations, safety, workers' compensation, affirmative action, OSHA, and training programs. Mr. O'Hara will continue to report to H.K. Schaefer with respect to the Los Angeles Division's industrial relations matters, and to C.R. Meurk, Todd's corporate vice president, West Coast operations, in matters relating to the Seattle and San Francisco Divisions.

**Stanwick Corporation Appointed
Exclusive Agents For Fredriksstad**

Fredriksstad mek. Verksted of Fredrikstad, Norway, a leading maritime manufacturer, shipfitter and installer of inert gas



Agreements are signed making The Stanwick Corporation, Engineering Services Division, the exclusive U.S. and Canadian maintenance service agents for Fredriksstad mek. Verksted. Left to right: Glen T. Hausler, Stanwick vice president; Wells Stanwick, director of marketing; Sigurd Brovig Aasen, Fredriksstad assistant sales director; and Peter Lombard, president of American United Marine Corporation, the exclusive North American marketing agents for Fredriksstad and Stanwick.

systems (IGS), crude oil washing (COW) installations, and other devices for petroleum tankers and other liquid cargo vessels, has announced the appointment of The Stanwick Corporation, Operations Engineering Division, headquartered in Norfolk, Va., as its exclusive maintenance service agency for the United States and Canada.

According to Glen T. Hausler, vice president, Stanwick factory-trained technicians will provide maintenance services for IGS and COW equipment on schedules designed to meet all inspection procedures and criteria of the manufacturer and the various regulatory and classification societies. These specialists will also train ship personnel to operate newly installed systems, and will supervise any major repairs that may become necessary. Seminars and preliminary

training courses will also be offered to prospective purchasers of these types of equipment.

The services of The Stanwick Corporation will be marketed and contracted through Fredriksstad's exclusive North American agents — American United Marine (AUM) Corporation of Saugus (Boston), Mass. Other programs offered by Stanwick through AUM will include complete computerized maintenance control and work flow systems, spare parts inventories, recording and evaluation of maintenance actions and complete accounting services for maintenance expenses. In business since 1962, the company is a pioneer in this field and was responsible for the first development of maintenance and material management systems for the U.S. Navy.

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Products carrier *Coast Range* sliding down the ways after recent christening at National Steel and Shipbuilding yard in San Diego. Powered by 13,000-shp General Electric steam turbine, the 37,500-dwt vessel is for Union Oil Company of California. She is second of three sisters.

NASSCO Launches Products Carrier For Union Oil Company

Christening and launching ceremonies were held recently at the San Diego yard of National Steel and Shipbuilding Company (NASSCO) for the *Coast Range*, a 37,500-dwt products carrier under construction for Union Oil Company of California. A gathering of more than 400 invited guests witnessed the ceremonies. Sponsor for the ship was **Mrs. Peggy Hartley**, wife of **Fred L. Hartley**, chairman and president of Union Oil and key speaker of the day. **Mrs. Carol Barnett** served as matron of honor; she is the wife of **Elton P. Barnett**, vice president, refining and supply, Union Oil. Other participants in the program were **C. Larry French**, pres-

ident of NASSCO, and **John M. Murphy**, NASSCO's vice president of corporate relations.

The *Coast Range* is one of three sister ships that NASSCO is building for a subsidiary of Union Oil; all are scheduled for delivery in 1981. These Carlsbad class tankers are a new NASSCO design, powered by General Electric 13,000-shp steam turbines. Each ship is 658 feet long with a 33-foot draft and carrying capacity of 300,000 barrels, and will be capable of transporting 10 different products simultaneously. They will carry products from Union Oil's refineries in Los Angeles and San Francisco to Alaska, Hawaii, and other U.S. West



Smashing the champagne against the *Coast Range* is Mrs. Fred L. Hartley, wife of the chairman and president of Union Oil Company. Onlookers are (L to R): **Elton P. Barnett**, vice president, refining & supply, Union Oil; **C. Larry French**, president, NASSCO; **Honorable Duncan Hunter**, U.S. Congressman from California; **Mrs. Elton Barnett**, matron of honor; **John M. Murphy**, VP-corporate relations, NASSCO (on the telephone to the trigger area); and **William H. McMurren**, president, Morrison-Knudsen Company.

Coast ports. West Coast Shipping Company will operate the vessels.

With a cylindrical bulbous bow to improve propulsion efficiency, the vessels will incorporate the most modern equipment available. They will meet the latest safety and environmental protection standards, including double bottoms, a clean segregated ballast system, an inert gas system, a sewage treatment plant, collision-avoidance radar, and a back-up steering system. They will be classed by the American Bureau of Shipping.

The vessels were ordered by Union Oil in April 1979, and are being built entirely without Federal subsidy. The keel for the *Coast Range* was laid in June 1980, and delivery is scheduled for July this year.

NASSCO currently has under contract five additional products carriers, three Navy destroyer tenders, and a Navy cable repair ship. At the end of 1980, the company's backlog of new construction and repair work stood at about \$735 million. The San Diego yard has been engaged in marine construction for 35 years, and is wholly owned by Morrison-Knudsen Company of Boise, Idaho.

Bethlehem Boston Yard 1980 Workload Of 80 Ships Equaled 1979

Business at Bethlehem Steel Corporation's Boston yard during 1980 was about equal to its 1979 activity, **Raymond F. DeVinney**, general manager, reported. The yard repaired about 80 ships in 1980, including regular overhaul work on four U.S. Naval vessels. These repairs provided employment for an average of about 625 workers for the year, he said.

Work that was started in 1979 on two Navy frigates, the USS *Blakely* and the USS *Truett*, was completed during 1980. "We are proud that the yard was commended for its timely completion of these two vessels by the Chief of Naval Material," Mr. DeVinney said.

Commercial work at the yard continues somewhat slow. Routine drydock work was performed on the cruise-ferry motor vessel *Caribe*, the drillship *Ben Ocean Lancer*, and other vessels. Grounding damage repairs were made to the Steamship Authority vessel *Uncatena*, and major repair work was carried out on the *Islander*, another Steamship Authority vessel.

Looking ahead, Mr. DeVinney said: "At this moment it appears that 1981 will be a lean year. We will have to work hard to attract what commercial vessels are available. If the Reagan Administration increases emphasis on Naval ship repair, perhaps the yard will be fortunate and get one or more of those contracts."

New Satellite Navigator Receiver Announced By Racal-Decca Navigator

A new satellite navigator receiver that makes a significant breakthrough in terms of cost, performance, and size of Sat-Nav equipment was announced recently by Racal-Decca Navigator Limited. The Racal-Decca DS4 uses signals from the U.S. Navy Navigation Satellite System (TRANSIT), and provides all the global Sat-Nav position fixing facilities required by the professional mariner. Its low cost, compact size, and high performance make it ideal for every type of vessel from fishing craft to supertankers.

Graham Coles, Racal-Decca Navigator's marine marketing director, commented: "By breaking the 3,000-pound \$7,200 price barrier for a full-capability receiver, we have opened up a much wider market for marine Sat-Nav equipment. This, together with support from the well-established Racal-Decca international service organization, will enable us to obtain a significant share of an expanding worldwide market."

Wholly British designed and built, the DS4 provides full accuracy of the TRANSIT single channel system to within 0.05 nautical miles. It displays simultaneously lat/long, time, date, heading, and speed. The user can also call up the latest satellite fix; the next 100 satellite passes for voyage planning; course and distance to 10 waypoints; elapsed DR (dead reckoning) time, distance, and course made good from the last satellite fix; set and drift.

For further information on the Racal-Decca DS4 Sat-Nav receiver,

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T.J. Lamb Named Systems Department Sales Manager At Engelhard Industries

Engelhard Industries has named **Thomas J. Lamb** to the position of sales manager, Electromechanical Group, Systems Department, for the Eastern Hemisphere. His responsibilities include the administration of the division's Capac and Chloropac systems sales in Southeast Asia, Japan, and Australia.

After graduating from the U.S. Naval Academy with a BS degree in marine engineering, Mr. Lamb acquired an MS degree in ocean engineering at the University of Miami. He served in the U.S. Navy as an executive officer and chief engineer.

Engelhard Industries, a division of Engelhard Minerals & Chemicals Corporation, is a world leader in the manufacture of precious metals products and in the refining of secondary materials containing metals.



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Creech Renamed Vice President And General Counsel At Newport News

F. Hunter Creech has been re-named to the position of vice president and general counsel of Newport News Shipbuilding. Mr. Creech, who will report to president Edward J. Campbell, joined the shipyard in 1964 as assistant to the general counsel. He was appointed general counsel in

1970, and elected a vice president in 1974.

He took a leave of absence from the company in February 1977 for personal reasons, and returned in April 1979 as special counsel. Before joining Newport News, he served as an attorney for the U.S. Navy Bureau of Ships, as a contract administrator with Kaman Aircraft, and as an attorney for Ingalls Shipbuilding.

Title XI Approved For Three Tug/Supply Boats To Cost \$10.4 Million Total

The Maritime Administration has approved in principle an application by Point Express, Ltd., Morgan City, La., for a Title XI guarantee to aid in the construction of three tug/supply vessels.

Halter Marine, Inc., Moss Point, Miss., delivered the first of these

191-foot-long, 4,000-bhp vessels in December 1980. The remaining two are expected to be delivered by next June. All three are designed for use in coastwise or foreign trades that support the U.S. petroleum industry's offshore exploration for oil and gas.

The guarantee will cover \$9,070,529, or 87 1/2 percent of the vessels' \$10,366,319 combined estimated depreciated actual cost.

Tracor Awarded \$5-Million Navy Contract For Sonar Support Services

Tracor, Incorporated, Austin, Texas, is being awarded a \$5,245,000 cost-plus-fixed-fee contract for engineering and support services to provide coordinator services for SSBN UNIQUE Sonar Programs. Work will be performed in Rockville, Md. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-6003)

Navy Overhaul Contract For \$11.5 Million Goes To Coastal Dry Dock

Coastal Dry Dock and Repair Corporation, Brooklyn, N.Y., has been awarded an \$11,494,426 firm fixed-price contract for the regularly scheduled overhaul of the frigate USS Joseph Hewes (FF-1078). The Supervisor of Shipbuilding, Conversion and Repair, USN, Brooklyn, N.Y., is the contracting activity. (N62794-70-C-0010)

David Aboussie Named Grain Sales Manager At Federal Barge Lines



David N. Aboussie

David N. Aboussie has been appointed manager-grain sales of Federal Barge Lines by Pott Industries, Inc., it was announced by Thomas F. Maloney, senior vice president-sales of Federal Barge, a wholly owned subsidiary of Pott Industries. Pott is a member of the Houston Natural Gas Corporation group of companies.

Mr. Aboussie will be responsible for directing and coordinating all activities with regard to the movement of grain and grain products. Previously, he had been manager-import sales, working out of Federal's New Orleans office. With the company since 1973, he has also served as its Chicago sales manager, and as a dispatcher.

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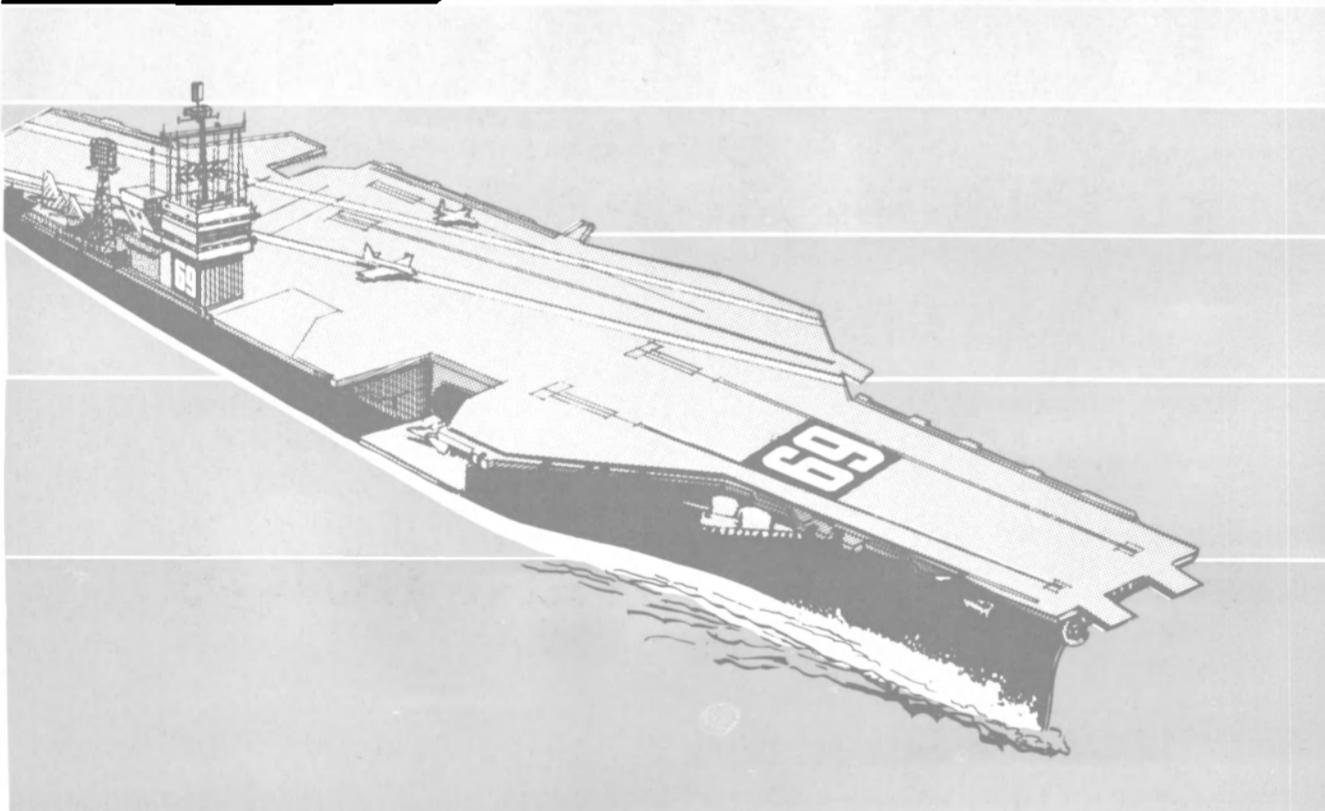


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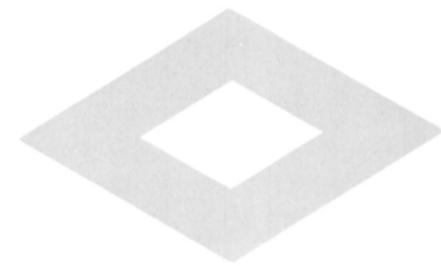
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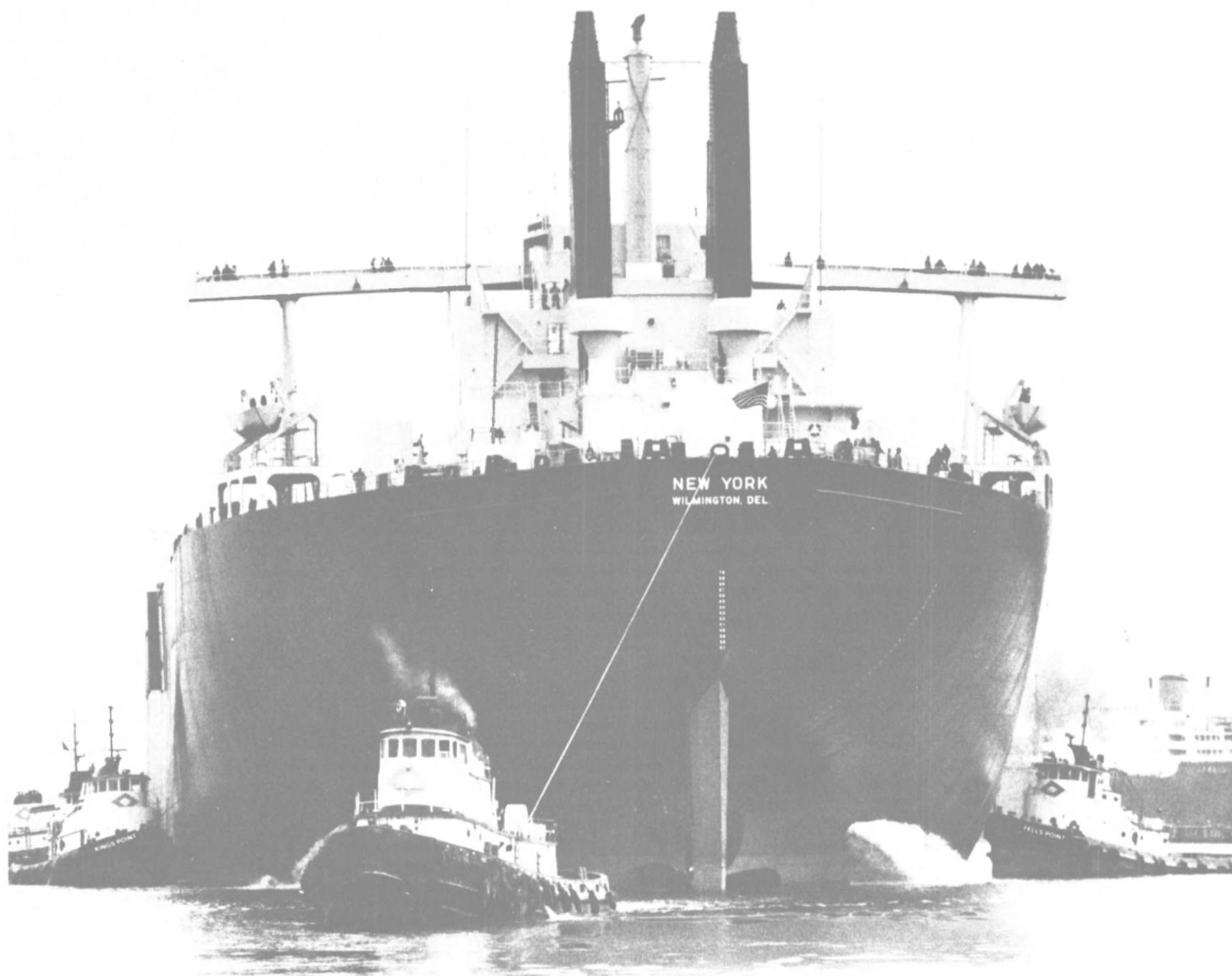


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**T.G. Folliard Elected
Controller, R.J. Palmer
Treasurer At Bucyrus-Erie**

Norris K. Ekstrom, chairman and chief executive officer of Bucyrus-Erie Company, South Milwaukee, Wis., has announced the election of **Thomas G. Folliard** as controller, and **Roger J. Palmer**, treasurer.

Mr. Folliard is now treasurer, a position he has held since January 1978. He joined Bucyrus-Erie in 1975 as assistant treasurer. He was formerly with Northern Trust Company and with the accounting firm of Peat, Marwick & Mitchell.

Mr. Palmer has been controller since 1975. He joined the company in 1966 as manager of audits and budgets. He was a staff accountant with Arthur Young & Company



Thomas G. Folliard



Roger J. Palmer

prior to joining B-E. He previously held positions as manager of corporate accounting, plant controller at Evansville, Ind., and assistant controller, to which position he was appointed in 1973.

**'Jimmy' May Retires
From Savannah Shipyard
—W.H. Fischer Appointed**



At his recent retirement party at the Whitehall Club in New York, Jimmy May (left) greets guests. At right is Warren Fischer, Mr. May's successor as New York representative for Savannah Shipyard Co.

More than 150 friends gathered at the Whitehall Club in New York recently to express their best wishes to **James E. (Jimmy) May** on the occasion of his retirement from Savannah Shipyard Company. Mr. May has been active in the ship repair industry for the past 40 years. He joined Savannah Shipyard's New York office in 1963 as director of sales, and was elected vice president in 1971.

Mr. and Mrs. May will continue to reside in Summit, N.J., where they have made their home for the past 25 years. Savannah Shipyard will be represented in New York by **Warren H. Fischer**.



BOOK SIGNING CEREMONY—The Society of Naval Architects and Marine Engineers recently held a signing ceremony at the World Trade Center Club in New York for the new edition of the book *Ship Design and Construction*. Copies of the new book were given to all authors and members of the Control Committee, and each signed the front flyleaf. Shown above signing the books are (from left): **Robert Taggart**, editor; **E. Scott Dillon**, chairman of the Control Committee; **Robert G. Mende**, secretary and executive director of the Society; **Lester Rosenblatt**, then president of the Society; and Control Committee members **Robert T. Young** and **Edward V. Lewis**. Authors present at the ceremony were: **Harold Acker**, **Nicholas Bachko**, **David Bannerman**, **Francis Bartlett**, **David Bloodgood**, **John Boylston**, **William Cleary**, **Robert Cunningham**, **Raymond Devoluy**, **Ludwig Hoffmann**, **J. Hsein**, **Ronald Kiss**, **Clyde Leavitt**, **Daniel Mallett**, **Robert Price**, **Angelo Ritola**, **Victor Schellenberg**, **I. Stern**, **Philip Stitt**, **Robert Taggart**, and **Robert Tapscott**.

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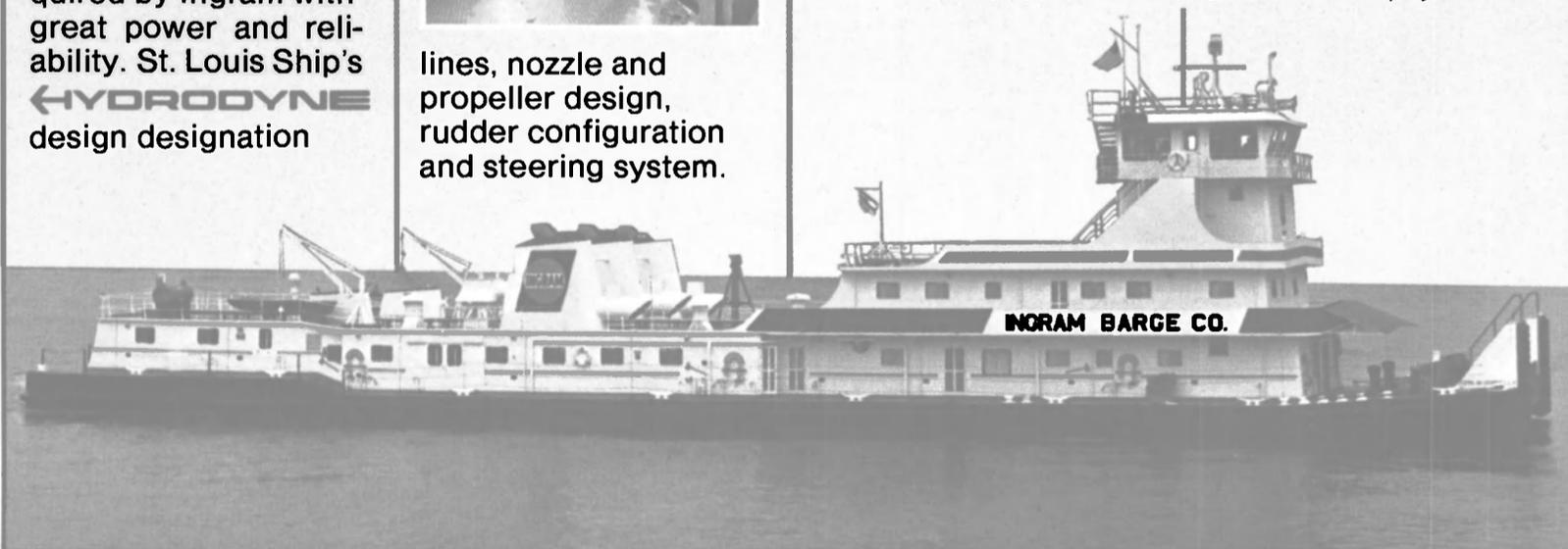
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B&W Yard To Continue Technical Assistance To Samsung Shipbuilding

Burmeister & Wain's division for Know-How and Shipbuilding Services, an integrated part of Burmeister & Wain Shipyard in Copenhagen, has concluded contracts with Samsung Shipbuilding Company, Ltd., Korea. These new contracts follow several years of cooperation that started

in 1978 when Burmeister sent experienced technicians to Samsung in order to assist them to start and establish shipbuilding production at their new yard in the southern part of Korea, involving the most modern shipbuilding principles.

In the same period, Burmeister also delivered to Samsung a design for three 20,000-dwt tankers for Korean and Indian owners. The first tanker was delivered in October 1980. The new contracts

will keep Burmeister personnel at Samsung until May 1984; B&W will deliver designs for Panamax bulk carriers and two other ship types.

The new agreement will also include training of Samsung personnel at Burmeister & Wain Shipyard. A number of other activities will probably be included later, such as cooperation within electronic data services in construction, planning and production; delivery of equipment pack-

ages for hull and engine outfitting; as well as cooperation within marketing and sales activities.

Dravo Mechling Requests Title XI On 60 Barges To Cost \$19.5 Million Total

Dravo Mechling Corporation, a subsidiary of Dravo Corporation, Pittsburgh, has applied for a Title XI guarantee to aid in financing the construction of 60 dry-cargo barges. Of the total, 40 will be 195-foot-long, semi-integrated, covered hopper barges, and the other 20 will be 200-foot-long, semi-covered hopper barges. The barges are intended for use on the Mississippi River system, the Gulf Intracoastal Waterway, and tributary river systems.

Dravo expects to deliver the 20 semi-covered barges in April 1981. No builder has been selected for the others, but Dravo Mechling anticipates they will be completed by the end of this year. If approved, the Title XI guarantee would cover \$17 million, or 87½ percent of the 60 vessels' combined estimated cost of about \$19.5 million.

Robert McCarthy Joins DEBEG Marine As Sales Manager

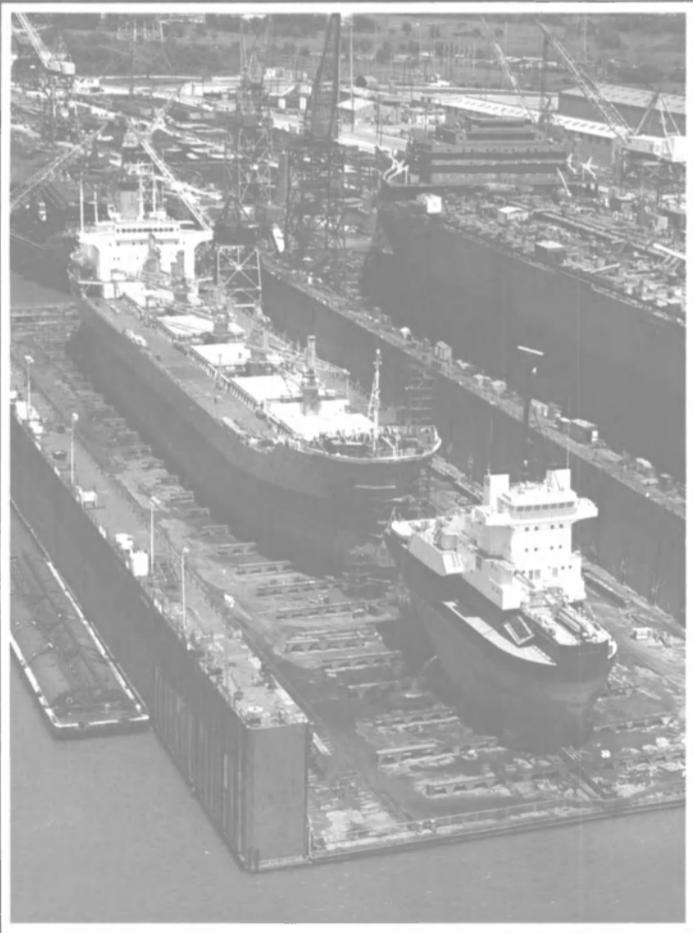


Robert S. McCarthy

Robert S. McCarthy, a well-known figure in the marine electronics market, has joined DEBEG Marine, Inc. as sales manager. DEBEG Marine is a subsidiary of DEBEG GmbH, a world leader in marine electronics headquartered in Hamburg, Germany. The U.S. subsidiary offers a complete range of marine equipment including receivers, transmitters, VHF sets, radar, radiotelephone systems, satellite radio stations for telex, telephone, and data transmission, plus Loran C navigation systems, various intercom units, and even racks and accessories.

Mr. McCarthy was a sales manager for Raytheon Marine for over 20 years, and has extensive experience with virtually all marine electronics products and applications, as well as both domestic and international markets. According to DEBEG Marine president Rolf Seichter, "Bob McCarthy's experience gives us a quantum leap in our penetration of the U.S. and Canadian markets."

For the Broad of Beam



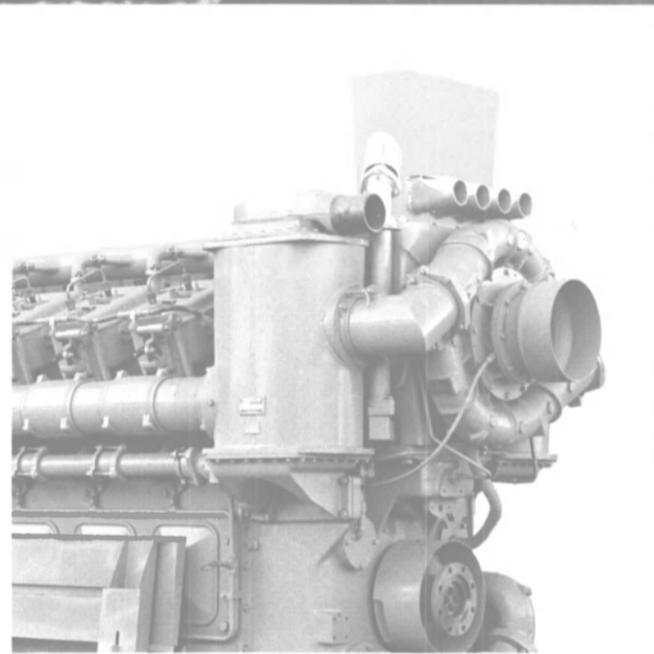
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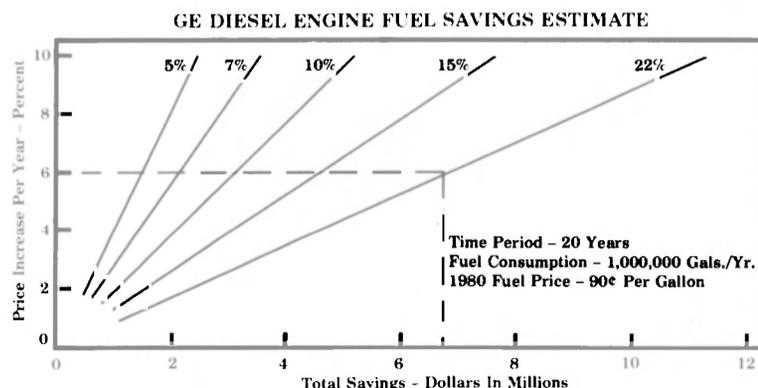
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The GE engine—a vital part of Senator Eastland and the decades of fuel-efficient service it will provide. For more information, contact Manager, Diesel Power Products, General Electric Company, Erie, PA 16531, (814) 455-5466 or Brent Marine Supply, Greenville, MS, (601) 378-2200 or 378-9100.



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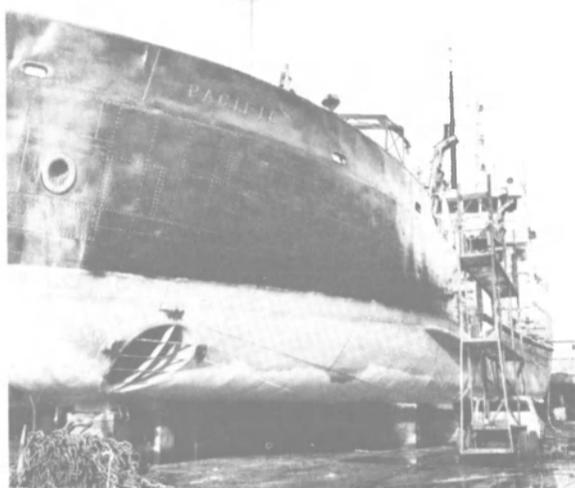


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Zidell Awarded Big Repair Job On Army Dredge 'Pacific'



Corps of Engineers dredge **Pacific** shown in drydock at Zidell Marine Div., Portland, Ore. Nonstop dredging of highly erosive ash from Mt. St. Helens's eruption caused excessive wear in vessel's dredging pumps.

Mt. St. Helens added another victim to its long list of damaged capital equipment when the U.S. Corps of Engineers hopper dredge **Pacific** entered a Zidell drydock recently far in advance of its regularly scheduled date for maintenance. The condition of the dredge's pumps, with their impellers virtually worn out from dredging the highly erosive ash fallout, necessitated putting the job out for bid early. Zidell Marine Division, Portland, Ore., was lowest of five bidders. The repair contract, valued at approximately \$465,000, calls for completion of all work 30 calendar days from start.

Silt from the Cowlitz and other rivers of the St. Helens watershed filled the Columbia River channel, reducing it to a depth of only 15 feet after the volcano's May eruption, closing the river to freighters of all description. The **Pacific**, among the first dredges on the scene, worked 24 hours a day for 15 straight days in the Corps' successful effort to restore navigation.

Will Kenney, contracting officer's representative, said the dredged material was at least three to four times more erosive than the material normally dredged from the Columbia. This, he said, was the prime reason for the 180-foot dredge coming in early for maintenance, and its requiring repair or replacement of 63 items in five systems. Among the larger jobs is replacement of steel plates in the hopper, in gate wells, and various partitions. The propeller blades, eight of them each weighing 269 pounds, will also be replaced.

Zapata Selling Four Products Tankers To Ogden For \$89.5 Million

Zapata Corporation of Houston announced that an agreement has been signed for the sale of its four products tankers to a subsidiary of Ogden Corporation for \$89.5 million. The amount includes \$52.3 million cash and \$37.2 million in assumption of debt. Zapata said that its net gain after tax from the transaction would be approximately \$13.7 million in the quarter ended March 31, 1981. The sale is subject to certain regulatory clearances and approval by the boards of directors of both companies.

The four U.S.-flag, 35,000-dwt tankers involved in the transaction are the diesel-powered **Zapata Courier**, **Zapata Patriot**, **Zapata Ranger**, and **Zapata Rover**, which transport bulk cargoes, including refined

◀ Write 106 on Reader Service Card

February 15, 1981

petroleum products and crude oil. They were delivered by Todd's San Pedro yard in 1976-77. The transaction will terminate Zapata's involvement in the bulk shipping business.

Thorell And Walker Promoted At Todd Los Angeles Division

Len Thorell has been promoted to assistant general manager, technical, and **Earl Walker** is promoted to assistant general manager, operations, at Todd Pacific Shipyards Corporation's Los Angeles Division.

Mr. **Thorell** will have management responsibility for the following disciplines: engineering, quality assurance/R&M, material control, purchasing, warehousing, new construction and repair estimating, and welding



Len Thorell



Earl Walker

engineering. Mr. **Walker** will assume broad overall responsibilities in the operations area of the division, including expanded production, planning and scheduling, plant maintenance, production department training program, drydocks, and tests and trials.

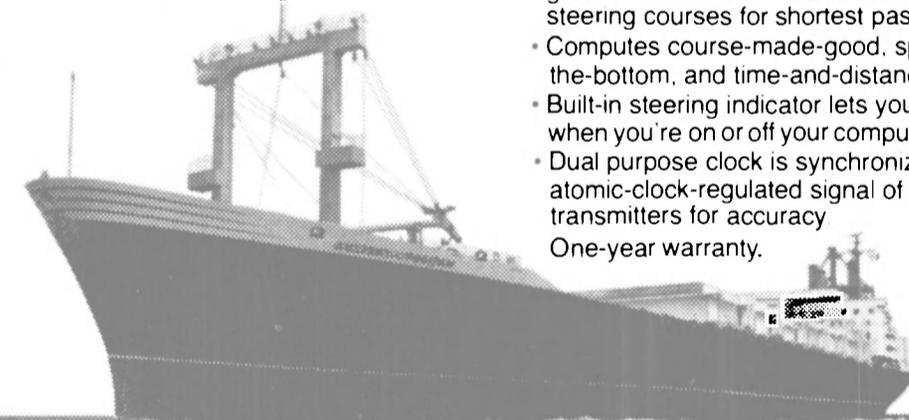
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Jackup Rig For Foramer Completed By Hitachi



A jackup offshore drilling rig, the Ile du Levant (shown above), was completed recently at the Ariake Works of Hitachi Zosen in Japan. The cantilever type rig will be operated by Foramer S.A. of France. Following delivery, the rig was towed to Abu Dhabi, where it was scheduled to begin drilling in late January.

Ile du Levant is the first Drill Hope (C-150) rig to be completed to Hitachi's own standard design. Of the 17 drilling rigs ordered from Hitachi, this one is the ninth to be delivered and the fourth to be constructed at the Ariake Works.

Hitachi's standard Drilling Hope design rig is compact in size and light in weight, making it economical to construct. Two additional rigs of the same design are now under construction at the Osaka Works of Hitachi.

Under normal usage, this rig can drill to a depth of 19,685 feet and operate in water depths up to 150 feet. The rig's spud tank is designed so that it is completely contained within the platform, with no projection from the rig bottom. This construction allows the rig to be towed in shallow waters or to be lifted on a barge for transport.

The platform is 193.5 feet long, 173.9 feet wide, and 21.3 feet deep. Classed by Bureau Veritas, the rig has accommodations for a maximum complement of 80 persons.

Recent Contracts For McDermott Incorporated Total \$49 Million Plus

The McDermott Incorporated Shipyards Group, with facilities in Morgan City and New Iberia, La., and Gulfport, Miss., recently secured contracts totaling more than \$49 million.

Included are the following: Phoenix Management Corporation—one 210-foot by 54-foot posted drilling barge; Atlantic Pacific Marine Corporation—two 210-foot by 54-foot posted drilling barges; Noble Drilling Corporation—one 210-foot by 54-foot posted drilling barge; Mistoil Tub Corporation—one 126-foot 4,200-bhp tug; Coastwise Trading Corporation—one 128-foot, 4,000-bhp tug; and Sea Level Boat Company—one 192-foot, 3,000-bhp supply vessel.

McDermott is a leading international energy services company. The company and

its subsidiaries provide engineering and construction services to the marine and offshore oil and gas industries, and manufacture steam generating equipment, tubular products, insulating products, and automated machine tools.

Wall Shipyard Completed \$11.5 Million In Vessel Repair Work And Service In 1980

Wall Shipyard Inc. has announced \$11.5 million worth of service to the maritime industry during 1980, an increase from \$7 million in 1979, according to Charles W. Wall Sr., president. He said that the majority of his Harvey, La., shipyard's work comes from repairs to boats, barges, and rigs that navigate the inland waterways of the Gulf Coast, the Mississippi River and its tributaries.

"What is significant about this work," said Mr. Wall, "is that 80 percent of it comes from firms outside Louisiana. So we're not talking about only local dollar turnover—this is new revenue for our local economy." He added that he is proud to be a part of one of the greatest collections of marine repair facilities in the world, and to make such a significant contribution to the local economy.

About one-third of Wall's work comes from vessels and equipment serving the oil production industry. Five drydocks are in service presently at Wall, and a sixth is due for completion by the spring. These facilities are used for repairs to inland floating rigs, spud barges and dredges, crewboats and supply boats, and work barges that carry pipe and other equipment to offshore drilling sites.

Another third of Wall Shipyard's business is generated by the petroleum transporting industry. Wall's gas-freeing plant cleans barges of petroleum products to make them safe for repairs or for use for other products. The balance of Wall's business comes from those vessels involved in the transportation of agricultural products.

Wall is located on two plants in the Intra-coastal Waterway. The 14-acre Plant Number 1 is the site of the drydocks, machine and propeller repair shops, and the office. Plant Number 2, occupying 50 acres, is the location of the barge cleaning and gas-freeing plant and topside repair facilities. This plant was placed into service in 1975 and is reserved for future expansion.

Reel-O-Matic Offers Brochure On Handling Flexible Products

A new brochure describing its full line of labor-saving equipment for handling flexible and coilable materials including cable, wire rope, hose, tubing, wire, steel, and other flexible products is now available from Reel-O-Matic Systems, Inc. of Wrightsville, Pa. The 36-page brochure covers shaftless take-up machines, fixed and mobile coiling rigs, respooling equipment, and a turntable that handles broken reels. Photographs of each item are accompanied by design highlights, capacities, and cartoons that illustrate typical material-handling problems solved by each product. A price list is also included.

For further information and a free copy of the brochure,

Write 73 on Reader Service Card

ASNE Flagship Section Hears Report On Craft's Aerodynamic Enhancement



Flagship Section chairman Dick Fay (right) presents Certificate of Appreciation to speaker Robert H. Krida.

The Flagship Section of the American Society of Naval Engineers held its second meeting of the year at the U.S. Coast Guard Yard at Curtis Bay, Md. Following the social hour and dinner, which was attended by approximately 90 members and guests, chairman Richard Fay opened the technical session and introduced Capt. Robert Lucas, USCG, who presented the speaker, Robert H. Krida.

Mr. Krida, who is the director of advanced concepts, Naval Air Systems Command, spoke on the work that has been done to adapt aerodynamic applications to enhance surface craft performance, concluding with a short video tape showing an actual test of this system where the maximum speed of a small craft was nearly doubled by the use of supplemental aerodynamic assistance that used very little additional energy. Interest in this subject was demonstrated by the lively discussion period that followed.

Dock Express Transports Offshore Modules To Bahrain

Dock Express Shipping, bv recently completed loading of four large offshore modules at Houston and New Orleans aboard the Dock Express 12, which is bound for Bahrain and Dubai. The vessel loaded three offshore oil field production modules, each weighing in excess of 420 tons and measuring approximately 100 feet long by 40 feet wide by 40 feet high for the account of Dubai Petroleum Company. The modules were delivered to the vessel onboard barges that were floated inside the stern of the vessel. With the use of the vessel's 1,000-metric-ton-capacity gantry cranes, the modules were lifted onboard and stowed on deck. The loading operation was performed at the Port of New Orleans, and final destination is Bahrain.

Earlier, the Dock Express 12 had com-



Outbound from Port of New Orleans, heavy-lift ship Dock Express 12 has deck load of three offshore production modules bound for Bahrain.

pleted loading of one 300-ton drilling platform module, together with several items of general cargo, with the use of the vessel's cranes at the Port of Houston. The module and general cargo are being carried to Dubai for the account of Atwood Oceanics, Inc. The voyage, including discharging at Bahrain and Dubai, should be completed in approximately 40 days.

Dock Express Shipping, a Rotterdam-based, heavy-lift shipowner, has offices in Houston.

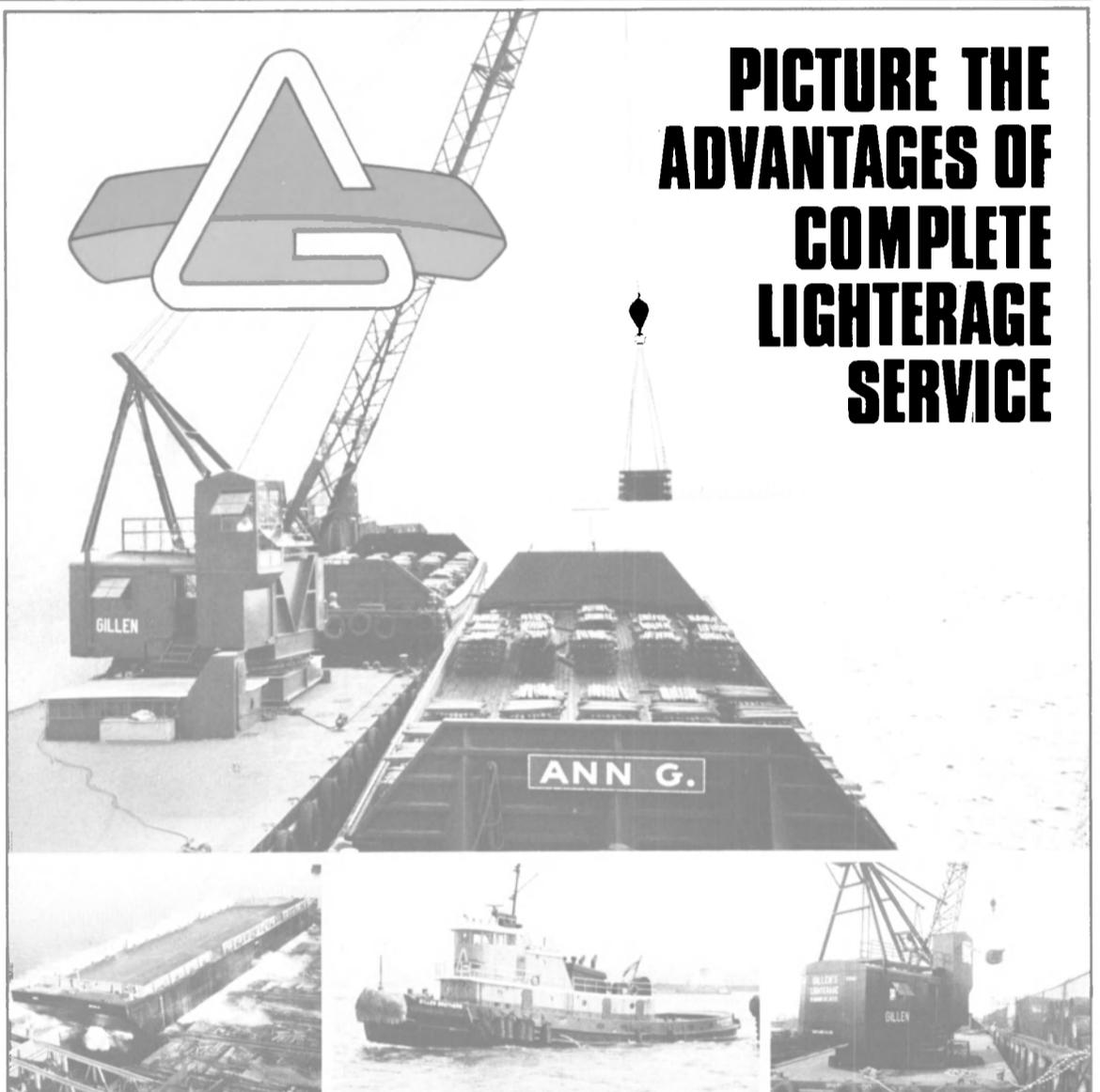
Bond And Houston Get New Posts In Texaco's Marine Sales Department

Bruce R. Bond has been appointed senior coordinator-operations, and J. Dennis Houston has been named coordinator-pricing in the International Marine Sales Department

of Texaco Inc., it was announced by Kenneth F. Murchison, general manager in charge of that department. In their new assignments, Messrs. Bond and Houston will continue to be located in the company's Harrison, N.Y., offices.

Mr. Bond was graduated from Maine Maritime College in 1968. He joined Texaco that same year as third assistant engineer for the Marine Department. He was transferred to the International Marine Sales Department at Boston in 1972 as marine sales engineer.

Mr. Houston was graduated from the University of New Hampshire in 1975 and received an MBA degree in 1976 from Babson College, Wellesley, Mass. He joined Texaco in 1977 as an accountant in the Special Studies Group of the Comptroller's Department. He transferred to International Marine Sales Department in 1979 as an analyst.



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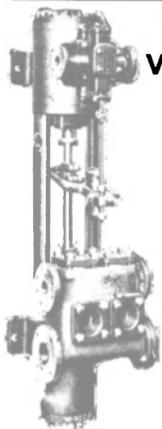
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PUMPS

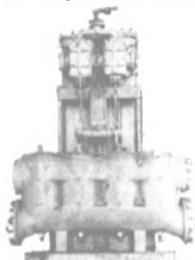


WORTHINGTON VERTICAL SIMPLEX PUMPS

8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.

for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 7½ x 4 x 10—3" suction—2" discharge—1¼" steam—1½" exhaust. OAH 5'2"; OA depth 23"; OAW over air dome 2'2". Weight about 800#. Suitable

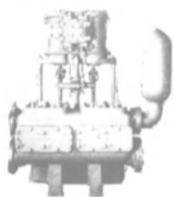
WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

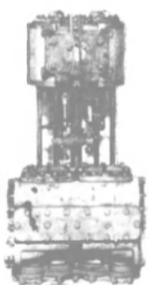
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READY TO GO**

STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



10 X 11 X 12 — Worthington — 560 GPM @ 125# G. 8" Suction — 6" discharge pumps bronze fitted.

8" X 8" X 10" VERTICAL DUPLEX PUMP

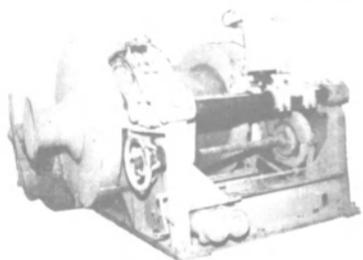


Hendy design Suction 8" — discharge 6" — 160 GPM @ 100 PSI.

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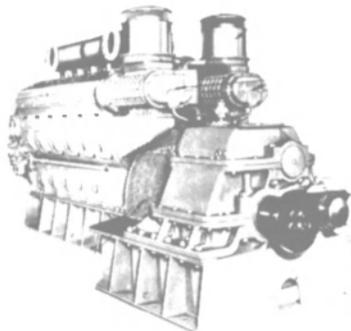
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100,000 LB. ALMON JOHNSON Constant Tension Mooring Winches



In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 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. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

MATCHED PAIR GM 12-567A 900 HP DIESEL ENGINES with Falk reverse & reduction gear



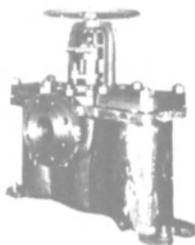
ENGINE: GM 12-567A—8½X10—VEE type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse & reduction—2.48:1 forward—2.52:1 reverse.

4-BLADE LST BRONZE PROPELLERS



Starboard — 7' diameter — pitch constant 4.699; Bore tapers from 6½" to 4½¾". 14½" taper equal to 1" / foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

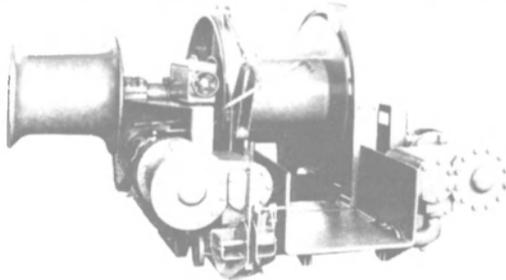
NEW-UNUSED 3" STEEL DUPLEX STRAINER



300 Lbs. Flanged

With hand wheel. Mfg. by Derbyshire. Flange to flange 14 3/8"—width 26"—center of hole to base 11". Fine steel mesh basket. Working pressure 300 lbs. 6 3/4" bolt circle with 8 bolt holes.

STEAM MOORING WINCHES 12" x 14" — STEAM OR AIR DRIVEN with foot brake & declutchable gypsy head 20,000 LBS @ 100 FPM—FIRST LAYER



**ALSO HANDLES 16,000 LBS @ 150 FPM
OR 50,000 LBS @ 8 FPM**

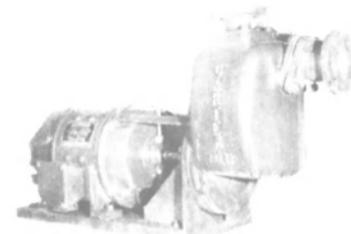
Drum will show 1500 ft of 1½" wire in 9 layers. Steam inlet 3½" — 4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' x 6' 3½" — overall 8' 4½" wide x 9' long. Mfg by Friedrich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger".

ALSO IN STOCK

12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

CARTER BRONZE SELF-PRIMING BILGE & GEN. SERVICE PUMP



85 GPM @ 50 lbs. — 3500 RPM — 2" X 2". 5 HP — 115 VDC — 1750 RPM motor.

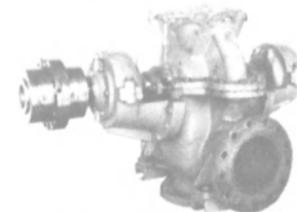
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WORTHINGTON 10 X 7 X 10 BRONZE BALLAST & FIRE PUMP 300 GPM—100 LBS



Ex-T2 Tanker. 150 Lbs steam—10 in exhaust — 100 lb discharge. 6" suction — 4" discharge — 1½" steam — 2" exhaust. Overall ht 4'7½" — OAW 3' — Depth 2' 9".

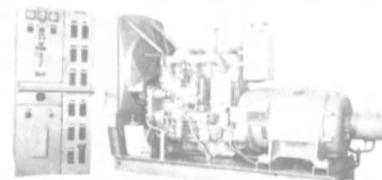
2000 GPM @ 337' HEAD BRONZE FIRE SERVICE PUMP



1900 RPM—8" Suction—8" discharge—steel frame base. Bottom or side suction. Mfg by Frederick Iron & Steel Co.—Model 8" D.S.V.—SPL—tapped for plumbing connection. Base & coupling for motor included.

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STANDBY GENERATOR CUMMINS 75KW 93.8 KVA DIESEL GENERATOR SET



440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

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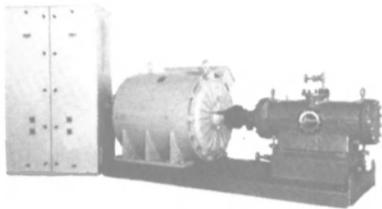
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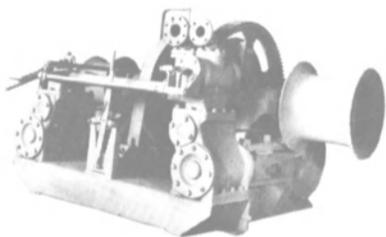
**MOTOR DRIVEN ROTARY
HORIZONTAL PUMPS
WITH 4-SPEED 440/3/60 MOTOR**



Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

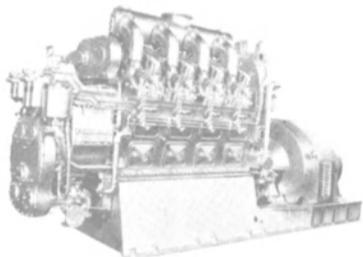
**9 X 12 2-SPEED ALL-STEEL
STEAM & AIR DRIVEN WINCHES
for use as General Service or
MOORING WINCHES**

20,000 LBS @ 110 FPM—7,450 @ 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.

**GM 8-278A 350KW 440/3/60
DIESEL GENERATOR SET**



GM 8-cyl. engine—8 1/2 X 10—2-cycle—Vee type driving 350 KW G.E. generator—440/3/60—600 RPM—430 KW 2 hours. 3 Units available. Your inspection invited.

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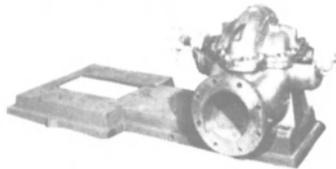
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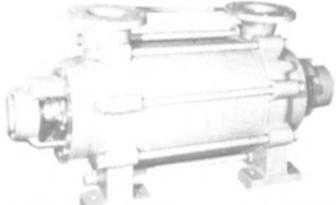
BRONZE 2000 GPM PUMP



75' Head — 1750 RPM — mfg by American Well Works. Horizontally split case size 8X8. (50 HP motor required for pump capacity.) Frame 445. Supplied with 5'8" X 2'5" base.

\$1775 EACH

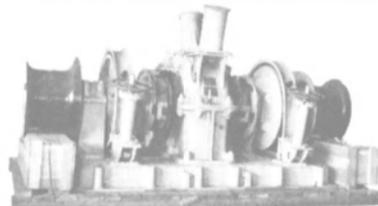
NEW — UNUSED NIJUIS FIRE PUMP



550 GPM @ 323' head @ 1800 RPM

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LINK BELT WINDLASS**



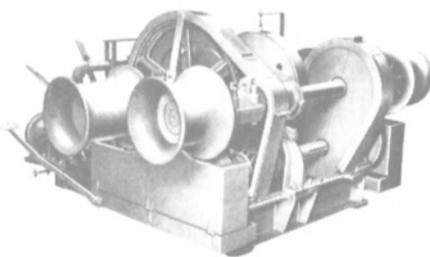
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**7x12 10,000 LB AH&D
CARGO WINCH**



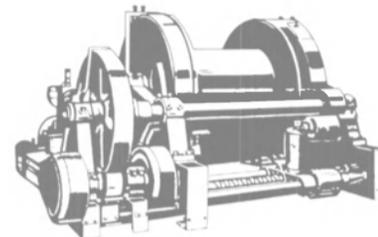
2-Speed — single drum — reverse throttle operation. LINE PULL: low gear 10,000 lbs — high gear 5,000. LINE SPEED: low gear 125 FPM based on 1st layer of 7'8" diam. rope — high gear 250 FPM based on 1st layer of 5'8" diam. rope. DRUM: 26" diam. — 20" long — 26" flange diam. Rope capacity of drum: 7'8" diam. rope in 6 layers — 650'; 5'8" diam. rope in 8 layers 1200'. Steam pressure at throttle 115 lbs. Operating weight 6450 lbs.

**DUPLEX STRAINERS
4" and 6"**



FOR
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**LARGE STEAM
TOWING ENGINE
9 X 10 TWIN ENGINE DRIVE
Air or Steam — 125/250 PSI**

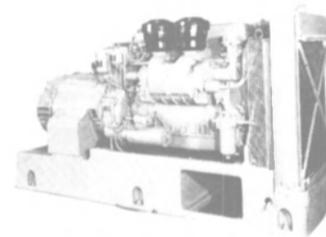


Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800' of 2" wire rope. Normal line pull 40,000 lbs@ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM. Pawl holds 270,000 lb. pull from any layer. Equipped with level wind device. Approximate weight 30,000. DIMENSIONS: 12'6" wide—6'6" high. Write for details.

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Large towing ring — 36" I.D.

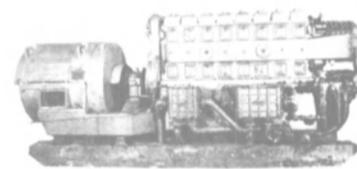
**60KW DIESEL GEN. SET
DELCO GEN. — GM 6-71 DIESEL**



Delco 120 volt DC 500 amp stab. shunt 1200 RPM generator. Engine is GM 6-71 — heat exchanger cooled. Radiator shown is not included.

Reconditioned — Ready To Go.

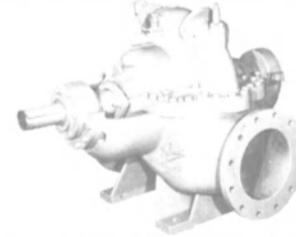
**300KW GM 8-268A 120/240 DC
DIESEL GEN. SET**



ENGINE: GM 8-268A — 6 1/2 X 7 — 1200 RPM. Heat exchanger cooled. GENERATOR: Westinghouse 300 KW — 120/240 DC — shunt wound.

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**FACTORY NEW NIJUIS 10" X 8"
SPLIT CASE HORIZONTAL PUMPS**



Best efficiency 3400 GPM @ 160 PSI — 1500 RPM or 5220 GPM @ 30 PSI — 1500 RPM maximum capacity. 4500 GPM @ 125 PSI — 1800 RPM. Requires 500 HP. 2000 GPM @ 110 PSI — 1450 RPM (using 6-V-71 engine reducing 8" to 6" suction).

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40KW EMERGENCY GEN. PANEL

Provides necessary device for automatic startup, control & protection of emergency generator. Provides power for essential circuits in case of failure of primary source. Also automatic shutdown of generator on restoration of primary source of power.

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NOR-SHIPPING '81 8th International Shipping Exhibition



TWICE EACH MONTH
THE CURRENT MAGAZINE

This April 1st special issue will feature full, multi-page preview feature articles detailing the entire 1981 OFFSHORE TECHNOLOGY CONFERENCE program...PLUS...a full preview feature article on NOR-SHIPPING '81.

Last year, over 80,000 of the most important and influential individuals in the growing worldwide marine/offshore industry attended the Offshore Technology Conference in Houston, Texas. In 1981, OTC attendance in Houston is expected to be greater than ever. In addition, Nor-Shipping, to be held in Oslo, Norway, is one of the best known and attended European marine exhibitions.

OTC and Nor-Shipping are maximum interest events. MR's April 1st SPECIAL ISSUE will generate maximum reader interest...with an editorial environment sure to bring out the full sales-building potential of your advertising message.

This is a true preview issue. It will deliver the OTC and Nor-Shipping stories...and your advertising...to MR's unequalled audience of marine/offshore buying influence readers...thousands more than any other marine magazine...in their offices weeks before these buyers attend the conferences.

In addition, the April 1st Special will give you extra bonus distribution at both these important conferences— Offshore Technology Conference in Houston, May 4-9...and at Nor-Shipping in Oslo, Norway May 11-16.

Whether or not you plan to attend or exhibit at either conference...you can "be there"...at both meetings...with one advertisement working for you at one cost in the April 1st Special issue of Maritime Reporter.

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Wesmar's Scanning Sonar Has Long Range For Greater Efficiency

The WESMAR SS170 long-range scanning sonar is said to provide the ultimate answer—efficiency—to the steadily rising fuel costs that now comprise 50 to 60 percent of commercial fishing overhead. By scanning around the vessel and eliminating costly guesswork, the SS170 can help fishermen find fish every trip,

choose the greatest concentrations, and set their nets for the maximum catch. The unit's 4,800-foot range lets the operator search a huge area around the vessel, spotting fish that would not be seen on a conventional echosounder.

Targets are displayed on the easy-to-read, 10-inch (254-mm) cathode ray tube. Modulated sweep display enhances target identification dramatically. Automatic sector scan will automatic-

ally and continuously scan any selected partial sector or surrounding water, essential when setting the net or scanning ahead during dragging operations. The precise tilt angle control lets the fisherman set the exact sonar beam angle successful in previous trips or adjust the tilt quickly.

For more information about WESMAR's SS170 long-range scanning sonar,

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Bulletin Describes New Mechanical Seal Design From Garlock

Design features and installation instructions are highlighted in a four-page bulletin describing the RX-4000, a new mechanical seal design developed by Garlock Inc. The RX-4000 is a universally adaptable seal capable of handling approximately 95 percent of all external applications and pumpages. Other information includes service conditions, construction materials, and long-range benefits derived from the use and installation of this new, lighter weight seal design.

For a free copy of Bulletin MSD-9,

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C.G. Caras Rejoins Ogden Corporation As Vice President



Constantine G. Caras

Constantine G. Caras has been named vice president of Ogden Corporation, it was announced by Ralph E. Ablon, chairman and chief executive officer. Mr. Caras joins Ogden from LTV Corporation where he was vice president, group counsel, of an LTV subsidiary. He will be responsible for maintaining Ogden's relationships in Washington, D.C., working with various governmental and non-governmental bodies and associations.

Prior to joining LTV, Mr. Caras served in a number of key positions with the U.S. Maritime Administration, most recently as general counsel and a member of the Maritime Subsidy Board. Before he went to LTV, he had been with Ogden as senior associate counsel from 1973 to 1978.

Horne Brothers Gets \$5.9-Million Contract For Navy LST Overhaul

Horne Brothers Inc., Newport News, Va., has been awarded a \$5,890,939 firm fixed-price contract for the regularly scheduled overhaul of the tank landing ship USS Saginaw (LST-1188). The Supervisor of Shipbuilding, Conversion and Repair, USN, Newport News, Va., is the contracting activity. (N62678-72-C-0030)

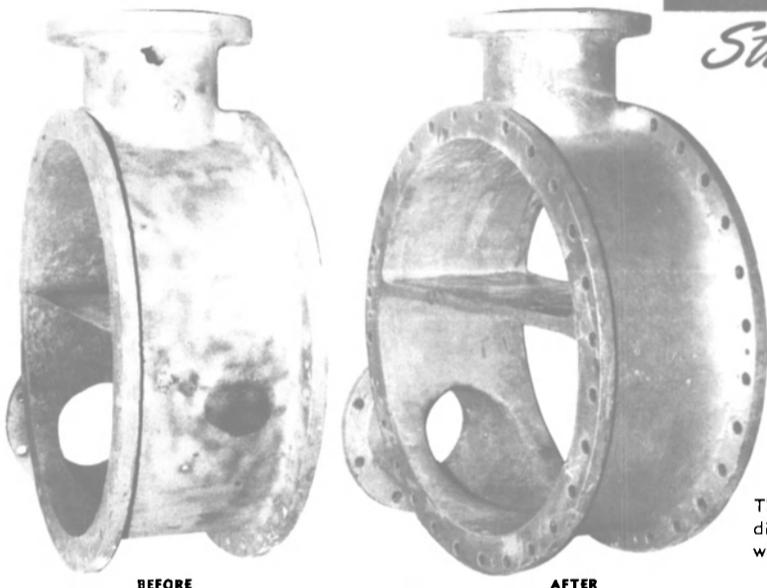
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Students Present Papers At Meeting Of SNAME New England Section

A recent meeting of the New England Section of The Society of Naval Architects and Marine Engineers was held in Newton, Mass., where two student papers were presented. The first, titled *Practical Considerations for Selection of High-Speed Marine Diesel Engines*, was presented by

John F. Duclos, a recent graduate of the U.S. Merchant Marine Academy and currently a graduate student at the University of Michigan. His paper dealt with the selection of high-speed marine diesels. The author explained the common American methods of rating these engines in the 100-1,200 bhp range. Mr. Duclos also discussed the advantages and disadvantages of two cycles, four cycles, natural aspiration, turbo-

charging, and other design options and characteristics.

The second paper, titled *Laser Doppler Anemometry and the Measurement of Loading Characteristics of Lifting Sections*, was presented by H. Clayton Sayre, who is a graduate student at MIT. He discussed the fundamentals of laser doppler anemometry, a technique for sampling the flow field near a lifting surface and determining spanwise

lift coefficients. He also described some experimental work carried out at the MIT propeller tunnel involving this technique. The author pointed out that laser doppler anemometry is a method that is of great value in any qualitative investigation of the interaction of a lifting surface with the boundary layer of an adjacent perpendicular wall.

Star Iron To Build \$4.7-Million Crane For Charleston Navy Yard

Canron Corporation, Star Iron & Steel Division, Tacoma, Wash., has been awarded a \$4,673,600 fixed-price contract for the procurement and installation of a 50-ton portal crane at the Charleston Naval Shipyard, Charleston, S.C., following competition in which three bids were received. Work will be performed at Tacoma, Wash., and delivered and installed at the Charleston yard. The Naval Facilities Engineering Command, Northern Division, is the contracting activity. (N62472-79-C-1458)

Brochure Describing New Diesel Lube Oil Available From Mobil

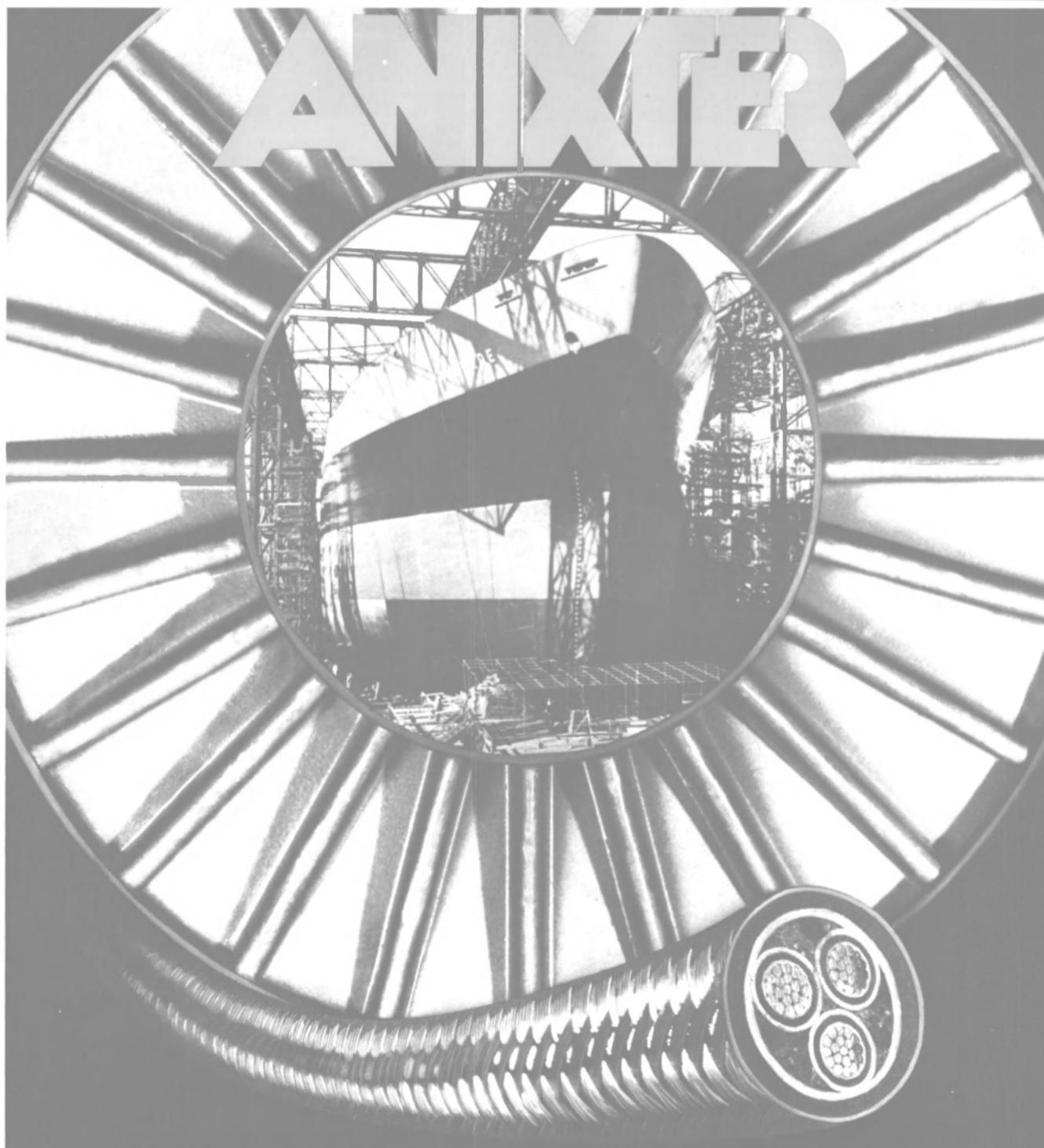
A four-page, full-color brochure describing the benefits of a new engine oil for high output, marine diesel engines is available from Mobil Oil Corporation. Mobilgard 446, designed for use in General Motors Electro-Motive Division (EMD) engines, including those equipped with silver wrist pin bearings, also meets all EMD, GE Class II, Alco, Fairbanks Morse, and Detroit Diesel heavy-duty requirements. It also meets the API requirements of a CD oil for Caterpillar and Cummins turbocharged diesel engines. This SAE 40 oil is also designed for these same type engines in drilling rigs and stationary power generation service.

The new oil is said to provide superior engine cleanliness and extended wear protection even with fuels having sulfur contents up to 1 percent. It leaves no hard-carbon deposits in ports and rings.

Pictures in the brochure show results of tests of Mobilgard 446 in EMD-645 engines covering 13,500 to 20,000 hours of operation. Cylinder liners show virtually no wear, and were almost completely free from vertical scratch marks. Ports were free of hard carbon deposits. There were no silver wrist pin problems during the test. Approximately 70 percent of the original lead flashing remained on the bearing surfaces. There was no feathering of bearing material into oil grooves, and oil grooves were free of deposits.

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**Robert Nystrom Named
Division Chief At
Anderson Associates**



Dr. Robert E. Nystrom

Dr. Robert E. Nystrom has been named chief of the developmental and logistics engineering division at Art Anderson Associates, Inc., consulting engineers. His duties include the administration of the preliminary design and scientific department, cost estimating and materials department, computer services, logistics planning department, and combat systems.

Dr. Nystrom joins the company following a 20-year career as an officer in the U.S. Navy. A retired commander, he has spent the past seven years with the Navy hydrofoil ship program. As deputy program manager for the Navy Hydrofoil Acquisition Office, Dr. Nystrom was responsible for the administration of the ship construction contract for the five PHM ships at the contractor's site in Seattle.

**Todd Gets \$32 Million
In Commercial Contracts—
Earnings Up For Quarter**

Todd Shipyards Corporation has reported higher sales and pre-tax earnings for the third quarter and 39 weeks ended December 28, 1980, than in the comparable year earlier periods. Third quarter sales amounted to \$150.7 million, compared with \$125.8 million in 1979. These gains were achieved despite a 10-week strike at the Los Angeles Division, which was settled on October 2, 1980. Full production was resumed during the third quarter at the Los Angeles Division, which is constructing 11 of 21 guided-missile frigates (FFGs) under Navy contracts awarded to Todd. The other 10 FFGs are being built at the Seattle Division. Four FFGs have already been delivered and six more will be delivered during the next 12 months. Navy acquisition plans call for the award of six more FFGs prior to April 30, 1981, of which Todd expects to obtain its fair share.

It was also announced that several significant commercial contracts were recently received, including the construction of two large bulk coal barges for \$22

million; the modification of two large oceangoing tugs for \$4 million; fire damage repair of a large semisubmersible drilling vessel for \$3 million, and the repair of a foreign-flag tanker for \$3 million.

Sales for the 39 weeks ended December 28, 1980 were \$427.4 million, compared with \$373.0 million in the comparable 1979 period. Net income totaled \$15.4 million, or \$3.04 per share, com-

pared with \$13.9 million, or \$4.53 per share in 1979. Net income in 1980 included a \$4.4 million, or \$.80 per share, Federal income tax credit arising from utilization of tax benefit of prior year loss compared with \$6.2 million, or \$2.02 per share, in the preceding year which also included a \$951,000 capital gain from sale of land. J.T. Gilbride, Todd chairman and chief executive officer, stated that "the company's fiscal

year ending March 29, 1981 should result in the third consecutive year of record peacetime sales and earnings."

Net income per share in 1980 was affected by the greater number of common shares and common share equivalents outstanding than in the comparable 1979 periods. All per share data gives effect to the two-for-one stock split distributed to shareholders on January 5, 1981.

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Conhagen/USMP offers a complete technical service including engineering and supervising of *on-site repairs*. We also engineer and manufacture parts for *obsolete equipment* such as impellers, bearing housings, pump casings and other important components. In addition, we are also specialists in dynamic balancing, welding, mechanical seal repair and protective coatings.

We are continuing to expand our facilities to offer greater flexibility in providing repairs, service and off-the-shelf spare parts. So turn to Conhagen USMP "The Rotating Equipment Specialists." Please write or call for further information.



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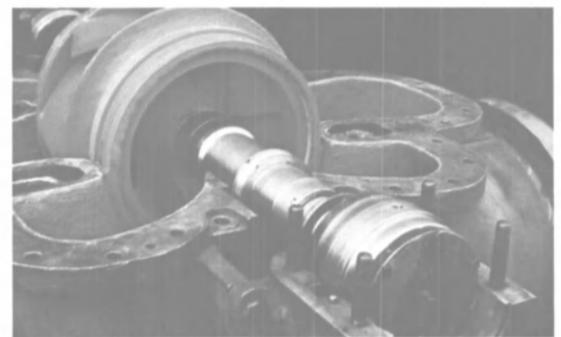
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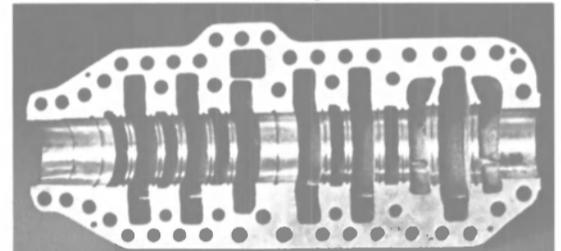
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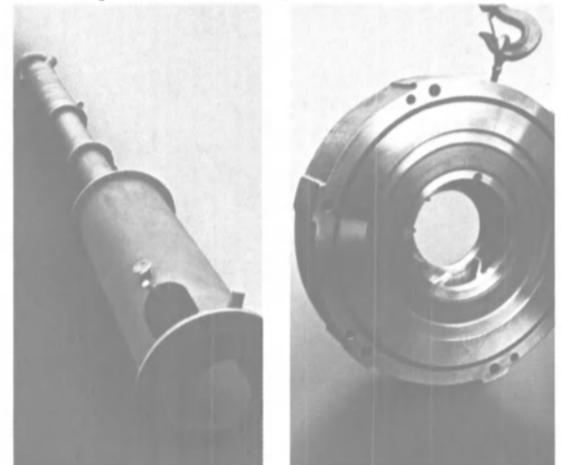
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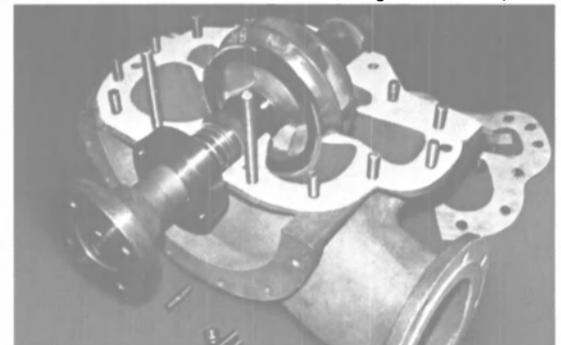
Horizontal Salt Water Circulating Pump



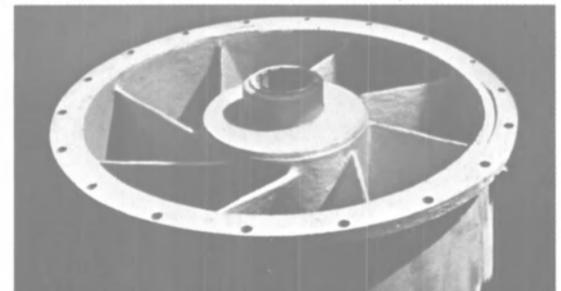
Multi-stage Boiler Feed Pump



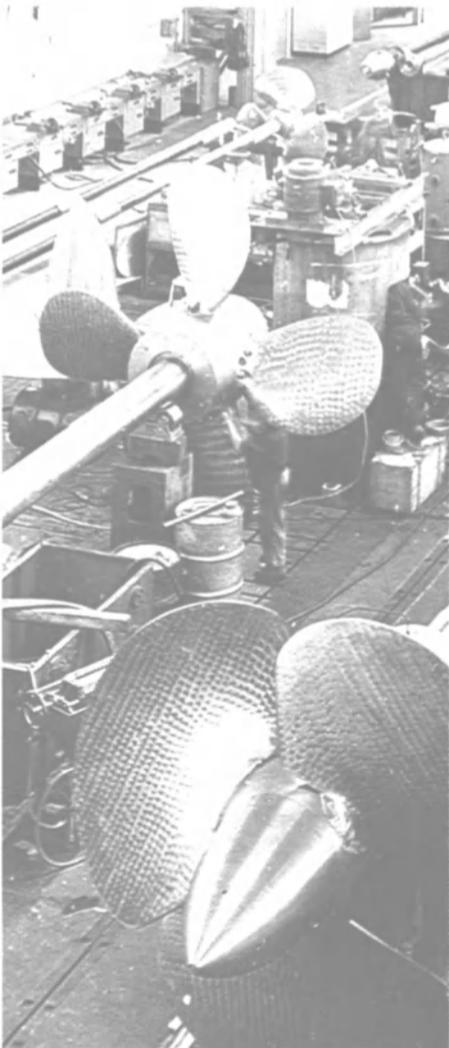
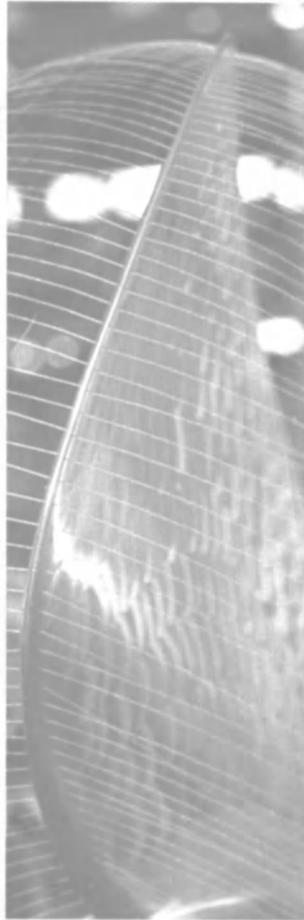
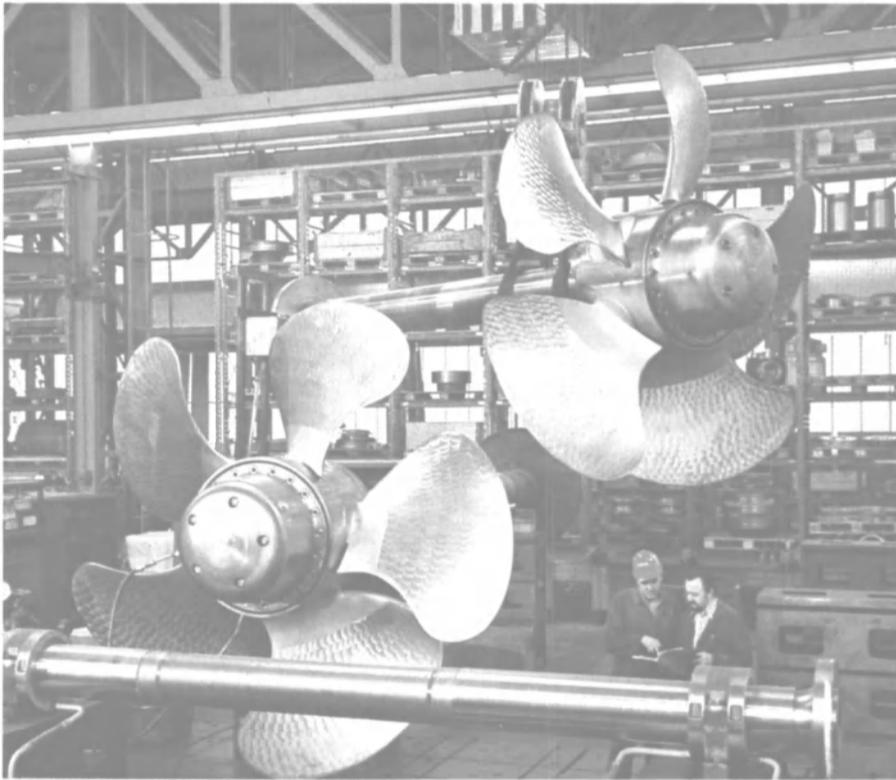
Vertical Main Condensate Multi-Stage Feed Pump



Vertical Booster Salt Water Service Pump

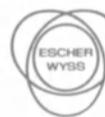


Vertical Main Circulator Pump



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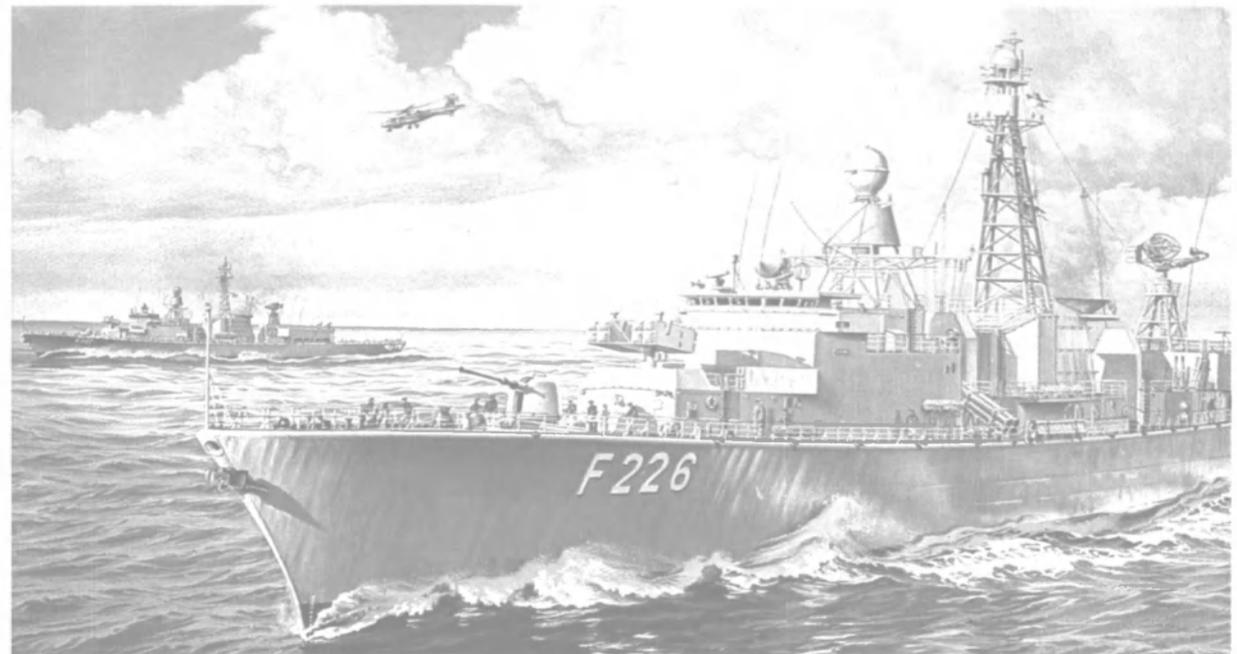
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Samson Given \$4-Million Navy Contract For Rope

Samson Ocean Systems, Inc., Suffolk, Mass., is being awarded a \$4,047,280 firm fixed-price contract for rope with link and thimble assemblies. Work will be performed in Shirley, Mass. The Naval Supply Center, Norfolk, Va., is the contracting activity. (N00 189-81-C-0226)

Esgard Introduces Gel Corrosion Preventive For Ballast Tanks

Esgard Inc. of Lafayette, La., manufacturer and distributor of rust and corrosion preventives, has announced development and production of a new rust preventive ballast tank coating. Bio-Gel is designed primarily for ballast tank use in new construction of ships, oil rigs, barges and other vessels where long life is desired. Like its maintenance-oriented sister product Bio-Kote, Bio-Gel contains no petroleum oils or solvents, is bio-degradable, and practically nontoxic, according to the manufacturer.

Bio-Gel's unique property is its ability to be applied easily by spraying to a minimum thickness of 20 mils. It is said to provide rust protection for about five years. The noncombustible liquid gel is available in five-gallon pails or 55-gallon drums.

For further information on Bio-Gel and other Esgard products, Write 83 on Reader Service Card

Allis-Chalmers Named U.S. Licensee For B&W Slow-Speed Diesels

The Allis-Chalmers Corporation of Milwaukee, Wis., has become the licensee for slow-speed diesels in the United States for one of the world's major designers and builders of this type of diesel engine. The agreement with B&W Diesel A/S of Copenhagen, Denmark, grants to Allis-Chalmers full responsibility for the manufacturing, marketing, and servicing of slow-speed diesels rated 4,000 to 48,000 bhp used primarily for marine propulsion and stationary power applications.

"This step is essential in establishing Allis-Chalmers as a major supplier of such engines," said John R. Mills, general manager of the company's recently formed Marine Diesel Division. "This agreement with B&W Diesel offers Allis-Chalmers very important long-term opportunities. We feel that, due to our extensive experience in making large machinery and to our growing experience with slow-speed diesels, we are ideally suited to serve the United States market, maintaining B&W Diesel's high quality standards."

Slow-speed diesels have become increasingly popular for United

States marine propulsion applications because of their improved efficiency as compared to traditional steam turbine drives. Allis-Chalmers already is completing the manufacture of three slow-speed marine diesels which are the first of this type built in the United States. These engines, which will be installed in oceangoing containerships under construction at Avondale Shipyards for American President Lines,

are being built under a manufacturing agreement with Sulzer Brothers Ltd. of Switzerland.

B&W Diesel A/S has been a diesel builder since the earliest days of such engines. In 1897 it was authorized to build its first diesel by Rudolph Diesel, originator of this design. The first oceangoing ship powered by a diesel, M/S Selandia, was designed and built by B&W and delivered in 1912. Among its oth-

er accomplishments it pioneered successful turbocharging of two-stroke, slow-speed diesel engines. Today, the firm has 25 licensees in 17 countries, including the new agreement with Allis-Chalmers.

B&W Diesel A/S, formerly known as Burmeister & Wain A/S, is now an autonomous Danish operation owned by M.A.N. (Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft) of West Germany.

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Marine Industries Hosts Reception For NYC Shipowners

Marine Industries Limited of Sorel, Quebec, Canada, recently hosted an informal reception at the Quebec Government House, Rockefeller Center, New York City, for American shipowners and operators of Greater New York.

Marine Industries representatives were presented to the trade by the Delegate general du Quebec in New York, **Richard Pouliot**. Shown above, from left to right: **Alcide Sauve**, manager public relations; **Anthony Paradis**, manager ship repair; **Mr. Pouliot**; **Guy Veronneau**, vice president, Shipbuilding & Industrial Division; **Jean-Marc Lajoie**, economic

counsellor; and **Jean-Paul Vincent**, manager, marine operations.

A description of the shipyard and other facilities was given by **Mr. Veronneau**, assisted by an interesting audio-visual presentation. Said **Mr. Veronneau**: "Our company has always made it a point to keep abreast of the latest technology, and today MIL is one of the best equipped and most efficient ship repair operations in eastern Canada."

World renowned as shipbuilding and repairing specialists with shipyard and works at Sorel, 40 miles from Montreal, Marine Industries is also a leading manufacturer of hydroelectric equipment, railway freight cars, and machinery for heavy industry.

Jeffboat Launched Record-Breaking 528 Vessels During 1980



1980 proved to be a record-shattering year for Jeffboat Incorporated of Jeffersonville, Ind. America's largest inland shipbuilder launched 528 vessels during the year, and surpassed its previous record set in 1979 by more than 80 vessels. The 528th vessel, shown above, was built for American Commercial Barge Line Company. It is a standard ACBL hopper barge and measures 195 by 35 by 13 feet. A Jeffboat spokesman stated that, according to a company production forecast, another record year is scheduled for 1981.

Cicarelli Named Eller's Manager Of Stevedoring And Terminal Services

Eller & Company, Inc., Fort Lauderdale, Fla., has announced the appointment of **Gene F. Ciccarelli** as manager, stevedoring and terminal services-Miami. He will be responsible for the company's overall stevedoring and terminal activities in the Port of Miami.

Mr. Ciccarelli comes to Eller with 13 years of experience in stevedoring and terminal man-

agement, and is well versed in the handling of breakbulk, containerized, and RO/RO cargoes. From 1967 through 1980 he held various management positions with Universal Maritime Service Corporation in New York, with the most recent position being manager of operations, having complete responsibility for an 85-acre terminal with 400,000 square feet of warehouse space.

Gulf & Eastern Names Marx Trade Manager For Forest Lines Service

Gulf & Eastern Steamship and Chartering Corporation has announced the appointment of **Henry G. Marx** as trade manager for Forest Lines Service. According to **Ronald A. Berenger**, vice president and general manager for the Forest Lines Service, **Mr. Marx**, who will be headquartered in New Orleans, will direct the day-to-day activities for the line.

Forest Lines recently announced an expansion in service through the acquisition of the Bilderdyk, and will offer three LASH sailings monthly from U.S. South Atlantic and Gulf to North Europe/United Kingdom and northern Spain. Gulf & Eastern, general agents for Forest Lines, operates a network of offices throughout the United States.

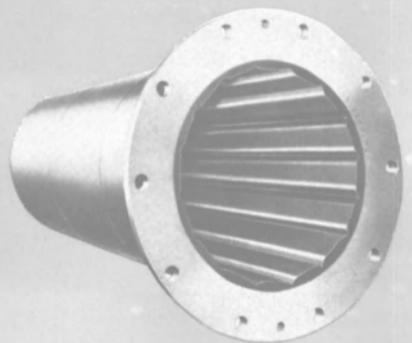
Gulf Fleet To Provide Five Vessels For India's Offshore Operations

Richard M. Currence, president of Gulf Fleet Marine Corporation, New Orleans, has announced that its wholly owned subsidiary, Gulf Fleet Marine Operations, Inc., has been awarded a multi-vessel, one-year contract by The Oil & Natural Gas Commission, the national energy company of India. The contract provides for marine transportation services to support the Government of India's exploration and production efforts off the coast of Bombay.

Gulf Fleet will provide three newly constructed 190 by 40 by 14-foot towing/supply vessels recently delivered by Quality Shipyards, Inc., Gulf Fleet's shipyard in Houma, La. Gulf Fleet will also provide two 185 by 38 by 15-foot towing/supply vessels, currently assigned to another of its worldwide areas of operation. All five vessels were scheduled to be on location by mid-February 1981.

Gulf Fleet Marine Corporation is one of the Houston Natural Gas Corporation (HNG) group of companies. HNG's other lines of business include construction and repair of barges and towboats, inland waterways transportation, intrastate natural gas transmission, oil and gas exploration and production, coal mining and the production and marketing of industrial, medical and specialty gases.

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Naval Civilian Administrators Establish New Chapter

The Naval Civilian Administrators Association (NCAA) has announced the establishment of a new chapter at the Polaris Missile Facility, Atlantic, and the Naval Weapons Station in Charleston, S.C. The officers shown above (L to R) after receiving their charter are: secretary treasurer **Lynn Lamb**, who is head of the Management Analyses Division, Naval Weapons Station; president **Harold Harken**, head of the Data Processing Department of the Polaris Missile Facility; trustees **Curtis Yant**, civilian personnel officer for the Polaris Missile Facility and the Naval Weapons Station, and **Jim Criddle**, head of the Quality Assurance Department of the Polaris Missile Facility;

honorary past president **John Torlay**, chief engineer of the Polaris Missile Facility; and vice president **Ray Booker**, controller for the Naval Weapons Station.

The NCAA is a national organization of senior level managers employed in Navy civil service. The total membership is approximately 600, organized into 13 chapters located in seven naval shipyards, three naval aviation activities, the Naval Ships Engineering Center, the Naval Facilities Engineering Command, and the Polaris Missile Facility/Naval Weapons Station, Charleston. Because of the positions held by the members, they exercise responsibility over many thousands

of engineers, scientists, administrators, and other employees involved in the activities in which they are located. The purpose of the organization is to contribute to the management of the Department of the Navy.

IOT Announces Two Management Appointments

Adrian S. Hooper, chairman and chief executive officer of Interstate and Ocean Transport Company, Philadelphia, a wholly owned subsidiary of Southern Natural Resources, Inc., has announced that **John T. Atkinson** has been named vice president-financial administration and treasurer, and **Heyward H. Coleman** has been named director of planning.

Mr. Atkinson, prior to joining Interstate, was serving as manager of corporate planning of SONAT Exploration Company in Houston, another major subsidiary of Southern Natural Resources. Mr. Coleman was previ-

ously with Southern Natural Gas Company, also a major subsidiary of SNR, where he held a variety of positions, including projects coordinator and executive assistant to the president.

Interstate and Ocean Transport Company operates a fleet of 51 barges and 37 tugs between refineries and ports along the Atlantic and Gulf Coasts, and is one of the nation's largest marine transporters of petroleum products.

GE Awarded \$5-Million Navy Contract For Gas Turbine Systems

General Electric, Marine & Industrial Engine Products Division, Cincinnati, Ohio, is being awarded a \$5,095,250 firm fixed-price contract for LM2500 Marine Gas Turbine Engine Systems and Free Standing Electronic Enclosure. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-5306)

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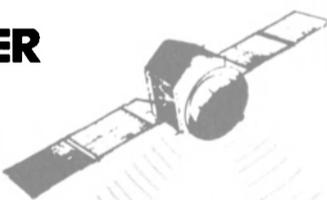
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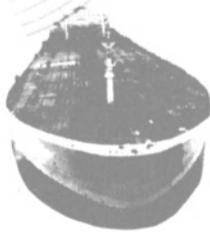


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Floating Weir Skimmer Collects Oil Spills In Harbors Or Offshore

The Skim-Pak floating weir skimmer is a rapid response, oil-spill cleanup tool for use in the harbor or at dockside, yet it works well in the rough, high seas. Skim-Pak systems are said to recover up to 4,000 bhp at excellent oil to water recovery ratios. Used as a "first line of

defense," Skim-Pak can be deployed in minutes from any vessel, offshore platforms, or along shorelines and harbors.

The unit's patented self-adjusting design operates at all flow rates regardless of attitude. Automatic operation does not require the continuous attention of an operator. When used with the optional hand control wand, Skim-Pak works particularly well alongside docks, inland waterways, anywhere other units can-

not be easily deployed, the manufacturer states. The skimmer readily attaches to oil-spill fences or other floating barriers for continuous recovery operations.

Skim-Pak uses a patented design that exploits the phenomenon of laminar-flow hydraulics to recover a high-ratio of, for example, oil off water—even at substantial flow rates. The manufacturer says the Skim-Pak is suitable for operation in the most extreme environments, and can

be produced to suit specifications. It operates wherever two dissimilar fluids of different specific gravities are present, or where a surface-effect skim is desired.

For more information,
Write 80 on Reader Service Card

Cave Elected Executive Vice President-COO At All American Marine Slip

George S. Zacharkow, chairman of Marine Office of America Corporation (MOAC), has announced the appointment of Edwin Cave as executive vice president and chief operating officer of the All American Marine Slip. Mr. Cave began his insurance career in 1956 in London when he joined the firm of Hobbs Savill & Company Ltd. He joined the MOAC organization in Canada in 1964 and held various positions in the Canadian operations until May of 1980, when he was elected vice president in charge of ocean marine underwriting in MOAC's home office in New York. The All American Marine Slip specializes in writing offshore energy related risks, and is managed by MOAC.

Western Electric Gets \$8-Million Navy Contract For System Support

Western Electric Company, Incorporated, McLeansville, N.C., is being awarded a \$8,107,689 cost-plus-fixed-fee contract for AN/BQR-15 Sonar Systems program management and support. Work will be performed in Burlington, N.C. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-6004)

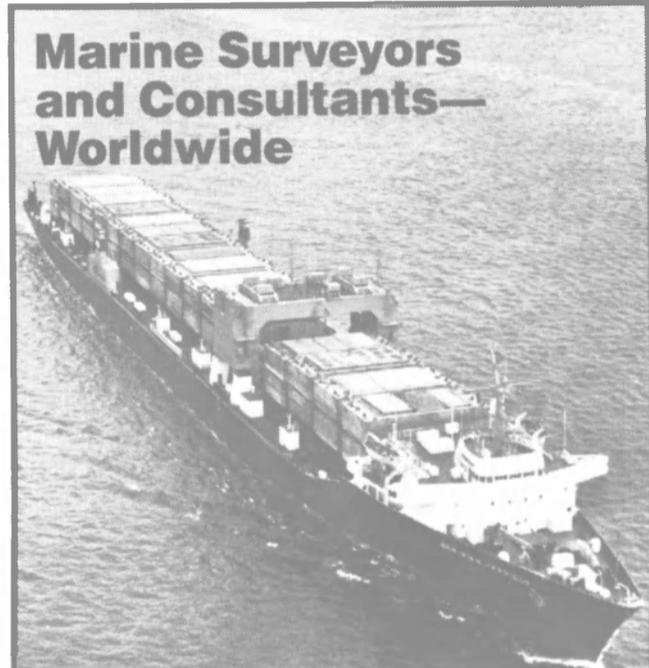
New Worldwide Directory Describes Twin Disc's Complete Product Line

Twin Disc, Incorporated of Racine, Wis., has just released Bulletin 400-A entitled *Worldwide Product Directory*. This 16-page bulletin describes the company's complete line of heavy-duty power transmission components manufactured by Twin Disc and its subsidiaries.

Bulletin 400-A provides a brief sketch of each Twin Disc product group including hydraulic products, industrial universal joints, power shift transmissions, marine transmissions, power take-offs, and clutches. In addition, it details for the reader specific product bulletins that are available for more complete information. Twin Disc manufactures a complete line of industrial friction and fluid drives from fractional to 26,100 kw (35,000 hp).

For free copies of Bulletin 400-A,

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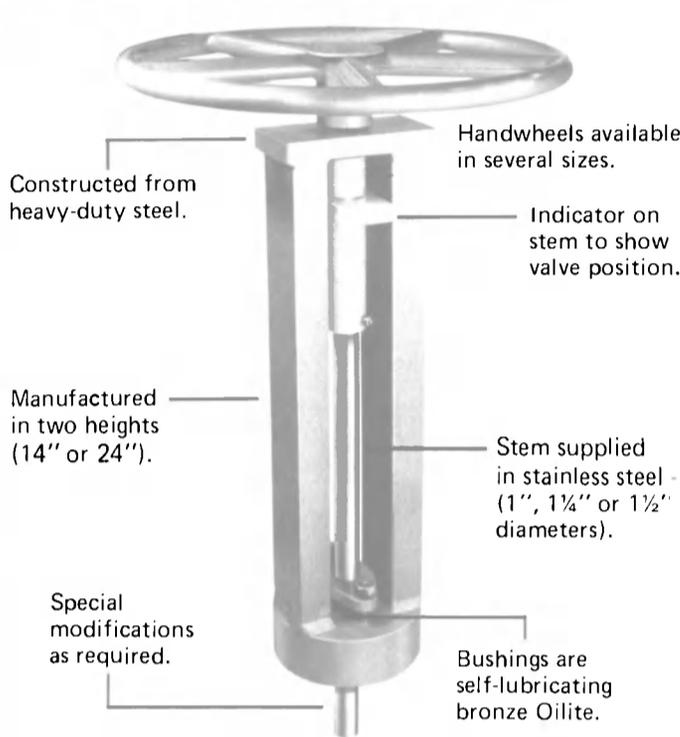
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\$2.5-Million Order For SPM Inventory Buoy Awarded To IMODCO

IMODCO, a unit of AMCA International Corporation and a pioneer offshore marine terminal company, has received an order in excess of \$2.5 million from ELF-SEREPKA, a jointly operated French/Cameroon company, for a Single Point Mooring inventory buoy.

Constructed at Hongkong United Dockyards to IMODCO's design and specifications and under its supervision, the marine terminal will service two locations in the Kole Field offshore Douala in Cameroon's Rio Del Rey, West Africa. It will be utilized as replacement for crude oil terminals now in use — one for berthing, the other for storage. The SPM is of standard dimensions — 12.5 meters in diameter, 14 feet in depth, with a two-grade MPDU. One grade has two 24-inch piperuns, the second has a 16-inch piperun.

Normally it takes about eight months to construct an offshore Single Point Mooring terminal, but IMODCO was able to offer ELF-SEREPKA one already completed. The IMODCO concept of speculative buoys was initiated in 1975 and has proven successful as a means of providing operational terminals months ahead of normal construction time. Delivery to ELF-SEREPKA was scheduled for the middle of February.

For further information and free literature on IMODCO's Single Point Mooring buoys,

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R.J. Thomson To Head Anderson's Marketing And Program Management



Robert J. Thomson

Robert J. Thomson has been named chief of marketing and program management at Art Anderson Associates, Bremerton, Wash. A program manager for the company since 1977, he brings to his new position 30 years of experience in systems engineering, advance design, and program management of military systems. Prior to joining the company, Mr. Thomson was employed for 16 years by Aerojet General Corporation where he served as a program manager in the space vehicle propulsion and marine vehicle areas.

Executive Appointments Announced By Crowley Caribbean Division

Several key executive appointments have been made by Crowley Maritime Corporation's Caribbean Division in order to further strengthen its organization, according to a recent announcement by Robert G. Homan, senior vice president and general manager of the division.

Dave Messer has been promoted to the position of vice president, Gulf common carrier services headquartered in Houston. He is responsible for the operation of Crowley's Trailer Marine Transport Gulf RO/RO service, Gulf Caribbean Marine Lines, and Crowley Environmental Services. Ron Beacham has transferred to Houston as director, Gulf common carrier services, and is responsible for the daily operation of TMT's Gulf RO/RO service and GCML.

Arno Dimmling, in addition to his responsibilities as vice president-operations, is assuming the responsibilities for Crowley's South Atlantic Common Carrier Services. Ted Ellis has been promoted to the position of assistant vice president-sales responsible for all common carrier sales activity in the United States and the Caribbean. Peter Baci has been promoted to the position of director, special projects.

VHF Automatic Digital Direction Finders Announced By Simrad

Simrad, Inc. of Armonk, N.Y., has introduced a new generation of VHF automatic digital direction finders. Computer-controlled, these instruments utilize a unique microprocessor in place of motors of moving parts. Even when signal conditions are erratic, the Simrad/Taiyo Models TD-L1510 and TD-L1520 are said to lock on a radio bearing and hold it steady.

Both provide a direct bearing reading as well as a digital readout. Direct bearings are indicated by 36 LEDs in 10-degree steps. Digital readouts are in one-degree increments. The digital display shows the bearing, the channel selected, and gives a reading of the signal strength on a level meter as a measure of distance.

Channels on the TD-L1510 include VHF, U.S. weather, and international fishing frequencies. The TD-L1520 adds 121.5 MHz and the ability to scan eight channels. Both operate with Simrad/Taiyo's uniquely designed Adcock antenna for extremely accurate definition and sensitive performance. The units are a compact 5-5/16 inches high, 12 inches wide, and 11 inches deep.

For more information,

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Latest cruise vessel built by Blount yard in Warren, R.I., is the 143-foot Pacific Northwest Explorer, shown on sea trials before recent delivery to Seattle owner.

Blount Marine Delivers Deutz-Powered Cruise Vessel

Blount Marine Corporation of Warren, R.I., recently delivered the cruise vessel Pacific Northwest Explorer to Alaska/Pacific Boat Company of Seattle. The 143-foot vessel incorporates many novel features not usually found in a boat of this size.

While built under U.S. Coast Guard Subchapter T regulations, the vessel was so constructed that it meets most of Subchapter H requirements also. The Explorer was issued a Certificate allowing operation on an international voyage between San Diego and San Felipe, Baja California, Mexico; voyages between Point Conception, Calif., and the Mexican Border; also the waters between Puget Sound, Washington, and Cape Spencer, Alaska. A loadline certificate was issued by the American Bureau of Shipping. On overnight voyages, 90 passengers may be carried; on other than overnight trips, 125 persons are allowed.

There are 41 attractively equipped cabins, each with complete facilities. Deluxe cabins include a convertible unit used as a table-settee during the day that can be converted to a bed for the use of an additional passenger if desired. A comfortable lounge area is served by a Blount-patented Vista View bow window.

The Explorer is powered by two Deutz model BF716 diesel en-

gines, each developing 750 bhp. Electrical power is furnished by three Deutz diesel generators providing a total of 240 kw. Steering is by an electrohydraulic system manufactured by Wagner. A 110-hp PSI hydraulic bow thruster aids in maneuvering in close areas.

A completely equipped galley modeled after the efficient galleys on the new long-distance trains serves the well-appointed dining area that accommodates all passengers at one sitting. The freezer and refrigerator capacity, coupled with two Sand & Sea freshwater evaporators producing up to 1,500 gallons a day, permit the Explorer to operate for extended periods with little shore support. The Omnipure sewage disposal system that features fast treatment of waste permits a smaller holding tank than normally would be required.

The Pacific Northwest Explorer is the fourth mini-cruise vessel designed and built by Blount Marine Corporation, a pioneer in the field. After construction of several smaller vessels, Blount built the 22-stateroom Mount Hope, the 32-stateroom New Shoreham, and the 36-stateroom New Shoreham II, and now the Explorer. The former New Shoreham was sold to Alaska/Pacific Boat Company, and is now being operated in Alaskan service.

Raymond International Unit Gets \$50-Million Contract For Platform Installation

A contract totaling about \$50 million has been awarded to a unit of Raymond International Inc., Henry F. LeMieux, chairman and chief executive officer, announced. The contract was awarded to Raymond Offshore Constructors (Overseas) Limited, a subsidiary of Raymond Offshore Constructors, Inc., by Esso Australia Ltd., a unit of Exxon Com-

pany, to install the West Kingfish and Cobia production platforms in the Bass Strait off Australia's southeast coast. Installation will begin early in 1981 and will take about one year to complete, Mr. LeMieux said.

Raymond's derrick barge Polaris will be towed from its Houma, La., base around the Cape of Good Hope, Africa, to the Bass Strait for the installation. The Polaris was constructed for Raymond in 1979 and is working currently in the Gulf of Mexico.

Chesapeake SNAME Discusses World Shipbuilding Practices

A discussion-provoking paper titled "Shipbuilding Practices Around the World" was presented by Jay J. Hassani of Century Engineering, Inc., Baltimore, at a recent meeting of the Chesapeake Section of The Society of Naval Architects and Marine Engineers. In his paper, Mr. Hassani reviewed the facilities used by various shipyards worldwide in carrying out selected phases of the shipbuilding process with significant differences in approach being highlighted. In addition, the effects of the shift in emphasis from building increasingly larger ships in the 1960s and early 1970s to environmentally safer, more fuel-efficient designs of the present day were discussed. He believes that fuel-efficient ships with energy-saving propulsion systems, ship conversions, offshore drilling and production platforms, and other non-ship-related work will occupy the world's shipyards during this decade.

In his description of shipbuilding facilities, Mr. Hassani emphasized the transition to more technologically advanced and automated techniques in ship construction, especially by nations in the Far East and Europe. The gradual shift from conventional building ways and building docks to tandem fabrication in multi-section graving docks was highlighted and the approaches taken by yards in Japan, Taiwan, Germany, and Portugal described. Also, a number of examples of

steel-handling techniques were discussed, including the fabrication of modules of up to 700 tons in size. The facilities using these advanced approaches are ideally suited to series production of ships; however, Mr. Hassani believes that the demand for large production runs of similar ships has declined and will continue to do so as a result of the world economic situation. In addition, the rising labor costs in the West has moved a large amount of the remaining series production to the Far East, leaving a number of modern yards in the U.S. and Europe with excess capacity and large capital investments to amortize.

The impacts on the shipbuilding industry of the growing role of coal in meeting the world's energy demands were touched on by Mr. Hassani as part of his assessment of the changing complexion of the type of vessels that will be built during the next 10 years. As an alternative to the conventional bulk shipment of coal, he proposed the use of containers that could be filled at the mine to alleviate the negative environmental effects of standard coal shipment. These containers need not be of the conventional ISO form; instead, they would be optimized for bulk cargo.

The prepared discussions involved a number of extensive comments concerning some of the author's conclusions. Edwin Hood of the Shipbuilders Council of America felt that series shipbuilding is still viable, citing the 10 LNG carriers built by General Dynamics along with the six additional ones on order. He also felt that U.S. shipyards are as

technologically advanced as any in the world, and only the lack of government support, and in some cases outright government hindrance, is responsible for the U.S. shipbuilding industry lagging behind those of other nations.

D.M. Mack-Forlist, a consultant, concurred with Mr. Hood's comments, and added that the fluctuating, unpredictable demand for ships make large capital investments by private yards unattractive without government assistance.

Richard W. Thorpe Jr. of J.J. McMullen & Associates, Inc., addressed the concept of containerized shipment of coal. He felt that it would be difficult to surpass in economy and efficiency the present use of unit trains, high-speed loaders and unloaders, and wide, shallow-draft bulk carriers. The ecological problems involved in coal handling could in all probability be handled in a more cost-effective manner.

\$27.6-Million Navy Contract For Submarine Propulsion Given To GE

General Electric Company, Washington, D.C., has been awarded a \$27,594,172 fixed-price incentive contract for two plus one option shipsets of main propulsion machinery (steam turbines, reduction gears, etc.) for SSNs 723, 724 and 725. Work will be performed in Lynn, Mass. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-4112)

Voisard Heads M.A.N. Diesel Engine Division On Schiff's Retirement

Adolf Schiff, a member of the board of directors of M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft and head of the Diesel Engine Division comprising the Augsburg and Hamburg works, has asked the M.A.N. Supervisory Board to release him from his responsibilities for reasons of health. He will continue to assist the company in an advisory capacity. Otto Voisard, chairman of the board of directors of M.A.N., will take over the management of the Diesel Engine Division.

Mr. Schiff joined M.A.N. in 1952 after working for Klockner-Humboldt-Deutz in Cologne. In 1957, he moved to Bremer Vulkan, a M.A.N. licensee, where he was appointed director in charge of the Mechanical Engineering Division in 1959. Mr. Schiff joined the M.A.N. board of directors on April 1, 1973.

New Furuno Radar Has A Radome Antenna— Brochure Available

Furuno introduces the Model 1600 radar with a weatherproof, wind-resistant radome antenna. Designed primarily for small coastal vessels and pleasure craft, the 1600 is said to provide performance unmatched in this type radar. A totally new microwave 1C circuit in the transceiver doubles receiver sensitivity, thereby equaling the performance of much larger radars.

The bright 7-inch CRT (12-inch equivalent with integral magnifier), full 3-kw output power, six range scales to 16 nautical miles, and dual pulse lengths produce a superb picture. Consisting of just two units, interconnected by a single flexible cable, the Model 1600 is simple to install and the compact display is easily unplugged for safe storage. This radar contains a universal 11-40-volt dc power supply, and draws an extremely low 50 watts.

For a free brochure on the 1600,

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Comfort-Mate To Build New Factory In Miami

James Reiter, president of Comfort-Mate, Inc., has announced the purchase of a tract of land in Miami, Fla., for a new factory. Construction was scheduled to begin in February, with completion expected by June 1 this year. This new facility will put all of the company's manufacturing of deck furniture and interior furniture in one facility.

For additional information on the Comfort-Mate line of marine furniture,

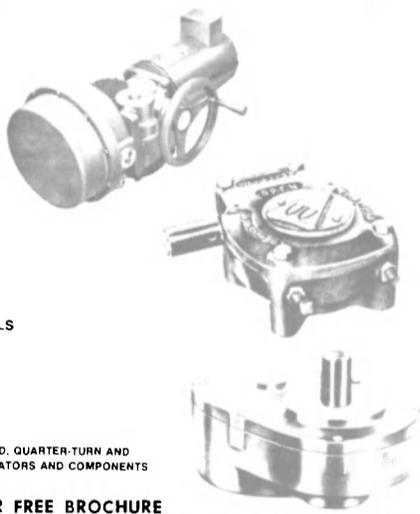
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Roland Malins-Smith Joins Concorde Line As Vice President

Roland Malins-Smith has been appointed a vice president of Concorde Line, according to an announcement by Donald T. Quinn, Concorde's president. Mr. Malins-Smith will be located at Concorde Lines' home office in Miami, Fla. Prior to joining Concorde, he had been general manager of West Indies Shipping Corporation (WISCO) in Port of Spain, Trinidad.

A native of Grenada, Mr. Malins-Smith joined the Caribbean Community Secretariat in Georgetown, Guyana, in 1970 as a research assistant (shipping), and was promoted to senior economist by 1976. He was appointed general manager of West Indies Shipping in April 1977, and was the main architect of WISCO's financial recovery.

In his new position, Mr. Malins-Smith is expected to play a major role in Concorde Line's expanding Caribbean services. Concorde recently added two more vessels and commenced containership service from New York, Baltimore, and St. John, New Brunswick to Jamaica, Haiti, Dominican Republic, and Trinidad. These two new ships are in addition to the three RO/RO vessels operating out of Miami to Caribbean destinations.

New Brochure Describes Repair Facilities At Norfolk Shipbuilding

A new, four-color brochure containing scores of photographs and describing the ship repair and drydocking services offered by Norfolk Shipbuilding & Drydock Corporation is now available at no cost from the Virginia shipyard. One of the largest ship repair complexes on the U.S. East Coast, Norshipco provides the international maritime industry with 24-hour services, with the emphasis on quality of work performance.

That commitment to quality has been emphasized with the completion of a \$27-million project that permits maintenance and repair for some of the world's largest oceangoing vessels. Highlight of the project is the Titan—one of the world's largest and most modern floating steel drydocks.

Norshipco is situated on the Elizabeth River in Norfolk, and entered through the Port of Hampton Roads. Departing vessels can proceed into Chesapeake Bay without encountering bridges. The yard's work force is more than 4,000 and growing.

For a free copy of the new Norshipco brochure,

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F.A. Martin & Ottaway Expands Operation To United Kingdom

Francis A. Martin and Ottaway, Inc. has announced the opening of an office in London. Francis A. Martin and Ottaway, Inc. of New York, and Marine Advisory and Technical Services (Aspenway Ltd.) of London have agreed to a joint venture in the

foundation of Martin, Ottaway and Marine Advisory, Inc. New York, and Martin, Ottaway and Marine Advisory, Ltd. of London, with a view to making available, on an international basis, the expertise of both companies to their clients.

The services that will be provided by the joint venture cover all aspects of marine consultancy, including hull and machinery surveys, naval architecture, apprais-

als, legal and insurance consultation, accident investigations, ship purchase surveys, inspection of class records, and supervision of major ship repairs, conversions, and new construction. The New York office will be staffed by the principals, Harry J. Ottaway and Norman C. Jensen, in addition to a staff of surveyors. The London office will be staffed by its principals, Reginald F. Clarke and C. Allen Caldwell.

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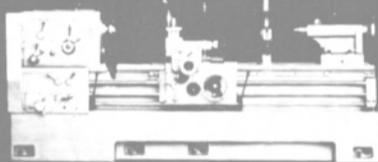


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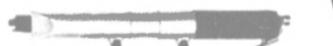
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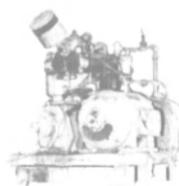
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WORTHINGTON HIGH PRESSURE AIR COMPRESSORS

10 CFM — 600 lbs. 7½ HP
440/3/60 A.C. Motors

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

For Sale at Zidell

AVAILABLE NOW FOR IMMEDIATE SHIPMENT

Two 500-ton Gantry Cranes 70-foot Track Span (CAN BE WIDENED TO 100 FEET)



Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4-150 HP-240 Volt DC Hoist Motors
4-150 HP-240 Volt DC Gantry Motors
2-265 KW-500 Volt DC M-G Sets

Units Can Be Modified

Possible other uses:

- 1) Moving heavy equipment
- 2) Dam Sites
- 3) Concrete Prefab plants
- 4) Railroad yards
- 5) Steel plants

Geared Track is also available at extra cost

Four 30-ton Container Cranes 70-foot Track Span



NEW 1970-72

Priced at a fraction of today's new replacement cost. Good Condition. Immediately Available. From LASH Ships. Late Model. Manufactured by PACEO. Suitable for Ship, Barge or Land use. Manufactured to ABS and MARAD requirements.

AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW
230 DC.

200 HP DC Hoist Motor
100 HP DC Trolley Motor
2-40 HP DC Gantry Travel Motors

Trolley Travel 275 F.P.M.
Gantry Travel 100 F.P.M.
Hoist Speed:
30 LT @85 F.P.M.
20 LT @100 F.P.M.
Empty Spreader 200 F.P.M.

32'0" Maximum Outstretch

Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.

Other areas of possible use:

- 1) Pipe and steel yards
- 2) Barge building
- 3) Concrete pre fab plants

For additional information, brochures or inspection, contact: Hugh Sturdivant, Sales Manager, or A.D. Canulette, Jr.



ZIDELL EXPLORATIONS, INC.

3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

For Sale or Charter at Zidell

AVAILABLE FOR IMMEDIATE DELIVERY

Split Type Self Dumping Scows

Built 1979. For sale, long or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (MLD)	180'-0"
Beam (ML'D)	50'-0"
Depth of Mid-Body (ML'D)	14'-0"
Hopper Length (ML'D)	128'-0"
Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft.	1615 L.T.
Rake Lengths F. & A.	26'-0"

Twin Skegs
Stern & Fwd. Rake Decks Stepped Up 2'-0"

Engine GM 671
Hydraulic Pumps (2) 12 GPM & 75 GPM

To Open (Fully Closed to Fully Open)
11 Min. 15 Sec.



American Crane Barge

BARGE DATA

Displacement Light	1,200T
Gross Tonnage	911
Net Tonnage	911
Length	151'-6"
Beam	60'-0"
Hull Depth	12'-0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
	36,000 Gal.
	12,000 Gal.

Fresh Water Tanks	None
Bunker "C" Fuel Tanks	
Ballast System	

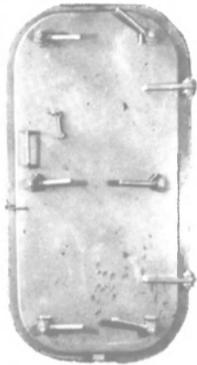
CRANE DATA

American Hoist & Derrick Co.
206 Raymond

FOR SALE

NEW WATERTIGHT DOORS

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

SIZE

26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR

IMMEDIATE DELIVERY

NEW SMALL STEEL WATERTIGHT DOORS



24" X 36"

2-DOGS

5 Right Hand
2 Left Hand

IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS (MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING



With extended legs for welding to deck. 14" Wide on base—length 28" — height 27 1/4". **IMMEDIATE DELIVERY FROM STOCK.**

NEW UNUSED 12" X 6 1/2" PANAMA CHOCKS FOR SMALL VESSELS

Closed chocks — 12" X 6 1/2" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. **IN STOCK**



15 1/2" & 16" CLEAN BRASS 4-DOG MARINE PORTLIGHTS

15 1/2" CLEAR OPENING
16" CLEAR OPENING



Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass — clear or can be furnished frosted for use in special locations.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

250KW GM 12-V-71 DIESEL GENERATOR SETS AIR STARTING

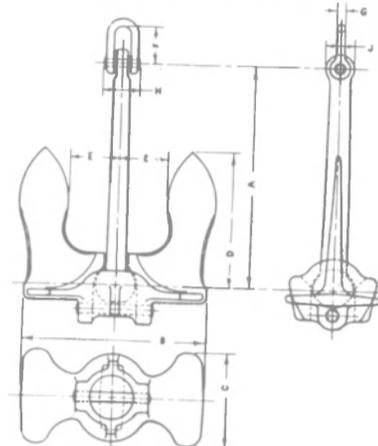
440/3/60/1800 — with free-standing switchgear. Generators manufactured by Electric Machinery Co. — E.M. Bemac — brushless — synchronized — keel cooled.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

ANCHORS — CHAIN

DETACHABLE LINKS
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS
3 EA. R.P. ANCHOR SHAX 3/8" STK, 3/8" PIN

NEW CHAIN

10 X 90 Ft. 3" DILOK CHAIN — ABS
9 X 90 Ft. 2" DILOK CHAIN — ABS

NEW SWIVELS

3 EA. 2 5/16" — 3" E&E SWIVELS
13 EA. 3 1/8" DETACHABLE LINKS
PEARSHAPED DETACHABLE LINKS
25 EA. #7 — 17 EA. #5

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

HEAVY STEEL DOOR FOR LOADING CARGO THRU

SIDE OF SHIP

Complete with heavy frame. Clear opening 70" high 90" high

For Sale or Charter at Zidell

AVAILABLE FOR IMMEDIATE DELIVERY

Split Type Self Dumping Scows

Built 1979. For sale, long or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

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Depth of Mid-Body (ML'D)	14'-0"
Hopper Length (ML'D)	128'-0"
Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft.	1615 L.T.
Rake Lengths F. & A.	26'-0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped Up	2'-0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	
6 Min. 5 Sec.	
Time To Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78°
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)	
18" Diam. 120" Stroke	
Plating	
Side	9/16"
Bottom	5/8"
Hopper	5/8"



American Crane Barge

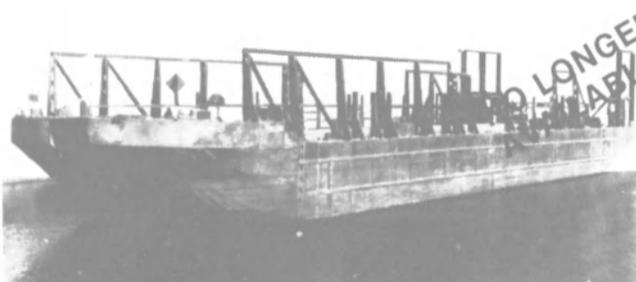
BARGE DATA

Displacement Light	1,200T.
Gross Tonnage	911
Net Tonnage	911
Length	151'-6"
Beam	60'-0"
Hull Depth	12'-0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
20 part rigging	2,200 ft., 7/8" c - 6 x 36 I.P.S.
4 part standing standing bail	2-186 ft., 1 3/4" c - 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part rigg.)	
20 part rigging	3,250 ft., 1" c - 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., 7/8" c - 6 x 66 I.P.S.

Bulk Petroleum Barges

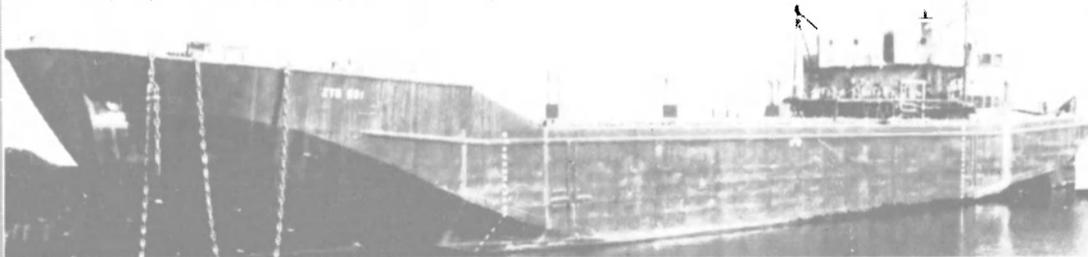


ZBO-260

Type: Ocean unmanned service • Grade "B" bulk cargo • Dunnaged deck for general cargo
 USCG: Documented with "Certificate of Registry" • Operating "oceans" • Official No. 280390 • Net: 2045 • Gross: 2045 • Length: 260.0' • Breadth: 52.1' • Depth: 18.3'
 ABS: International Load Line (valid until 25 May 1983) Cert. No. 61-13,337-5.
 Aux. Machinery & Pumps: (1) Cornell deep well pump (6') starboard unit driven by one 6-71 G.M. diesel, (1) Fairbanks deep well pump, Port unit driven by one 3-71 diesel, (1) Hydraulic pump, alternator unit driven by one 3-71 G.M. diesel.
 Fill & Discharge Lines: 8" lines with 6" suction
 Capacity: Eight tanks - 29,600 bbls.
 Deck Cargo Dwt. at Loadline: 4000 S.T.

ZTB-601

Type: Ocean unmanned service • Grade "B" bulk cargo
 USCG: Documented with "Consolidated Certificate of Enrollment and License" • Operating "oceans" • Official No. 280356 • Net: 2286 • Gross: 2286 • Length: 257.5' • Breadth: 55.1' • Depth: 20.3'
 ABS: International Load Line (valid until 6 December 1984) Cert. No. 61-24, 479-2. Aux. Machinery & Pumps: (4) Bingham pumps - 8 x 14 VTX - 5 stage - cap. 600-1500 GPM - Type # F - 150 - driven by 4 GMC 6-71 diesels, (1) Diesel generator set - 5 K.W. - Lister - 2 cyl. - air cooled, Deck Derrick: (2) Booms & masts - one port and one starboard - rated 2240 lb. lift with two 2-ton winches. Fill & Discharge Lines: 6" fill and 6" discharge tying into 8" lateral lines. Aft Mast: (1) Stern loading and light mast. Capacity: 14 tanks - 38,900 bbls. (on USCG Certificate)



Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



ZPC-402 230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A.	230'-0"
Beam	60'-0"
Depth	15'-6"
Deadrise	6"
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Delevel IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location	Below Deck Pumproom in Fwd. Rake
Diesel Engines	Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8" ANSI 150# FLG P/S
Heating Coils	2" Sch 80 Pipe For Shore Steam
Hull Plating	Deck 1/2", Side Shell 3/4", Bott. 3/4", Shear Strake 1/2"
Deck Cargo Dwt. at Loadline	3900 S.T.

For additional information or to make an appointment to inspect, call or write:

Thomas A. Sherwood or
 Andy Canulette, Jr.



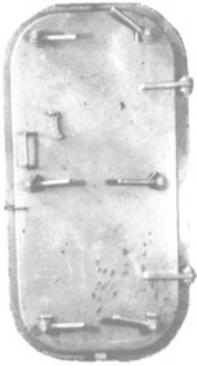
ZIDELL EXPLORATIONS, INC.

3121 S.W. Moody Ave., Portland, Oregon 97201
 Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

FOR SALE

NEW WATERTIGHT DOORS

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

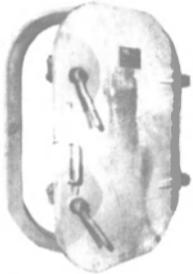
SIZE

26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR

IMMEDIATE DELIVERY

NEW SMALL STEEL WATERTIGHT DOORS



24" X 36"

2-DOGS

5 Right Hand
2 Left Hand

IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING



With extended legs for welding to deck. 14" Wide on base—length 28"—height 27/4". IMMEDIATE DELIVERY FROM STOCK.

NEW UNUSED 12" X 6 1/2" PANAMA CHOCKS FOR SMALL VESSELS

Closed chocks—12" X 6 1/2" inside opening—23" overall outside—8" high—15" high—7" radius—weight 110 lbs. IN STOCK.



THE BOSTON METALS COMPANY

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"THE OFFSHORE" MODEL Reflector/Projection BINNACLE

Projector Unit is Heavy Gauge Naval Aluminum—Hard Coated Spring Mounted



Suitable for workboats & fish boats. Circular magnet in card for steadiness. Navy type metal compass rose—0-360—adjustable mirror for Steersmans eye. Anti-vibration mount. Complete with internal correctors including heavy duty heeling corrector for steadiness in rolling sea.

INQUIRE FOR PRICE & FURTHER DETAILS

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

15 1/2" & 16" CLEAN BRASS 4-DOG MARINE PORTLIGHTS

15 1/2" CLEAR OPENING

16" CLEAR OPENING



Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

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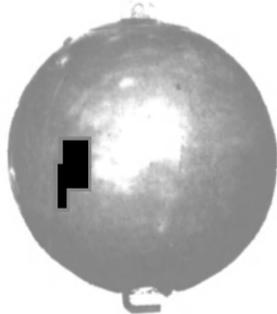
250KW GM 12-V-71 DIESEL GENERATOR SETS AIR STARTING

440/3/60/1800— with free-standing switchgear. Generators manufactured by Electric Machinery Co.—E.M. Bemac—brushless—synchronized—keel cooled.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

NEW—UNUSED SPHERICAL MOORING BUOYS



About 58" diam. With tieplates top & bottom. Est. wt 680 lbs each. 120 lbs submergence

CYLINDRICAL BUOYS

3 Available—5 ft X 9 ft—with wood bumpers

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

KEARFOTT PENDULUM WINDOW WIPERS

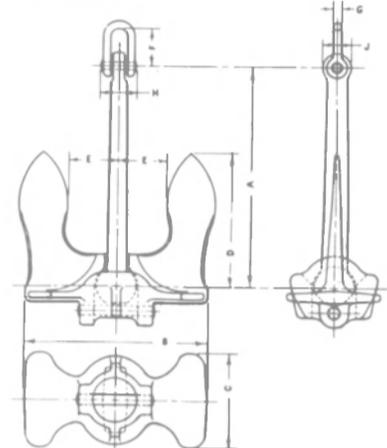
1/30 HP 110 volt AC/DC universal series wound motor—ball bearing—5000 RPM—\$19750 with 40:1 single worm reduction Clear opening 27 1/2"—14" arm—10" blade—with EACH rheostat & shutoff switch. 4 available.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

ANCHORS—CHAIN

DETACHABLE LINKS
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS
3 EA. R.P. ANCHOR SHAX 3/8 STK, 3/8 PIN

NEW CHAIN

10 X 90 Ft. 3" DILOK CHAIN—ABS
9 X 90 Ft. 2" DILOK CHAIN—ABS

NEW SWIVELS

3 EA. 2 5/16—3" E&E SWIVELS
13 EA. 3/8" DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS
25 EA. #7—17 EA. #5

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Marine Warehouse (301) 752-1077
TWX: 710-234-1637

HEAVY STEEL DOOR FOR LOADING CARGO THRU SIDE OF SHIP

Complete with heavy frame. Clear opening 72" wide 90" high. Outside frame size 103" high—86" wide. While under way, door is secured with 18 heavy bolts & steel blocks around frame—6 heavy bolts & steel blocks in middle.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

LOUIS-ALLIS M.G. SETS

2.5 KW 120 Volt Single Phase 60 Cycle Output
120 Volt D.C. Input—1800 RPM



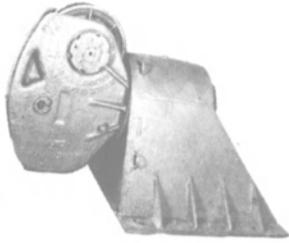
2 1/2 KW—115 volts single phase A.C. output. GENERATOR: Type GNA—class 1G—Frame 28A—Form A—1800 RPM—5 KVA—2.5 KW 115 volts AC—60 cycle—50% PF—43.4 amps. MOTOR: Louis Allis—Type GNA—Class E—Frame 25A—Form A—1800 RPM—115 volts DC—32 amps—shunt wound (with attached Ward-Leonard frequency regulator). Some control panels available.

CAN FURNISH WITH 230 VOLT DC INPUT

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

**SURPLUS
BERGER
FAIRLEADS**



2 Model 620—for 1 3/8" wire—20" sheave.
Located San Francisco, Ca.

\$3950 EACH

3 Model 614—for 1 1/4" wire—14" sheave.
Located Panama City, Fla.

\$2495 EACH

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

HATCHES

**NEW UNUSED
FLUSH HATCHES**



54" X 77"

14-Dog — operated from top side by T-key, with dogs marked to show open & closed positions.



24" X 30"

30" X 30"



4 Dogs on underside—topside flush, with T-Key openers.



60" X 42" X 12"
10-DOG



72" X 72" X 12"
16-DOG



**36" X 26" 7-DOG
TANKER EXPANSION
TRUNK**

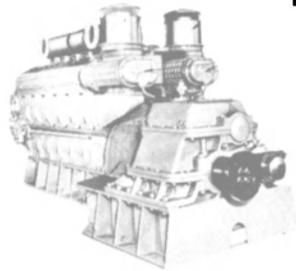


42" X 42" X 9"
7-DOG
SPRING
LOADED

THE BOSTON METALS COMPANY

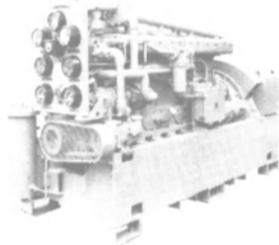
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Marine Warehouse (301) 752-1077
TWX: 710-234-1637

LST MACHINERY



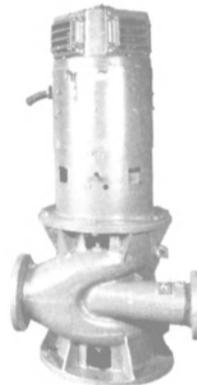
**PORT & STARBOARD GM 12-567A
900 HP DIESEL ENGINES
with Falk reverse & reduction gears**

ENGINE: GM 12-567A—8 1/2 X 10—V-type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk AirFlex—reverse & reduction—2.48:1 forward—2.52:1 reverse.



100KW GBD-8 DIESEL GENS.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl—5 1/2 X 7—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high—42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.



**GARDNER-DENVER
BALLAST PUMP**

Bronze — 1500 GPM — 56' head or 25 lbs — 8" suction — 6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40° T rise — stab. shunt — ballbearing — drip-proof. Controls available.

TAILSHAFTS

Diameter: 6 1/8" Length: 21' 2 5/8"

THE BOSTON METALS COMPANY

313 E. Baltimore St.

752-1077

Baltimore, Md. 21202

TWX: 710-234-1637

**CROUSE HINDS
1000 WATT
FLOODLIGHTS**

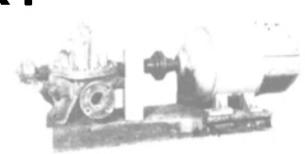


NEW — UNUSED

HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

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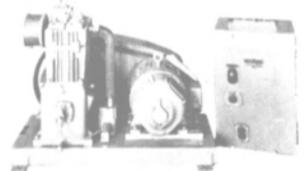
GOULD FIRE & BILGE PUMP

250 GPM & 100 lbs—4" suction—3" discharge—2200 RPM—bronze—manufactured by Gould. Direct connected to 30 HP 230 volt DC Louis-Allis motor.

**4-BLADE PROPELLERS
BRONZE — PORT & STARBOARD**



7' Diameter—pitch constant 4.699. Bore tapers from 6 1/8" to 4 53/64". 14 1/2" Taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.



CLUTCH TIRE AIR COMPRESSOR

Model 320—4 X 2 1/2 X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.



**COMBINATION LUBE OIL &
SALT WATER COOLING PUMPS**

Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1 1/2" X 1 1/2")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1 1/2") G.E. Motor model 5B254A1988—type B—Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40°C temp rise. Ball bearing.



**QUICK-ACTING
LEVER
OPERATED
WATERTITE
DOORS**

26" X 66"
8-DOG
Rights & Lefts

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

BUYERS DIRECTORY

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
 R.W. Fernstrum & Company, 1716 Eleventh Avenue, Menominee, MI 49858
 James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142
 York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection

Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 2039KB), Oakland, CA 94643
 Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44032
 Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
 Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment

Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
 GMMC/Porta-Shotblast, 1112 Davidson Road, Nashville, Tenn. 37205
 Goff Corporation, One Pleasant Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning

Combustion Engineering, Inc., Windsor, Connecticut 06095
 A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BRAKES

Goodyear Aerospace (Industrial Brakes Division), Box 477, Berea, KY 40403

BROKERS

B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
 Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
 Crown Assets Disposal Corp., 300 Notre Dame St., Ville St.-Pierre, Quebec, Canada H8R 3Z6
 Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
 Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

BUNKERING SERVICE

Belcher Company of New York, Inc., 48-02 54th Avenue, Maspeth, NY 11378
 Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHECKING SYSTEMS

Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling

Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

CONTROL SYSTEMS—Monitoring

Arnessen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
 Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
 Megastystems, Inc., 5909 West 130th Street, Cleveland, OH 44130
 Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
 Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

COUPLINGS

Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLIES

Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
 M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07037
 J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
 Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

DECK MACHINERY—Cargo Handling Equipment

Appleton Machine Co., Marine Division, 618 S. Oneida St., Appleton, WI 54911
 Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS

B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
 General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
 Galten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
 Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114
 Teledyne Metal Finishers, 3125 Brinkerhoff Road, Kansas City, KS 66115
 Twin Disc, Incorporated, Racine, Wis. 53403

ELECTRICAL EQUIPMENT

Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
 Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
 Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
 Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
 Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS

Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32202

EQUIPMENT—Marine

ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
 Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
 Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
 Conhagen/USMP Company, Inc., 4475 South Clinton Ave., South Plainfield, NJ 07080
 Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
 J. H. Menge & Company, Inc., P.O. Box 23602, New Orleans, La. Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
 Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
 Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
 Sudimport, 5 Kalyaevskaya, Moscow K-6, USSR
 Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186
 Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150

EVAPORATORS

Riley-Beard, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS—METALS

Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52
 Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
 Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
 Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
 Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44032
 Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing

Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
 Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077
 Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
 Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FURNITURE

Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231

GANGWAYS

Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311

HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
 Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
 MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
 Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
 Julius Mack & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING

Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
 Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS

Fluid Technology, Inc., 10626 Phillips Highway, Jacksonville, FL 32224
 Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems

ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
 Camar Corporation, P.O. Box 460, Worcester, MA 01613
 Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
 Fredrikstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022

INSULATION—Cloth, Fiberglass

Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
 Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
 Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
 B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
 Midland Insurance Co., 160 Water St., New York, N.Y. 10038
 Whitehall Brokerage, Inc., 685 3rd Ave., New York, NY 10017

JOINER—Watertight Doors—Paneling

Masonite Commercial Division, Dover, OH 44622
 Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44032

LIFEBOATS & DAVITS

Schat Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., 10-99 3901 North 29th Avenue, Hollywood, FL 33020
 Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
 Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
 Perko Inc., P.O. Box 6400D, Miami, Florida 33164
 Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209
 Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

LNG CONTAINMENT

McDonnell Douglas Astronautics Co., 5301 Bolsa Ave., Huntington Beach, CA 92647

MACHINE TOOLS

Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

A.L. Burbank & Co., Ltd., Marine Thermostat Dept., One World Trade Center, Suite 2811, New York, NY 10048
 General Electric Company—Bldg. 2, Rm 216, Schenectady, N.Y. 12345
 Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS

Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202
 Agemar, Avenida 3E No. 71-51, Edif. Acuario (Planta Baja) Aorartado 1465, Maracaibo, Venezuela
 American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
 Amirikan Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
 Del Breit Inc., 326 Picaeay Place (Suite 201), New Orleans, LA 70130
 C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
 Jacksonville, Florida 32211
 CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
 CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
 Childs Engineering Corp., Box 333, Medfield, Mass. 02052
 John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
 Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
 Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
 Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
 C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048

Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207

Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
 Designers & Planners, Inc., 82 Beaver Street, New York, NY 10005
 Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
 Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
 Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
 John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

The Glasten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104

Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480

Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107

Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505

J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048

Hoffman Maritime Consultants Inc., 9 Glen Head Road, Glen Head, NY 11545

Hydraonautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810

Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227

James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
 Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01400

Lucander Designs, P.O. Box 711, San Perita, TX 78590
 Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063

John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048

Maclear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
 Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746

Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424

Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106

Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225

Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307

George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
 Metritape, Inc., 33 Bradford Street, Concord, MA 01742

NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
 Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169

Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104

Robert B. Niederberger, P.E., 507 Evergreen Road, Severna Park, MD 21146

Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
 Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114

Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211

PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
 Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112

Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156

S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
 Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716

M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013
 and 657 Mission St., San Francisco, Calif.

Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
 Schmah and Schmah, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316

Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003

Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
 George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007

T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
 R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235

Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
 Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320

Timco, 622 Azalea Road, Mobile, AL 36609
 Corning Townsend III, 18 Church St., Georgetown, CT 06829

Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706
 Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016

Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
 Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061

Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
 XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
 AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305

American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526

Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103

Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746

Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024

Dantronics Company, P.O. Box 204, Boca Raton, FL 33432
 Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201

EPSCO, Inc., 411 Providence Highway, Westwood, Mass. 02090
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080

Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801

Harris Communications, RF Communications Division, 1680 University Avenue, Rochester, NY 14610

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
 Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631

ITT Decca Marine, U.S. Route 1 & St. Joe Rd., P.O. Box G, Palm Coast, FL 32037

ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
 Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780

Iotron Corp., 5 Alfred Circle, Bedford, MA 01730
 Maritel, Inc., 139 Old Salomon's Island Road, Annapolis, MD 21401

Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729
 Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23605

Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311

North American Philips Communication Corp., 91 Mckee Road, Mahwah, N.J. 07430

RCA Service Co., Building 204-2, Camden, N.J. 08101

Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577

Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103

Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914

Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061

Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504

Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

Texas Instruments Inc., P.O. Box 226030, M/S 3107, Dallas, TX 75265

Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives

B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095

Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009

Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001

Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019

Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017

Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS

Alfa-Laval, Inc., 2115 Lindwood Avenue, Ft. Lee, NJ 07024

Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932

Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

PAINTS—COATINGS—CORROSION CONTROL

Belzona Molecular Metalife Inc., 224 7th Street, Garden City, NY 11530

"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230

Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207

Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080

International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004

Jotun-Baltimore Copper Paint Co., 501 Key Highway, Baltimore, MD 21230

Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 07817

Woolsey Marine Industries, Inc., 1250 Broadway, New York, NY 10001

PETROLEUM SUPPLIES

Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE—HOSE—Cargo Transfer, Clamps, Couplings

Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696

CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748

Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073

Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

Tioqa Pipe & Supply Company, 2450 Wheatshaf Lane, Philadelphia, PA 19137

PLASTICS—Marine Applications

Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021

Alsthom-Atlantique, 2 quai de Seine, 93203 Saint-Denis, France

Armo Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150

Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081

Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark

Burmeister & Wain Diesel, Inc., 50 Broadway, New York, NY 10004

Caterpillar Tractor Company, Engine Division, Peoria, IL 61629

Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511

Combustion Engineering, Inc., Windsor, Connecticut 05095

Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525

Elliott Company, (Div. of Carrier Corp.), Jeanette, PA 15644

General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531

Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan

MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478

Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3

Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507

Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670

Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190

Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014

Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031

Schottel of America, Inc., 8175 N.W. 56 Street, Miami, Fla. 33166

Skinner Engine Company, P.O. Box 1149, Erie, PA 16512

Steamco Corporation, 364 Stowe Avenue, Orange Park, FL 32073

Tacoma Boatbuilding Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422

Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621

Transamerica DeLaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650

Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401

Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652

PUMPS—Repairs—Drives

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

Transamerica DeLaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110

Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROPE—Manila—Nylon—Hawsers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431

Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

Tubbs Cordage Company, Orange, CA 92668

RUDDER ANGLE INDICATORS

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011

Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SANITATION DEVICES—Pollution Control

Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013

Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111

Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696

Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184

Microphor, Inc., P.O. Box 490, Willits, CA 95490

Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560

Research Products/Blankenship, 2639 Andjon, Dallas, Texas 75220

St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111

Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

SCAFFOLDING EQUIPMENT—Work Platforms

Potent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024

Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055

Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 109 Norfolk St., Walpole, MA 02031

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage

American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210

The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202

Levin Metals Corporation, 1310 Canal Blvd., Richmond, CA 94807

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL

Armo Steel Corp., 703 Curtis St., Middletown, Ohio 45042

Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3036, 1003 AA, Amsterdam, Holland

AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142

Asmar Shipyards Co., Astilleros y Maestranz de la Armada, Prat 856, Piso 14, Casilla 150-V, Valparaiso, Chile, S.A.

Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain

Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico

Avondale Shipyards, Inc., P.O. Box 52030, New Orleans, La. 70150

Bay Shipbuilding Corporation, 603 North Third Avenue, Sturgeon Bay, WI 54235

Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601

Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085

Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124

Ira S. Bushey & Sons, Inc., 764 Court Street, Brooklyn, N.Y. 11231

Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy

Corrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322

Centromar, One World Trade Center, Suite 3557, New York, N.Y. 10048

China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119

Conrad Industries, P.O. Box 790, Morgan City, La. 70390

Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles

Curacao Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004

Delattre-Levivier, Tour Fiat, Cedex 16, 92084 Paris La Defense, France

Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa

Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602

Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122

FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208

Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553

HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219

Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189

Havre de Grace, Havre de Grace, Md.

Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan

Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong

Hudson Shipyards, Inc., P.O. Box Q, Pascagoula, MS 39567

Jackson/Engineering Company, Inc., 2945 Richmond Terrace, Staten Island, NY 10303

Jeffboat, Inc., Jeffersonville, Ind. 47130

Keppel Shipyards Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4

Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134

McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160

MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016

Mangone Shipbuilding Co., 819 South 80th Street, P.O. Box 5446, Houston, TX 77012

Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043

Mattson Shipyards Co., Inc., P.O. Box 645, Cohoes, New York 12047

Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681

Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, MS 38701

Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655

Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202

National Steel & Shipbuilding Corp., San Diego, Calif. 92112

Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012

Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607

North American Hydraulics, P.O. Box 278, Brampton, Ontario Canada L6V 2L1

O.A.R.N. (Officine All'estimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100

Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156

Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862

Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767

Port Houston Marine, Inc., 7220 J.W. Peavy Drive, Houston, TX 77012

Port of Portland, P.O. Box 3529, Portland, OR 97208

Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22

S.E.B.N., Societa Estercozia Bacini Napoletani, Via Marinella Varco N.6 (80133) Naples, Italy

St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111

STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783

Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402

Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175

The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70308

Setenave-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal

Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113

Sudaimport, 5 Kalyoetskaya, Moscow K-6, USSR

Sun Ship Inc., Chester, PA 19013

Swiftships Inc., P.O. Box 1903, Morgan City, LA 70380

Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422

Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772

Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606

Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway

Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316

Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139

Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087

Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21904

SHIP STABILIZERS

Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SMOKE INDICATORS

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

SURVEYORS AND CONSULTANTS

Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903

Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING

Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

Salwico, Inc., 77 River St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS

Transamerica DeLaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017

Zesco, Inc., 3131 Brian Park, Suite 1095, Houston, TX 77042

TECHNICAL MANUAL PREPARATION

Benhof, Inc., 2468 N. Jerusalem Road, N. Bellmore, NY 11710

TERMINALS—Oil-Transfer

Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614

Delong Corp., 29 Broadway, New York, N.Y. 10006

Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottesville, VA 22903

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.

Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002

Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202

Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202

Henry Gillan's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771

Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113

Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130

James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004

McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004

McDonough Marine Service, P.O. Box 26206, New Orleans, La.

Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048

Ocean Salvors Company, One World Trade Center, New York, NY 10048

Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002

Turcamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

TRAINING SERVICES—Simulator

Ship Analytics, Park Circle, Centerport, NY 11721

VALVES AND FITTINGS

Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207

Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696

Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184

Rockwell International, Flow Control Division, 400 N. Lexington Avenue, Pittsburgh, PA 15208

Stacey Valve Co., 29 Meserole Ave., Brooklyn, N.Y. 11222

Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

Winel of America, Inc., 16014 Cowley Road, Grafton, OH 44044

WATER PURIFIERS

Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

Halogenic Products Corporation, P.O. Box 27488, Salt Lake City, UT 84127

WINCHES AND FAIRLEADERS

Bloom Inc., Highway 20, West Four Miles, Independence, IA 50644

Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027

Gearmatic Co. Ltd., 7400 132nd Street, Surrey, B.C., Canada

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134

Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134

WINDOWS

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE

Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076

Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055

Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings

Armo Steel Corp., 703 Curtis St., Middletown, Ohio 45042

Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

ZINC

Smith & McCorken, 153 Franklin St., New York, N.Y. 10013

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors.

Calendar Of Coming Events

1981 Oil Spill Conference Mar. 2-5
Sponsored by the American Petroleum Institute, Environmental Protection Agency, and U.S. Coast Guard.

Atlanta Hilton Hotel, Atlanta, GA. Contact 1981 Oil Spill Conference, Suite 700, 1629 K Street N.W., Washington, DC 20006; (202) 296-7262.

Shipboard Management Seminar Mar. 10-13
Sponsored by Maine Maritime Academy.

Maine Maritime Academy, Castine, Maine. Contact Capt. George M. Marshall, Center for Advanced Maritime Studies, Maine Maritime Academy, Castine, ME 04421; (207) 326-4311.

4th Latin American Dredging Congress Apr. 6-10
Sponsored by the Latin American Dredging Association.

Camino Real Hotel, Mexico City, Mexico. Contact John Huston, P.O. Box 6372, Corpus Christi, TX 78411; (512) 853-6512.

International Shipboard Habitability Design Conference Apr. 7-9
Sponsored by The Society of Naval Architects and Marine Engineers.

Howard Johnson Motor Lodge, Arlington, Va. Contact Joseph E. Castle, chairman, SNAME Habitability Conference, P.O. Box 2194, Arlington, Va.; (202) 692-1591.

211th Annual Dinner Apr. 13
Sponsored by The Marine Society of the City of New York.

Hotel Plaza, New York City. Contact Mrs. Charlotte Mills at the Society, 80 Broad Street, New York, N.Y. 10004; (212) 425-0448.

Offshore Technology Conference May 4-7
Sponsored by The Society of Naval Architects and Marine Engineers and 11 other technical societies.

Astrodomain, Houston. Contact OTC, 6200 North Central Expressway, Dallas, TX 75206; (214) 361-6604. (Preview in April 1 issue of MR/EN)

Nor-Shipping '81: The 8th International Shipping Exhibition May 11-16
Organized by Norges Varemese (The Norwegian Fair Organization).

The Sjolyst Centre, Oslo, Norway. Contact Mrs. Else-Marie Gehrken, Norges Varemese, P.O. Box 130 Skoyen, Oslo 2, Norway; telex 18748.

Propellers '81 Symposium May 26-27
Sponsored by SNAME under the auspices of the Hampton Roads Section.

Cavalier Hotel, Virginia Beach, Va. Contact Andrew Szypula, CTD, Bethlehem Steel, Sparrows Point, MD 21219; (301) 477-6832. (Preview in May 15 issue of MR/EN)

Portex '81: International Port Exhibition and Conference May 26-30
Organized by Hamburg Messe und Congress GmbH, and sponsored by the Senate of the Free and Hanseatic City of Hamburg.

Exhibition Grounds, Hamburg, West Germany. Contact Hans J. Rathje, The Hamburg Group, 545 Madison Avenue, New York, N.Y. 10022; (212) 758-4651. (Preview in May 1 issue of MR/EN)

MARSIM '81: Second International Conference on Marine Simulation June 1-5
Cosponsored by the National Maritime Research Center, and others.

U.S. Merchant Marine Academy, Kings Point, N.Y. Contact MARSIM '81, National Maritime Research Center, Kings Point, N.Y. 11024; (516) 482-8200.

8th Ocean Energy Conference June 7-11
Sponsored by the U.S. Department of Energy, and organized by The Marine Technology Society.

Capital Hilton Hotel, Washington, D.C. Contact MTS, 1730 M Street N.W., Washington, D.C. 20036; (202) 659-3251.

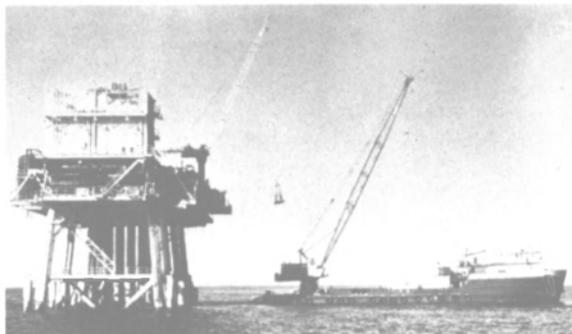
XV Biennial Conference June 7-12
Sponsored by the International Cargo Handling Coordination Association.

Edmonton Plaza Hotel, Edmonton, Alberta, Canada. Contact Peter J. Elias, conference administrator, 418 Legislative Building, Edmonton, Alberta, Canada; (403) 427-2080.

ICE TECH '81: SNAME Spring Meeting/STAR Symposium June 16-19
Sponsored by The Society of Naval Architects and Marine Engineers, and hosted by the Eastern Canadian Section.

Chateau Laurier Hotel, Ottawa, Ontario, Canada. Contact SNAME, One World Trade Center, Suite 1369, New York, N.Y. 10048; (212) 432-0310. (Preview in May 1 issue of MR/EN)

Derrick/Supply Vessel Now In Gulf Service For Tidewater



The Lift Tide (shown above), a derrick/supply vessel operated by Tidewater Contractors, Inc., a subsidiary of Tidewater Inc., is now in U.S. Gulf service off the Louisiana coast following extended duty in the Middle East. Refitted with a new American Hoist & Derrick, Model 9760, 90-ton lifting capacity, pedestal-mounted crane, the vessel is certified by the U.S. Coast Guard for unrestricted ocean service.

The Lift Tide is 186 feet by 56 feet by 14 feet 6 inches, can operate at a minimum water depth of 16 feet, and offers mobility with moderate lift capacity. Powered by two 16-cylinder GM Electro-Motive Division engines that develop 3,600 bhp, the vessel has a top speed of 12 knots.

Equipped with a new four-point mooring system pioneered by Tidewater Marine Service, Inc., the vessel is highly stable in the working mode. The system provides four 10,000-pound anchors, with each anchor supplied with 3,000 feet of 1 1/4-inch steel cable. The anchors are lowered and retrieved by two new double-drum SMATCO DAW 55 winches mounted on the main deck.

The Lift Tide crew consists of seven personnel and a 10-member work force that includes a barge superintendent, crane operator, winch operator, foreman, welder, and five riggers. Additional personnel such as divers, diving tenders, pipeline inspectors, X-ray technicians, ultrasonic technicians, and other specialists can be added as required, as the vessel is designed to provide total accommodations for 34 persons.

Tidewater Contractors operates four other four-point mooring specialty vessels in the Gulf of Mexico in addition to the Lift Tide. An affiliated company, Tidewater Marine Service, Inc., one of the Tidewater Inc. group of companies, owns and operates a fleet of approximately 400 vessels in oil and gas producing areas around the world, and is the world's largest supplier of marine support equipment to the offshore drilling industry.

Benson Named Manager Of Peterson's Hazardous Materials Division



Courtney A. Benson

William L. Thomas

Courtney A. Benson, former manager of Peterson Maritime Services, Inc. in Houston, has been appointed manager of the company's newly organized Hazardous Materials Division in New Orleans. William L. Thomas, assistant to Mr. Benson, has been

named to succeed him as manager of the company's Houston office. Both announcements were made by Harold J. Pecunia, president of Peterson Maritime Services, Inc., in New Orleans. Before joining Peterson, Mr. Benson served with the United States Coast Guard's Gulf Strike Team, National Strike Force, and as Coast Guard Captain of the Ports of New Orleans and Honolulu.

Peterson Maritime Services has offices in New Orleans, Houston, and Mobile. Other divisions of the company include ship and barge cleaning, aviation, oil pollution, and sales and marketing. Most recently, Peterson Maritime successfully handled the world's largest waterborne pentachlorophenol spill in the Mississippi River Gulf Outlet between New Orleans and the Gulf of Mexico.

Two Detroit-Powered Tugboats Completed By Manly Shipyards

John Manly Shipyards, a division of Riv-Tow Shipyards Ltd., recently delivered two tugboats to RivTow Straits Ltd., the second largest towing company in British Columbia, Canada. The new vessels have joined RivTow's fleet of 75 tugs, 175 barges, and 75 small boom boats.



Tugboats RivTow Spirit and Westminster Chinook were delivered recently by John Manly Shipyards of Vancouver, B.C., to RivTow Straits Ltd., Vancouver, second largest towing company in British Columbia, Canada.

The RivTow Spirit is a 64-foot 9-inch shallow-draft tug to be used at the Port of Prince Rupert. The McIlwain-designed tug has a beam of 24 feet, a river draft of 8 feet, and an ocean draft of 9 feet 4 inches. She is powered by two Detroit Diesel 16V71 engines, each producing 490 bhp at 1,800 rpm, driving twin Western propellers in Kort nozzles through Twin Disc 567 reduction gears.

The Westminster Chinook is a 53-foot ship-docking and barge-handling vessel to be used in the Port of New Westminster. She has a molded beam of 23 feet 6 inches and a draft of 10 feet 9 inches. Her power package is identical to the RivTow Spirit.

Both vessels comply with all applicable Canadian Steamship Inspection requirements and with Workers' Compensation Board regulations. Both have extensive sound-dampening and vibration-reducing systems providing very comfortable decibel levels. Most interesting is the sound and vibration reduction achieved in the Chinook's wheelhouse by isolating the entire structure on pedestal mounts.

Steering systems for both vessels was provided by Wagner; electrical power is supplied by Detroit Diesel 4-71 generators. All closures are standard Manly windows, doors, and hatches. Life rafts are by Beaufort.

Hitachi Zosen

OFFSHORE STRUCTURES REFERENCE

Hitachi Zosen's offshore structures and equipment cover everything.

For over a century, Hitachi Zosen has been acclaimed as a builder of ships and land machinery. But the company also has a long history of building a wide range of offshore structures and equipment, ranging from offshore drilling rigs to barge mounted power plants. In fact, Hitachi Zosen has received numerous orders for rigs. For example, the company has gotten orders for more than 20 jack-up type and semisubmersible type rigs, some of which have already been completed and delivered to customers. These rigs are being

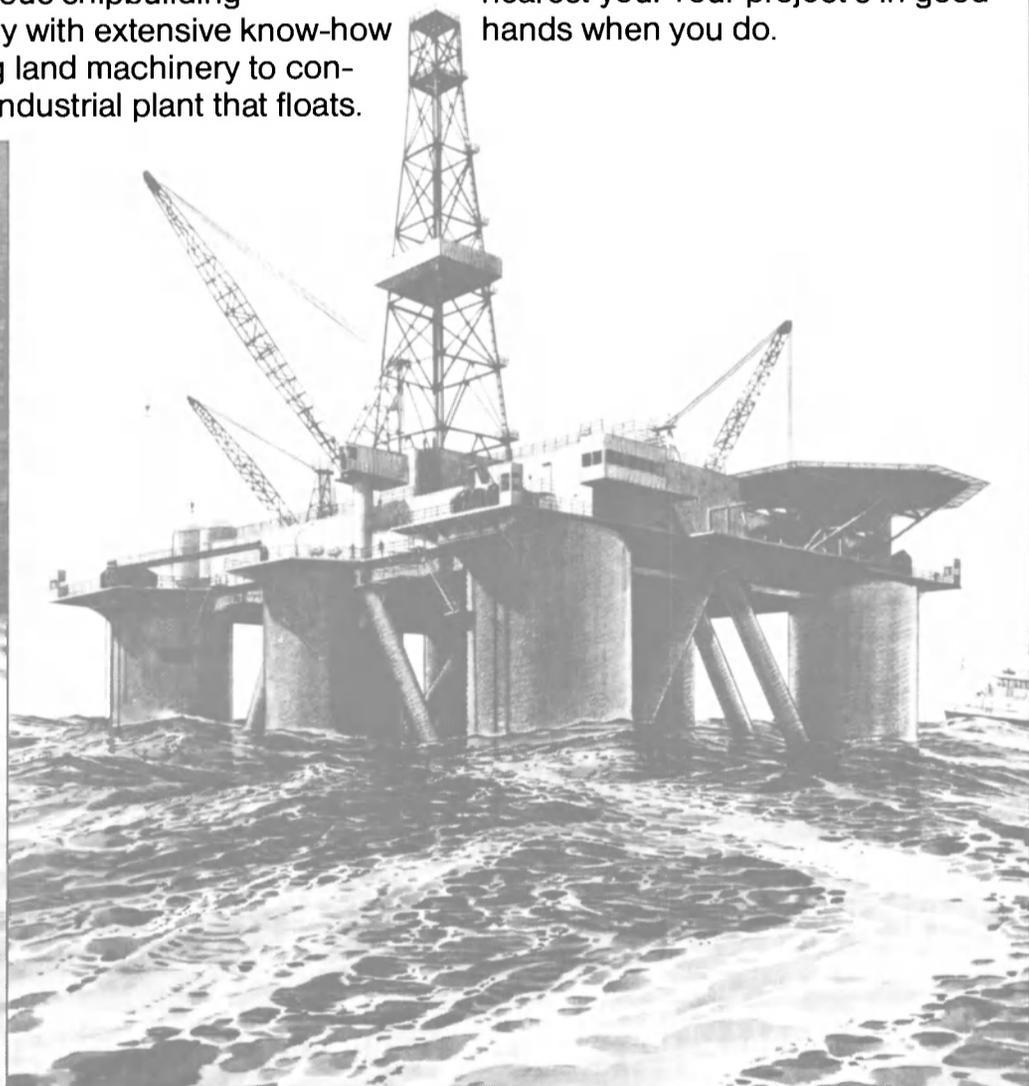
constructed at Hitachi Zosen's works that have facilities used exclusively for offshore structures and equipment.

Our hardware and software for ocean development cover offshore platforms including jackets and deck modules, work barges such as jacket launching barges, jack-up maintenance barges and oil and LPG/LNG storage systems.

In addition, we can combine our world-famous shipbuilding technology with extensive know-how in building land machinery to construct an industrial plant that floats.

This expertise is apparent in the world's largest barge-mounted desalination plants that we constructed for the Middle East. In addition we are building two barge-mounted power plants for the Philippines.

Our approach is total. So whenever you have a comprehensive offshore project in mind, get in touch with us or our overseas representative nearest you. Your project's in good hands when you do.



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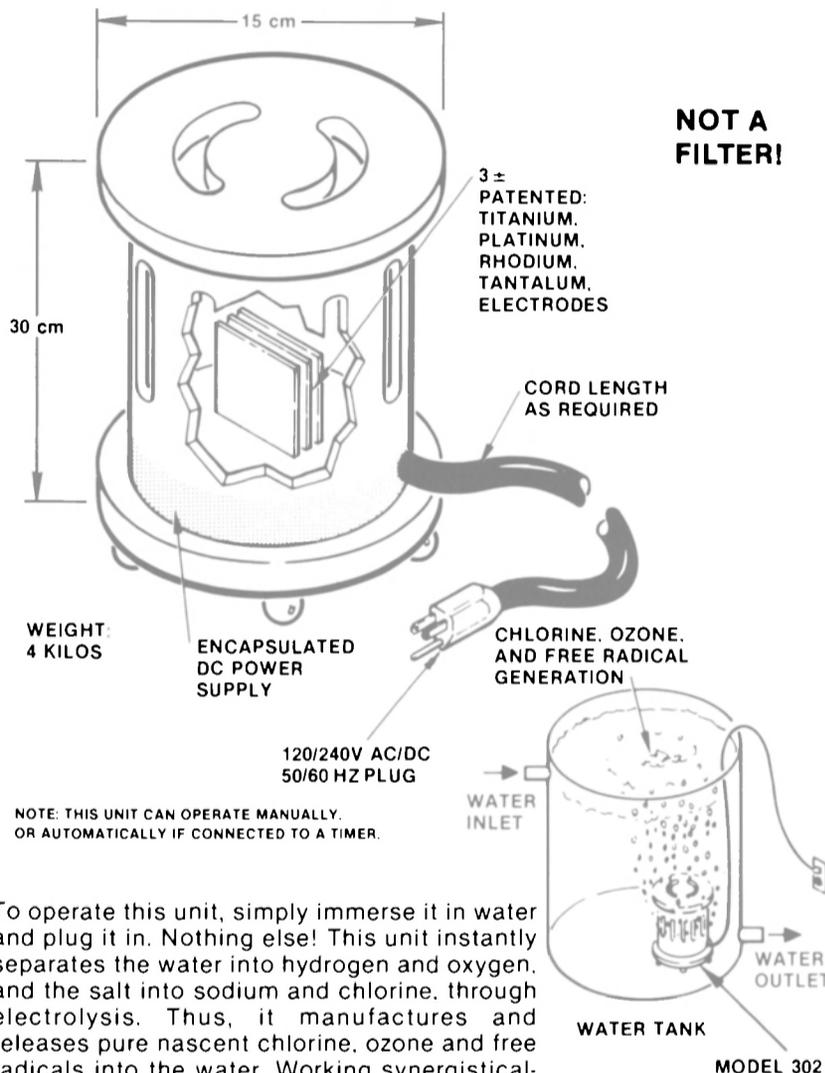
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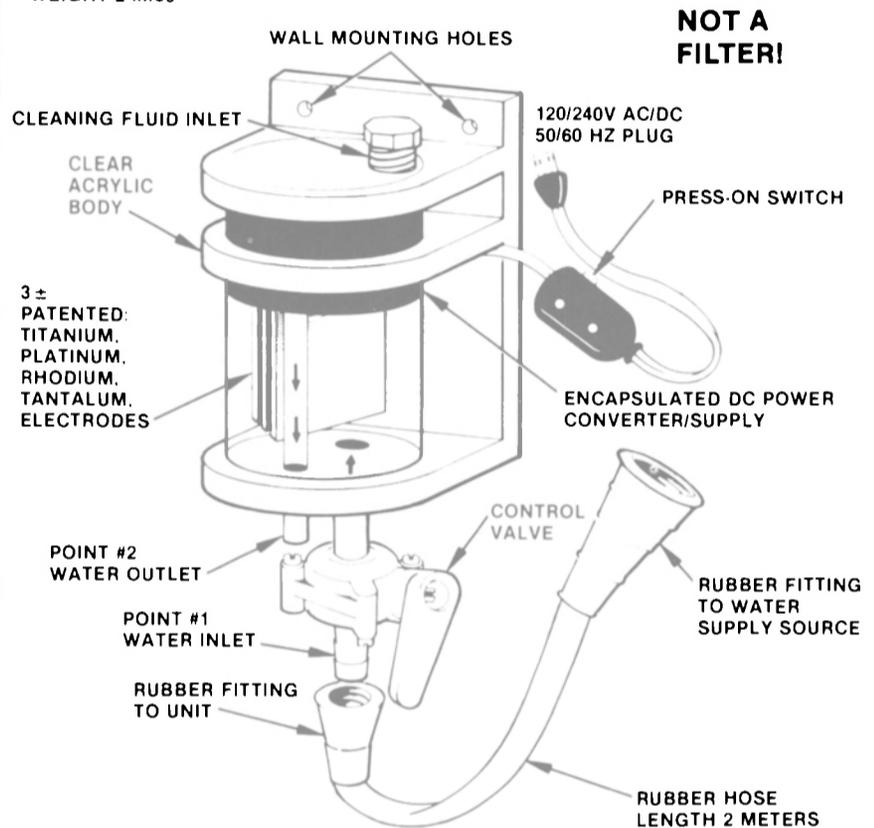
STER-O-LIZER Model 302



NOTE: THIS UNIT CAN OPERATE MANUALLY, OR AUTOMATICALLY IF CONNECTED TO A TIMER.

To operate this unit, simply immerse it in water and plug it in. Nothing else! This unit instantly separates the water into hydrogen and oxygen, and the salt into sodium and chlorine, through electrolysis. Thus, it manufactures and releases pure nascent chlorine, ozone and free radicals into the water. Working synergistically, these halogens are known to be a powerful germicidal agent, capable of instantly destroying all water-borne bacteria, rendering the water pathogen-free, sterile and safe for human consumption. It may also be used for sterilization of livestock water, food processing and a myriad of other applications. For drinking purposes, where the water contains about 50 ppm salt, capacity of Model 302 is about 200 liters per half-hour (10,000 liters per 24-hour day of continuous operation). Electrical consumption is 15 amps at 120 V, and 30 amps at 240 V. AC/DC 50-60 Hz. If water contains more than 50 ppm salt, consult the factory for modification to accommodate salt content. Higher salt content increases sterilizing capacity.

DIAMETER 10 cm
HEIGHT 20 cm
WEIGHT 2 kilos



STER-O-LIZER Model 310

CAPACITY:
4 liters per minute
6,000 liters per day

STER-O-LIZER Model 320

CAPACITY:
8 liters per minute
12,000 liters per day

To operate this unit, simply introduce running water which contains no more than 50 ppm salt at point #1. Plug it in and press the switch. Nothing else. The water will exit at point #2 free of all water-borne bacteria, pathogen-free, sterile, ready for immediate human consumption, or it can be stored for later use. If the water contains more than 50 ppm salt, the factory can adjust this unit to take up to 30,000 ppm salt. The process used is electrolysis of the water and its salt. The patented electrodes generate nascent chlorine, ozone and free radicals, known as a powerful germicidal agent. Electrical consumption is from 6 to 20 amps.

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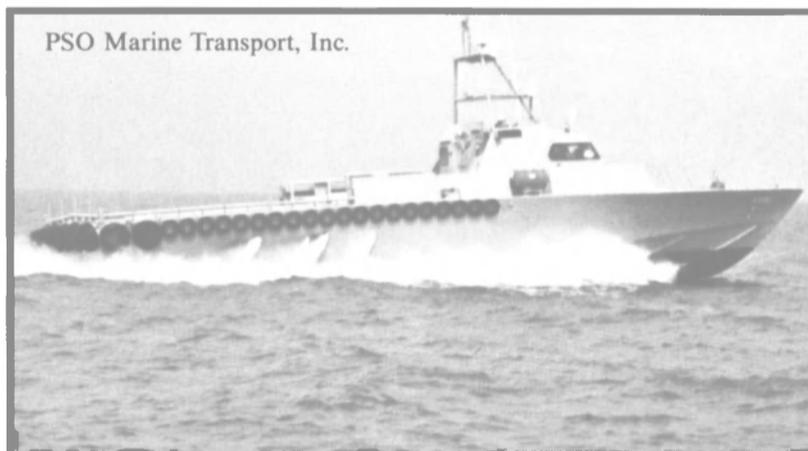
due to the rugged quality control tests and checks performed on each one.

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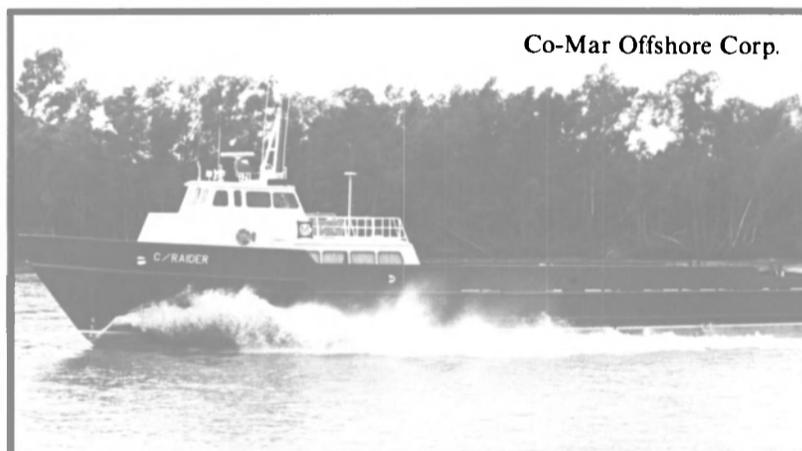
Decades of testing and technology are responsible for the quality of our engines and the success

they have had as industry leaders.

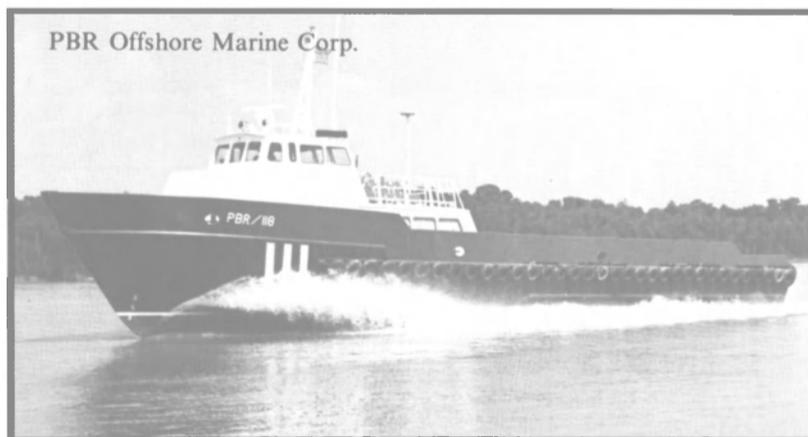
No other engine manufacturer can make the claims we do and back them up. And with fuel and other operating costs rising almost daily, MTU marine diesel engines make more sense than ever. You can tell by the company we keep.



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