

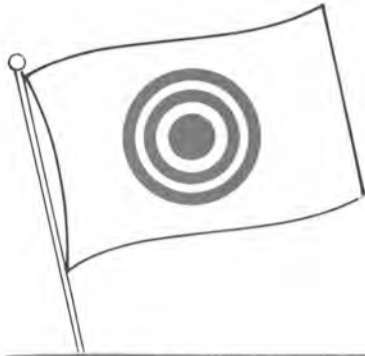
# MARITIME REPORTER AND ENGINEERING NEWS



**Mitsubishi Delivers  
263,600-Dwt Tanker  
To Texaco Subsidiary**

(SEE PAGE 7)

**SEPTEMBER 15, 1974**



## SANKO STEAMSHIP CO., LTD. selects the *PrimaVac*® System for 59 of its new ships



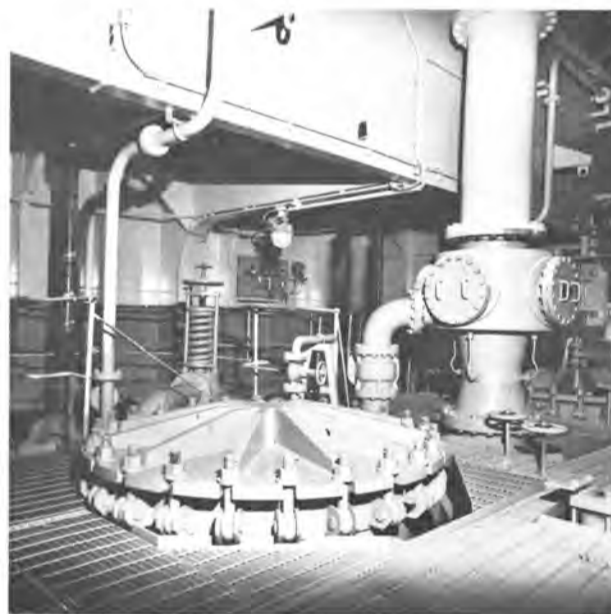
The 139,000 dwt KAIKO MARU, one of a group of eight vessels of this size being equipped with the PrimaVac System.

■ It is with great pride that we serve this progressive company whose fleet will include over 200 vessels totalling in excess of 20,000,000 dwt by the end of 1974. Our contribution to the performance of 59 of these ships is a system that converts any centrifugal pump to an automatic, self-priming pump, reducing pumping and stripping time over 30%.

This system completely eliminates costly independent stripping pumps and priming systems. It is not dependent upon auxiliary controls, is easily installed and operates with minimum maintenance.

The PrimaVac System is being installed on tankers of the Sanko Fleet ranging from 26,000 to 154,000 dwt. Other installations throughout the world have been made on tankers from 20,000 to 255,000 dwt with pump capacities from 625 to 20,000 gpm.

Systems can be furnished for any pump size and capacity, with standard units available with discharge diameters of up to 30 inches.



A PrimaVac installation on the 138,800 dwt Diesel Tanker WORLD RADIANCE built for Sanko Steamship Co., Ltd. and World Wide (Shipping) Ltd. at the Uraga Shipyard of Sumitomo Shipbuilding & Engineering Co., Ltd. The suction strainer tank is shown in the foreground.



An 18" PrimaVac Unit for the 12,000 gpm cargo pumps on the 86,000 dwt tankers.



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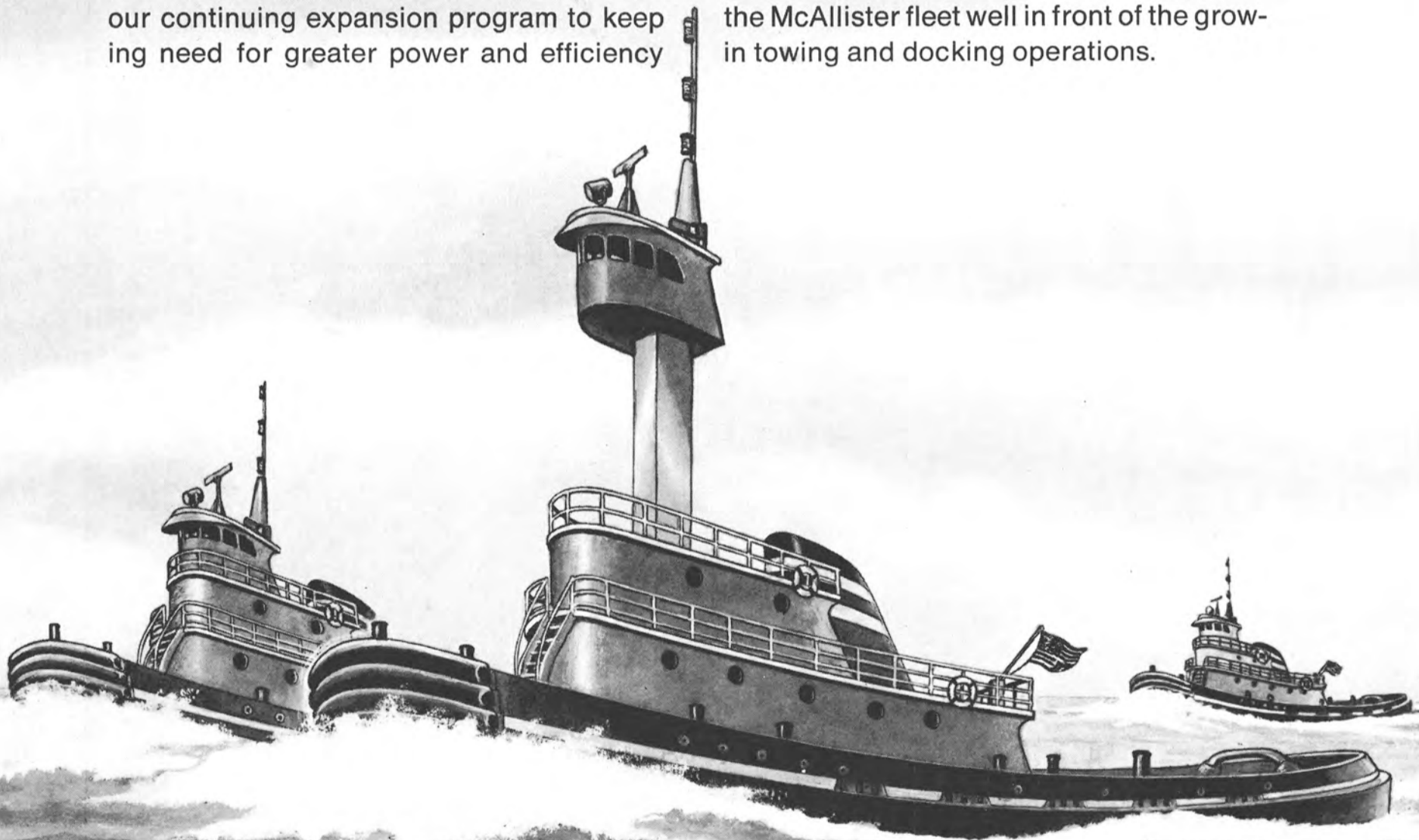


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### Israeli Port Projects To Cost \$100 Million

The Israeli Government has approved close to \$100 million in expenditures allocated for the expansion of cargo handling capacity at two ports.

Nearly \$84 million has been appropriated for a four-to-five-year project at Ashdod Port on the Mediterranean, where plans include the construction of a second containership pier, a phosphate pier, grain silo and warehouse, and renewal of existing equipment.

The Government has also given the go-ahead to the building of a container pier at the Red Sea port of Eilat.

Estimated cost of that project is about \$14,300,000. Still on the drawing boards are plans to increase by 3½ times the capacity of the Port of Gaza. In order to raise the annual tonnage capability at the shallow-water port from 200,000 to 700,000 tons, designers are contemplating the construction of a mile and a half long pier which would facilitate deepwater loading and unloading of much larger vessels than the port can currently handle.

According to a French firm which studies the idea, the cost of the project should come to no more than \$12 million.

### Navy Awards

#### Contract To CSP Inc.

CSP Inc., 209 Middlesex Turnpike, Burlington, Mass. 01803, has received a contract for \$311,000 from the U.S. Naval Postgraduate School in Monterey, Calif., for an advanced sonar and imaging digital signal processing system. In this system, CSPI utilizes its own super-speed CSP-125 Digital Signal Processor, which is a 16 bit, 125 nanosecond cycle time computer incorporating both IC bipolar and core memories. In addition, this system will include CSPI's super-fast FFT Array Processor, Model 4001. This system will provide students at the Postgraduate School with the most advanced high-speed programmable digital signal processing system available.

CSP Inc. is a manufacturer of high-speed advanced digital signal processing systems such as the CSS-2/3 and the CSP-30 Processors.

## SINGAPORE'S 400,000 DWT DRYDOCK TAKING SHAPE AND STILL ON SCHEDULE



Sembawang's new 400,000 dwt super dry dock is taking shape on schedule! The dock will be operational by the end of December 1974. When we say Total Service we mean just that! We shall be ready to provide the full range of repairs to the new generation VLCC's at exactly the right time!

**NEW DOCK CHARACTERISTICS** Docking capacity 400,000 dwt, nominal (Capable of docking the 477,000 dwt. Globtik Tankers). Length between gate and dock head: 1260 ft (384M) Width of entrance: 210 ft (64M) Docking draught (depth over sill): 30 ft (9M) Filling Time (empty dock): 1¾ hours Emptying Time (empty dock): 3 hours

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## MARITIME REPORTER AND ENGINEERING NEWS

No. 18

Volume 36

107 EAST 31st STREET  
NEW YORK, N. Y. 10016

Murray Hill 9-3266, 3267,  
3268, 3269

ESTABLISHED 1939

Maritime Reporter/Engineering News is published the 1st and 15th of each month by Maritime Activity Reports, Inc. Controlled Circulation postage paid at Waterbury, Connecticut 06701.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 107 East 31st Street, New York, N.Y. 10016.

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# Mammoth Texaco Tanker Christened At Mitsubishi Yard



The Texaco Italia, shown during her sea trials, has a cargo capacity of 2,000,000 barrels of crude oil on a single voyage, with a service speed of about 15.8 knots.

The Texaco Italia, a 263,600-deadweight-ton mammoth tanker built for the fleet of Texaco Panama Inc. by Mitsubishi Heavy Industries, Ltd., was recently christened and delivered at Mitsubishi's shipyard in Nagasaki, Japan.

Sponsor of the Texaco Italia at the naming ceremony was Mrs. Paul B. Hicks Jr., whose husband is Texaco's vice president for worldwide sales.

Texaco Panama, a wholly owned subsidiary of Texaco Inc., is engaged in marketing in the Republic of Panama, and in worldwide marine transportation.

The Texaco Italia is the second mammoth tanker built for a Texaco fleet in Japan. She has an overall length of 1,106 feet, a molded beam of 176 feet, and a draft of 67 feet. The ship is powered by geared steam turbines developing 34,000 metric shaft horsepower. She has the capacity to carry about 2,000,000 barrels of crude oil on a single voyage. Service speed will be about 15.8 knots.

The Texaco Italia joins one of the world's largest tanker fleets. As of August 13, 1974, Texaco and its subsidiaries owned or operated under term charter 203 tankers totaling 18.7 million deadweight tons. These included 44 mammoth tankers used exclusively in international trade, totaling 10.4 million deadweight tons.

The new Texaco tanker is equipped with an inert gas system to maintain a nonflammable and nonexplosive atmosphere in its cargo tanks. She features the latest electronic navigational aids, including a sonar/doppler system that is designed to assist in docking operations. Texaco has been an industry leader in the installation of this system and has placed the equipment on all its owned mammoth tankers.

The Texaco Italia is also fitted with special tanks for the onboard retention of oil residues. This procedure is required on all Texaco tankers in order to maintain the company's policy of prohibiting the voluntary discharge of oil at sea.

A sister ship to the Texaco Italia is slated to be christened in the Mitsubishi shipyard at Nagasaki in April of 1975.



Mrs. Paul B. Hicks Jr., whose husband is Texaco Inc.'s vice president for worldwide sales, christens the 263,600-deadweight-ton Texaco Italia while Mitsubishi's N. Hirata, director and general manager of Nagasaki Shipyard & Engine Works, looks on.

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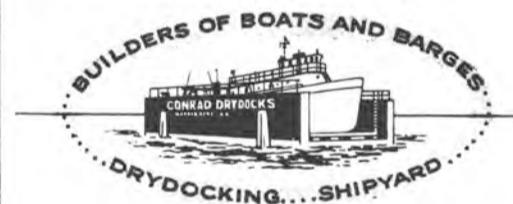
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## U.S. Leasing Completes \$45-Million Tanker Deal

United States Leasing International, Inc. said it recently completed arrangements in London for the leveraged lease financing of a \$45-million oil tanker. Officials said the transaction was the largest of eight recent closings involving equipment costing \$94 million.

The vessel will be operated under long-term charter by a foreign subsidiary of a major U.S. oil company. Eight U.S. financial institutions provided funds for the transaction in the form of equity participations and loans.

The company said the vessel was "substantially larger" than a 120,000-dwt U.S.-flag tanker it arranged leasing financing for earlier this year. Details of the

transaction and the names of companies involved were not disclosed.

Company chairman **Brooks Walker Jr.** said that since mid-year, U.S. Leasing has completed seven other leveraged lease transactions covering \$49 million of equipment for U.S. and Canadian transportation and industrial companies, and a public utility. Involved were \$34.7 million of roll-

ing stock for two major railroads, \$4.8 million of tire-building equipment, a \$4.7-million gas turbine generator, \$2.5 million of sugar refining equipment, and chemical barges valued at \$2.3 million.

The railroad equipment included approximately 600 freight cars and 55 locomotives. Mr. **Walker** said a further transaction involving approximately \$10 million of industrial equipment is expected to close shortly.

The U.S. Leasing executive said the recent transactions put the company's lease underwriting department "a bit ahead of last year's volume at this point." The 1973 volume, \$308 million for the full year, included a record lease involving a \$111-million aluminum plant. "It appears that we are seeing a sufficient number of smaller transactions—if it's appropriate to call a \$20-million or \$40-million transaction small—to give our 1973 volume a very good race."

Mr. **Walker** added that the \$45-million tanker lease was not included in a large lease backlog of \$147.5 million which the company reported at midyear.

U.S. Leasing's lease underwriting department and several related lease investment and management programs contributed about 25 percent of the company's net income in 1973. Other major profit centers include direct leasing in the U.S. and Canada, foreign operations, and a group of smaller entities involved in specialized leasing, renting and financial management services.

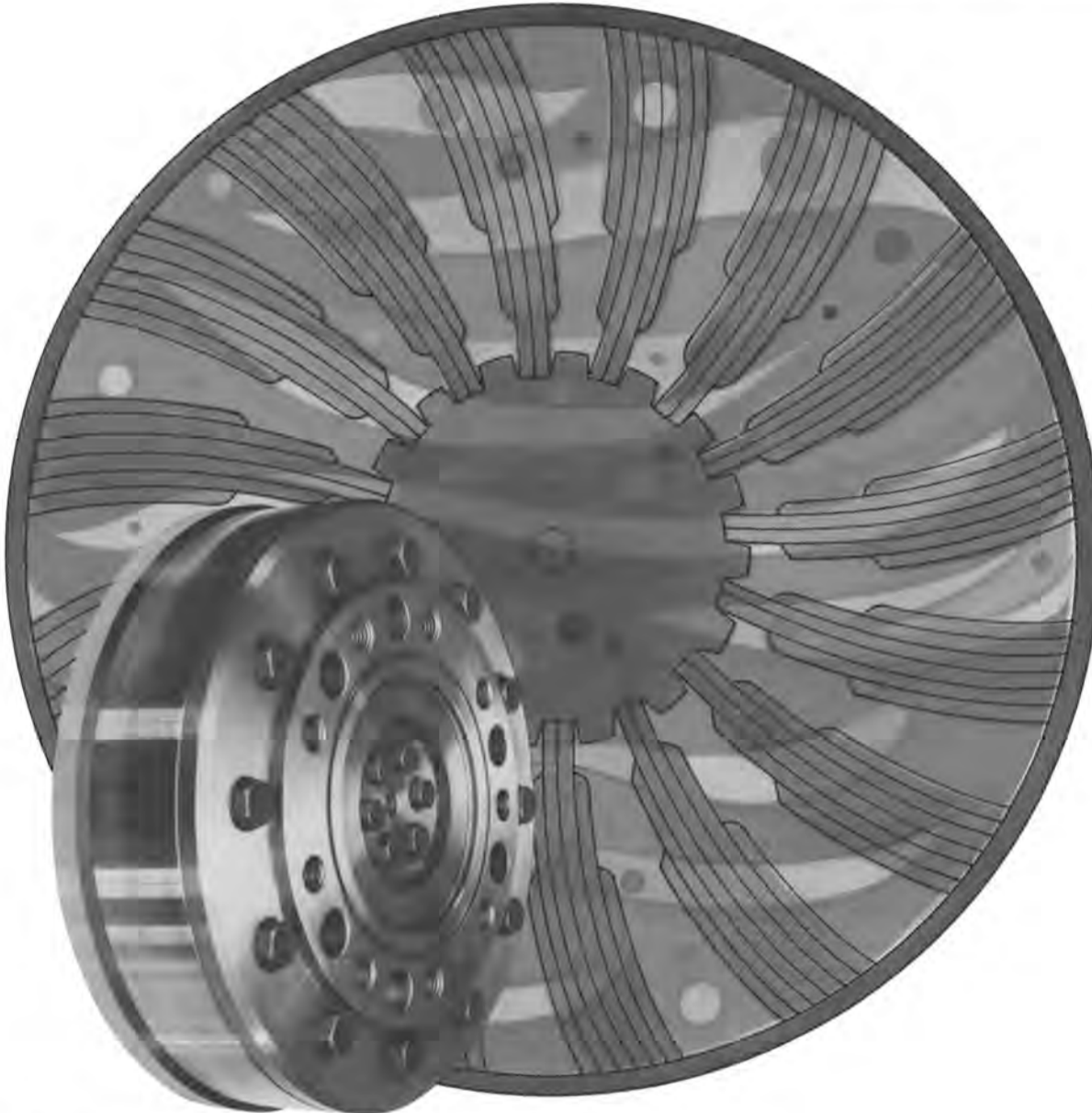
### Letter Of Intent Signed With Three Oil Firms For \$50-Million Oil Rig

A group of three oil companies—Getty Oil Co., AGIP S.p.A., and Phillips Petroleum Co.—have signed a letter of intent with Offshore Co., Houston, Texas, in connection with the construction of a \$50-million drilling vessel that is to be built in Japan by Mitsui Shipbuilding & Engineering Co. Also disclosed by Offshore was that another drilling vessel will be built by Mitsui and that additional units are under negotiation.

### Captain Mihajlovic Named President Tilston Roberts Corp.

Capt. **Danilo Mihajlovic** has been named president of Tilston Roberts Corp. of New York City, it has been announced by **G. Edwin Tilston**, chairman. A graduate of the Merchant Marine Academy, of Kotor, Yugoslavia, Captain **Mihajlovic** has been active in the marine industry since 1939.

Tilston Roberts, a steamship agency serving the North Atlantic, is affiliated with Roberts Steamship Agency, Inc., which operates in the South Atlantic and Gulf.



## Dampen Vibes with Geislinger torsional coupling from Eaton.

The unique design of the Geislinger\* Coupling offers a simple, economical solution to torsional vibration problems. Proven worldwide in more diesel driven ships than any other coupling.

Using highly elastic leaf springs for torsional flexibility combined with oil displacement damping, the Geislinger Coupling shifts major critical speeds outside of the engine operating speed range and effectively dampens torsional vibrations. Damping is 5 to 10 times higher than a comparable rubber coupling.

Since the unit has no axial stiffness, axial vibration cannot be transmitted. Thermal shaft growth and

angular and parallel misalignment are easily accommodated with the standard Geislinger Coupling.

Mates perfectly with Airflex® drum-type air clutches for compact installation between the engine and driven machinery.

Available in a wide range of sizes from Eaton, exclusive agent in the U.S. and Canada. Write Eaton Corporation, Industrial Drives Division, 9919 Clinton Road, Cleveland, Ohio 44111.

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**Hannah Inland Waterways  
Appoints Joseph J. Smith  
Manager-Operations**



Joseph J. Smith

Joseph J. Smith has been appointed manager-operations for Hannah Inland Waterways Corporation of Lemont, Ill. The announcement was made by Donald C. Hannah, president of the firm. Mr. Smith will be responsible for the operation of the company's tugs and barges, including coordination of Hannah's marine repair and barge cleaning facilities located at the junction of the Cal-Sag Channel and Chicago Sanitary and Ship Canal just north of Lemont.

Mr. Smith is a graduate of Purdue University where he earned a B.A. degree in industrial management. He is currently working toward his master's degree at the University of Chicago Business School. He was formerly a sales engineer with Paceco, a division of Fruehauf, based in Alameda, Calif., and prior to that served three years in the Coast Guard Marine Inspection Office. Mr. Smith joined the Hannah organization in April 1973.

Hannah Inland Waterways Corporation is the largest tug-barge operator on the Great Lakes. The company specializes in the movement of petroleum and chemical products in its own barges in the Chicago Harbor, Detroit Harbor, and throughout the Great Lakes. Hannah's principal office is in Lemont.

**Gulf Oil Offers  
Analytical Laboratory  
Services To Others**

In another step to support national efforts for energy and environmental resource conservation, Gulf Oil Corporation is offering the full analytical service facilities of its multimillion dollar research laboratory in Harmarville, Pa., for use by Government and industry.

"As far as we can determine," said R.E. Wohlgenuth, manager of industrial and commercial marketing, "Gulf is the first major oil company to offer its analytical laboratory services for outside use."

The Harmarville laboratory is operated by Gulf Research and Development Company. It was established in 1935 and ranks among the nation's top ten in terms of equipment, scientific

staff, and extent of analytical capabilities. The facility near Pittsburgh contains some of the world's most sophisticated analytical equipment, some of which was developed by Gulf scientists.

Mr. Wohlgenuth said the Harmarville laboratory conducts over 2,000 separate analytical tests. "They range from simple test-tube procedures to highly complex molecular structure determinations. We will even custom-

design special tests to meet unusual requirements.

"The significance of this service is that it provides capabilities far beyond those normally found in most laboratories. The potential applications are most extensive," Mr. Wohlgenuth stated.

Gulf is marketing its analytical laboratory services through the company's Industrial and Commercial Marketing Department, P.O. Box 2100, Houston, Texas

77001. The new analytical services are performed by Gulf Research and Development Company.

Analytical capabilities commercially available from Gulf include tests for quality control, pollution control, product development, petroleum products quality, process control, trouble-shooting operations, and other problems involving organic, inorganic and physical chemistry.



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## Ashland Petroleum Establishes Marine Services Department

Ashland Petroleum Company, Ashland, Ky., has established a marine services department as part of its Marine Transportation Division, headed by **G. Ward Disbrow**, vice president.

Group vice president **B.W. Davis** said the new department en-

compasses the facilities of Ashland Petroleum's former river operations department and a number of new operations. These include all maintenance responsibilities for Thomas Petroleum Transit, a subsidiary of Ashland Petroleum.

**Robert L. Gray** has been named manager of marine services. He has been manager of river operations since 1960. Mr. Gray, a graduate of the University of Louis-

ville, joined the company in 1941 and has held a number of important positions in the company's river transportation and river operations departments.

**Ben F. Tracy** has been appointed chief engineer for marine services. Mr. Tracy joined Ashland Petroleum in 1946, and most recently has been manager of maintenance for repair for river operations.

**Michael W. McFann** and **Robert**

**A. Bradford** have been promoted to assistant managers of the marine services department.

Mr. **McFann** is located in Baton Rouge, La., and will supervise the newly established Marine Services Division there. He is a graduate of Ohio University and joined the company in 1970.

Mr. **Bradford** has assumed responsibility for the Catlettsburg, Ky., Division of Marine Services. He came to the company in 1972 upon graduation from the University of Kentucky.

Ashland Petroleum is a division of Ashland Oil, Inc., and operates the largest fleet for transporting liquid cargoes on the inland waterways.

## Heath/Liquid Promotes David Prosser In Sales



National sales manager **Walt Skogg** (left), points out features of Heath/Liquid flame cutting unit to **R. David Prosser**.

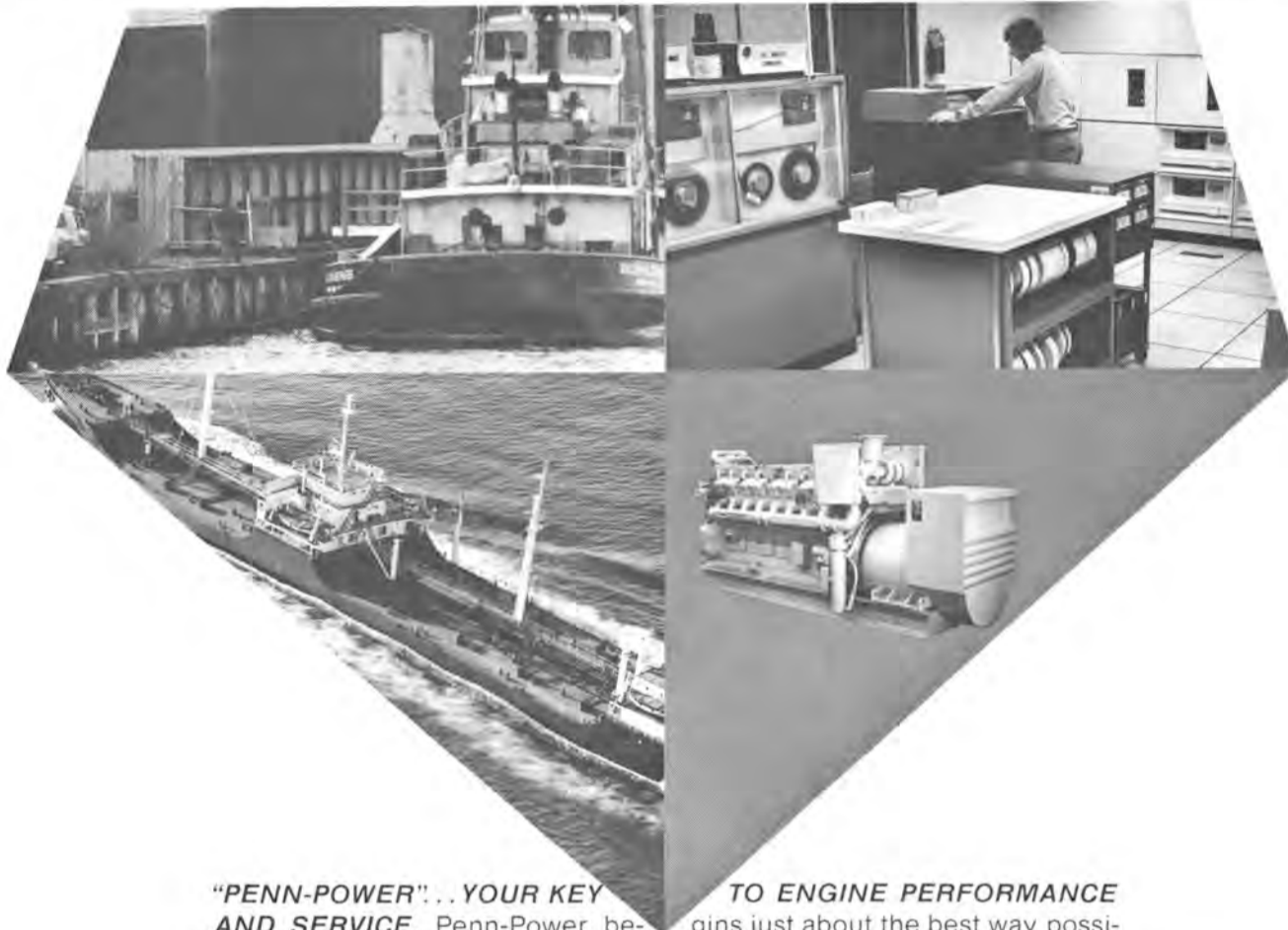
The promotion of **R. David Prosser** to assistant national sales manager for Heath/Liquid has been announced by **Walt Skogg**, national sales manager.

Formerly employed by Liquid Carbonic Corporation, a subsidiary of Houston Natural Gas Corporation, Mr. **Prosser** was transferred to Heath Engineering Company in August 1973. Most recently, he had been serving as Northeastern regional manager.

Heath, located in Fort Collins, Colo., offers a complete line of flame cutting systems with guidance equipment, ranging from single torch versions to computerized multi-torch units, and is nationally distributed by Liquid Carbonic Corporation, 135 South LaSalle Street, Chicago, Ill. 60603.

## Graham Manufacturing Opens New Jersey Office

Graham Manufacturing Co., Inc., designers and manufacturers of vacuum and heat transfer equipment, has announced the opening of a sales engineering office at 1373 Broad Street, Clifton, N.J. **Ed Fiorentino** and **John A. Oleyar**, who have been serving New Jersey industry from the company's sales headquarters in Great Neck, N.Y., are now located in the new office.



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## Isherwood Initiates Planned Maintenance For Oil Rig Supply Boats

Federal Offshore Services Ltd., Halifax, and Sir Joseph W. Isherwood & Co. Ltd., have completed the installation of the A-MAR-Z total system of maintenance and spares control on four offshore oil rig service boats.

The announcement was made in New York by **Stuart S. Danoff**, president of Common Brothers U.S.A. Ltd., Isherwood's representative in the United States.

Mr. Danoff said that this was believed to be the first such planned maintenance system applied to the oil rig supply field. Included is a monthly maintenance schedule for each of the four vessels, as well as strict con-

trol of spare parts. On this latter point, Mr. Danoff commented: "Offshore oil rig supply boats are so small and operate in such rough waters that it is important that they carry only what is immediately needed."

"The multi-phased operation," Mr. Danoff noted, "is so tailored that repairs and maintenance are carried by both sea staff and the owner's shoreside repair facility."

With the growth of offshore oil exploration," Mr. Danoff summed up, "we believe this development has widespread application worldwide."

Further information on the A-MAR-Z system is available without cost from Common Brothers U.S.A. Ltd., Suite 819, 61 Broadway, New York, N.Y. 10006.

## Prudential Lines Appoints Aziz As Purchasing Mgr.

Prudential Lines, Inc. has announced the appointment of **E.R. Aziz Jr.** as purchasing manager.

Mr. Aziz was formerly associated with Atlantic Richfield, where for more than five years he held responsibilities in the marine supply department. He is a graduate of Franklin and Marshall College.

In announcing the appointment, **Gerald Lanzalotto**, assistant treasurer of Prudential Lines, stated: "With his excellent background, we feel Rich Aziz will be a valuable asset to our company at a time of vigorous growth and in the critical function he undertakes for Prudential."

## Marine Video Offers NFL Programs Worldwide To Maritime Industry

Marine Video International has announced the availability of weekly National Football League action programming to the maritime industry throughout the world.

MVI will distribute this material through their network of 105 agent/representatives located in 32 countries. The programs will consist of regular season games, championship games, and the Super Bowl.

Interested parties should contact **William P. Thompson Jr.** at Marine Video International, 21031 Ventura Boulevard, Suite 312, Woodland Hills, Calif. 91364.

## J-M Offers Pre-Formed Pump Packing Brochure

Johns-Manville has published a four-page brochure on its new pre-formed pump packing, available in five standard sizes from 1/4-inch to 1/2-inch.

The pre-formed packing is designed to simplify installation, eliminate keystoning and reduce storeroom inventories. It is packaged in a dust-free plastic container to prevent contamination.

The two-color brochure provides specifications on base material, lubrication, finish, temperature limit, pH range and intended service.

To obtain a copy of the brochure (PK-377A), write to **John MacBride**, Johns-Manville, Greenwood Plaza, Denver, Colo. 80217.

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**Johnston Pumps**

## Gulf Oil Introduces New Marine Discharge Control System

A new Marine Discharge Control System which removes oil from bilge and slops in compliance with EPA and Coast Guard clean water standards is now available from Gulf Oil Corporation.

The EPA standards forbid discharge of any effluent which might produce a sheen on the surrounding water. Under these standards, discharge of water with an oil content as low as 15 parts per million can result in a fine of as much as \$10,000.

The new Marine Discharge Control System from Gulf not only filters the bilge water, but also provides a permanent record of the time, duration and quality of water discharged.

Designed for both inland and seagoing vessels, the discharge control system is composed of five compact modular components which will fit through a 24-inch by 36-inch hatch and install in various out-of-the-way spaces.

Completely automatic in operation, the system's bilge pumps turn on and off as the bilge reaches specified levels. The bilge is passed through two types of filter for oil removal, then analyzed by a solid-state optical scanner to determine purity of the discharge water.

A continuous-running real-time paper-tape provides a permanent record of periods of operation and the quality of water discharged. The tape requires changing only once every 30 days and provides proof and protection in water pollution cases — especially where more than one vessel is suspect.

The system is rated at 10 gallons per minute (14,400 gallons per day). In contrast, studies have shown that even under the worst conditions, even a typical seagoing vessel will only ship water at an average rate of just 600 gallons per day.

The total system is designed for effectiveness, protection, and ease of operation for an untrained crew. It utilizes three screw-on filters which can be easily changed in less than an hour. The operation of the unit can be visually monitored from an auxiliary panel which fits compactly on the bridge.

Details are available from Gulf Industrial and Commercial Marketing representatives or by writing Gulf Industrial and Commercial Marketing, Gulf Oil Corporation, P.O. Box 1519, Houston, Texas 77001.

## Sealift Pacific Names Ward Vice President

W. Leon Ward has been appointed vice president of marketing by Sealift Pacific, Oakland, Calif.-based shipping organization, according to Frank D. Troxel, president.

Mr. Ward was formerly vice president of the company's Guam and Micronesian operations. He will be succeeded in that post by Henry J. Redstone, who has been with Seatrains Lines.

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**MARITIME QUEEN:** You can hardly see the sparkling tiara for all the flowers, but Deborah Smith wears it proudly as she poses following judges decision naming her Maritime Queen of the Port of New York. With her are (left) Thomas J. Smith, president, Farrell Lines and president of The Maritime Association of the Port of New York, and (right) Clifford B. O'Hara, director of Port Commerce, the Port Authority of New York and New Jersey. The two princesses of her court, Maria Dubrovskia and Guinevere Lamar Von Robke, were also chosen in the annual contest sponsored by The Maritime Association of the Port of New York, which drew dozens of entries from maritime organizations throughout the sprawling 1,500-square-mile bistate port region. The new queen and her court will reign for one year. They will represent the maritime community at Maiden Voyage arrival ceremonies (there were 121 maiden voyage arrivals in New York last year), luncheons, receptions, shippers' parties and other official functions sponsored by the port's marine interests. Among prizes to be shared by the girls are a seven-day Holland America cruise for two to Nassau/Bermuda, a course at the Barbizon School of Modeling, etched glassware from Norwegian America Line, a weekend for two at Bermuda's Hamilton Princess Hotel and guest cruises on Circle Line's around Manhattan tours, as well as a host of other prizes.

Maritime Reporter/Engineering News



## Safmarine Orders Vessel From Italcantiere S.p.A.

According to a Johannesburg report, a 1,322-container-capacity cellularized vessel has been ordered from Italcantiere S.p.A. by South African Marine Corp. (Safmarine). It will be the first containership for Safmarine, which has an option on another such vessel and intentions to receive a total of four.

The \$30-million containership, scheduled to begin service in the line's Mediterranean-Southern Africa trade in mid-1977, has a deadweight capacity of 23,630 tons and a service speed of 21 knots.

## AAPA To Begin Annual Five-Day Convention Oct. 20 In San Juan

Puerto Rico, the island commonwealth where maritime transportation has become a leading topic of conversation because of a recent series of exciting developments, will provide the setting for the 63rd annual convention of The American Association of Port Authorities, according to AAPA president **Charles S. Devoy**.

Delegates from all leading ports in the Western Hemisphere will convene at the El San Juan Hotel in San Juan, October 20, for a five-day conclave which, president **Devoy** added, promises some innovations of its own.

**Richard L. Schultz**, a regular delegate for many years, who will attend this year in his new capacity as executive director of AAPA, has predicted that registration will exceed 500. Mr. **Schultz** and his Washington staff are in the midst of finalizing the convention program.

Already, the list of confirmed speakers contains such maritime luminaries as **Michael R. McEvoy**, chairman of the board of Sea-Land Service, Inc.; Lt. Gen. **William C. Gribble**, Chief of the U.S. Corps of Engineers, and Dr. **Fred W. Anderson**, president of WES-TAC, a Vancouver, British Columbia-based consulting firm.

AAPA will be welcomed officially during opening ceremonies on Monday morning, October 21, by San Juan's Mayor **Carlos Romero Barcelo**. The Honorable **Rafael Hernandez-Colon**, Governor of the Commonwealth of Puerto Rico, will be keynote speaker at the luncheon later that day.

A new feature this year, reflecting a growing emphasis by AAPA on Latin-American port matters, will be a day-long series of sessions in Spanish—scheduled for Tuesday, concurrent with an independent English program. Two workshops will highlight the Spanish sessions: "Containerization in Labor-Intensive Port Areas," and "The Role of the Industrial Engineer in Port Oper-

ations." An afternoon plenary session will deal with plans to reorganize the Caribbean and Latin American section of AAPA. For all delegates, there will be in-depth discussions on superports, security, industrial development, and the handling of perishables.

Meanwhile, in San Juan a host-port committee headed by **Julio Maymi Pagan**, executive director of the Puerto Rico Ports Authority, has made elaborate plans to

provide delegates and their wives with a taste of entertainment in the Puerto Rican manner. In store is an early-bird reception on Sunday evening, entitled *Bienvenidos Amigos*. A surprise event is in store for Monday night, and on Tuesday, there will be a reception and dinner in San Cristobal. A special series of events is planned for the wives of delegates, details of which are to be announced soon.

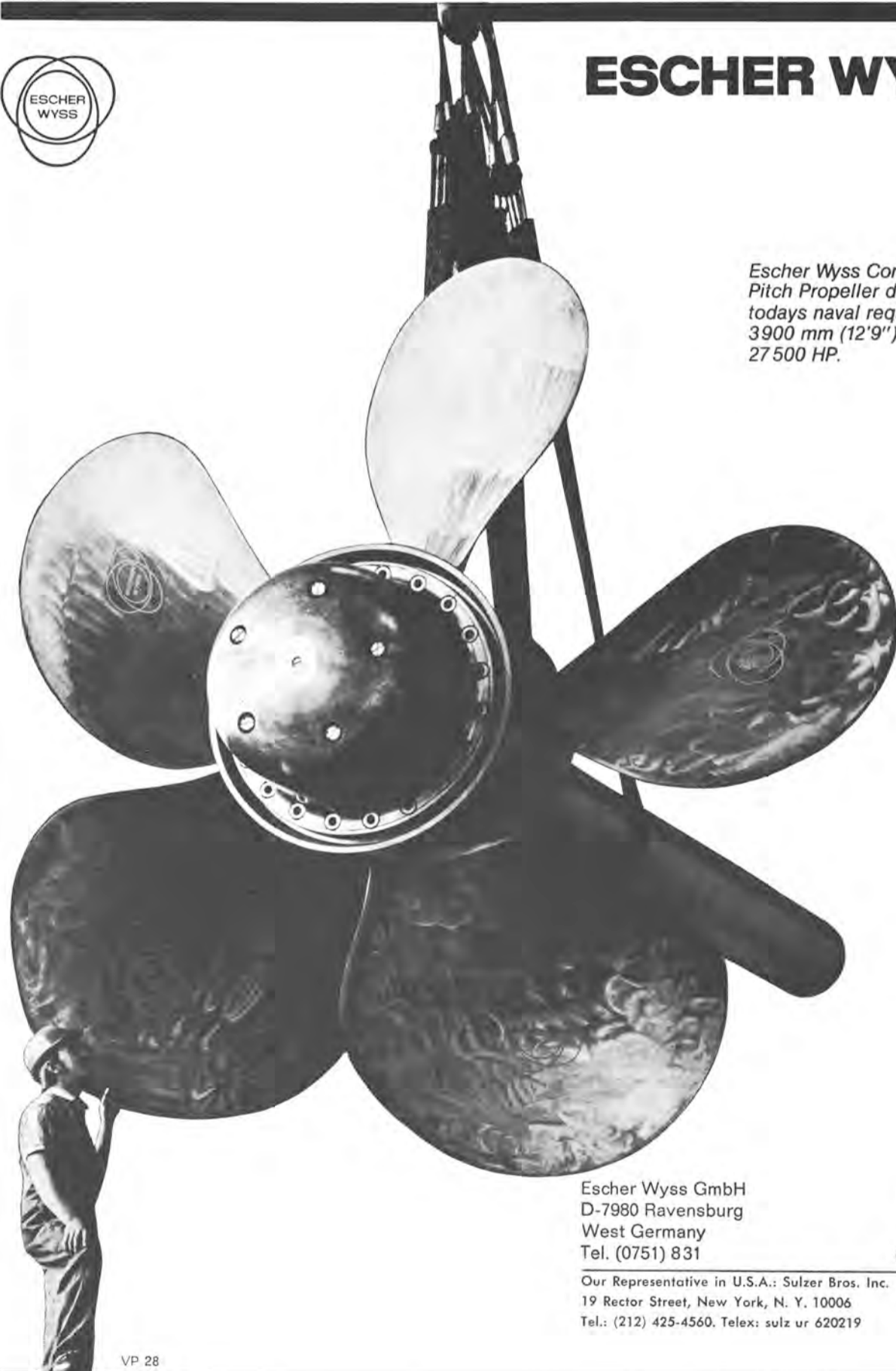
The visiting port officials will have an opportunity to inspect maritime installations and have a shoreside look at the facilities of Puerto Rico's brand-new national-flag merchant marine.

Again this year, awards will be made to individual ports for singular contributions to an improved environment, and for outstanding performance in the fields of advertising and graphic promotion.



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VP 28

# "World Trade — Priority And Challenge"

Outstanding Schedule For Propeller Club Convention —  
American Merchant Marine Conference Of 1974 Set For October 16-18

Exploring the challenge of world trade in the light of today's changing technologies and politics has been set forth as the key issue for the 48th Annual Propeller Club Convention and American Merchant Marine Conference. However, the speakers, panelists and members will not stop at just exposing the problems but will analyze them in order to set priorities in meeting this challenge.

This year, as in previous years, this Convention is the annual focal point of the U.S. maritime industry where management and labor, shippers and ship operators, ship designers, and the government meet for one common cause — the advancement of the industry as a whole. This 48th Annual Convention will be held on October 16 through 18 at the Waldorf-Astoria Hotel in New York City. It is sponsored by the Propeller Club of the United States, which has a membership in excess of 12,000 maritime executives from 60 American ports and 13 foreign ports, and will be hosted by the Propeller Club of the Port of New York.

The National Propeller Club will hold its business meetings at the following times:

Tuesday, October 15 at 12:00 noon the National Board of Governors and the National Executive Committee will meet at a luncheon to be held in the Waldorf-Louis XVI Suite. **Arthur E. Farr**, vice-president, Northwest Marine Iron Works, will chair this meeting and **Jasper Baker**, national president, Propeller Club of the United States, will preside.

Wednesday, October 16 at 9:00 a.m. the first Convention business meeting will be held in the Waldorf-Jade Room. **James P. McAllister**, chairman of the board, McAllister Brothers, Inc., will serve as chairman. Welcoming addresses will be given by National President **Baker** and the Hon. **Abraham Beame**, mayor of the City of New York.

Wednesday, October 16 at 10:00 a.m. the Women's Propeller Club meeting will be held in the Waldorf-Jansen Salon. **Mrs. Jimilee Knepper**, national president, Women's Propeller Club of the United States, will serve as chairman.

The Port Secretaries Breakfast Meeting will be held on Thursday

at 7:30 a.m. in the Waldorf-Park Avenue Center. **A.C. Filiatrault Jr.**, national secretary, will serve as chairman.

Thursday, October 17 at 10:00 a.m. the Women's Propeller Club will hold its second meeting in the Waldorf-Jansen Salon.

Friday, October 18 at 10:00 a.m. the Women's Propeller Club will meet in the Waldorf-Jansen Salon.

Friday, October 18 at 2:45 p.m. the final Convention Business Meeting will be held in the Waldorf-Jade Room.

## Merchant Marine Conference

The American Merchant Marine Conference, based on the theme "World Trade — Priority and Challenge," will hold its first session on Wednesday, October 16, at 2:00 p.m. in the Waldorf-Jade Room. This session will be chaired by **Edward J. Heine Jr.**, president of the United States Lines, Inc. The topic for this session is "Prospects for World Trade in the Coming Decade." The panel will describe the changing trade patterns and business opportunities.

The second session of the Conference will be held in the Jade Room (as will be all the following sessions) at 9:00 a.m. on Thursday, October 17. The subject to be discussed by the panelists at this meeting is "American Technology Can Meet the Challenge." The panelists will describe how ocean traders and the domestic shippers can be the beneficiaries of an expanding maritime technology.

Also on Thursday at 10:30 a.m., the third session will be held. How "The Finance and Business Communities Respond to the Industry's Needs" will be covered during this session. This panel will address itself to the means and methods available from private and government sectors to satisfy the industry's financial requirements and the important role of the insurance market.

The fourth Conference session will be held at 9:00 a.m. on Friday, October 18. The theme will be "Regulatory Help and Hindrance." The discussion will highlight the statutory and regulatory climate both domestically and internationally.

The final and fifth Conference session will be held at 10:30 a.m.

on Friday. This session will have as panelists top executives from the liner, tanker, bulk and domestic segments of the industry who will respond and relate the previous discussions to their particular fields. The theme of this session is "Priority and Challenge—The Industry's Response."

## Special Functions

While the Propeller Club's business meetings and the Conference sessions are the focal points of the Convention, the special functions are equally important to the attendees.

On Wednesday at 12:15 p.m. the Port of New York/New Jersey luncheon will be held. The chairman for this luncheon is **Roger H. Gilman**, director of planning and development. The Port Authority of New York and New Jersey.

The Labor/Management/Government luncheon will be held at 12:30 p.m. on Thursday. **Thomas W. Gleason**, president, International Longshoremen's Association, AFL-CIO, will serve as chairman.

On Friday the American Merchant Marine Conference luncheon will be held.

## Social Activities

An outstanding round of social activities has been planned by the Propeller Club of the Port of New York. Heading the list is a golf tournament for men and ladies at the Westchester Country Club, home of the Westchester Classic, starting at 10:00 a.m. on Tuesday, October 15. **Jerry Scully**, vice-president and secretary, National Cargo Bureau, Inc., is chairman for this affair.

On Tuesday evening from 6:30 to 8:00 p.m. the early arrival cocktail party will be held in the Jade Room. At this time the golf prizes will be awarded. **Lloyd Graham**, vice-president, Moran Towing & Transportation, Inc., is serving as chairman for this activity.

At 11:30 a.m. on Wednesday the Ladies Luncheon will be held at Mamma Leone's Ristorante and followed by a Broadway matinee — **Angela Lansbury** in "Gypsy" at the Winter Garden.

The National President's Reception will be held on Wednesday between 6:30 and 8:30 p.m. at the New York World Trade Center. Buses will leave the Wal-

dorf at 5:45 p.m. The chairman for this affair is **James J. Dickman**, president, New York Shipping Association.

At 3:00 p.m. on Thursday a cruise, on a Circle Line Cruise ship, will take the attendees to the Statue of Liberty, South Street Seaport, U.S. Merchant Marine Academy and thence to a Clam/Oyster Bar Reception and buffet dinner at the State University of New York Maritime College. Co-chairmen for this function are Rear Adm. **S.H. Kinney**, USN (ret.), president, State University of New York Maritime College, and Rear Adm. **Arthur B. Engel**, superintendent, United States Merchant Marine Academy. Those attending this affair will return on the cruise vessel to Pier 83, North River, after a moonlight cruise.

The final affair will be the Annual Reception and Banquet on Friday night, starting at 6:30 p.m. in the Grand Ballroom. Adm. **John M. Will**, USN (ret.), is serving as chairman for the banquet.

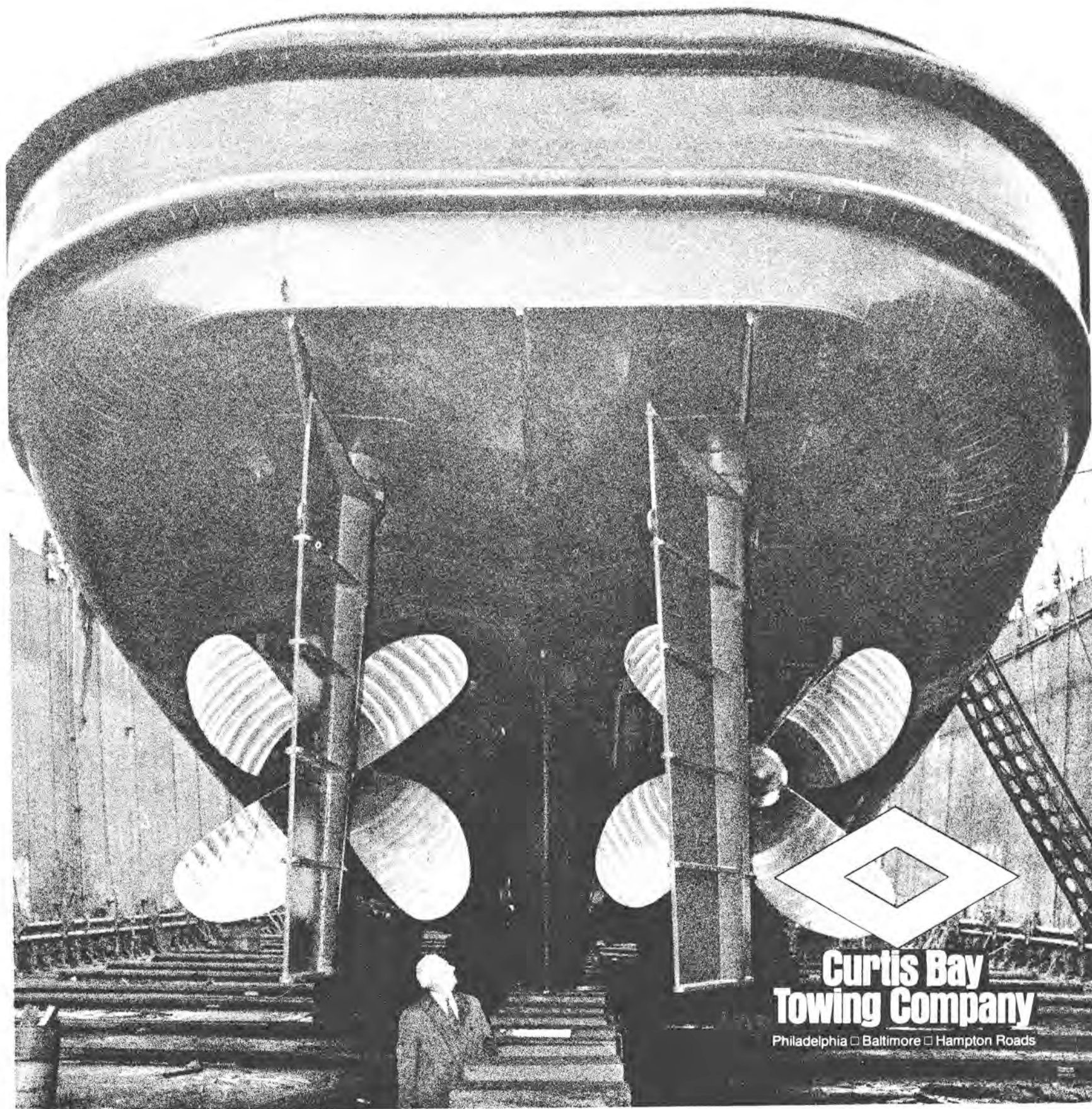
In order to plan and execute a Convention and Conference of this magnitude it takes the efforts of many dedicated people. Just a few of these are: Convention chairman — **James P. McAllister**; Conference chairman — **Edward J. Heine Jr.**; coordinating committee chairman — **Francis J. Barry**, president of Circle Line; Conference vice-chairman — **Capt. Thomas A. King**, eastern director, Maritime Administration; deputy Convention/Conference chairman — **Capt. Robert E. Hart**, president, Marine Index Bureau, Inc.; fund solicitation — **Edwin K. Linen**, secretary, Todd Shipyards Corporation; finance — **Leonard Nichols**, Eastern Region, Maritime Administration; transportation — **C.W. Wilson**, manager marine sales, Babcock & Wilcox; registration — **John B. Blackeby**, secretary, American Bureau of Shipping; Conference sessions committee — **Michael Klebanoff**, president, Ogden Marine, Inc., and women's activities — **Mrs. Jeannette Spidle**, president, Women's Propeller Club of New York. Overseeing all these activities was **Capt. Adrian P. Spidle**, president of the New York Port Propeller Club and vice-president, Prudential-Grace Lines, Inc., and Col. **James B. Soden** USA (ret.), secretary-treasurer, Propeller Club Port of New York.



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**Engelhard Industries  
Appoints George Hill**



George A. Hill

George A. Hill of Rumson, N.J., has been appointed manager of the systems department, Engelhard Industries, Murray Hill, N.J., which provides Capac cathodic protection systems to the maritime industry. He will also continue as manager of the consumer products department.

Formerly director of business planning at Fairchild Camera, and manager of market research at IBM's Information Records Division, Mr. Hill has more than 22 years' experience in engineering and marketing. He received a B.S. degree in marine engineering from New York State Maritime College, an M.S. degree in mechanical engineering from Rensselaer Polytechnic Institute, and an M.B.A. degree from Rutgers University.

**Dixie Dredge Names  
Charles W. Blaney  
VP, Administration**



Charles W. Blaney

The Dixie Dredge Corporation, a subsidiary of Port Industries, Inc., St. Louis Ship Division, has announced the transfer of Charles W. Blaney to the St. Louis home office to assume the position of vice president, administration.

Mr. Blaney has been with the Dixie Dredge Corporation since 1968, and was promoted to general manager of the Miami operations in July 1971 and appointed vice president-general manager/Miami operations in March of 1973.

Mr. Blaney has been in the dredge manufacturing industry for over 20 years. His experience includes several years in each of the major functions of dredge manufacturing, production, engineering, parts, service, sales and administration.

**Lloyd's Publishes New  
Floating Docks Rules**

Lloyd's Register has now published its Rules For Floating Docks as a separate hard-backed volume. For the convenience of clients, all the Rules affecting Floating Docks have been re-edited and brought within the scope of this volume which contains chapters on classification, survey, construction and fire precaution requirements. Any ma-

chinery fitted should generally be to the same standard as that on ships.

A recent amendment to the Rules For Floating Docks, announced in 1973, allows docks larger than 40,000-tons lifting capacity to be built with a reduced mid-section modulus. This is because in the majority of cases the longitudinal bending of a floating dock can be controlled by suitable distribution of water ballast. In the case of the larger

docks, the degree of control is sufficient for the longitudinal strength requirements to be reduced below the previous Rule value.

This amendment, when applied to docks in the 53,000 to 70,000-tons lifting capacity range, will lead to a reduction in deck plating thickness of up to 15 percent.

The hard-backed volume sells for £3 (\$7.08), and can be obtained direct from Lloyd's Register of Shipping.

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## P&O Lines Buys Princess Cruises

Princess Cruises has announced that an agreement has been finalized in the negotiations to acquire their Los Angeles, Calif.-based cruise operation by P&O Lines of London.

The purchase of Princess Cruises by P&O includes the 20,000-ton luxury ship *Island Princess*, and *Princess Tours*, Seattle, Wash.-

based tour division of Princess Cruises.

Under the new ownership, Princess Cruises will retain its identity, and P&O's popular 17,000-ton cruise ship *Spirit of London* will join with the *Island Princess* under the Princess Cruises banner.

**Stanley B. McDonald**, founder and president of Princess Cruises, which celebrates its 10th anniversary next year, will remain as

president and operating head of the company.

The headquarters offices of Princess Cruises will remain in Los Angeles, and Mr. McDonald said that Princess and P&O employees will be "blended" together as the two operations combine gradually over the next several months.

In the new marketing operation, Mr. McDonald stated that the two ships will be continental

in both atmosphere and cuisine. He said that during her annual drydock in early October the *Spirit of London* will undergo certain aesthetic refurbishing changes to make her even more attractive than at present.



Stanley B. McDonald (left), president of Los Angeles-based Princess Cruises, and Harry F. Spanton, chief executive of P&O Lines' Passenger Division, are shown on deck of the cruise ship *Island Princess* after finalizing agreement for P&O's purchase of Princess Cruises.

# We drive this rig to work.

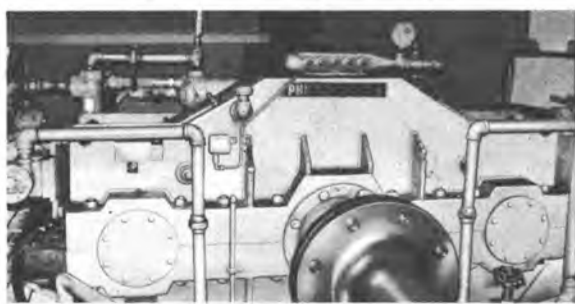


Philadelphia marine gears are living up to their reputation for ruggedness on board *Waage Drill I*, a new semi-submersible self-propelled offshore oil drilling rig which is now hard at work in the North Sea. Built by Avondale Shipyards for K/S *Waage Drilling A/S/Co.* of Oslo, Norway, *Waage I* was designed to withstand some of the world's worst weather. She can take 100-knot winds and 93 foot seas, and she can propel herself quickly to shelter.

The 18,600-ton vessel can travel across oceans to the drilling site under her own power—which eliminates towing costs of several thousand

dollars a day. She can make up to 7 knots, or considerably faster than conventional towed platforms.

In each of the submerged pontoons, a pair of 2,000-HP electric motors drives a 9-foot propeller through a Philadelphia compound



Philadelphia gear boxes in the pontoons reduce 900 rpm motor speed to 325 rpm propeller speed.

marine reduction drive. The drives are built for duty as tough as the rig itself. They use case hardened and precision ground gears for maximum durability, load carrying capacity and reliability. Philadelphia Gear has pioneered advanced gear making technology in marine drives, and applied it in the most modern, highest-powered ships afloat today, producing drives which are outstanding in compactness, efficiency and quiet operation... at economical cost. Write for a copy of our new catalog, "Philadelphia Marine Drives", or call any of our local offices. Philadelphia Gear Corp., King of Prussia, PA 19406

In December the *Island Princess*, following her annual drydocking, will change from Norwegian to British flag. The change will see British officers and crew replacing their Norwegian counterparts. However the Italian dining room staff will remain unchanged.

In the meantime, destinations and departures of both vessels will stay as scheduled this year. The *Island Princess* cruises to the Mexican Riviera, the Caribbean and South America, and Canada and Alaska in the summer. The *Spirit of London* cruises to Mexico, and Canada and Alaska.

Mr. McDonald stated that he was elated with the merger. "My goal has always been to expand Princess Cruises, and now we are part of the largest shipping line in the world," he said. "P&O's net worth exceeds a billion dollars, and it operates a fleet of over 200 ships. Of all the cruise lines, P&O is by far the most qualified to enhance the growth of Princess Cruises."

## Santa Barbara Channel Drilling To Be Resumed

The United States Government has given the Exxon Company permission to resume development of oil and gas leases in the Santa Barbara Channel. The leases had been idle since 1969, when the oil blowout occurred in the California channel.

The decision involves 17 leases covering about 83,000 acres in the Santa Ynez area of the channel, according to a spokesman for the Interior Department. The leases are held by Exxon, Shell, and Standard Oil of California, but a department spokesman said the three firms have an agreement for Exxon to do the drilling.

# PHILADELPHIA GEAR



**Sun Shipbuilding  
Names Eisenbiegler  
Vice President-Tankers**



F.P. Eisenbiegler

Sun Shipbuilding and Dry Dock Co., Chester, Pa., has announced the election of F.P. Eisenbiegler as vice president. Mr. Eisenbiegler will be responsible for all the principal areas of Sun Ship's tanker program except manufacturing, and will report directly to the president. In addition, Sun's ship repair sales people, headed by G.W. Brodhead, will now report to Mr. Eisenbiegler.

Mr. Eisenbiegler, a native of Brooklyn, N.Y., is a graduate of Webb Institute with a Bachelor of Science degree in naval architecture and marine engineering. He served in the U.S. Navy in 1946.

He served in various sales engineering and field engineering posts with General Electric from 1946 to 1974. His most recent post prior to joining Sun Ship was Far East manager for Gas Turbine Sales and Applications, headquartered in Tokyo, Japan.

Mr. Eisenbiegler is a member of The Society of Naval Architects and Marine Engineers and is a registered professional engineer in the State of New York.

**Prudential Lines Orders  
250 LASH Barges  
Worth Over \$16 Million**

Prudential Lines has signed a contract worth in excess of \$16 million for 250 lighter-aboard-ship barges for use in its upcoming expanded Mediterranean service. Announcement of the transaction has been made by Spyros S. Skouras, Prudential president, and C.M. Keeney, president of Equitable Equipment Co., Inc., New Orleans, La., who will build the barges.

The new units will be commissioned in conjunction with entry of the LASH Atlantico and LASH Pacifico into Prudential service this fall, the announcement states.

The LASH ships and barges were designed by Friede & Goldman, Inc., New Orleans firm of naval architects.

According to Mr. Skouras, the expanded fleet will enable the line to offer weekly sailings rather than the present fortnightly operation.

**William T. Aldrich  
Elected Officer For  
Marcona Subsidiaries**

William T. Aldrich has been elected vice president of Marcona Ocean Industries, Ltd., and Marcona Sales, Inc., according to an announcement by Marcona Corporation president C.W. Robinson.

Marcona Ocean Industries is the aragonite production subsidiary of Marcona Corporation.

Aragonite is a highly pure form of calcium carbonate used in cement making, glass manufacturing, and processing of lime, steel and concrete products. It is dredged by the company from a leased submarine deposit in the western Bahamas, and then marketed in the United States and the Caribbean by another major subsidiary, Marcona Sales, Inc.

Mr. Aldrich has been involved in the development in the aragonite operation at Ocean Cay,

Bahamas, since 1966. He continued in the project when it was acquired by Marcona in May 1973. Prior to that assignment, he held positions involving heavy-duty marine construction. He attended the University of West Virginia, where he received a degree in business administration. He has also served in the United States Army, where he attained the rank of captain.

Mr. Aldrich will be based in Ft. Lauderdale, Fla.



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2. **Low Operating Cost.** Reliable modular digital circuits never need calibration.
3. **Speed and Depth Data.** The DSL-200 provides accurate speed and depth information down to 1000' (automatically switches to watermass tracking beyond 1000')... 0.5% accuracy at all depths.
4. **"Other-Systems" Compatible.** DSL-200 delivers accurate speed data for your expensive navigation systems.
5. **Expandability.** DSL-200 can easily be expanded to include doppler docking, navigation and anti-stranding capabilities.

If you'd like more detailed specifications on the DSL-200, contact Raytheon Marine Company, 676 Island Pond Road, Dept. MLL, Manchester, New Hampshire 03103. Tel. (603) 668-1600.



### Todd-CEA Awarded Inert Gas Generator Contract

Todd-CEA, Inc., a division of Combustion Equipment Associates Inc., New York, N.Y., has been awarded a contract by Avondale Shipyards, Inc., New Orleans, La., a subsidiary of the Ogden Corporation, for the design and construction of three 7000 scfm inert gas generators for LNG carriers now under construction for El Paso Natural Gas Co.

Under a joint venture arrangement, the generators will be designed by Deutsche Babcock & Wilcox A.G., a German firm with extensive experience in the inert gas field, and will be constructed by Todd-CEA in the United States.

Major generator components will include (1) a combustor which will burn No. 2 diesel fuel with less than 1 percent sulfur to generate inert gas consisting of 85 percent nitrogen and 15 per-

cent carbon dioxide; (2) a scrubber which will remove sulfur dioxide from the inert gas. Sulfur dioxide content will be less than 50 ppm. Sea water will be used as the scrubbing media; (3) a heat exchanger which will cool the inert gas from 90 to 45 F, and (4) a twin-tower desiccant drier which will dry the gas to -50 F dewpoint. Gas will leave the drier at about 5.5 psig for distribution to cargo tanks, tank insulation spaces, and voids adjacent to the

tanks. Oxygen content will be less than 1 percent.

Todd-CEA has more than 50 years of experience as a burner manufacturer while CEA, its parent company, has extensive experience in the production of scrubbers, heat exchangers, and industrial processing equipment.

**Roger G. Kline Joins David J. Seymour Assoc. Firm Of Naval Architects**



Roger G. Kline

Roger G. Kline has joined the firm of David J. Seymour & Associates, naval architects and marine consultants, serving the marine industry in a broad range of marine design and consulting, with particular emphasis on development of new marine systems. Offices are located at Suite 330, World Trade Center, San Francisco, Calif. 94111.

Mr. Kline received his B.S. degree in naval architecture from the University of Michigan in 1957, and a Master of Engineering degree in naval architecture from the University of California, Berkeley. His experience in the marine field includes five years as a naval architect in the U.S. Maritime Administration, Office of Ship Construction, and 13 years with U.S. Steel Corporation's Applied Research Laboratory, where he developed design criteria, structural configurations and economic feasibility studies for applying higher strength steels in ship construction. He has done considerable research in structural dynamics for solution of ship vibration problems.

Mr. Kline is currently serving on The Society of Naval Architects and Marine Engineers' Panels HS-1, Hull Loading; HS-4, Design Procedure and Philosophy and on the Maritime Transportation Research Board and National Materials Advisory Board committees. He has authored several technical papers including "Application of Higher Strength Steels to Great Lakers Vessels," Marine Technology, July 1966; "The Dynamic Response of Ships' Hulls as Influenced by Proportions, Arrangements, Loading and Structural Stiffness," SNAME Spring Meeting 1967; "Some Aspects of Ship Stiffness," Transactions SNAME, 1967; "Propeller-Excited Ship Vibration," SNAME Northern California Section, March 1971, and "Tanker Structural Analysis for Minor Collisions," to be presented at the SNAME 1974 Annual Meeting.

## How did Midland become the #1 carrier of Short Line coverage? We knew the route.

Our route to the top in Short Line Railroading started on the docks.

Midland has about the highest experience level of Maritime risk management of any insurer. Several years ago, it became obvious to us that more and more shippers would have to become involved in intermodal shipping.

There are many parallels between Maritime and Railroad operations, so we started out on the right track. Then we staffed up with the type of Decisive Specialists who have the knowledge, the experience and the authority to handle all your needs in this complex field.

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Midland doesn't claim to be specialists in everything. And we'll be the first to tell you if we think you'll be better off elsewhere. But if you're looking for programs in Railroads, Maritime, Transportation, Excess, Umbrella Liability or Property...look to the Decisive Specialists.



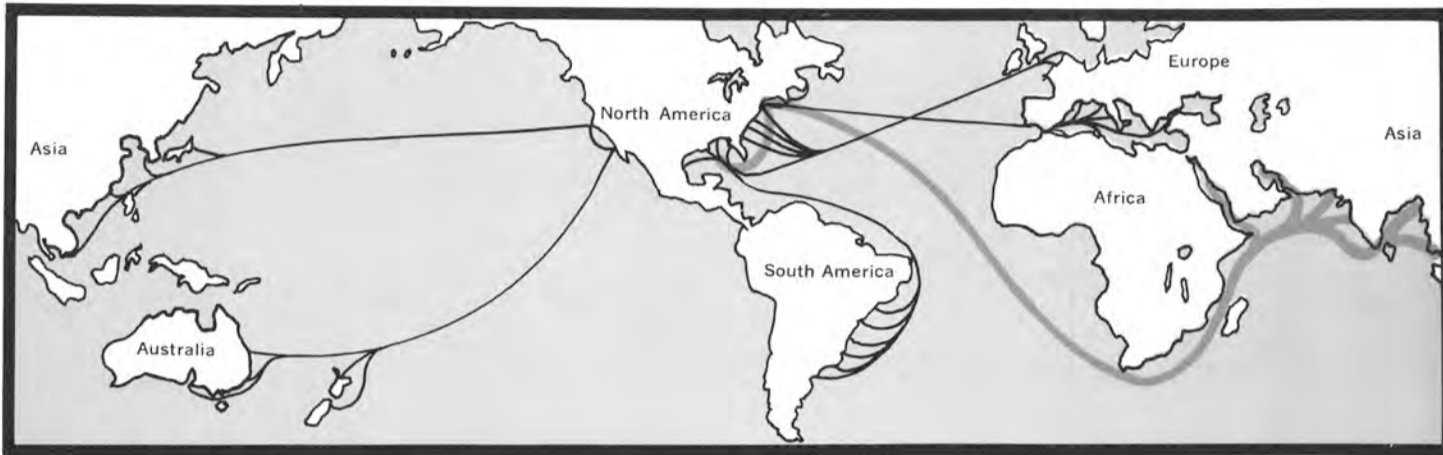
## Midland Insurance Company

**The Decisive Specialists**

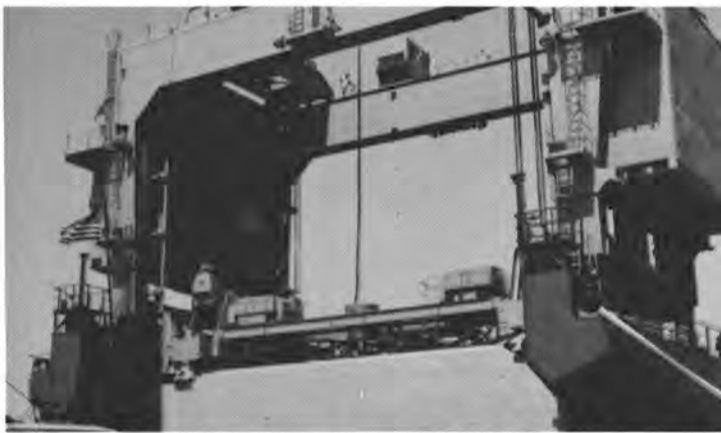
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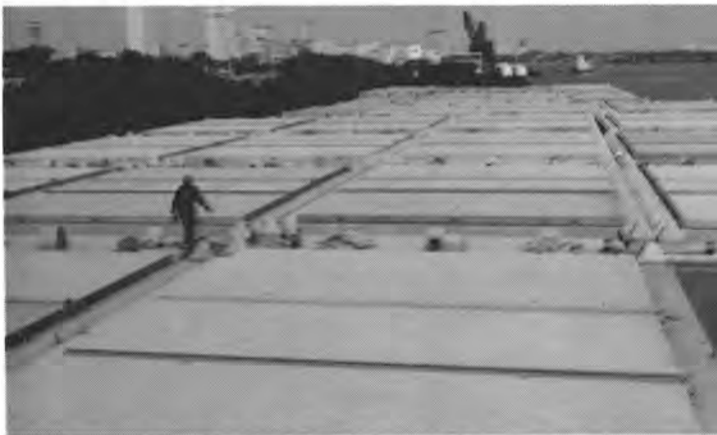
# LASH



## *New Waterman service opens sixth LASH trade route*



ROBERT E. LEE's shipboard crane lifts first LASH lighter aboard.



Using existing port area, Waterman LASH barges are moored at New Orleans prior to arrival of LASH vessel.

The world's newest LASH vessel, Waterman Steamship Corporation's ROBERT E. LEE, has inaugurated service on the world's newest LASH trade route — serving U.S. Gulf and East coast ports and the Red Sea, Persian Gulf and Indian sub-continent. Sister ships STONEWALL JACKSON and SAM HOUSTON will soon enter service on the new trade route.

Exhibiting LASH hallmarks of versatility and flexibility in the carriage of cargo, the ROBERT E. LEE transported a full cargo of manufactured goods, pipe, machinery, tractors, chemicals, fertilizers and other packaged and bulk commodities. Utilization of the vessel's 89 standard LASH lighters produces express service for all shippers and receivers along the trade route.

**LASH**  
**SYSTEMS, INC.**  
SUITE 1414, 225 BARONNE ST.,  
NEW ORLEANS, LOUISIANA, U.S.A.

### Fifty Papers To Be Read On Combustion Engines At Int'l Meeting In Spain

The Eleventh International Congress on Combustion Engines will be held in Barcelona, Spain, April 27-May 3, 1975.

CIMAC (from the French translation, Conseil International Des Machines A Combustion) is an international organization for

promoting technical and scientific knowledge in the field of diesel engines and gas turbines.

Each member country of CIMAC has a national committee which organizes and disseminates the information for that country. The U.S. National Committee is sponsored by the Diesel and Gas Engine Power Division, and the Gas Turbine Division of the American Society of Mechanical Engineers.

The meetings, held every two years, are attended by approximately 700 of the world's leading engineers in the field of combustion engines. The last meeting was held in Washington in 1973.

Approximately 50 papers on new and important developments and experiences are scheduled for presentation in Barcelona by engineers from 14 different countries.

In order to obtain a substantial

reduction in the round-trip air fare to Barcelona, a special-group flight has been planned for the meeting.

Detailed information concerning the meeting and the special flight may be obtained by writing to **Robert L. Stanley**, 214 Midvale Street, Falls Church, Va. 22046. Telephone (202) 426-0724.

### M.J.H. Weddle To Manage Newly Formed Company — Wilson Elsan Marine Int'l



Michael J.H. Weddle

Michael J.H. Weddle has moved from Wilson Walton International Limited to manage the new company Wilson Elsan Marine International Limited.

Prior to joining Wilson Walton International, Mr. Weddle was with the U.K. subsidiary of the West German shipbuilding group Howaldtswerke - Deutsche Werft AG, and also spent some years with the Canadian naval architects GTR Campbell International.

Wilson Elsan Marine International Limited was recently formed by Wilson Walton and the Sanitas Company, in order to manufacture and market the ELSAN recycling marine sewage treatment system.

### United Refining Joins Consortium To Explore Offshore Arabian Gulf

Harry A. Logan Jr., president, United Refining Company, Warren, Pa. 16365 (NYSE symbol URE), has announced that the company, together with three other U.S. and Canadian companies, has signed a concession agreement to explore for and produce hydrocarbons in the offshore Arabian Gulf territories of Umm Al-Qaiwain.

The concession contains approximately 1,200 square kilometers and is adjacent to a recent major low-sulfur oil discovery offshore the island of Abu Musa.

Members of the consortium include United Refining Company, Canadian Superior Oil Limited, Zapata Exploration Company, and Kewanee Overseas Oil Company.

Mr. Logan said the awarding of this concession represents an important step in United's program to develop international and domestic crude oil reserves.





# The leaders are choosing the Keene Marine Discharge Control System™

- **Federal Barge Line Inc.** —for M/V America, M/V United States
- **Thomas Marine Co.** —for M/V H. R. Zimmerman, M/V W. P. Jackson, M/V F. P. Thomas, M/V R. E. Girouard, M/V Girard Lewis
- **Igert Towing Co.** —for M/V Louis Igert, M/V Bill Dyer, M/V Eddie E., M/V Julia D.
- **Union Mechling Corporation** —for M/V Western, M/V Craig M., M/V Lynn B., M/V Eastern, M/V Mariner, M/V Navigator, M/V Roy Mechling, M/V Daniel Webster
- **Cleveland Tankers Inc.** —for M/V Saturn, M/V Jupiter

## Here's why:

### Passes Coast Guard and A.B.S. regulations.

The U.S. Coast Guard has determined that the Keene system complies with the safety requirements covered under the authority of marine inspection and navigation laws. It has received acceptance by the U.S. Coast Guard under the provisions of 33 CFR 155.400 for the processing of oily bilge slops, and a satisfactory review from the American Bureau of Shipping.

### Fail-safe control.

An automatic fail-safe control permits only sheen-free water to be discharged. A real-time continuous recorder provides a permanent record of compliance as proof of legal performance.



**Systems for every size vessel.** Modular design of components makes the Keene system applicable to everything from small tugboats to large ocean-going vessels. Over 14,000 gallons a day can be processed — ample capacity for even the largest vessels.

### Backed by Keene's reputation.

Workboat owners know and trust us — we've been supplying the marine industry with Keene (Bowser) fuel and lube filters and other equipment for over 75 years.



Keene Marine Discharge Control Systems are installed on Federal Barge Line's two largest vessels, the 4-engine, 9000-hp, 184-foot M.V. America and its sister ship M.V. United States (shown here).



Before you invest in holding tanks or other half-way measures to meet the new anti-pollution regulations, discover why industry leaders are solving their bilge water problems with the Keene system. Keene Marine Discharge Control Systems are available through authorized marine distributors and shipyards. Call (615) 526-9571, or write Keene Corporation, Fluid Handling Division, Dept. EW, Cookeville, Tenn. 38501.

**KEENE**  
CORPORATION

**FLUID HANDLING DIVISION**

## Gulf Oil Promotes Robert J. Lavinia



Robert J. Lavinia

Robert J. Lavinia has been promoted to supervisor, international marine sales, U.S. East Coast, for Gulf Oil Trading Company, a subsidiary of Gulf Oil Corporation. In his new position, Mr. Lavinia will be responsible for marine fuel and lubricant sales along the Atlantic Coast of the United States.

Mr. Lavinia joined Gulf Oil Corporation upon graduation and sailed as a third mate on various American-flag Gulf tankers. In 1972, he was transferred from the marine department to GOTCO, international marine sales in New York as a marine sales engineer, a position he has held until his recent promotion.

A native of Smithtown, Long Island, N.Y., he attended public school there and graduated from the U.S. Merchant Marine Academy at Kings Point in 1970. While at the Academy, he majored in marine transportation and graduated with highest honors. In his senior year, Mr. Lavinia was appointed regimental commander and, as such, was the senior midshipman officer responsible for all regimental affairs. Mr. Lavinia presently resides in Ridgewood, N.J., with his wife Ruth and young son Scott.

## Moore-McCormack Crew Plans Approved

The Maritime Subsidy Board has approved the same 39-man officer and crew complement for Moore-McCormack Lines' about-to-be-rebuilt Constellations.

The company plans to have 115-foot mid-bodies inserted, with construction subsidy, in three of the vessels at a cost of some \$14.5 million, with an option to jumboize a fourth. Moore-McCormack asked that the 39-man crew be continued on the expanded vessels.

## Carbonit In Houston Names Michael Gandy For Marine Operations

Michael Gandy has joined the Houston office of Carbonit America, Inc. as director of marine operations. The Carbonit fleet, including two new buildings, provides U.S. Gulf services in petrochemicals and petroleum products.

Mr. Gandy will be located at 1770 St. James Place, Houston, Texas 77027.

## Luckenbach Steamship Elects 3 Vice Presidents

Mrs. Edgar F. Luckenbach Jr., chairman of the board of Luckenbach Steamship Company, Inc., has announced the election of Jack Tilley as vice president, Peter F. Dever, vice president-Insurance Division, and Michael J. Sepe, vice president-traffic.

Mr. Tilley joined Heide Company in Wilmington, N.C., in 1960. He was subsequently ap-

pointed manager at the Morehead City, N.C., operation for several years, and was transferred back to the Wilmington office in 1972 as general manager. He will continue as general manager of Luckenbach's North Carolina operations. Prior to August 1, 1974, Luckenbach operated under the name of Heide Company in the North Carolina ports.

Mr. Dever is a past vice president of the New York Claim

Association. His areas of responsibility will include safety management, administration of the company's insured and self-insured programs and employee benefits.

Mr. Sepe was manager of marketing and customer service for Maher Terminals prior to joining the Luckenbach organization, and previously served as line manager with Kerr Steamship Company.



"It was Moby Dick's open mouth and scrolled jaw; his vast, shadowed bulk still half blending with the blue of the sea. The glittering mouth yawned beneath the boat like an open-doored marble tomb..."  
Moby Dick - Herman Melville

# When you need help in the water,



## Commerce Dept. Issues 'Neobulk Shipping Study'

A report examining neobulk cargo and detailing methods for United States-flag penetration of that market has been released by **Robert J. Blackwell**, Assistant Secretary of Commerce for Maritime Affairs.

Entitled "Neobulk Shipping Study," the report concluded that some 14 to 18 percent of the neobulk tonnage moving in foreign

trade could be captured by U.S.-flag ships by 1982.

Neobulk cargo is defined as "that portion of the trade which, by virtue of its cargo characteristics, is beginning to show an increasing trend towards movement by irregular service in less than hold-size lots up to shipload lots."

The types of commodities included in this classification are agricultural and forest products, iron and steel, nonferrous metals,

rubber, chemicals, textiles and automobiles.

The opportunity market for U.S. shipping companies, as identified by the study, would be those instances where exporters/importers do not have cargo lot sizes large enough to allow them to take advantage of tramp service but, on the other hand, have shipment sizes large enough to make the cost of ocean transportation on liner (general cargo) vessels higher than desirable.

"Because these shippers move their cargoes with regular frequency, they seek what essentially amounts to a liner service but at tramp rates," Mr. **Blackwell** pointed out.

"And I am confident that American ships can step in and provide such a semi-liner service," he added.

The study recommended that both the Maritime Administration and ship operators undertake an aggressive marketing effort to identify potential opportunities for neobulk service and, if necessary, subsidies should be provided for ships in semi-liner service "in accordance with existing and planned subsidy levels."

The analysis was prepared for MarAd by Harbridge House, Inc., Washington, D.C., under a \$94,000 contract. Copies of the report can be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22151. Price of the Executive Summary is \$3.25, order number — COM-74-11238/AS; price of the full report is \$6.50, order number — COM-74-11237/AS.

### Simmonds Precision Names **B.J. Buonomo** Vice President, Marketing



**Benedict J. Buonomo**

**Benedict J. Buonomo** has been named vice president, marketing of Simmonds Precision Products, Inc. (NYSE), Tarrytown, N.Y., it was announced by **Geoffrey R. Simmonds**, president.

Mr. **Buonomo** was formerly vice president, marketing and sales of Fischer & Porter Co., Warminster, Pa.

An electrical engineer, Mr. **Buonomo** was graduated in 1956 from the Polytechnic Institute of Brooklyn. He served as industry manager of the General Regulator Division of Foster Wheeler Corporation from 1955 to 1963, when he joined Fischer & Porter.

Mr. **Buonomo** is a member of the Presidents Industry Advisory Council for the Instrument Society of America, and has been an active member of Scientific Apparatus Manufacturers of America.

Simmonds Precision is a leading producer of systems for the management of energy, fluids and motion in industrial, marine and aerospace applications.

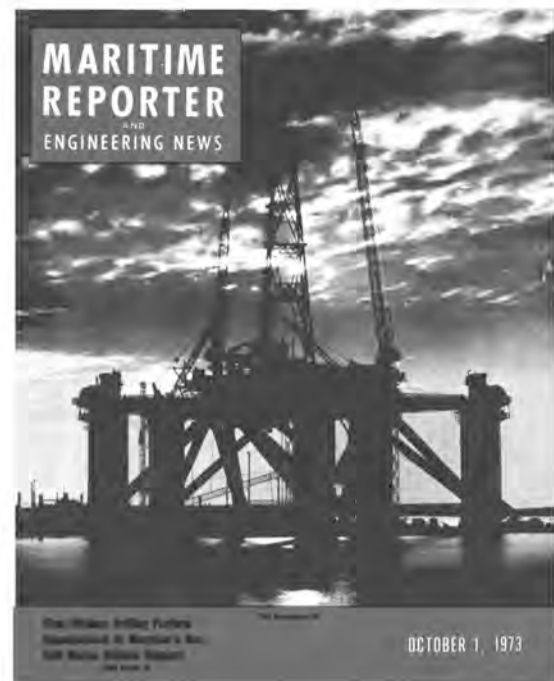


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## DIESEL GENERATOR SETS

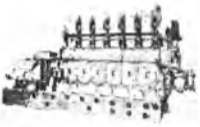
1



**350 KW DIESEL GENERATOR SET**

350 KW—120/240 volts DC—600 RPM—compound wound G.E. generator with switchgear. ENGINE: Ingersoll-Rand—heavy-duty type S—505 HP—10 1/2 x 12—reconditioned to ABS.

2



**250 KW DIESEL GENERATOR SET**

ENGINE: Enterprise 12 x 15 DSG-6—6 cyl.—450 RPM crank No. 50J. GENERATOR: Westinghouse 250 KW—120/240 DC—1040 amps—450 RPM. Typical serial No. 35-10P-913. Complete with switch gear.

3

**EMERGENCY GENERATOR SUPERIOR 75KW 120/240 VOLT D.C. DIESEL GENERATOR SET**



With switchgear. ENGINE: Radiator cooled Superior GBD -8—6-cylinder—1200 RPM. GENERATOR: Electric Machinery Co.—120/240 volts DC—316 amps—1200 RPM—stab. shunt.

4

**415 KW 250 VOLT DC GM 6-278 DIESEL GENERATOR SETS**



ENGINE: GM Model 6-278—6-cylinder—8 1/2 x 10 1/2—2-cycle—800 RPM—complete with heat exchanger. GENERATOR: Allis-Chalmers—415 KW—250 volts DC—800 RPM—1660 amps—shunt wound. Top mounted exciter—800/1600 RPM—208 amps—type EB5-123. Pilot exciter 2 1/2 KW—120 volts DC—shunt wound—20.8 amps. Both exciters belt-driven from main generator shaft.

5

## ELECTRIC PROPULSION MOTOR

1 Available. 515 HP—230 volts DC—shunt wound—1040/1400 RPM—1660 amps—120 volts DC exciter.

6

ALSO SUITABLE FOR COMPANIES OPERATING AN NET TENDERS

## TURBO GENERATOR SETS

7



**400 KW WESTINGHOUSE TURBO GEN SETS FOR BETH. SPARROWS PT. HULLS 400 TO 4500; QUINCY HULLS 1600**

400 KW (500 KVA)—80% PF—1200 RPM—450/3/60. TURBINE: 585 lbs.—840°TT—28 1/2" vacuum—9018 RPM—serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA—400 KW—450 volts—641 amps—80% PF—3 phase 60 cycle—1200 RPM—CR 40°—excitation amps 41—excitation voltage 120. Instruction book 5442. Switchgear available.

8



**LOW-PRESSURE UNUSED 300 KW G.E. 120/240 VOLT DC TURBO-GENERATOR SET**

GENERATOR: 300 KW—120/240 VDC—1250 amps—1200 RPM. REDUCTION GEAR: 8.344:1—10012/1200 RPM—type S-182. TURBINE: DOR418N—449 H.P.—10012 RPM—working pressure 180/220 PSIG.

9



**WESTINGHOUSE 440/3/60 200 KW UNIT**

GENERATOR: Westinghouse 200 KW—250 KVA—450/3/60—1200 RPM—80% PF—with 40 KW—120 VDC on same shaft. GEAR: 9989/1200 RPM—double helical. TURBINE: Westinghouse—540 PSI—superheat 322°F. Test 930 PSI 800°TT. Also operate 615 PSI—850°TT.

10



**AP2 VICTORY WORTHINGTON-MOORE CROCKER-WHEELER 300 KW UNIT**

TURBINE: 440 PSI—740°TT—28 1/2" vacuum—type S4—5-stage—6097 RPM—serial 7547 & 7548. GEAR: 6097/1200. GENERATOR: 300 KW—120/240 volts DC—1250 amps—compound wound—973643—999759. Armature flange 8 1/2". B.C. 7"—12 holes. ALSO NEW ARMATURES IN STOCK & 300 KW SHUNT ARMATURES.

11

## TWO 538 KW WESTINGHOUSE T-2 AUX. GENERATORS (COMPLETE)

TURBINE: 538 KW @ 5010 RPM—438 PSIG—750°TT—28 1/2" vacuum. GEAR: 5010/1200 RPM. A.C. GENERATOR: 400 KW 450/3/60/1200—0.8 PF. DC EXCITER: 32.5 KW—120 volts (variable voltage)—shunt—4-pole—DC excitation 5 KW. ALWAYS WELL MAINTAINED BY MAJOR OIL CO.

## TURBINES & ROTORS

### MAIN PROPULSION

12

BETH. CLASS—13,600 H.P.

Sparrows Point & Quincy 1600 hulls. H.P. turbine casing only.

## T-2 TURBINES & ROTORS

13

### UNUSED GENERAL ELECTRIC 750 KW TURBINE ROTORS

2 Available

General Electric Instruction Book 16846 for type FN3-FN24—seven stage 10033 RPM. TURBINE: 525 lbs. per sq. inch—825°TT. Originally built for CL68-122-CUL 48 class cruisers and now used on many merchant, tankers and cargo ships. G.E. drawing No. 6665729AA-1—FSN2825-373-0489.

14

## 1250 KW WESTINGHOUSE 8050 RPM

2 Available

One Curtis Stage and 8 Rateau Stages—mfg drawing 25T-556—BuShip Plan No. BB61-561-061. Rebuilt and relabeled by Westinghouse. Factory boxed. LIKE NEW.

15



**T2-SE-A1 MAIN PROPULSION ROTOR—G.E.**

Large Schenectady—serial 77418—reconditioned Bethlehem Steel 1970—all stages magnafluxed.

16

## T-2 TANKER AUX. G.E. TURBO GEN. ROTORS



DORV — 325M — 5645 RPM — for 525 KW G.E.

## PUMPS

17



**UNUSED DELAVAL IMO ROTARY PUMP**

175 GPM—35 PSIG—10 HP—120 volts DC—1750 RPM—serial E-8619—frame 324 VY—76 amps—mfg. by Electro Dynamics. With magnetic control. Excellent condition.

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## TURBO GENERATOR SETS

A



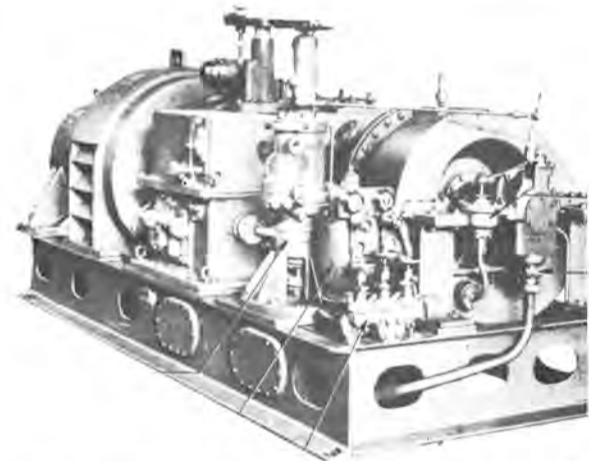
**TURBINE:** 11 Stage type FN4—8145 RPM—3 1/2" steam absolute back pressure—complete steam with seal regulator  
**GEAR:** Type S-195A—reduction 8145 RPM to 1200 RPM  
**GENERATOR:** 1500 KW—450 volts—2405 amps—1200 RPM enclosed. Insulation: Class B stator and rotor. Temperature thermometer. Mfg type AT1—form HL. Oil lubricated by sump in turbo generator set base. Generator cooling: a—120 volts—110 amps—40°C rise—frame 654—mfg

**GENERAL INFORMATION:** Overload rating 2 hours—12% weight 36,000 lbs. Guaranteed steam flows & conditions flange. The set will carry 1500 KW with steam condition flange. The set will withstand 644 PSI and 850°F. Guaranteed at exhaust flange:

50% Load	—	750 KW	—	D.C.
75% Load	—	1125 KW	—	D.C.
100% Load	—	1500 KW	—	D.C.

Exhaust flange size: 18" x 38" rectangular.

B



**GENERATOR:** 400 KW 450 volts 3-phase 1200 RPM 0.8 PF insulation—natural self-ventilated cooling. Exciter: 50 KW  
**GEAR:** Single helix—single reduction—10059/1200 RPM  
**TURBINE:** Six stage—10059 RPM—525 PSI—825°F net torque. **OVERLOAD CONDITIONS AT NORMAL STEAM 52:** overload for 2 hours at normal conditions; overload capacity turbine generator will deliver full load output 400 KW / capable of withstanding 634 lbs PSIG 850°TT.

**STEAM FLOWS**

100% Load	—	400 KW AC	—
75% Load	—	300 KW AC	—
50% Load	—	200 KW AC	—

When operating at 575 PSIG & 0° Superheat and 1 lb/

125% Load	—	500 KW AC	—
100% Load	—	400 KW AC	—
75% Load	—	300 KW AC	—

UNIT DESIGNED FOR NAVY FOR DD692 CLASS DESIG HOUSE 8316.

Since Westinghouse and G.E. built them for the same application.

**DIMENSIONS:** OAL 10' 10 1/8"—OAW 4' 10 1/2"—OAH 5'

**TOTAL WEIGHT:** 14,855 lbs.  
 2" steam inlet—17" Round exhaust—20 1/2" bolt circle

**UNIT DIMENSIONS** OAL 16' 3 3/8"—OAW 6' 6"—OAH 5'



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## ERATOR SETS

3 G.E. 1500 KW AC SHIPS SERVICE SETS

G.E.I. BOOK 19320

inlet. Normal steam conditions 525 PSI 825°TT—1 lb

RPM—P.F. 0.8—60 cycles—3-phase—6-pole—totally rise normal—stator 60°C by thermometer—rotor 70°C by positive displacement pump for gears and bearings from r stream and circulating water. Amplidyne Exciter: 13.2 KW type 5AM654A1.

% load; Overload rating 5 minutes—150% load. Total normal 525 PSIG—825°TT and 1 PSI absolute at exhaust 420 PSIG and 825°TT and 1 PSI absolute at exhaust anteed steam flows—525°F & 825°TT at 1 PSI absolute

Exciter 5.9 — Steam Flow 8190 lbs/hr  
Exciter 8.0 — Steam Flow 11385 lbs/hr  
Exciter 10 — Steam Flow 14790 lbs/hr

400 KW

WESTINGHOUSE/GE DESIGN

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WESTINGHOUSE

PF 641 amps alternating current generator—class B in—120 VDC—1200 RPM.

nal. Type G.E. 618N—equipped with synchronizing mo—LBS/825°TT: Sets 500 KW AC and 62.5 KW DC—city 50%—600 KW & 75 KW DC for five minutes. The C & 50 KW DC at 420 lbs and 825°TT. The turbine is

	STEAM RATE
50 KW DC	5100 lbs/hour
37½ KW DC	3999 lbs/hour
25 KW DC	2885 lbs/hour

quare inch absolute back pressure at flange:

62½ KW DC	—	8720 lbs/hour
50 KW DC	—	6980 lbs/hour
37½ KW DC	—	5450 lbs/hour

ROYER—G.E. INSTRUCTION BOOK 17716—WESTING-

is destroyer, G.E. and Westinghouse parts are interchange-

¼".

7'5¼" over steam strainer.

18



### LUBE OIL SERVICE PUMP

Qunimby-Rotex — size 6D — 500 GPM @ 70 lbs — 6" x 6" flange — 720 RPM. MOTOR: Allis-Chalmers — 40 HP — 230 VDC — type EBV-147S — stab, shunt — 148 amps. Complete with starter and rheostat — designed originally for C-1MAV-1 vessels.

19



### 1000 GPM GARDNER-DENVER BRONZE DIESEL DRIVEN FIRE PUMP

1000 GPM — with priming pump assembly. ENGINE: Buda 6LD-468 — 4¼ x 5½ — 6 cylinder — 1850 RPM. PUMP: Gardner-Denver — bronze — 6 x 5 — size 5 — type D — 1000 GPM @ 281' head.

20



### DAYTON-DAWD 2-STAGE FIRE AND BILGE PUMP

Vertical 2-stage type TDV-10—20 HP—200 GPM @ 184'—3" discharge—4" suction—1775 RPM—Mau-mee Sui. Motor: 120 volts DC—20 HP—1775 RPM.

21

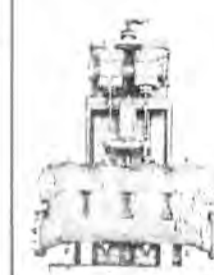


### CARGO STRIPPING PUMPS

#### BRONZE T2 TANKER STRIPPING PUMPS

14x14x12—700 GPM at 100 lbs. Same pump available in steel for fuel oil transfer, etc.

22



### WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP

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

23

### C-25 CARGO PUMP TURBINE SPARE GEARS

One set of gears available for Westinghouse C-25 Cargo Pump Turbine.

24



### T-2 TANKER BILGE, BALLAST AND FIRE PUMP

Bronze — 10 x 7 x 10 — vertical duplex. Steam pressure 150 lbs gauge — exhaust pressure 10# gauge — discharge pressure 100# gauge — 300 GPM.

25



### NEW TURBINE DRIVEN FIRE AND GENERAL SERVICE PUMP

Allis-Chalmers 6 x 5 pump, type SKH — 1200 GPM—125 PSI—3500 RPM. Coppus turbine type TF-22-21½ — 3500 RPM, 273: — 50" superheat.

## MISCELLANEOUS

### DOUBLE REDUCTION GEARS for Diesel Drive

26



3200 HP DOUBLE INPUT SINGLE OUTPUT DIESEL REDUCTION GEARS 20 DEGREE OFFSET

Farrell-Birmingham — 3200 SHP. REDUCTION GEAR: 1.81:1—handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard. Gear output 400 RPM. Suitable for dredge pumps. Non-reversing. OK for 38D8-½ engine.

#### 2:67:1 RATIO DOUBLE IN-LINE GEARS

27

Farrell-Birmingham 3200 HP non-reversing — from seaplane tenders. Ratio 1.867:1. Complete with hydraulic couplings, etc. Will handle two 38D8-½ FM diesels. Has Fawick clutch.

28

#### 2100 HP DOUBLE INPUT SINGLE OUTPUT GEARS—3:435:1 RATIO

Farrell-Birmingham — heavy duty — originally built for 2 heavy-duty direct-reversing engines — 300 RPM—1050 HP each. Ratio 3.435:1.

29

#### SINGLE ENGINE REDUCTION GEAR

Farrell-Birmingham — non-reversing—1600 HP at 2.4909:1. With hydraulic couplings.

30

#### DOUBLE INPUT SINGLE OUTPUT GEAR—7.9:1 RATIO

Final output 175 RPM. Mfg by Farrell-Birmingham — for use with two 515 HP—230 volts DC shunt wound motors—1040/1400 RPM.

31

#### ANCHOR WINDLASS FOR BETHLEHEM-SPARROWS POINT 1954 CLASS TANKER

Hyde 2-11/16" — 12x14 — 100 PSI — steam — 54,100 lbs.

32

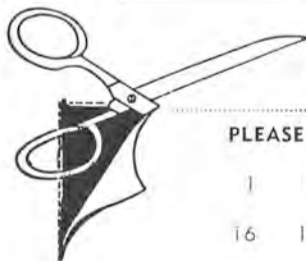


#### UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

Chain and two 10640 lb anchor & 30 fathoms chain @ 30 FPM. 70 HP—230 volts—shunt DC motors—233 amps—550 RPM—55°C rise. Wildcat centers 47½". Base 9'5" wide x 11' long. Weight 36,000 lbs.

#### INQUIRE FOR ALL OTHER ITEMS

Forced draft blowers, reduction gear parts, bilge and ballast pumps, main circulators, general service pumps, F.O. transfer pumps, lube oil service, standby feed pumps, condensate pumps, aux. circulating pumps, feed water heaters, wash water pumps, etc.



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16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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## Single Leg Mooring Will Be Installed In 295 Feet Of Water

Continuing to expand its offshore industry involvement, Perry Oceanographics, Inc., Riviera Beach, Fla., has completed fabrication and assembly of the "heart" of a single anchor leg mooring (SALM) terminal that will be installed in 295 feet of

water—reported to be the deepest such installation ever made.

As subcontractor for SOFEC of Houston, Perry supplied two universal joints and a fluid swivel assembly for the offshore buoy. The components totaled 36 tons.

**Robert H. Gruy**, vice president of SOFEC, said his firm supplied the SALM for Esso Exploration Malaysia, Inc., which will install the single-point moor 50 miles

off the coast of Sabah, in eastern Malaysia, enabling tankers to load and unload in waters that can accommodate their draft.

**Mr. Gruy** said the deepest previous installation of such a buoy is believed to be in 270 feet of water.

**Bruce C. Gilman**, executive vice president for Perry, said his firm is now contracting for other products for offshore industry,

adding to the customary Perry output of work submarines, diving systems, recompression chambers and undersea laboratories. Virtually 90 percent of Perry business—now at an all-time peak—is related to offshore petroleum and gas exploration and production.

Among other activities, Perry for two years has been supplying a complete operational turnkey package for the single wellhead subsea oil recovery system operated by Subsea Equipment Associates Ltd. (SEAL) in the Gulf of Mexico. Perry built the system's one-atmosphere personnel transfer bell and has supplied surface support and personnel for the entire operation. Such systems are expected eventually to be operational down to 6,000 feet.



## Refrigerated Ship Operators Name de Smedt President



A. Theodore de Smedt

**A. Theodore de Smedt** has been named president of the group of companies which includes Refrigerated Express Lines, Reefer Express Lines and Reefer Terminals, Inc.

**Mr. de Smedt** has served as a top executive of American Export Lines, Prudential-Grace Lines, States Marine-Isthmian Agency, and Marchessini Lines. In his new position, he will have offices at 17 Battery Place, New York, N.Y., and Port Newark, N.J.

This is a worldwide operation which specializes in the ocean transport and storage of frozen commodities, notably meat, fish, fruit and vegetables. Refrigerated Express Lines vessels sail from Australia to Atlantic Coast ports of the United States, thence to the Canary Islands for fish, which is transported to Japan, and then back to Australia. Reefer Express Lines is just being put on a liner basis between the United States, United Kingdom, northern Europe and Ireland.

Reefer Terminals has just dedicated a freezer storage building at Port Newark. The three-berth terminal will be used by the ships of the two affiliated lines, but will also be open to vessels of other lines. Highly mechanized and with a computerized storage system for palletized cargo, it can accommodate 3,800 tons of frozen commodities, and is served by rail lines and trucks.

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We started out small in the little port town of Sasebo back in 1946. We've grown a lot in the 28 years since then. We're now one of the top ten shipbuilders of the world.

We've always been innovators. Back in 1957 we built a 130,000 ton tanker, the biggest ship in the world at that time. And then we kept on setting our sights higher. Today we routinely build and repair VLCC's as well as a full line of smaller freighters and bulk carriers. Plans are now in the works for building ULCC's.

We also work in all areas of industrial steel construction and power plants. But our focus is on the sea. Because we want to push forward the transportation revolution we've dedicated ourselves to for almost 30 years. The bigger we get, the faster things move from shore to shore. And the faster things move, the more there is for everyone.



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## Sasebo Heavy Industries Co., Ltd.

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Cable Address: SASEBODOCK TOKYO Phone: 211-3631  
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## Acadian Marine Elects Leary As President



Prieur J. Leary Jr.

Prieur J. Leary Jr. has been elected president of Acadian Marine Service, Inc., New Orleans, La. Mr. Leary has served as vice president and secretary since joining the company in 1971. He is also Acadian Marine's chief financial officer and a director of the corporation.

Mr. Leary attended Tulane University's Business School with a major in accounting. He graduated from Tulane University's Law School and received his master's degree in tax law from New York University's Law School. Prior to joining Acadian Marine, Mr. Leary worked with a firm of certified public accountants and practiced law in New Orleans.

Acadian Marine Service is an international marine transportation company serving the oil and offshore construction industries with crewboats and tug/supply vessels. The company is headquartered in New Orleans and has offices in Morgan City, La., and Bermuda and operates worldwide.

## Speakers Announced For Ninth Annual Houston Marine Insurance Seminar

The planning committee of the Houston Marine Insurance Seminar has announced the following speakers: **Frank Stegbauer**, vice president, Southern Towing Company, "Towing Company Operations and the Marine Underwriter"; **Herbert M. Lord**, president, The Maritime Law Association of the United States, "The Maritime Law Association of the United States, Its Organization and Purpose"; **George B. Freehill**, senior partner, Freehill, Hogan & Mahar, "Recent Developments in the Law of Container Carriage"; **Bernard E. DeLury**, Assistant Secretary of Labor for Employment Standards, U.S. Department of Labor, "Employment Standards Administration Laws—How they Affect the Maritime Industry"; **Warner F. Brock**, senior partner, Brock & Williams, "Plaintiff's View of Marine Operations"; **R.S. Lagattolla**, Water Quality Insurance Syndicate, "W.Q.I.S.—Three Years of Claims Experience"; **Edgar F. Barnett**, partner, Camp, Carmouche, Palmer, Carwile & Barsh,

"Recent Developments in Maritime Personal Injury Law"; **D.E. Lennard**, executive director, C.T. Bowring Offshore Oil (U.K.) Ltd., "North Sea Development — A Summary of the Present Position"; **Roy D. Jackson Jr.**, president, Oil Insurance Limited, "Plans for Insuring Offshore Operations"; **John Armstrong Jr.**, vice president, Insurance Com-

pany of North America, "Insurance for the Fishing Industry"; **Marcel J. Koster**, president, U.S.P. & I. Agency, Inc., "Major P & I Problems."

This will be the ninth annual seminar sponsored by the Houston Mariners Club, to be held October 6-8, 1974, in the Houston Oaks Hotel, Houston, Texas. Applications for registration may be

secured by writing Houston Mariners Club, c/o J.H. Blades & Co., Inc., P.O. Box 22003, Houston, Texas 77027.

This seminar, in a short period of time, has become one of the major marine insurance seminars in the industry, drawing registrants from all over the United States and a number of foreign countries.

# When we put three different swage fittings through a tug of war, ESCO's stainless steel never gave up.



We put three different swaged sleeves through the toughest torture test we could devise: a side-pull test designed to tear wire rope slings apart at the sleeves. This is what happened: In a tug of war between two 52-ton tanks, the 1/2" aluminum and carbon sleeves ripped apart, but the ESCO 1/2" stainless duplex sleeve wouldn't give up.

When these tests were duplicated in an independent laboratory using a certified pull test machine, the aluminum duplex sleeve ripped apart at 8,100 lbs. The carbon steel single sleeve ripped at 22,500 lbs. ESCO's stainless steel duplex sleeve was still going strong when the rope broke at 30,000 lbs.\* That should prove to you that ESCO's stainless steel swaged sleeve is the

strongest wire rope connection made—tough enough to take almost any kind of abuse.

They're available for rope sizes through 2 1/2". And we'll even send you a certificate for a free stainless steel fitting that your ESCO dealer will swage for you. Just send in the coupon. Then you can start putting our stainless steel swaged sleeve through your own tug of war.

\*Tests conducted and certified by Northwest Testing Laboratories, Portland. Copies of the test certification are available by writing ESCO Corp.



Aluminum Duplex Sleeve

Carbon Steel Single Sleeve

ESCO Stainless Steel Duplex Sleeve

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**the Crosby group**

**Luckenbach Steamship Elects  
Richard Barker And Kalle Jensen**



Richard E. Barker



Kalle F. Jensen

The board of directors of Luckenbach Steamship Company, Inc., having met August 14, 1974 in the New York headquarters of the company, announces the election of the following officers:

**Richard E. Barker**, president and chief operating officer, effective immediately.

Mr. Barker's former position as executive vice president has been filled by **Kalle F. Jensen**.

The new president, Mr. Barker, in accepting his new position, stated that the corporate plans laid down by **Edgar F. Luckenbach Jr.** provided for the immediate and efficient succession of officers, and the uninterrupted continuation of operating authority within the company.

Mr. Barker joined Luckenbach in 1965 and became executive vice president in 1972. Prior to serving in that post, he was senior vice president of the company and general manager of the Heide Division of Luckenbach Steamship Co., Inc., with operations in Wilmington, N.C. and Morehead City, N.C. Prior to joining Luckenbach, he was vice president of States Marine Lines. Mr. Barker is active in many maritime organizations.

Captain **Jensen** joined Luckenbach in January 1966. He is presently resided in New York as vice president-operations. Prior to joining Luckenbach he was with Torm Line, where he served as an officer on Torm Line vessels and later as Port Captain in New York. Captain **Jensen**, a master mariner, is a graduate of the Danish Maritime College at Fanoe, Denmark, and served as vice president and general manager of Luckenbach's Tampa operation prior to returning to New York headquarters.

**Perolin Acquires Exxon  
Corexit Chemical Products**

The Perolin Company Inc., a unit of General Signal, recently announced the acquisition of the stock of Corexit marine chemical products from the Exxon Chemical Company.

Perolin, specialists in the marine chemical business for over 70 years, maintains representatives in 42 countries and 110 world ports. Corexit products are now available in those ports presently stocked with the products, and Perolin will expand the availability to additional world ports in the near future. The Perolin marine chemical product line includes Water Treatments for High and Low Pressure Boilers, Evaporators, Diesel Engine Cooling Water, Closed Recirculating Water Systems as well as Maintenance Chemicals for Deck and Engine areas, Tank Cleaners and Fuel Oil Additives for Diesel, Steam and Turbine Plants.

A list of worldwide representatives is available from the Perolin Company Inc., 84 Danbury Road, Wilton, Conn. 06897.

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Mr. Leary attended Tulane University's Business School with a major in accounting. He graduated from Tulane University's Law School and received his master's degree in tax law from New York University's Law School. Prior to joining Acadian Marine, Mr. Leary worked with a firm of certified public accountants and practiced law in New Orleans.

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\*Tests conducted and certified by Northwest Testing Laboratories, Portland. Copies of the test certification are available by writing ESCO Corp.



Aluminum Duplex Sleeve



Carbon Steel Single Sleeve



ESCO Stainless Steel Duplex Sleeve

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**the Crosby group**

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Richard E. Barker



Kalle F. Jensen

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## Perolin Acquires Exxon Corexit Chemical Products

The Perolin Company Inc., a unit of General Signal, recently announced the acquisition of the stock of Corexit marine chemical products from the Exxon Chemical Company.

Perolin, specialists in the marine chemical business for over 70 years, maintains representatives in 42 countries and 110 world ports. Corexit products are now available in those ports presently stocked with the products, and Perolin will expand the availability to additional world ports in the near future. The Perolin marine chemical product line includes Water Treatments for High and Low Pressure Boilers, Evaporators, Diesel Engine Cooling Water, Closed Recirculating Water Systems as well as Maintenance Chemicals for Deck and Engine areas, Tank Cleaners and Fuel Oil Additives for Diesel, Steam and Turbine Plants.

A list of worldwide representatives is available from the Perolin Company Inc., 84 Danbury Road, Wilton, Conn. 06897.

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**Tilston Roberts Corp.  
Board Of Directors  
Elects G.E. Tilston**

The board of directors of Tilston Roberts Corporation announces the election of G.E. Tilston to the position of chairman and chief executive officer.

Mr. Tilston has been president of the corporation since its inception.

**Du Pont Offers New  
Bonding Process Booklet**

E.I. du Pont de Nemours & Company has published a new brochure which describes the products of Du Pont's explosive bonding process. The booklet lists typical dimensions for plate tube sheets and welding transition joints.

Requests for the booklet should be directed to the Du Pont Company, Room D-8083, Wilmington, Del. 19898.

**Texas Gas Transmission  
Shows Increased Earnings  
From Marine Operations**

Texas Gas Transmission Corporation, Owensboro, Ky., has reported second quarter earnings available for common and preference shares of \$13,369,000, or \$1.41 per share, for 1974, well ahead of the \$8,025,000, or \$.85 per share, recorded in the 1973 second quarter.

Earnings for the six months ended June 30, 1974, of \$24,701,000, or \$2.60 per share, compared with \$17,732,000, or \$1.87 for the same period a year earlier.

These earnings reflect substantial increases from barging, oil and gas exploration and production, and general commodities trucking operations, along with an increase in pipeline earnings, a portion of which is being collected subject to refund pending disposition of a pending rate proceeding.

For the 12-months ended June 30, 1974, earnings were \$44,340,000, compared with \$36,597,000 for the 12-month period ended June 30, 1973. This amounted to \$4.67 for the 1974 period and \$3.86 for the same period a year earlier.

All results noted above are from continuing operations and exclude amounts from discontinued operations in periods prior to 1974.

The Gas Transmission Services Division reported earnings of \$4,566,000 in the 1974 second quarter, compared to \$3,472,000 in the same quarter of 1973. The improvement included a rate increase which was placed in effect April 1, 1974, subject to refund of any amounts not ultimately approved by the Federal Power Commission, to cover increased costs of operations and financing.

The 1974 second quarter divisional revenues included \$4,766,000 collected under the provisions of the application for increased rates. Against these revenues the company has provided a reserve of \$1,400,000 before taxes for costs anticipated at the time of filing but which have not occurred. The remaining revenues include higher depreciation charges of \$2,730,000.

The Inland Waterways Services Division had a very strong quarter, with earnings of \$3,801,000 sharply ahead of the \$1,436,000 recorded in the flood-hit second quarter in 1973. Excellent revenue gains were noted in all product areas during the period. The shipyard also showed good gains over the 1973 quarter, which was penalized by an extended rainy period.

The Oil and Gas Exploration and Production Division continued its excellent progress, with 1974 second quarter earnings of \$3,755,000, more than double the \$1,825,000 of the 1973 quarter. The similarly sharp increase in revenues to \$18,435,000 for the 1974 period reflected, among other things, higher prices for new crude and condensate and continuing strength in product prices.



**For Shipbuilders Who  
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**Water Lubricated Rubber Bearings**

**DEMOUNTABLE STAVE TYPE.** Staves of tough nitrile rubber insert one by one to form a precision "Contour-Fitted" bearing. Can be installed or replaced without removing shaft—reduces drydock time by half. Sizes: 2½" to 35¾" (63.5 to 908.1 mm)

**BRASS-SHELLED SLEEVE AND FLANGE TYPES.** Exclusive "Contour-Fitted" nitrile rubber lining bonded to a rugged outer shell of naval brass. Grooved for efficient water lubrication. Sleeve or flanged types. Far outlast conventional bearings. Sizes: ¾" to 15" (19.1 to 381.0 mm)



**Solid Bronze Stuffing Boxes**

Built for endurance, heavily-ribbed for maximum strength. "Air Seal" models fitted with inflatable seal, which allows re-packing without drydocking. Grease or combination water-grease lubrication. Bulkhead models feature weldable steel flange. Packing glands are precision-machined. Sizes: ¾" to 15" (19.1 to 381.0 mm)



Inflatable "Air Seal" allows packing change without drydocking.

**Solid Bronze Stern Castings**

Exclusive short-barreled design fitted with rubber sleeve bearing allows mounting propeller close to stern-post and more room for rudder. "Forward-Flow" water scoops assure positive water lubrication for entire bearing. Heavy mounting flanges ideal for wood, fiberglass, aluminum or steel construction. Sizes: ¾" to 6" (19.1 to 152.4 mm)



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### Eaton Names Three Field Sales Managers

Eaton Corporation's Industrial Drives Division, Cleveland, Ohio, has appointed three new field sales managers. **Richard Schier** has been named field sales manager for the division's Airflex Plant, **Rich Hutter** has been appointed field sales manager for the Cleveland Plant, and **Robert P. Bajko** has been named field sales manager for the Dynamatic Plant, it was announced by **S.E. Morgan**, division marketing manager.

Mr. Schier had been associated with the Airflex Plant before being appointed to his new position. He holds a B.S. degree from Cleveland State University, and an M.S. degree in management from Case Western Reserve University.

Mr. Hutter was sales engineer for the Cleveland Plant before being appointed to his new position. He holds a B.S. degree from Cleveland State University, and an M.S. degree in management from Case Western Reserve University.

Mr. Bajko served as district manager for the division's Dynamatic Plant before being named to his new post. He obtained his B.S. degree in electrical engineering from Case Institute of Technology (now Case Western Reserve University).

Eaton's Industrial Drives Division manufactures a complete line of industrial air, magnetic, hydraulic clutches and brakes; AC, DC and eddy-current adjustable speed drives; speed reducers and variators; belts and belt drives and custom gearing.

For more information, contact Eaton Corporation, Industrial Drives Division, 9919 Clinton Road, Cleveland, Ohio 44111.

### Two Miniature Subs Available For Scientific And Engineering Studies

**Martin Goland**, president of Southwest Research Institute, Post Office Drawer 28510, San Antonio, Texas 78284, has announced that the nonprofit organization now has two small submarines which are available for scientific and engineering purposes.

They are the Nemo and the Deepview, which have been leased to the institute by the U.S. Navy, which has no present use for them. The institute will be responsible for their maintenance during the lease period.

Dr. **Robert C. DeHart**, institute vice president, who will be in charge of the two miniature submarines, explained that the institute played a large part in the design and fabrication of both ships.

The Nemo was designed and

built by the Structural Research and Ocean Engineering Division of SwRI and the Navy. It has a 5½-foot plastic spherical hull which can hold two people, a pilot and an observer. It can operate to a depth of 600 feet and has sufficient lift support for an eight-hour submergence. Its range is five miles at a cruise speed of 1.5 knots.

The SwRI group also designed

and tested the hull of Deepview, which consists of a cylindrical metal pressure hull with a transparent hemisphere at the forward end. After modification, it will accommodate a pilot and observer for 10 hours at depths up to 2,000 feet. It has a horizontal range of 10 miles and a cruise speed of 3 knots.

Dr. DeHart said the Nemo and Deepview would be used on con-

tinental shelf areas throughout the world for environmental, archeological, geological and engineering studies.

The vehicles can be transported by truck, boat or aircraft to any location. The rate per boat would be approximately \$2,000 a day. They will be based at the Institute Ocean Engineering Laboratories in Corpus Christi, Texas, Dr. DeHart said.

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When your end product is a ship, you've got to put together the right means to that end. You need good designs, the right materials, expert supervision and skilled workmen.

And you need one more thing—muscle. That's where Clyde comes in. We've been building the finest material handling equipment for 76 years. Our shipbuilding cranes are specially designed for the shipbuilder's needs and are proving their worth in shipyards throughout the world. If you need

a traveling gantry crane that can fit the big pieces into place, like this 200-ton capacity (at 60' radius) Clyde Whirley used by FMC Corporation, you can get it from Clyde, with the capacities and features that give greater productivity than any other equipment.

You've got the ways. Clyde's got the means. To find out about putting them together, contact:

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### CLYDE IRON



**Marine Management  
Systems Appoints  
Dr. Kenneth Bertram**

The appointment of Dr. **Kenneth M. Bertram** of Oradell, N.J., as senior planning analyst for Marine Management Systems, Inc. has been announced by **Eugene D. Story**, company president.

In this newly created position, Dr. **Bertram** is responsible for

the development and analysis of fleet management programs. Marine Management Systems, headquartered in Stamford, Conn., designs and implements computerized management systems exclusively for the international marine transportation industry.

A graduate of Fordham University with a B.S. degree in accounting, he earned his M.B.A. and Ph.D. degrees at Michigan State University, where he ma-

jored in transportation and marketing.

Before joining Marine Management Systems, Dr. **Bertram** was a port consultant and statistical analyst for the Port of Galveston, Texas. Earlier, he served in the United States Army Transportation Corps at Fort Eustis, Va., where he headed a project to update military cargo handling procedures.

He is the author of a doctoral

dissertation entitled "A Comparative Analysis of Bargeship Systems: With Emphasis on their Impact on U.S. Seaports and Inland Ports."

**Rohr Industries Names  
Wilf Eggington VP  
Surface Effects Systems**



Wilf Eggington

**Fred W. Garry**, president of Rohr Industries, Chula Vista, Calif., has announced the appointment of **Wilf Eggington** as vice president for Surface Effect Systems.

Mr. **Eggington** will be responsible for Rohr's developmental work in surface effect ships. Prior to his appointment, Mr. **Eggington** was Rohr's program manager for the U.S. Navy's 2,000-ton Surface Effect Ship (SES) program. In his new position, he will direct research and development activities in a wide range of surface effect ship programs, including the development team currently working on the 2,000-ton SES project. He will report to **Jerome J. Filiciotto**, Rohr's group vice president for Aerospace and Marine Systems.

Succeeding Mr. **Eggington** as program manager of the 2,000-ton SES program is **Doug McGhee**. Mr. **Eggington** and Mr. **McGhee** came to Rohr last year from Litton Industries, where they managed the preliminary design and developmental work on the 2,000-ton SES. Rohr was recently awarded a \$35-million contract for advanced development work on this vessel.

Rohr Industries is a diversified designer and builder of advanced ground, air and sea transportation systems, and is a leading supplier of automated mail and materials handling systems, communication antennas and prestressed concrete structures.

**Coast Guard Shipyard  
To Build Two Tenders**

The Coast Guard Shipyard, Curtis Bay, Md., is to build two inland tenders for the U.S. Coast Guard. Each is to have an overall length of 160 feet 10 inches, a width of 30 feet and a draft of 4 feet. To cost a total of approximately \$4.7 million, the two vessels will be of a single-hull construction. Delivery is scheduled for late 1975.

**"Here's what Carboline is doing about raw material shortages."**

Critical raw material shortages have made 1974 a difficult year for you, the marine protective coatings industry and our company.

Shipping delays and unavoidable price increases have resulted. And this comes at a time when your acceptance of our products is at an all-time high.

Here's the direct action we have taken to help ease the effect of the shortages:

- We've set up a special executive team to seek new quality sources of raw materials throughout the world wherever they exist.
- We've increased our plant capacity at Xenia, Ohio, and Lake Charles, Louisiana, and opened a new plant in Hayward, California.
- Our laboratory continues to develop new and improved marine coatings which use more readily available raw materials.
- We have set up a new data processing procedure for quick and accurate order follow-up and expediting.
- Larger warehouse space is being provided with increased levels of stock in the works.

Although the shortage is still with us, we're working diligently to improve our service. In the meantime, thanks for being so patient and understanding.

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**Hire Carboline...the best help you can get!**



## Bethlehem Sparrows Point Delivers 120,000-Dwt Tanker To Atlantic Richfield



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The 120,000-deadweight-ton tanker S/S Arco Fairbanks, one of the largest vessels to fly the American flag, was recently christened at the Sparrows Point, Md., shipyard of Bethlehem Steel Corporation by Mrs. Thornton F. Bradshaw, wife of the president of Atlantic Richfield Company.

Named after the principal city of interior Alaska, the 883-foot-long vessel features the latest safety, navigational, communications and antipollution equipment available. The ship has a liquid cargo capacity of nearly 950,000 barrels. She has a cruising range of 15,000 miles with a nominal sea speed of 16 knots developed from 26,000-horsepower steam turbines. The Arco Fairbanks completes the current building program of five tankers totaling 500,000 deadweight tons built by Bethlehem Steel for Atlantic Richfield.

Mrs. Bradshaw of Pasadena, Calif., christened the third 120,000-ton U.S.-flag vessel in Atlantic Richfield's tanker fleet by breaking a bottle of champagne on the foremast. Her stepdaughter, Mrs. Richard K. Page Jr., was

matron of honor for the ceremony.

Following the christening, William H. Collins, general manager of the shipyard, was host at an onboard luncheon in honor of the sponsor, Mrs. Bradshaw.

The Arco Fairbanks was delivered to Atlantic Richfield but will not go into Alaskan service immediately. The ship will initially be used principally in overseas service, pending completion of the Trans-Alaska Pipeline, a spokesman said.

Previously, two 70,000-ton tankers — the S/S Arco Prudhoe Bay and the S/S Arco Sag River — were delivered in 1971 and 1972 and are now in service for the company between Alaska's Cook Inlet and the West Coast of the United States. The Arco Anchorage and the Arco Juneau, both 120,000-ton tankers, were delivered in 1973 and last May, respectively, and have been in international service.

In addition to the Arco Fairbanks, the Sparrows Point yard has under construction, or on order, five 265,000-deadweight-ton tankers for other customers.



Mrs. Thornton F. Bradshaw, wife of the president of Atlantic Richfield Company, holds a bouquet of flowers and a bottle of champagne just prior to christening the S/S Arco Fairbanks. Standing on the deck of the 120,000-dwt tanker with Mrs. Bradshaw, left to right: Mr. Bradshaw; Mrs. Richard K. Page Jr., Mrs. Bradshaw's stepdaughter and matron of honor; Mrs. Helen Delich Bentley, Chairman, Federal Maritime Commission; Mrs. Walter F. Williams, and Mr. Williams, vice president-shipbuilding, Bethlehem Steel Corporation.

## Arthur D. Little Publishes Guide On Equipment For Water Pollution Control

A "Guide to Water Cleanup Materials and Methods" has been published by Arthur D. Little, Inc./Learning Systems, and represents the first central engineering data base for water pollution control equipment. Recent environmental laws have put most of American industry in the pollution control business. Companies involved in the manufacturing, processing, shipping, or storage of various products have been forced to consider the impact of unintentional spills, accidental or deliberate discharges, or improper treatment of potentially dangerous waste water. This guide provides timely information about preventive and remedial pollution control efforts.

All important domestic and foreign producers of water cleanup equipment and materials are included in this 350-page book, and 500 products are described in

terms of their function, properties, dimensions, performance characteristics, applications, and compatibility with other equipment. Over 250 photographs illustrate systems such as booms and barriers, skimmers, separators, sorbents, chemical agents, oil/water monitors, overflow prevention devices, flow meters, pumps, waste water treatment equipment, and analytical equipment.

The balance of the 20 sections of the book includes advice on contingency planning; lists of cleanup contractors and spill cooperatives; state water pollution laws and regulations; state water pollution control offices and contacts; Federal laws and regulations; EPA and U.S. Coast Guard contacts; Government agencies concerned with water quality and pollution control; plus tables and conversion factors, and a glossary of practical terms.

Copies of the guide (\$29.95/350 pp.) are obtainable from Dr. John Quick, Arthur D. Little, Inc./Learning Systems, 15 Acorn Park, Cambridge, Mass. 02140.

## Electro-Nav introduces a new synthesized, 67 channel, maximum power, automatic 2-channel scanning, VHF-FM radiotelephone



It's our unbeatable  
"Great Dane '67",  
and it's all there... ON ONE CHASSIS.

Synthesized...no need to tie up your money on expensive spare crystals. You get 67 channels...count them: 35 duplex, 22 simplex, 10 private. At a power output of 25 watts, the maximum allowed by law.

A "dual watch" circuit automatically scans any 2 channels you select... simultaneously...so you don't miss any calls. And the built-in provision for 4 remotes lets you turn any part of your vessel into a communications center.

The most advanced printed and integrated circuits make the "Great Dane '67" compact enough to mount almost anywhere, and the handcrafted engineering makes it rugged enough to do an excellent job under a wide range of adverse conditions. In fact, the "Great Dane '67" is approved by every significant maritime authority in the world, including the FCC, and is used extensively aboard the ships of several NATO navies.

Operation is simple. As for servicing, the modular construction makes it a snap, our world-wide dealer network (including 10 in North Sea ports) makes it easily available, and our no-nonsense warranty on parts and labor is the best in the business.

And the price is right. How right? Give us a call and see for yourself.

- Synthesized, no crystals to buy
- 67 channels, including 10 private lines
- maximum permissible power output — 25 watts
- automatic 2 channel scanning
- modular construction, integrated circuitry, handcrafted engineering
- FCC type accepted
- rugged, compact (15" x 5-5/16" x 6-5/8")
- world-wide servicing
- no-nonsense warranty

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## Largest Container Complex In Asia To Be Built In Hong Kong

According to the Hong Kong Trade Development Council, a new company has recently been set up in the colony as a joint

container complex in Asia. The company will be known as the Hong Kong International Terminals Ltd., and will be a combination of both Hong Kong and Whampoa Dock Co. Ltd., and the China Provident Co. Ltd.

The new terminal will mainly serve container shipping running to

felt that the service will be expanded later to include carriers going to Australia and Africa. The terminal will be built on a 43-acre site and will include three 950-foot berths capable of accommodating the world's largest container vessels. The first of the three 40-foot deep berths will be

plex is scheduled for mid-1976. The approximate cost is expected to be in the region of \$60 million.

Initially, the wharves will be estimated to serve container carriers with a total capacity of 300,000 standard containers per year. Upon completion, the num-

## Rudolph Matzer Designs 100-Foot Tug For Coppedge

Rudolph F. Matzer & Associates, Inc. has been commissioned by W.T. Coppedge Jr., Florida Towing Company, Inc., to design a new tugboat suitable for operation as both a harbor tug and full ocean towing.

The vessel, measuring 100 feet by 30 feet by 16 feet 6 inches, is being constructed by Atlantic Marine, Inc., Fort George Island, Fla.

Tony Watt, project manager for W.T. Coppedge, says an application for Title XI insurance has been made for the construction of the vessel.

According to Ronald L. Hutchinson of Rudolph F. Matzer & Associates, the vessel is being designed for classification by Amer-

ican Bureau of Shipping for unrestricted ocean service + A-1 E AMS towing service.

The vessel, which is scheduled for delivery March 1975, will be placed in service at the Port of Jacksonville, Fla.

## United States Navigation Names Slizewski Treasurer

A.J. Slizewski has been named treasurer of United States Navigation, Inc., 17 Battery Place, New York, N.Y. 10004.

Mr. Slizewski succeeds H.D. Huss, who retired from the company August 31 after 25 years' service. Mr. Huss will continue to serve the agency as a consultant through the end of the year. Mr. Slizewski joined the company in 1969, having previously been associated with Texaco Inc.

## Biggest Oil And Gas Discovery In Norwegian North Sea Sector

The discovery of the biggest oil and gas field yet uncovered in the Norwegian Sector of the North Sea has been confirmed by Norway's Ministry of Industry.

Norway's state-owned oil firm, Statoil, has a 50 percent interest in the field, Mobil Oil Corporation's Norwegian unit has 15 percent while Exxon, Continental Oil and the Royal Dutch-Shell group each hold a 10 percent interest.

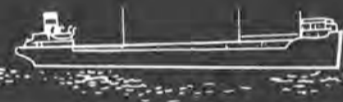
The Ministry said the field, to be called the "Statfjord," contains reserves of at least two-billion barrels of oil and 60-billion cubic meters of natural gas. The field is adjacent to the British Brent Field and may extend into British waters.

If so, the two countries and the companies involved will discuss the feasibility of unified production from the entire field, a spokesman for the Norwegian Embassy said in London.

The latest of three wells in the area, which covers two concessions, flowed oil in rates of between 10,000 and 12,000 barrels a day from various intervals and with varying choke openings, the Ministry said.

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**SHIPSIDE FREEZER:** Chairman of the Federal Maritime Commission **Helen Delich Bentley** snips ribbon to officially dedicate the largest and most advanced shipside refrigerated facility in the world at Port Newark. With her are, left to right, **Thomas W. Gleason**, president of the International Longshoremen's Association; **Thomas D. Lombard**, general manager of Reefer Terminals, Inc., owners of the freezer transit terminal, and **A. Gerdes Kuhbach**, executive director of The Port Authority of New York and New Jersey, at whose Port Newark facilities the new plant is located. The new facility, designed to receive and deliver frozen meats and other frozen commodities in transit through the New York-New Jersey port area to commercial processors, is capable of receiving palletized breakbulk cargo from three ships simultaneously. It provides space for 3,800 tons of frozen meat and includes the most modern U.S. Department of Agriculture defrosting and inspection facilities.



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Operation is simple. As for servicing, the modular construction makes it a snap, our world-wide dealer network (including 10 in North Sea ports) makes it easily available, and our no-nonsense warranty on parts and labor is the best in the business.

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**Largest Container Complex In Asia To Be Built In Hong Kong**

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container complex in Asia. The company will be known as the Hong Kong International Terminals Ltd., and will be a combination of both Hong Kong and Whampoa Dock Co. Ltd., and the China Provident Co. Ltd.

The new terminal will mainly serve container ships running between Hong Kong, Europe and the United States, although it is

felt that the service will be expanded later to include carriers going to Australia and Africa. The terminal will be built on a 43-acre site and will include three 950-foot berths capable of accommodating the world's largest container vessels. The first of the three 40-foot-deep berths will be operational by the end of 1975, and completion of the entire com-

plex is scheduled for mid-1976. The approximate cost is expected to be in the region of \$60 million.

Initially, the wharves will be estimated to serve container carriers with a total capacity of 300,000 standard containers per year. Upon completion, the number of containers to be handled will increase to 500,000. Construction of the new terminal will have an international flavor with the contract going to N.H.M. Venture, a three-company consortium of Nishimatsu Construction Co., Harbor Engineering Co., and Malayan Drillers Ltd.

At present, Hong Kong has three container berths in its Kwai Chung Container Complex, which is regarded throughout the world as the most modern in Asia.

**Amercoat Appoints Otis Sales Manager National Accounts**

Gene W. Otis has been appointed sales manager-national accounts, according to Darryl J. Petersen, director of national marketing, Amercoat® Products. Amercoat products include an extensive line of internationally recognized high-performance coatings for the protection of steel in corrosive environments, and Nukem specialty mortars, surfacings and grouts which prevent contamination and corrosion of steel and concrete in critical areas, ranging from chemical processing to nuclear power plants.

A 24-year veteran with Amercoat Products, Mr. Otis has been national sales manager-marine products, sales service manager-international operations, and Far East consultant for Amercoat and associated products in Japan.

Amercoat and Nukem industrial and marine products are available throughout the world from Ameron's Corrosion Control Division, which is headquartered in Brea, Calif., and from its affiliated Amercoat companies and licensees abroad.

Ameron is a California-based corporation which develops and markets engineered products and services for utilities, construction and industry.

**Delaval Publishes IMO 3-Screw Pump Bulletin For Lube Oil Applications**

A six-page illustrated bulletin on 3-screw IMO pumps for lube oil service has been published by the IMO Pump Division of Delaval Turbine Inc. Flow rates are given for different rotor size pumps as a function of shaft speed. Typical applications of IMO pumps in lube oil consoles and rotating machinery are illustrated.

The bulletin is available gratis from IMO Pump Division, Delaval Turbine Inc., P.O. Box 321, Trenton, N.J. 08602.

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meant delivery of all systems on time. It meant a Chas. Lowe Co. man aboard for supervision, tune-up, instruction of ships' personnel. It also meant unmanned fire-rooms, and a payout in less than two years. It's the way we do things.

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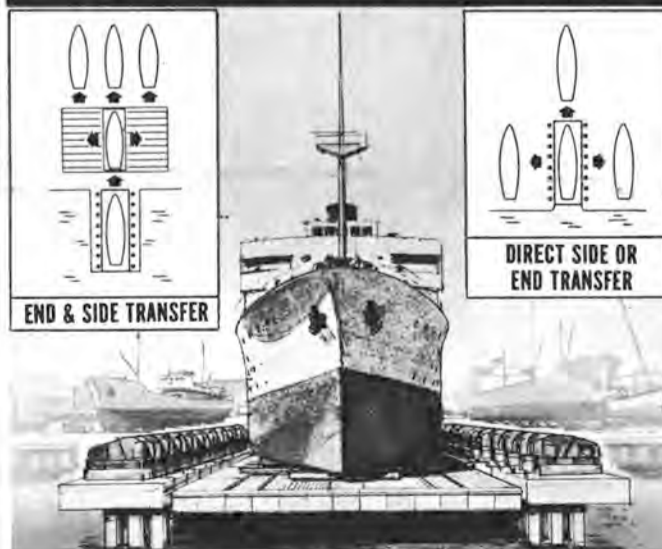


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**J.G. Allen Joins  
Martin Industries  
As Vice Pres.-Sales**



J.G. Allen

Andrew Martin, president of Martin Industries, Inc., New Orleans, La., has announced that J.G. (Jim) Allen joined the firm as vice president of sales. He will coordinate sales and contracts for Mission Drilling & Exploration Corporation, Mission Viking, Inc. (drilling companies); Andrew Martin Sea Services, Inc.; Andrew Martin Marine Corporation, Tiger Services, Inc. (boat companies); and Martin Industries International, Inc., all companies being wholly owned by Martin Industries, Inc.

**Three New Ships To Carry  
70% Of Container Trade  
New Zealand To Britain**

Three 42,000-ton containerships have been ordered from Bremer Vulkan in West Germany for a new round-the-world service which will carry about 70 percent of all the New Zealand-Britain container trade, according to Auckland reports. One of the three new sister ships will be acquired by the Government-owned New Zealand Shipping Corp., and the other two by partners in the service — P&O Line and Shaw Savill. Delivery dates are scheduled for 1977 and 1978.

The ships will be larger than the biggest containerships now in the New Zealand trade. Each will be able to carry 1,225 refrigerated containers and 189 general cargo containers, and will cruise at 21 knots.

The three new ships will sail regularly from Britain via Suez and Australia to New Zealand and return via Panama. This will supplement a service by the six 26,750-ton Overseas Containers Ltd. Bay-class ships now in the Australia-Europe trade which, it is planned, will sail to New Zealand via Panama and return to Britain via Australia and Suez.

This arrangement will provide both New Zealand and Australia with direct sailings to Britain in each direction.

In a joint statement, P&O Line and Shaw Savill said a substantial expansion of New Zealand container terminals would be needed before the new ships enter service.

**Subsidy Bids Filed For  
Six Tankers To Be Built  
At Cost Of \$240 Million**

Applications for subsidy for some \$240 million worth of tankers have been filed with the Maritime Subsidy Board by three companies headed by shipping executive Leo V. Berger.

The companies are Athena Marine Shipping Co., Ajax Marine Shipping Co., and Achilles Marine Shipping Co., all of (410

Lakeville Road) Lake Success, N.Y. Mr. Berger is listed as president and director of each company.

The six tankers planned were intended to be built and operated with subsidy in various trades, including the Caribbean, U.S. Atlantic and Gulf, Africa, North Europe, and Canada.

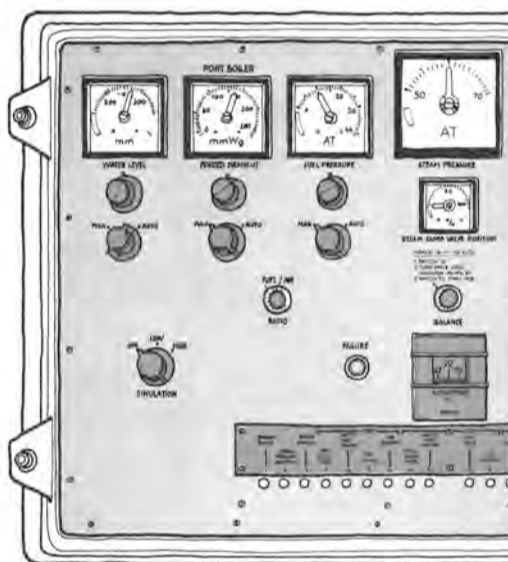
The application estimated the cost of building the vessels at \$40.6 million each, with operating subsidy calculated at \$750,000 a year per ship.

**General Steamship  
Names Boyd Manager  
PAD Line Dept.**

N.K. Boyd has been named manager of the PAD Line department of General Steamships Corp. Ltd., San Francisco, Calif., according to John R. Page, president. Mr. Boyd replaces Daulton Mann Jr., who has resigned.

For the past 13 years, Mr. Boyd has managed General Steamship's Italian Line department.

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With all due respect to the engine room professionals, some of their jobs should be taken away from them. Frankly, we don't think there'll be any complaints. We're talking about combustion control, the exacting tasks of setting air and fuel supply in precise accordance with steam demand, in order to optimize combustion efficiency.

We suggest you let Kockums Combustion Control take over. Have the job done electronically. Automatically. Fast and accurately. Second by second. All day, all night. The complete KCC consists of a central electronic controller and accessories; these include transmitters, pneumatically operated control valves and air damper control devices.

The system maintains the steam pressure within very close tolerances even during rapid load changes.

This is accomplished by adjusting the fuel oil supply to match the steam output. The forced draught is then adjusted to give good combustion.

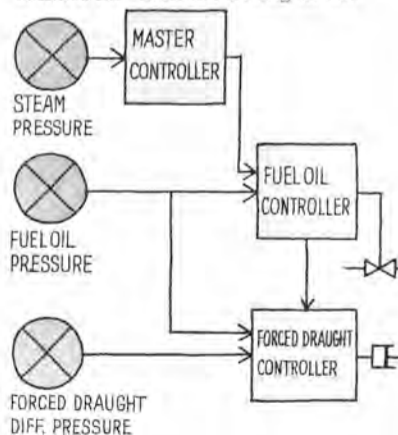
The electronic circuitry is designed to ensure a suitable amount of excess air even during load increases and/or decreases. Inputs for bridge control signals (load anticipation) and main engine trip are provided for main boiler systems. If required, a flue gas analyzer can be connected to the central unit; this provides automatic fuel/air ratio control for minimum excess air.

Feed water control can be included. This is a two-element system; water level and mass are the inputs. The water mass (The amount of water) in the tubes is a good indicator of the boiler load. This system has been in use for many years and is simple and reliable.

The KCC is available in two basic models, Mk3 for oil-fired and Mk4 for dual-fuel fired boilers. There are several versions of these models to suit variations in boiler lay-out.

The system is compact and easy to install and handle. It can be operated by engine room personnel without extensive training.

The KCC is built with integrated circuits for maximum safety and reliability. The central electronic unit contains all main parts; it is factory assembled in a cabinet intended for flush mounting in the



Engine Room Control Console. With Kockums Combustion Control on board you'll have a ship that consumes less fuel, needs less furnace maintenance and requires less attention from engine room crew.

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To Kockums Mekaniska Verkstads AB, Dept 291, Fack, S-201 10, MALMÖ 1, Sweden.

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*Kockums Combustion Control is only one part of the Kockums Boiler Automation Package, which also includes Kockums Burner Control, Kockums Flame Guard and Kockums Controller System.*

## Rudolph Matzer Designs 100-Foot Tug For Coppedge

Rudolph F. Matzer & Associates, Inc. has been commissioned by W.T. Coppedge Jr., Florida Towing Company, Inc., to design a new tugboat suitable for operation as both a harbor tug and full ocean towing.

The vessel, measuring 100 feet by 30 feet by 16 feet 6 inches, is being constructed by Atlantic Marine, Inc., Fort George Island, Fla.

Tony Watt, project manager for W.T. Coppedge, says an application for Title XI insurance has been made for the construction of the vessel.

According to Ronald L. Hutchinson of Rudolph F. Matzer & Associates, the vessel is being designed for classification by Amer-

ican Bureau of Shipping for unrestricted ocean service + A-1 E AMS towing service.

The vessel, which is scheduled for delivery March 1975, will be placed in service at the Port of Jacksonville, Fla.

## United States Navigation Names Slizewski Treasurer

A.J. Slizewski has been named treasurer of United States Navigation, Inc., 17 Battery Place, New York, N.Y. 10004.

Mr. Slizewski succeeds H.D. Huss, who retired from the company August 31 after 25 years' service. Mr. Huss will continue to serve the agency as a consultant through the end of the year. Mr. Slizewski joined the company in 1969, having previously been associated with Texaco Inc.

## Biggest Oil And Gas Discovery In Norwegian North Sea Sector

The discovery of the biggest oil and gas field yet uncovered in the Norwegian Sector of the North Sea has been confirmed by Norway's Ministry of Industry.

Norway's state-owned oil firm, Statoil, has a 50 percent interest in the field, Mobil Oil Corporation's Norwegian unit has 15 percent while Exxon, Continental Oil and the Royal Dutch-Shell group each hold a 10 percent interest.

The Ministry said the field, to be called the "Statfjord," contains reserves of at least two-billion barrels of oil and 60-billion cubic meters of natural gas. The field is adjacent to the British Brent Field and may extend into British waters.

If so, the two countries and the companies involved will discuss the feasibility of unified production from the entire field, a spokesman for the Norwegian Embassy said in London.

The latest of three wells in the area, which covers two concessions, flowed oil in rates of between 10,000 and 12,000 barrels a day from various intervals and with varying choke openings, the Ministry said.

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**SHIPSIDE FREEZER:** Chairman of the Federal Maritime Commission **Helen Delich Bentley** snips ribbon to officially dedicate the largest and most advanced shipside refrigerated facility in the world at Port Newark. With her are, left to right, **Thomas W. Gleason**, president of the International Longshoremen's Association; **Thomas D. Lombard**, general manager of Reefer Terminals, Inc., owners of the freezer transit terminal, and **A. Gerdes Kuhbach**, executive director of The Port Authority of New York and New Jersey, at whose Port Newark facilities the new plant is located. The new facility, designed to receive and deliver frozen meats and other frozen commodities in transit through the New York-New Jersey port area to commercial processors, is capable of receiving palletized breakbulk cargo from three ships simultaneously. It provides space for 3,800 tons of frozen meat and includes the most modern U.S. Department of Agriculture defrosting and inspection facilities. Also, a computerized cargo location control system permits the loading of trailers with unitized pallet loads at the rate of 15 tons in 20 minutes. Refrigerated Express Lines and Reefer Express Lines are the first ocean carriers to use the new facility, although any carrier can utilize the terminal.



## Kockums Doubles Profits Second Consecutive Year

For the second year in a row, Kockums, Malmo, Sweden, has doubled its profits over the preceding year, according to the 1973 annual report issued in Sweden. New earnings in 1973 amounted to \$33,500,000, as against \$13,000,000 in 1972.

The largest increase in earnings came from Kockums shipyard, which turns out super-tankers without benefit of Government subsidies. Kockums shipyard is the largest in Europe and fifth largest in the world.

In 1973, Kockums industrial division—which presently includes three subsidiaries and four plants in the United States and Canada—broke out of the red. In 1972, the industrial division—trucks, dumpers, excavators and forest industry machinery—lost \$11,900,000. In 1973, the group came up with a profit of \$5,750,000.

Dividends will be increased by 33 cents per share to \$1.60, Kockums announced.

In his report, managing director Nils-Hugo Hallenborg predicted that the favorable earnings for the company would continue over the next few years.

Kockums of Sweden operates three subsidiaries in the United States and Canada: Soderham Machine Manufacturing Company, headquartered in Talladega, Ala., with a plant in Portland, Ore.; Letson and Burpee Ltd. of Vancouver, British Columbia, Canada (acquired February 1974), and Adco West of Emmett, Idaho (acquired August 1973).

The three Kockums subsidiaries manufacture machines and systems for forest industries.

## 100th Freedom Vessel Ordered From IHI

IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.), Japan, recently concluded a contract with A.I. Alafouzos of Greece to build a 14,800-dwt Freedom-type multipurpose bulk cargo vessel. This is the 100th Freedom vessel so far ordered from IHI by ship-owners throughout the world. The contract includes a price-sliding clause.

The Freedom vessel is one of IHI's two standardized multipurpose cargo vessels, the other being the Fortune type of 22,000 dwt. It is designed to carry various kinds of bulk cargoes, including foodstuffs such as wheat and beans, ores, coal, steel materials, coils, lumber, containers, automobiles, etc., and to have a light draft so that it can enter and leave shallow ports. A mass-production system was established for it, and it is successively constructed according to standardized specifications. The first Freedom vessel was ordered in May 1966. Eighty-nine of the 100 Freedoms

were ordered from IHI and the remaining 11 from Jurong Shipbuilders Private Limited (JSBL) of Singapore.

This new order brings the total number of ships ordered by Mr. Alafouzos from IHI to 18—eleven Freedoms, two Fortunes, two 30,000-dwt and one 61,500-dwt cargo vessels, and two 138,000-dwt ore/oil carriers.

The contract concluded this

time adopts the Estimated Final Price formula where 60 percent of the ship price estimated for the delivery time will be subject to a sliding scale closely linked with wage and wholesale price indexes. The estimated final price of the Freedom vessel is approximately 2,700 million yen, of which 40 percent will be paid down with the remaining 60 percent payable over six years at intervals of six months.

The ship will be built by the Tokyo Shipyard and completion is scheduled for June 1978.

Principal particulars and approximate measurements of the vessel are as follows: length, 440 feet; breadth, 65 feet; depth, 41 feet, and draft, 30 feet. Her main engine will be an IHI-S.E.M.T. Pielstick 12PC2V-type diesel with a maximum continuous rating of 5,130 bhp delivering a service speed of 13.6 knots.

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**National Safety Congress  
Marine Section To Hear  
Coast Guard Commandant**

Adm. O.W. Siler, Commandant of the U.S. Coast Guard, will be the featured speaker at the Marine Section Propeller Club luncheon during the 62nd annual National Safety Congress to be held in Chicago September 30 through October 3.

Marine Section activities open at 9:30 a.m. Monday, September 30, in the Chicago Room of the La Salle Hotel, with a session devoted to stevedoring. Principal speakers and their topics for this morning include **Joseph Leonard**, safety director, International Longshoremen's Association, speaking on "The Importance of Labor - Management Cooperation to Stevedore Safety"; **W.J.**

**Burns**, director, Office of Hazardous Material, U.S. Department of Transportation, providing a "Hazardous Material Update"; and **Pat B. Keller**, director, T. Smith & Son, talking on the "Mississippi River System and Its Contribution to Stevedore Safety."

The Monday afternoon session on shipbuilding and ship repair will be held at 2 p.m. in the same location. The agenda includes **Raymond Ewart**, director, advertising and public relations, Avondale Shipyards, Inc., speaking on "Public Relations and Safety"; **Allen F. Normand**, assistant chief engineer, support technology, Bell Aerospace Co., on "Design, Construction, and Operational Safety of Surface Effects Ships"; and **Walter T. McLean**, consultant, McLean Associates, with a presentation on "Tool or Weapon? Are the Tools You Are Using at Marine Yards Safe?" An evening reception and awards presentation is scheduled for 6 p.m. on Monday.

Tuesday activities begin with a breakfast and annual business meeting scheduled for 7:30 a.m. in the Century Room of the La Salle Hotel. This will be followed by a barge and towing session beginning at 10:15 a.m. in the Chicago Room of the La Salle featuring "Safety in River Terminal and Barge Fleet Moorings," presented by **Sheldon G. Held**, chief marine surveyor, Hartford Insurance Group; and "Casualty Insurance—Its Part in Safety," discussed by **Byron E. Crawford**, safety coordinator, Exxon Co. USA.

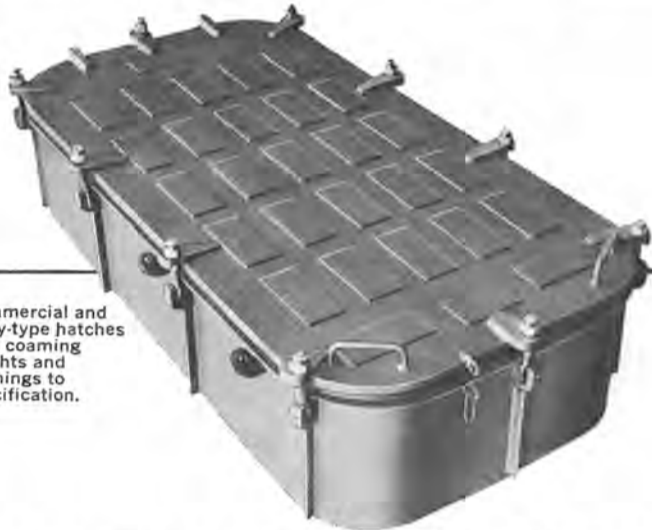
The ship operations session begins at 2:15 p.m. Tuesday afternoon in the Chicago Room and will include such topics as "Safety Training Aboard Great Lakes Vessels," by **William Satterness**, superintendent of safety training, Great Lakes Fleet, U.S. Steel

Corp.; "Improving Tanker Safety Through Review of Casualties," by **Art McKenzie**, director, Tanker Advisory Center; "How the 1972 Amendments to the Longshoremen's and Harbor Workers' Compensation Act Affects Safety," by **E.D. Vickery** of Royston, Rayzor, Cook, & Vickery; and "Maritime Safety and the Maritime Institute of Technology," given by **Max Carpenter**, interim director, Maritime Institute of Technology & Graduate Studies.

Meetings resume Wednesday morning at 9:30 a.m. in the Chicago Room with a U.S. Coast Guard session exploring such topics as "An Increase in Marine Casualties—Why?" presented by **Comdr. W.E. Whaley Jr.**, chief of the Casualty Review Branch, U.S. Coast Guard; "Safety in Buoy Handling Operations Aboard Coast Guard Buoy Tenders," by **Comdr. W.A. Wulff**, chief of Short Range Aids to Navigation Planning Branch, U.S. Coast Guard; and "An Explanation of the New Regulations for Carriage of Packaged Hazardous Materials by Water," by **Lt. Comdr. C.L. Keller**, chief of the Packaged Cargo Branch, U.S. Coast Guard.

Marine Section activities will be capped by a Wednesday luncheon in the Century Room of the La Salle, featuring an address by **Adm. O.W. Siler**, Commandant of the U.S. Coast Guard.

The National Safety Congress, sponsored by the National Safety Council, is the largest annual safety meeting of its kind in the world and attracts some 16,000 safety-minded persons from across the nation and many foreign countries. The meeting serves as an exposition with hundreds of exhibits of safety equipment and services as well as a forum of more than 200 sessions for the exchange of safety ideas and information.



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## Alco Engines Names Nepco Dealer-Distributor

Nepco, Inc., South Charleston, W. Va., has been appointed a dealer-distributor for Alco Engines, Auburn, N.Y. The announcement was made by **E.H. Glascock**, Alco vice president-marketing, and **Robert Graham**, president of Nepco, Inc. Alco Engines is a division of White Motor Corporation, Cleveland, Ohio.

Under the new working arrangement, Nepco will package, market and service Alco engines in a 15-state area, including South Carolina, North Carolina, Virginia, West Virginia, Maryland, Delaware, Pennsylvania, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine.

At its South Charleston facility, located in the Charleston Ordnance Center, Nepco has a 60,000-square-foot open bay manufacturing area, with adjacent rail siding. Three interstate highways intersect nearby to facilitate truck shipments.

As part of its Alco representation, Nepco will package engines to meet individual customer's needs. It will market the entire line of Alco diesels, from six through 18 cylinders.

Nepco is located at the Charleston Ordnance Center, P.O. Box 8455, 3100 MacCorkle Avenue, S.W., South Charleston, W. Va. 25303. Other company officers are **Charles Boggs**, vice president-sales, and **W.F. Ferrell**, secretary and treasurer.

## Crutcher Subsidiary Has Option To Purchase New Workover Rig

Crutcher Resources Corporation, P.O. Box 3227, Houston, Texas 77001, has announced that Mallard Well Service, Inc., a wholly owned subsidiary in Lafayette, La., has leased, with an option to purchase, a recently completed offshore self-propelled jackup workover rig from Services, Equipment and Engineering (SEE) of Houma, La.

**Don H. Hartmann**, president of Crutcher Resources, also announced that **James Harper**, president of SEE, has joined Crutcher Resources as an engineering consultant specializing in offshore projects. "Mr. Harper brings extensive experience in innovation and design of drilling, construction and workover equipment to us as we continue to expand our petroleum services operations," Mr. Hartmann said.

The leased rig extends Mallard operations to offshore locations with workover and completion capabilities to 10,000 feet in as much as 60 feet of water. Mallard's present fleet of 10 inland water workover rigs operates up to 25,000 feet deep. "While the

working water depth of the new offshore rig represents an extension of Mallard's services, the personnel and the market served closely parallel Mallard's present operations," Mr. Hartmann said. Mallard will be evaluating the new rig's performance with tentative plans to build additional units with the aid of ship financing available under Title XI, the Merchant Marine Act.

The workover rig is self-propelled and moves from job to job at 8 to 10 knots. It has living quarters for 16 men and an 80-by 40-foot main deck.

Prior to forming Services, Equipment and Engineering, Mr. Harper served for six years as vice president and general manager of Dresser Offshore Services, Inc., Houston. He had also been

drilling and production superintendent for J. Ray McDermott, Inc., Houston.

Mr. Harper is a member of the American Institute of Metallurgical Engineers (AIME), the International Association of Drilling Contractors (IADC) and the American Petroleum Institute. He received his B.S. degree in petroleum engineering from Louisiana Tech.



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- 4 - 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, Steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.



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## Crutcher Subsidiary Has Option To Purchase New Workover Rig

Crutcher Resources Corporation, P.O. Box 3227, Houston, Texas 77001, has announced that Mallard Well Service, Inc., a wholly owned subsidiary in Lafayette, La., has leased, with an option to purchase, a recently completed offshore self-propelled jackup workover rig from Services, Equipment and Engineering (SEE) of Houma, La.

**Don H. Hartmann**, president of Crutcher Resources, also announced that **James Harper**, president of SEE, has joined Crutcher Resources as an engineering consultant specializing in offshore projects. "Mr. Harper brings extensive experience in innovation and design of drilling, construction and workover equipment to us as we continue to expand our petroleum services operations," Mr. Hartmann said.

The leased rig extends Mallard operations to offshore locations with workover and completion capabilities to 10,000 feet in as much as 60 feet of water. Mallard's present fleet of 10 inland water workover rigs operates up to 25,000 feet deep. "While the

working water depth of the new offshore rig represents an extension of Mallard's services, the personnel and the market served closely parallel Mallard's present operations," Mr. Hartmann said. Mallard will be evaluating the new rig's performance with tentative plans to build additional units with the aid of ship financing available under Title XI, the Merchant Marine Act.

The workover rig is self-propelled and moves from job to job at 8 to 10 knots. It has living quarters for 16 men and an 80-by 40-foot main deck.

Prior to forming Services, Equipment and Engineering, Mr. Harper served for six years as vice president and general manager of Dresser Offshore Services, Inc., Houston. He had also been

drilling and production superintendent for J. Ray McDermott, Inc., Houston.

Mr. Harper is a member of the American Institute of Metallurgical Engineers (AIME), the International Association of Drilling Contractors (IADC) and the American Petroleum Institute. He received his B.S. degree in petroleum engineering from Louisiana Tech.



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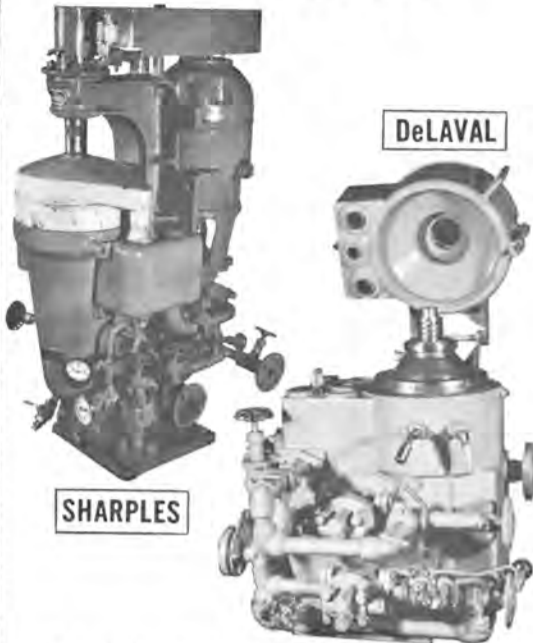
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## Nelson Log Bronc Delivers 40-Ft. Log/Barge Towing Tug



The tug pictured above is named in honor of Ed Borgen, a well-known Alaska lumberman and 30-year employee of Ketchikan Spruce Mills, which is presently a wholly owned subsidiary of Ketchikan Pulp Company.

Nelson Log Bronc Corporation of Coos Bay, Ore., has announced the recent delivery of a new 40-foot log and barge towing tug, E.W. Borgen, to Ketchikan Spruce Mills of Ketchikan, Alaska.

According to mill manager Frank Roppel, the new tug will be placed in service towing log rafts from local storages to the sawmill and handling chip barges between the sawmill and the pulp mill.

According to Jack Wilskey, president and general manager of Nelson Log Bronc, the vessel incorporates several features not usually found in tugboats of this size. An unusually wide beam of 16 feet provides stability for the 400-hp Caterpillar (D-343) diesel engine with 4.5:1 reverse reduction gear.

Heavy duty 40-hp hydraulic-powered tow-

ing winch with complete throttle and steering control located at the tow winch.

A Wagner hydraulic steering system with three station jog controls gives 3.5-second H/O to H/O steering.

The vessel has been designed to accept either a conventional rudder steering system or a steering-type nozzle, which will increase the total bollard pull of the vessel by 20 to 25 percent.

Three station 2 in 1 Mathers engine controls are provided for the convenience of the operator.

Nelson Log Bronc has long associated itself with building fine sturdy vessels for the logging industry throughout the world. Stock steel tugs are available in sizes ranging from 16 feet through 50 feet.

## Crossocean Shipping Appoints W.L. Kasper

Marko Zaja, president of Crossocean Shipping Co., Inc., has announced the appointment of William L. Kasper as director of special projects for the firm.

Mr. Kasper, formerly associated with Maritime Container Line and East West Shipping Agencies, Inc., is currently manager, Eastern trade development for the Duluth Port Authority, and will continue in that position at Crossocean's New York office.

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**Petroleum Engineers  
40th Annual Meeting  
Set For Houston Oct. 6-9**

An analysis of current tax legislation affecting the oil and gas industry and a discussion of the financing of LNG and other major energy projects will be the highlights of two special sessions on "Energy Economics" at the 49th Annual Fall Meeting of the Society of Petroleum Engineers of AIME. The SPE fall meeting will be held October 6-9 at the Albert Thomas Convention Center in Houston, Texas.

The "Economics" sessions will be part of a 185-paper technical program centered around the theme "Energy Perspectives — A Short Look Backward and a Long Look Ahead." Leading petroleum industry engineers and executives and representatives from the Federal Government will be discussing professional, economic, and technical innovations in the energy resource industries. Some 5,000 persons are expected to attend the four-day meeting.

A summary of current tax legislation and its impact on the self-sufficiency of the oil and gas industry will be presented by J.W. Bullion of Thompson, Knight, Simmons & Bullion in Dallas, in his paper entitled "Today's Oil and Gas Tax Problems." Mr. Bullion, a former special attorney with the IRS, will also analyze treasury regulations, IRS rulings, and decided cases affecting the energy industries.

Three papers will be presented concerning the financing of major energy projects, including a paper entitled "Money for Energy" by

George B. Yurchyshyn of First National Boston Ltd. in London. Using international LNG projects as an example, Mr. Yurchyshyn will discuss the limitations of existing sources of energy financing, the modification of money market mechanisms to supplement these sources, and the creation of additional lending institutions to finance energy projects.

D.I. Heather and W.B. Cline, of Gaffney, Cline & Associates, Ltd. in Surrey, England, will relate the financial return on offshore oil and gas projects to the technical risks associated with these projects and financial standing of the projects' participants. The paper, entitled "The Merits of Some Alternative Development Plans for Offshore Oilfield Development," will also review the most recent financing proposals for North Sea development.

A presentation on innovative financing methods for independent petroleum companies will be made by I.D. Flores III of Eppler, Guerin & Turner, Inc. in Dallas. In his paper "Drilling for Dollars for Drilling," Mr. Flores will discuss present and future financing techniques that will facilitate the independent petroleum companies' long-range planning for oil and gas financing and development.

The Society of Petroleum Engineers of AIME, located at 6200 North Central Expressway, Dallas, Texas 75206, is an international technical and professional organization for engineers and managers in the exploration, drilling and production phases of the petroleum and natural gas industries. The Society has more than 20,000 members in the major oil producing areas of the world.

**American Ship Shows  
Third Quarter Increase**

Net income of The American Ship Building Company for the third quarter ended June 30, 1974, increased 38 percent over year-ago net income for the same period after giving effect to the disposition last year of certain operations.

Net income from continuing operations for the three months was \$1,397,000, compared to \$1,014,000 for the same period last year. On a per share basis, net income was 71 cents, compared to 51 cents last year. For the nine months, net income was \$2,595,000, compared to \$2,845,000 for the year-ago nine months, or \$1.27 per share, compared to \$1.39. Net income in the current year includes significant income from the gain on sale of vessels and the investment tax credit. The net income figure for the first nine months last year has not

been restated downward to reflect reserves totaling \$3.5 million which were established at the end of the last fiscal year.

"The company's resources are being directed towards taking advantage of the rebuilding of the Great Lakes fleet and the demand for barges to haul petroleum products and other energy-related materials," a company spokesman said.

The company is now completing work on the expansion of its Lorain, Ohio, shipyard, lengthening its largest drydock to 1,020 feet to accommodate construction on three 1,000-foot-long self-unloaders now under contract.

The American Ship Building Company, headquartered in Lorain, Ohio, is listed on the New York Stock Exchange. It operates shipyard facilities in Lorain and Toledo, Ohio, Chicago, Ill., Tampa, Fla., and barge and tow-boat construction yards in Nashville and Ashland City, Tenn.



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**Petrolane Opens Division  
Headquarters In Houston—  
Friedl Named Vice President**



George Friedl



W.E. Durkee

Petrolane Incorporated has established an administrative headquarters in Houston, Texas, for the Petroleum Industry Services Division. The division's new address is 811 Dallas Street, Americana Building, Suite 1001, Houston, Texas 77002.

W.E. Durkee, division president, said the Houston office will be the headquarters for the \$41-million worldwide operations of Petrolane's oil industry support services. Eastman-Whipstock, a large segment of the division and a major directional drilling company, has its main office in Houston. Other division segments not located in Houston are Arthur Levy Boat Service, Inc., an international workboat operator; Fishing Tools Inc., a remedial well service firm, and Indonesia Air Transport, an air taxi service.

At the same time, the announcement of the division headquarters was made, Petrolane also announced the selection of a petroleum services vice president to assist with special projects. George Friedl, currently director of Petrolane's LP-gas allocation program, was chosen for the executive post. Prior to joining Petrolane in 1973, Mr. Friedl was a management consultant specializing in market research and product planning. He also gained extensive experience in maritime operations, serving as an officer in the U.S. merchant marine and sailing large passenger and cargo vessels around the world. In his new assignment, he will move to Houston to join Mr. Durkee in the overall coordination of division activities.

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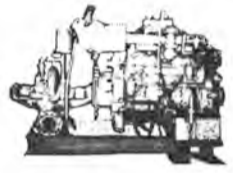
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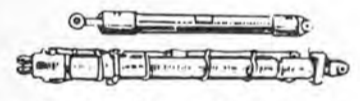


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Size A2	Size A6	Size A16

### AC HORIZONTAL CENTRIFUGAL

2—WORTHINGTON, 1 1/2 x2DGS, 50 GPM, 139' hd, w/Westinghouse Motors, 6 HP, 220/3/60.

2—WARREN, 1 1/2 SED-8, 90 GPM, 44.8 PSI, 2" suction, 1 1/2" discharge, with Electro Dynamic Motors, 6.5 HP, 440/3/60.

1—WORTHINGTON, 1 1/2 UZ-2, 50 GPM, 193' hd, w/Westinghouse Motor, 7 1/2 HP, 220/3/60.

3—WARREN, 600 GPM, 12 PSI, w/Electro Dynamic Motors, 16/4 HP, 440/3/60.

3—WORTHINGTON, 2UB-1, 200 GPM, 100 PSI, 3 1/2 x3, w/Star Motors, 25 HP, 440/3/60.

2—BUFFALO, Class CCS, 250 GPM, 100 PSI, 4x3 1/2, w/Westinghouse Motors, 25 HP, 440/3/60.

4—WORTHINGTON, 3200 GPM, 12 PSI, 12x10, w/G.E. Motors, 35/19 HP, 440/3/60.

1—CARVER, 400 GPM, 100 PSI, 3 1/2 x2 1/2, 35.7 HP, 440/3/60.

1—GARDNER-DENVER, 5x3, 350 GPM, 336' hd, 50 HP, 440/3/60.

1—WORTHINGTON, 400 GPM, 150 PSI, 6x5, w/Electro Dynamic Motor, 70 HP, 440/3/60.

1—WORTHINGTON, 500 GPM, 150 PSI, 6x5, w/Allis-Chalmers Motor, 80 HP, 440/3/60.

1—GARDNER-DENVER, 750 GPM, 336' hd, 6x5, w/GE Motor, 81.2 HP, 440/3/60.

1—WORTHINGTON, 1000 GPM, 150 PSI, 7x6, w/GE Motor, 140 HP, 440/3/60.

### AC VERTICAL CENTRIFUGAL

3—WORTHINGTON, 2 1/2 UZ-1, 150 GPM, 173' hd, w/Westinghouse Motor, 15 HP, 220/3/60.

1—WORTHINGTON, 8LS-1, 1800 GPM, 25' hd, w/Westinghouse Motor, 15 HP, 220/3/60.

2—WORTHINGTON, 20LAS-1, 10500 GPM, 27' hd, w/Westinghouse Motors, 100 HP, 220/3/60.

### DC HORIZONTAL CENTRIFUGAL

2—GOULDS, Figure 3380, 250 GPM, 100 PSI, 4x3, 30 HP, 230 DC.

1—WORTHINGTON, 3UB-1, 400 GPM, 280' hd, w/Westinghouse Motor, 50 HP, 230 DC.

### DC VERTICAL CENTRIFUGAL

2—ALLIS-CHALMERS, CF2V, 30 GPM, 208' hd, 2 1/2 x1 1/2, 7 1/2 HP, 230 DC.

2—ALLIS-CHALMERS, CF2V, 170 GPM, 208' hd, 6x3 1/2, 20 HP, 230 DC.

1—ALLIS-CHALMERS, 400 GPM, 100 PSI, 4x3, 50 HP, 230 DC.

### STEAM VERTICAL DUPLEX PUMP — Cargo Oil

2—WORTHINGTON, Size 16x14x18, 1400 GPM, 110 PSI.

**THE ABOVE LIST REPRESENTS BUT A FRACTION OF OUR MARINE PUMP STOCK. PLEASE INQUIRE FOR SPECIFIC TYPES AND SIZES NOT SHOWN.**

## AIR COMPRESSORS



2—SULLIVAN, Size WL60, Model A-UB-8, 100 PSI, 2 stage, with 30 HP G.E. Motors. 440/3/60.

1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5 3/4 x5, with Diehl Motors, 45 HP, 230 Volts, DC, 870 RPM, 167 Amperes.

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

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

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

## MARINE DIESEL GENERATORS

HERCULES, DOOC, 10 KW, 120 DC.

CATERPILLAR, D3400, 15 KW, 120/240 DC.

BUDA, 4 cylinder, 15 KW, 120/240 DC.

HERCULES, DJXC, 25 KW, 120 DC.

CUMMINS, WA255, 30 KW, 120 DC.

P&H, 387C-18, 45/56 KVA, 120/208/3/60.

BUDA, 6DH909, 40 KW, 120 DC.

BUDA, 6 DHG691, 60 KW, 120 DC.

GENERAL MOTORS, 6067, 60 KW, 450/3/60.

BUDA, 6DC844, 75 KW, 125-250 DC.

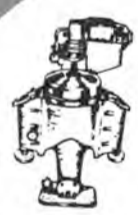
1—CUMMINS, Model HCD, 60 KW, 120/240 DC.

CATERPILLAR, D17000, 85 KW, 220/3/60.

4—COOPER-BESSEMER, Model FSN6, 6 cylinders, 375 HP, 900 RPM, with General Electric Generators, 250 KW, 440/3/60.

### MORE DIESEL GENERATORS ON FOLLOWING PAGE

IF YOU DON'T SEE IT CALL!  
"IF IT'S ON A SHIP, WE PROBABLY HAVE IT!"



## REDUCTION GEARS

WESTINGHOUSE, as orig. used on two 1362 HP electric motors in submarine, 2 pinions, single gear.

FALK Reduction Gears—Port & Starboard, Interchangeable with T-3 Tanker Gears, Falk No. 148-300. Also interchangeable with Falk Gears on AO51 Class Tankers (14 ships). Also on AO97 and AO100 Tankers.

## CENTRIFUGES SHARPLES AND DE LAVAL

150 GPH—440 AC  
230 DC

350 GPH—230 DC  
600 GPH 230 DC



## LST PROPELLERS

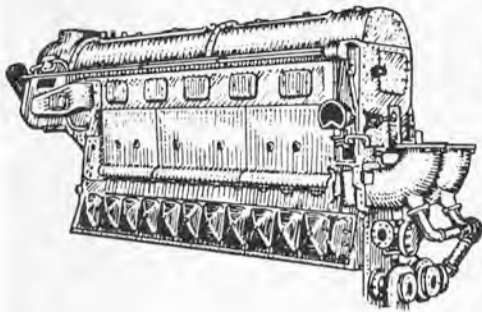
2—USED, GOOD, MATCHED PAIR

## COMPLETE VESSEL Ex-LST 1093



Steel hull, twin screw, 1800 HP, 328' length overall, 50' beam, 14' draft, light displacement 2100 tons.

## MARINE DIESEL ENGINES



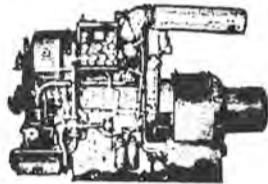
### MATCHED PAIR... FAIRBANKS MORSE

Model 38D8 1/8 — 1 port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8 1/2" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio— with Hydraulic Coupling.

3—COOPER-BESSEMER DIESEL ENGINES, Model LS-8-DR, 1300 HP, 277 RPM, direct reversing, turbo charged.

2—SUPERIOR DIESEL ENGINES, Model VDSS, 1160 HP, 325 RPM.

## MARINE DIESEL GENERATORS



6 — GENERAL MOTORS, Model 8-278A, 510 HP, 600 RPM, marine, with G.E. Generators, 350 KW, 450/3/60, 560 amperes.

1—GENERAL MOTORS, Model 3-268A, Marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generator, 120/240 DC.

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

## TURBINE GENERATORS A.C. AND D.C. VOLTAGES

### A.C.

2—1500 KW, GENERAL ELECTRIC Turbines: Type FN4-FN30, Steam 525 PSIG, 8145 RPM, with G.E. Generators, 1500 KW, 450/3/60.

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

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

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

### D.C.

6—WESTINGHOUSE, 200 PSI, with Westinghouse Generators, 60 KW, 120 DC.

2—DeLAVAL, Class HD, 576 HP, 10,000 RPM, 6-stage, 425 PSI, 725°F, with Westinghouse Generator, 400 KW, 220/3/60.

1—GENERAL ELECTRIC, 525 PSI, with G.E. Generator, 250 KW, 440/3/60.

1—GENERAL ELECTRIC, with G.E. Generator, 350 KW, 440/3/60.

ALLIS-CHALMERS, 440 PSI, 740°F, 300 KW, 120/240 DC.

JOSHUA HENDY, 300 PSI, 550°F, with Westinghouse Generator, 300 KW, 120/240 DC.

WORTHINGTON, Form S4, 440 PSI, 740°F to a Westinghouse Generator, 250 KW, 440/3/60, and to a 90 KW, 120 DC.

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

## SUBMARINE DIESEL GENERATOR ENGINES (Without Generators)

2—GENERAL MOTORS, Model 16-278A, 1600 HP, 750 RPM.

1—FAIRBANKS-MORSE, Model 38D8-1/8, 16 cylinder, O.P., 1600 HP, 720 RPM.

FOR ELECTRICAL EQUIPMENT 503 / 228-8691 ASK FOR "ELECTRICAL DIV."

FOR MARINE VALVES & FITTINGS: 503 / 228-8691 ASK FOR "VALVE DIV."



## Steel Watertight DOORS

Used, Good Condition, Trimmed Frames.

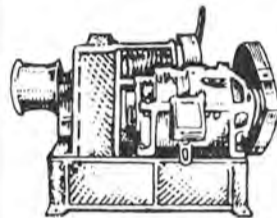
Many sizes available, priced reasonable. Some Typical Prices shown below. Please inquire for other sizes.

26" x 45" — 8 Dogs — \$60.00 ea.  
26" x 57" — 8 Dogs — \$80.00 ea.  
26" x 60" — 8 Dogs — \$96.00 ea.  
26" x 66" — 10 Dogs — \$100.00 ea.  
26" x 57" — Q.A. Type \$155.00 ea.  
26" x 66" — Q.A. Type \$175.00 ea.



## CARGO WINCHES

American Hoist and Derrick Company Winches with Westinghouse Motors, 50 HP, 230 Volts DC, complete with Contractor Panels, Master Switches, and Resistors.



Single Speed, Single Drum

## UNIT WINCHES

American Hoist and Derrick Co.

U3H—SINGLE DRUM, Single speed (4) Line Pull: 7450#—223 FPM, 6360#—237 FPM, 3720#—287 FPM.

U6H—DOUBLE DRUM, Single Speed (2) Line Pull: 7450#—223 FPM, 6360#—237 FPM, 3720#—287 FPM.

Motor: Westinghouse, 50 HP, 230 Volts DC, 1900 RPM, Model 288212, 183 Amperes, compound wound, Frame 9 UW, horizontal.

Unit Winches complete with Contactor Panels, Resistors, Master Switches.



## CAPSTAN WINDLASSES

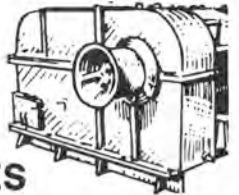
Model CWP-3, Vertical 24" Planetary Capstan Windlasses, Single Wildcat—using 1 1/4" Anchor Chain, Single Gypsy with 20 HP Motor, 230 Volts DC, complete with Contactor Panel, Master Switch, and Resistors.

HYDE, VERTICAL, Single Wildcat, for 1 1/4" Anchor Chain, single gypsy, with 20/5 HP Motor, 440/3/60.

## CARGO HOISTER BLOCKS

5 ton rated, Steel, as removed from surplus ships. Manufactured by: Young, Draper, etc., 12" and 14" sizes.

\$44.50 ea. \$49.50 each with pull test certificates



## UNIWINCHES

LAKESHORE UNIWINCHES, with Allis-Chalmers Motors, 50 HP, 230 Volts DC, complete with Control Equipment.

Single speed, double drum, 7450 # at 2 FPM.

Single speed, single drum, 7450 # at 220 FPM.

## ANCHOR WINDLASSES

1—HORIZONTAL, of German Mfg., double wildcat for use with 3" anchor chain, double gypsy with 230 VDC motor, complete with electrical control equipment.

AMERICAN ENGINEERING, horizontal, double 2 1/8" Chain, 65 HP, 230 DC, complete.

2—AMERICAN HOIST AND DERRICK COMPANY, horizontal, double wildcat for 2 1/2" chain, double gypsy, 70 HP, 230 Volts DC with electric controls.

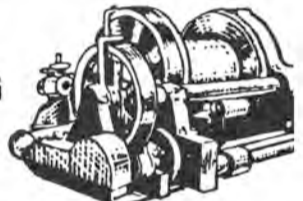
2—HESSE-ERSTED, horizontal, double wildcat, 2 1/8" chain, 60 HP, 230 DC.

1—HYDE HORIZONTAL ANCHOR WINDLASS, double wildcat for use with 2 1/8" Anchor Chain, and with General Motors Electric Motor, 60 HP, 230 volts DC, 560/1700 RPM Type CDM 18831 AE, Complete with Contactor Panel, Resistors, and Master Switch.

## ANCHOR WINCHES

1—JAEGER, single drum capacity approximately 900' of 1 1/2" wire rope, double gypsy with 35 HP Motors, 230 Volts DC, complete with electricals.

## STEAM TOWING WINCH



Single drum capacity 2000' of 2" wire rope cylinder size 9" bore by 10" stroke.

## ANCHOR CHAINS

Used — good

1 3/8" size 2 1/16" size 3 3/8" size  
1 1/2" size 2 1/4" size

Hundreds of other items in stock from Carriers, Cruisers, Destroyers, Submarines, Landing Vessels, Troop Ships and Cargo Ships

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**Europe's Largest Marine Stocks**  
**FACTORY RECONDITIONED**  
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**Anchors (1500) (60) Generators**  
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**Accommodation Spare Parts**  
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**SHARPLES OIL PURIFIERS**

Complete with motor, starter and pump  
**FOR FUEL OR LUBE OIL**



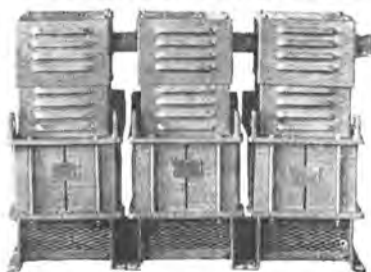
**DIESEL LUBE OIL: 225 GPM**  
—viscosity 180-220 SSU @ 130°F. **DIESEL OIL: 225 GPM**  
—viscosity 45 SSU @ 100°F.  
**MODELS: Lube Oil M-85-34-5-23BM-44; Fuel Oil M-85-35-5-8CA-13. SPECIFICATIONS: Bowl speed 17,000 RPM—1" oil inlet & outlet. 2 HP verticle GE motor—440/3/60/3400—complete with starter. Plans available.**

**\$1850**

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**15 KVA—3 per bank—450 V primary—177 volt secondary. \$295.00 PER BANK**

Also inquire about other sizes: 10 KVA/20 KVA/25 KVA/37 KVA

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**SHIPYARD WHIRLEY CRANES**

1 — Washington '28-105M at 45' with Cummins Diesel Power Plants, 30' C-C on rails, 45' to boom point, FOB PORTLAND ORE.

1 — Washington 28-120K, 50T at 45', 36' C-C on Rails, 120' boom, also straight electric, FOB PORTLAND ORE.

1 — American R-20, 45T at 45', Low Gantry, Buda Diesel Generator, FOB OAKLAND CAL.

1 — American R-15, 45' to boom base, 24' C-C (track gauge), FOB OAKLAND CAL.

1 — Clyde 24-E-85, 50T, 21' C-C on Rails, 30' to boom point, FOB OAKLAND CAL.

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**Contact Morris Schnitzer, Schnitzer Steel Products Co., 3300 N.W. Yeon Avenue, Portland, Oregon (503) 224-9900**

**WINCHES—Steam or Air Operated**

4x6 Lidgerwood, 13000# Static Load \$995.00 each  
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7x12 American Hoist & Derrick 10,000# at 125 FPM \$1500.00 each  
9x12 American Hoist & Derrick 20,000# at 110 FPM \$3250.00 each  
10 1/2 x 12 Lidgerwood, 32,000# at 90 FPM \$4750.00 each

**Also Electric**

2 Almon A. Johnson Towing Engines Model 232 wire rope included at \$19,000.00 each

All sizes of stud link chain, anchors, fittings available from stock

**STANDARD STEAM WINCH CO., INC.**  
Agents for Baldt Anchor & Chain and Crosby Group  
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**FOR SALE:**

**CLYDE WHIRLEY CRANE**  
Model 17-DE-90

Diesel Electric • 20 ft. Track Gauge • 90 H.P. 3-Drum Hoist • 80 ft. Boom, 10 ft. Whip • Line Pull, 11250# 2nd layer • 37 ft. from Rail to top of Roller Circle

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**WESTINGHOUSE T2 TANKER**



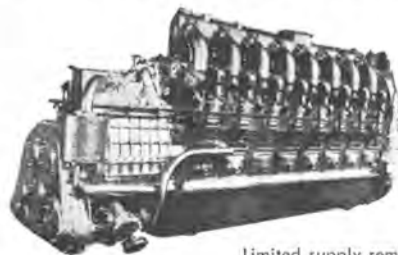
**MAIN GENERATOR COOLERS**

Reconditioned — with ABS. Ready to ship.

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**1700 H. P.**  
**DIESEL ENGINES**



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

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Our Balanced Head Fairleads are tested to break the line at 90° pull. Roller bearings are used throughout. Line sizes from 1/2" to 2 1/4".

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**NEW 7" RADIUS PANAMA CHOCKS**

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With extended legs for welding to deck. IMMEDIATE DELIVERY FROM STOCK.

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**AIR COMPRESSORS**

**DIESEL STARTING**



Two stage—water cooled—single acting verticle type—10 CFM—600 lbs. Type 30—Class T. Ingersoll-Rand Compressor—4x1 1/2 x 3 1/2 @ 630 RPM. Motor 7 1/2 HP—440/3/60—1750 RPM—complete with starter—intercoolers and aftercoolers.

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**WESTINGHOUSE 538 KW AUX GEN EXCITERS**



We have both types:  
110 KW — 32 KW — 5.5 KW  
110 KW — 28 KW — 5.5 KW

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**NEW WATERTIGHT DOORS**



6-Dog right and left hand hinged steel doors—with frames. Built and tested to A.B.S. specifications.

SIZE	NET WT.
26"x48"	250 lbs.
26"x60"	300 lbs.
26"x66"	320 lbs.

EACH DOOR

**IMMEDIATE DELIVERY**

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# NATIONAL METAL'S CURRENT T-2 INVENTORY

MANY OTHER ITEMS NOT LISTED • ALL ITEMS FURNISHED WITH A.B.S. OR LLOYDS'

## TURBOGENERATORS

### 525 KW GENERAL ELECTRIC AUXILIARY TURBOGENERATOR UNIT

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

### 538 KW WESTINGHOUSE TURBOGENERATOR UNIT

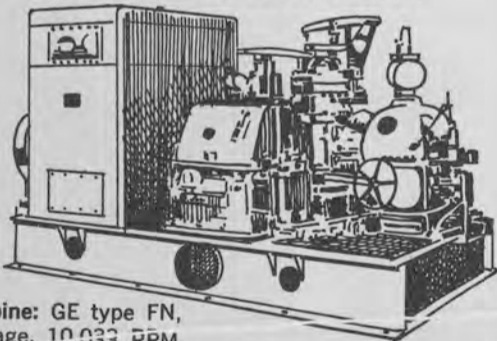
Complete with L.O. Coolers and exciters. Turbine: Westinghouse 538 KW, 5010 RPM. Inlet pressure 435 psi. Temp. 750 degrees F. Exhaust pressure 28 1/2 hg vac. Generators: (1) 400 KW, 450 VAC, 3 pole, 60 cycle, PF 80%, 1200 RPM, ship's service. (2) 32.5 KW, 125 VDC, 1200 RPM, variable voltage exciter. (3) 110 KW, 125 VDC, 1200 RPM, constant voltage generator. (4) 5 KW, 125 VDC, 1200 RPM, ship's service Generator-Exciter. Reduction Gear: Ratio 5010/1200 RPM.

### 535 KW GENERAL ELECTRIC TURBOGENERATOR UNIT

Complete with L.O. Coolers and exciters. Turbine: General Electric Mfg. drawing P-8453535, 3 stages, type DORV-325, 5645 RPM, rating 535 KW, inlet pressure 590 lbs., Superheat 325 degrees F., exhaust pressure 1 3/4 ABS. Reduction Gear: General Electric, type S-162-D, Class, 535 KW, Mfg. dwg. T-8453535, 5645/1250 RPM. Generator: General Electric, Dwg. T-8453535, type ATB-976, KNA 500, 450 volts AC, 3 phase, 60 cycle, 400 KW, 642 amps, 1200 RPM, PF .8; Frame 976, Exciter 120 volts DC. Control panel: General Electric, Dwg. 6367270, Type XF-100492, 6 circuits, 450 volts AC.

★★ ALSO AVAILABLE!! ★★

### 600 KW GENERAL ELECTRIC TURBOGENERATOR UNIT



Turbine: GE type FN, 6-stage, 10,033 RPM.

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

### MAIN MOTOR FOR T2

Gen. Elect. #5690714 Type TSM-80, 6000 HP, 90 RPM, form H.L., 2300 Volts, Amps. arm. 1160, P.F. 1.0, KVA 4625 Phase 3 cycle 60, Exciter volts 120, amps field 390 contin. @ 60°C. rise.

### 5400 KW MAIN GENERATOR

General Electric, S/N 79938, Marks 6937958 G-4, 5F-1690-2, 164-M.

## PUMP UNITS

### CARGO STRIPPING PUMP

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

### MAIN FEED PUMP

Pump: Coffin Turbo Pump Co., single stage, centrifugal, size CG-12A, 6980/7030 RPM, 240/280 GPM, 254/280 HP, 6" x 3", 750 psi @ 1760 ft. head, complete with turbine.

### MAIN FEED PUMP

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

### MAIN CIRCULATING PUMP

Pump: Ingersoll Rand, type 24 VCM, single stage; double suction centrifugal, 585 RPM, 16,500 GPM against TDH 25 ft. @ 30 psi, 26" x 24". Motor: General Electric, Model 5K633AP1, Frame N-6336-B, 585 RPM, 440 volts AC, 191 amps, 3 phase, 60 cycle, complete with controller.

### MAIN CIRCULATING PUMP

Pump: Ingersoll Rand, type 24 VCM, size 24", 585 RPM, 14,000 GPM @ 25 ft. TDH, 26" x 24", operating pressure 15 psi. Motor: Westinghouse, Model CS, Frame 876C, 125 HP, 585 RPM, 440 volts AC, 159 amps, 3 phase, 60 cycle, complete with controller.

### MAIN CARGO PUMP UNIT

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

### FUEL AND LUBE OIL PUMP

Pump: Quimby, size 2 1/2 head screw, 1200/600 RPM, 15 GPM @ 325 psi disch. press. Motor: General Electric, Model 5KF364PP1, Frame 364, 7.5/3.75 HP, 1160/580 RPM, 440 volts AC, 10/9.7 amps, 3 phase, 60 cycle, complete with controller.

### LUBE OIL SERVICE PUMP

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

### MAIN CONDENSATE PUMP

Pump: Ingersoll Rand, size 2VHM, 1760 RPM, 180 GPM @ TDH 165 ft., 5" x 2", disch. press. 67 psi. Motor: General Electric, Model 5KF365AJN-1, Frame 365V, 20 HP, 1765 RPM, 440 volts AC, 3 phase, 60 cycle, 25.5 amps, with controller.

## AIR COMPRESSORS

### COMBUSTION CONTROL AIR COMPRESSOR UNIT

Compressor: Ingersoll Rand, type 30, Model 253 x 5, 20 CFM at 100 psi, 600 RPM. Motor: General Electric, Model 5KG254B2782, Frame 254, Type K, 440 volts, AC, 7.5 amps, 3 phase, 60 cycles, 5 HP, 1723 RPM, complete with controller and switch.

### SHIP SERVICE AIR COMPRESSOR UNIT

Compressor: Ingersoll Rand, Type 30, Model 5 x 5 x 4, 545 CFM at 100 psi, 750 RPM. With motor and base.

## VALVES

Gate: 10", 12", 14", 16", 20" and 24"  
Angle: 12", 14" and 18" Crossover: 16"  
High suction: 26" Low suction: 26"

## TURBINE ROTORS

### 5400 KW GENERAL ELECTRIC TURBINE ROTOR

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

### 525 KW GENERAL ELECTRIC TURBINE ROTOR

S/N 60137, ABS 71-LA-12430-624 A624 B, Reconditioned April 21, 1971.

### 5400 KW WESTINGHOUSE TURBINE ROTOR

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

### 5400 KW WESTINGHOUSE MAIN TURBINE (Profile type):

### 5400 KW ELLIOTT TURBINE ROTOR

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

## MISCELLANEOUS T-2 EQUIPMENT

### MAIN AIR EJECTOR

Main air ejector, Graham Mfg. Co., type 2 stage twin, size 163B, capacity, 65 PPH of air (220 GPM cont. @ 79°F.), oper. press. 150 PPH.

### MAIN CONDENSER END

Graham (waterbox).

### MAIN CONDENSER END

Westinghouse (waterbox).

### MAIN CONDENSER END

Westinghouse (return head).

### AUXILIARY CONDENSER END

Graham (waterbox and return head), surface condenser, size 1500 sq. ft., S/N 2915, Design press Shell 15-Tubes 25, Test press Shell 30-Tubes 50.

### TAIL SHAFTS

ABS 59-S1768-AB810  
Reconditioned, ABS 70-LA-11901-946

### RUDDER WITH STOCK (complete)

## SEND NOW FOR NEW 1974 CATALOG

### HUNDREDS OF OTHER ITEMS ALSO AVAILABLE!

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# National Metal AND STEEL CORP.

691 New Dock Street, Terminal Island, California 90731  
Area Code (213) 775-3321 • Telex: TWX 213-548-0990

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**FALK IN-LINE MARINE REVERSE REDUCTION GEAR**



SUITABLE TO 1600 HP WITH MODIFICATIONS

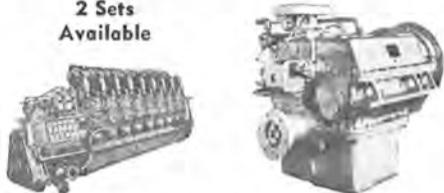
700 HP @ 750/246 RPM—30" clutch drum—ratio 3.05:1—equal to new. Can be used with up to 1600 HP by modifying with larger clutch drums & tires.

**THE BOSTON METALS COMPANY**

313 E. Baltimore St. Baltimore, Md. 21202  
539-1900 (301) 355-5050

**ATTENTION! TUG OWNERS  
GM 1700 HP Geared Diesel Sets**

2 Sets Available



ENGINE: GM 16-278A—Vee type 8 $\frac{3}{4}$ "x10 $\frac{1}{2}$ "—air starting—heat exchanger cooled and complete with filters, strainers, engine operating panel board and all accessories. GEAR: Falk—3.05:1 ratio—vertically offset in line. Will sell engines & gears separately

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539-1900 (301) 355-5050

**NEW UNUSED NAVY SURPLUS  
UNIVERSAL FAIRLEADS**



SHIPBOARD TYPE

4 Rollers—8"x18"—2 horizontal mount—2 vertical mount. Clear opening 3". Center to center on vertical & horiz. rollers 11". Fairlead 36" overall width—24" high—24" deep. 28 available.

\$695 Each

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**UNUSED 1 $\frac{5}{8}$ " HEAVY DUTY  
LINK BELT WINDLASS**

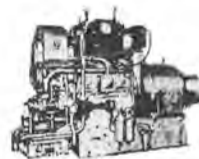


Below deck motor drive. Double wildcat—driven by 50 HP 230 VDC motor with vertical shaft and worm drive. Single speed—handles 7000 lb anchors and 60 fathoms of 1 $\frac{5}{8}$ " chain at 7 fathoms per minute. Wildcat centers 56". Complete with all controls and warping features. Total weight 27,500 lbs. With spares.

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**G.M. 3-268A  
100 KW A.C. Diesel  
GENERATOR SET**



Like new, ENGINE: G.M. 3-268A—3 cylinder—6 $\frac{1}{2}$ "x7" bore & stroke. GENERATOR: Century—100 KW—440 volts—3-phase—60 cycle. Switchgear available.

AIR STARTING \$2450 ELECTRIC STARTING \$2775

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**MARINE PUMPS**

**115 Volts D.C.**

Very Little Use

**FIRE & BILGE**

350 GPM—100 lb. head—1750/3500 RPM—40 H.P. Furnished with Nash Hytor Pump MO-571 & float switch, for self-priming. All controls, Pump & primer weight 900 lbs.

**BILGE & FLUSHING**

15 GPM—20 lb. head—1750/3500 RPM— $\frac{3}{4}$  HP motor. Furnished with Nash Hytor MD-2 vacuum pump. Approx. weight 250 lbs.

**SANITARY SERVICE**

35 GPM—40 lb. head—3500 RPM—1 H.P. Pump weight 40 lbs.

**DIESEL FUEL OIL TRANSFER**

Positive displacement—gear head—15 GPM—20 lb. head—350 RPM—1 HP—pump weight 260 lbs.

**LUBE OIL SERVICE**

Positive displacement—gear head—30 GPM—35 lb. head—273 RPM—2 HP motor—weight of pump 350 lbs.

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**2 LIDGERWOOD  
DOUBLE DRUM  
TOWING  
WINCHES**

CAPACITY: Each drum stows 1800' of 1 $\frac{1}{4}$ " wire. Each drum independently 30,000 lbs. on 2nd layer at from 10 to 50 feet per minute. Both drums simultaneously 15,000 lbs. each. Drums equipped with clutch shift levers. 24" Winch heads for 8" circumference manila rope. Static load 52,000 lbs. applied at mid-length. Base 10' 6" wide with 2 outboard winch heads 20 $\frac{1}{4}$ " each. Drum diameter 22 $\frac{1}{2}$ "—flange 50"—28" between flanges. Equipped with level wind spooling devices and compressor hand brake. MOTOR: 75 HP—under deck with horizontal drive through worm gear. Drip-proof—fully protected. Mfg by Allis-Chalmers—type EB-127-DC—compound wound—125/250 volts—254 amps—reversible—575/1150 RPM. CONTROLLER: Allis-Chalmers drum type—with 1 off position and 5 heave in positions and five payout conditions in opposite directions. Control cabinet also located below deck. Worm gear reduction 62T at 1 $\frac{1}{2}$  CP worm wheel 31:1 reduction. Drum shaft beveled bull gear 61T. Drive shaft beveled pinion gear 14T—ratio 4.857:1.

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WESTINGHOUSE

For T25E—A-1 tankers—with A.B.S.—ex-Caltex J.H. Mac-Garegill.

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**UNUSED ALLIS-CHALMERS  
FIRE & GENERAL SERVICE PUMPS**

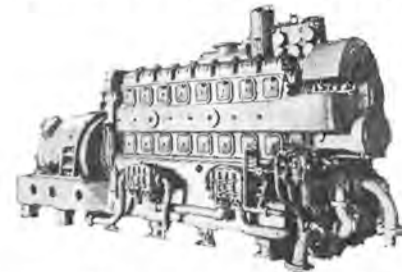


200 GPM—180' head—2 $\frac{1}{2}$ "x2"—bronze—flange connections. MOTOR: 20 HP—115 volts DC—2400 RPM—153 amps.

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**G.M. 8-268A  
200 KW A.C.  
DIESEL GENERATOR SETS**



ENGINE: 8-268A—6 $\frac{1}{2}$ " bore x 7" stroke—1200 RPM—driving 200 KW Westinghouse generator—440 volts—3-phase—60 cycle—321 amps—80% power factor at 1200 RPM. Switchgear available.

**\$3750**

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**2-STAGE 5x4x4 50 CFM @ 150 LBS**



**INGERSOLL  
RAND  
AIR  
COMPRESSOR**

Class R—type 30—5x4x4—750 RPM 3-cylinder air cooled 2-stage compressor with air intake filter. 20 HP Vee-belt drive motor—440 volts—3-phase—60 cycle—27 amps—1800 RPM continuous duty—class A insulation—ball bearing drip-proof squirrel cage—low starting current. Motor weight 500 lbs. Complete with GE magnetic starter size 2—27.2 amps—weight 75 lbs. Copper finned inter-cooler between stages. Total weight motor, compressor and base 1505 lbs. OAL: 4' 1 $\frac{5}{8}$ "; OAW: 2' 6 $\frac{1}{2}$ "; OAH 3' 2 $\frac{1}{2}$ ".

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313 E. Baltimore St. Baltimore, Md. 21202  
539-1900 (301) 355-5050

**60 KW GM 6-71 DELCO DIESEL SET**

GM 6-71 engine with Delco 120 volt DC 500 amp generator with stab. shunt.

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313 E. Baltimore St. Baltimore, Md. 21202  
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**NEW — UNUSED  
ROTARY DISPLACEMENT  
DELAVAL IMO 8"  
DEEP WELL PUMPS  
for oil  
840 GPM at 50 PSI  
DIS. PRESS.**



Pump RPM 1450. Equipped with right angle drive transmission suitable for any diesel or gas engine running at 1450 RPM. Right angle drive ratio 1:1. Suction lift flooded—50 HP required. Viscosity range SSU-130-500. These pumps are specially designed for submerged operation in oil. Pump case, inlet nozzle & thrust washer are bronze. Total hgt from center of drive shaft to base 9'9". Hgt from deck mounting plate to center of drive shaft 36 $\frac{1}{2}$ ". From deck mounting plate to bottom suction 6'8 $\frac{1}{2}$ ". Pump is self-lubricating. Suitable for oil barges & all deep well uses. Further details on request.

SPECIALY PRICED AT **\$3750** EACH

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**M. G. SETS**  
**UNUSED—10 KW—120/1/60 M.G. SET**



INPUT: Motor 25 HP—120 VDC—156 amps—1800 RPM—flange-coupled to output generator.  
OUTPUT: 10 KW generator—120 volts 60 cycle single phase—108 amps—0.80 PF—with direct-connected 125 volt 8 amp exciter.  
Motor starter by Cutler-Hammer. AC generator has voltmeter and ammeter. Bassler voltage regulator.

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**ALLIS-CHALMERS 1200 KW D.C. GENERATORS**



**SUITABLE FOR DIESEL ELECTRIC TUGS AND VESSELS OR OIL FIELD DIRECT DRIVE D.C. GENERATORS**

1200 KW—525 Volts D.C.—750 RPM—2290 amps—totally enclosed—self-ventilated with surface air coolers. Frame: split type. 2-Bearings: split sleeve, spherical seat, self-aligning. Separately excited from a 120 volt source. Continuous duty. Very good condition.

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**UNUSED BUFFALO PUMPS**



All bronze—model S.L.—750 GPM—50 PSI head—28 BHP. MOTOR: Continental—30 HP—440/3/60—37 amps—1760 RPM. 5" Suction—4" discharge. OAL 4' 8 1/2"—OAM 30"—weight 1200 lbs.

**\$1495**

**A.C. FIRE PUMPS**



250 GPM—160 PSI discharge. Suction 3 1/2"—discharge 2 1/2"—3500 RPM. MOTOR: Reliance—25 HP—440/3/60—35.6 amps. 3 Weil pumps and 3 Aldrich pumps available. Reconditioned pumps and motors.

**\$995**

**INGERSOLL-RAND FIRE & FLUSHING PUMP**



200 GPM—total head 224"—discharge pressure 100 PSI—3 1/2" suction—3" discharge—3500 RPM—bronze construction—flanged. MOTOR: 20 HP—440/3/60/3600 RPM—GE type K.F.—frame 326—full load amps 28—fan cooled—ambient 50°C—class B insulation—totally enclosed—Navy Service A. DIMENSIONS: OAL 37 1/4"—OAW 18 31/32"—OAH 18 1/2"—total weight 1225 lbs. Reconditioned. From Ex-Naval vessel.

**\$765**

**INGERSOLL-RAND Self-Priming FIRE & BILGE PUMP**



200 GPM—bronze—224" head—90/100 lbs. fire service—suction lift 23"—3500 RPM. MOTOR: 20 HP—440/3/60/3500 RPM—28 amps—GE type KF—frame 326—class B—totally enclosed—Navy Service A—3 1/2" suction—3" discharge. PRIMER MOTOR: 1 1/2 HP—440/3/60/3600 RPM—fan cooled—totally enclosed—2.2 amps—Nash priming pump complete with priming valve. Reconditioned.

**\$865**

**BUFFALO BRONZE SALT & FRESH WATER PUMP**  
Size 6—1200 GPM—1770 RPM—150 HP—440/3/60.

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The Farboil Company, 8200 Fischer Road, Baltimore, Md. 21222  
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De Laval Turbine Inc., Engine & Compressor Div., 550 85th Ave., Oakland, Calif. 94621  
Electro-Motive Division General Motors, La Grange, Illinois 60525  
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ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523  
Brown and Ross of New Jersey Incorporated, 370 Paterson Plank Road, Carlstadt, N.J. 07072  
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Merrin Electric, 162 Chambers St., New York, N.Y. 10007  
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Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014  
ITT Henze Service, P.O. Box 1745, Mobile, Ala. 36610  
Kearfott Marine Products, 780 South 3rd Ave., Mt. Vernon, N.Y. 10550  
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080  
Merrin Electric, 162 Chambers St., New York, N.Y. 10007  
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186

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Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171  
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014  
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523  
Turbo Power & Marine Systems, Subsidiary of United Aircraft Corp., 1690 New Britain Ave., Farmington, Conn. 06032

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J. L. Bludworth, 608 No. Clear Creek Drive, Friendswood, Texas 77546  
Breit Engrg. Inc., 441 Gravier St., New Orleans, La. 70130  
James G. Bronson Associates, 166 Altamont Ave., Tarrytown, N.Y. 10591  
C.D.I. Marine Co., Suite 151, 5400 Diplomat Circle, Orlando, Fla. 32810  
Childs Engineering Corp., Box 333, Medfield, Mass. 02052  
Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517  
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026  
Francis B. Crocco, Inc., Box 1411, San Juan, Puerto Rico  
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048  
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Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119  
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011  
M. Mock Earle, 103 Mellor Ave., Baltimore, Md. 21228  
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034  
Christopher J. Foster, 14 Vanderverter Ave., Port Washington, N.Y. 11050  
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112  
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006  
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110  
George A. Gilmore/Associates, 3020 K Street, N.W., Washington, D.C. 20007  
Morris Guralnick, Associates, Inc., 583 Market St., San Francisco, Calif. 94105  
J. J. Henry Co., Inc., 90 West St., New York, 10006  
Hydraulautics, 6338 Lindmar Dr., P.O. Box 1068, Galeta, Calif. 93017  
C.T. Iliarucci & Associates, Tourism Pier #3, San Juan, P.R. 00902  
Jantzen Engineering Co., 15 Charles Plaza, Baltimore, Md. 21201  
James S. Kroger and Co., Inc., 3333 Rice Street, Miami, Fla. 33133  
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460  
Robert H. Macy, P.O. Box 758, Pascoqua, Miss. 39567  
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  
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225  
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048  
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403  
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742  
Nelson & Associates, Inc., 2001 N.W. 7th Street, Miami, Florida 33125  
Nickum & Spaulding Associates, Inc., 83 Columbia St., Seattle, Wash. 98104  
Ocean-Oil International Engrg. Corp., P.O. Box 6173, New Orleans, La. 70114  
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156  
S.L. Petchul, Inc., 8-D So. New River Drive East, Ft. Lauderdale, Fla. 33301  
Potter & McArthur, Inc., 50 Hunt Street, Watertown, Mass. 02172  
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.  
Seaworthy Engine Systems, Pond Road, Canton, Conn. 06019  
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007  
Southern Engineering Associates, P.O. Box 748, Ocean Springs, Miss. 39564  
T. W. Spaetgens, 156 West 8th Ave., Vancouver 10, Canada  
R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235  
Richard R. Taubler, 50 Court St., Brooklyn, N.Y. 11201  
H. M. Tiedemann & Co., Inc., 74 Trinity Pl., New York, N.Y. 10006  
Tremayne, Jeffrey and Associates, Inc., 951 Government St., Suite 216, Mobile Ala. 36604  
Whitman, Requaardt & Associates, 1304 St. Paul St., Baltimore, Md. 21202  
Xoln Corporation, 229 Fifth St., P.O. Box 492, Gretna, La. 70053

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American Hydromath Co., 55 Brixton Rd., Garden City, N.Y. 11530  
Benmar Division, Computer Equipment Corp., 3000 W. Warner Avenue, Santa Ana, Calif. 92704



Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746  
 Edo Corporation, 13-10 111th Street, College Point, N.Y. 11356  
 Edo Western Corporation, 2645 South 2nd West, Salt Lake City, Utah 84115  
 Electro-Nav, Inc., 1201 Corbin St., Elizabeth Marine Terminal, Elizabeth, N.J. 07201  
 Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913  
 Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011  
 ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016  
 ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611  
 Lorain Electronics Corp., 2307 Leavitt Road, Lorain, Ohio 44052  
 Magnavox Navigation Systems, 2829 Maricopa St., Torrance, Cal. 90503  
 Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103  
 Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871  
 Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.  
 Standard Communications Corp., 639 N. Marine Ave., Wilmington, Calif. 90744  
 Tracor, Inc., 6500 Tracor Lane, Austin, Texas 78721

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 Exxon Company, U.S.A., P.O. Box 2180, Houston, Texas 77001  
 Exxon International Company, 1251 Avenue of the Americas, New York, N.Y. 10020  
 Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019  
 Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

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 International Paint Co., 21 West St., New York, N.Y. 10006  
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 Union Carbide Corp. (Chemicals & Plastics Div.) 250 Park Avenue, New York, N.Y. 10017

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 Kubota, Ltd., 22, Funado-cho 2-chome, Naniwa-Ku, Osaka, Japan  
 Stauff Corp., 41 Newman Street, Hackensack, N.J. 07601

**PLASTICS—Marine Applications**  
 Ameron Corrosion Control Div., Brea, Calif. 92621  
 Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231  
 Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936

**PORTS**  
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 Escher Wyss GmbH, P.O. Box 798, Ravensburg, Germany  
 Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502

**PUMPS**  
 Coffin Turbo Pump, FMC Corp/Pump Division, 326 So. Dean St., Englewood, N.J. 07631  
 Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City, Kansas 66110  
 Crisafulli Pump Co., Box 1051, Glendive, Montana 59330  
 Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602  
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 American Mfg. Co., Inc., Noble & West Sts., Brooklyn, N.Y. 11222  
 The Cordage Group, 309 Genesee St., Auburn, N.Y. 13022  
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 Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604  
 Wall Rope Works, Inc., Beverly, N. J. 08010

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 Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011  
 Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

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 The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202  
 National Metal & Steel Corp., 691 New Dock St., Terminal Island, Cal. 90731  
 Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

**SHIP BROKERS**  
 Agemar, P.O. Box 1465, Maracaibo, Venezuela  
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 Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006  
 Oaksmith Boat Sales, Inc., Fisherman's Terminal, Seattle, Wash. 98119

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 Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004

**SHIPBUILDING—Repairs, Maintenance, Drydocking**  
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 Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium  
 Bell Aerospace Company, Div. of Textron, P.O. Box 1, Buffalo, N.Y. 14240  
 Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004  
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 Dillingham Shipyards, Pier 41, P.O. Box 3288, Honolulu, Hawaii 96801  
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 Equipment Systems Division, AMCA International Corporation, P.O. Box 95, Part Deposit, Md. 21904  
 Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122  
 General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340

General Dynamics, Quincy Division, Quincy, Mass. 02169  
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 Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126  
 Havre de Grace, Havre de Grace, Md.  
 Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.  
 Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan  
 Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong  
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 Marathon LeTourneau Gulf Marine Division, P.O. Box 3189, Brownsville, Texas 78520  
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 Savannah Machine & Shipyard Co., P.O. Box 787, Savannah, Ga. 31402  
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 Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004  
 Tracor/Mas, Inc., P.O. Box 13107, Port Everglades, Fla. 33316  
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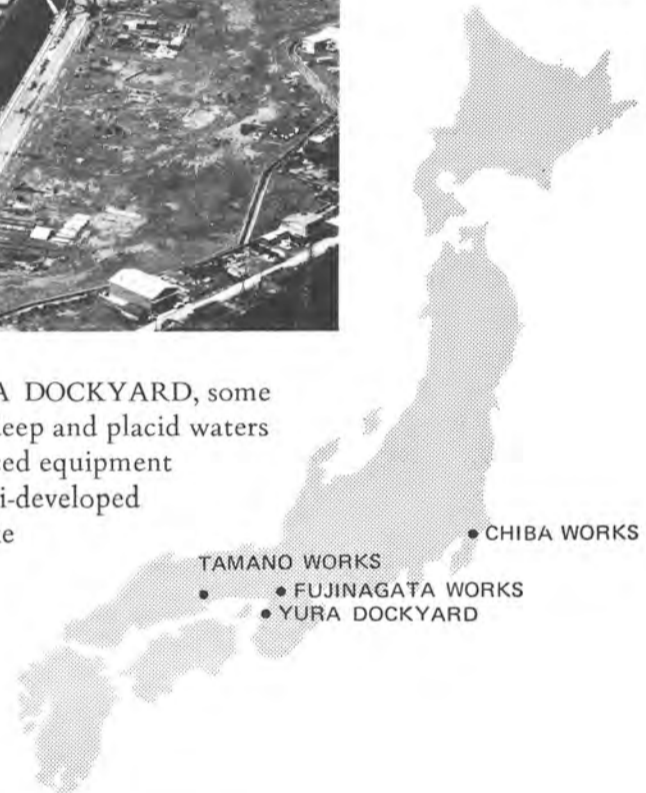
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