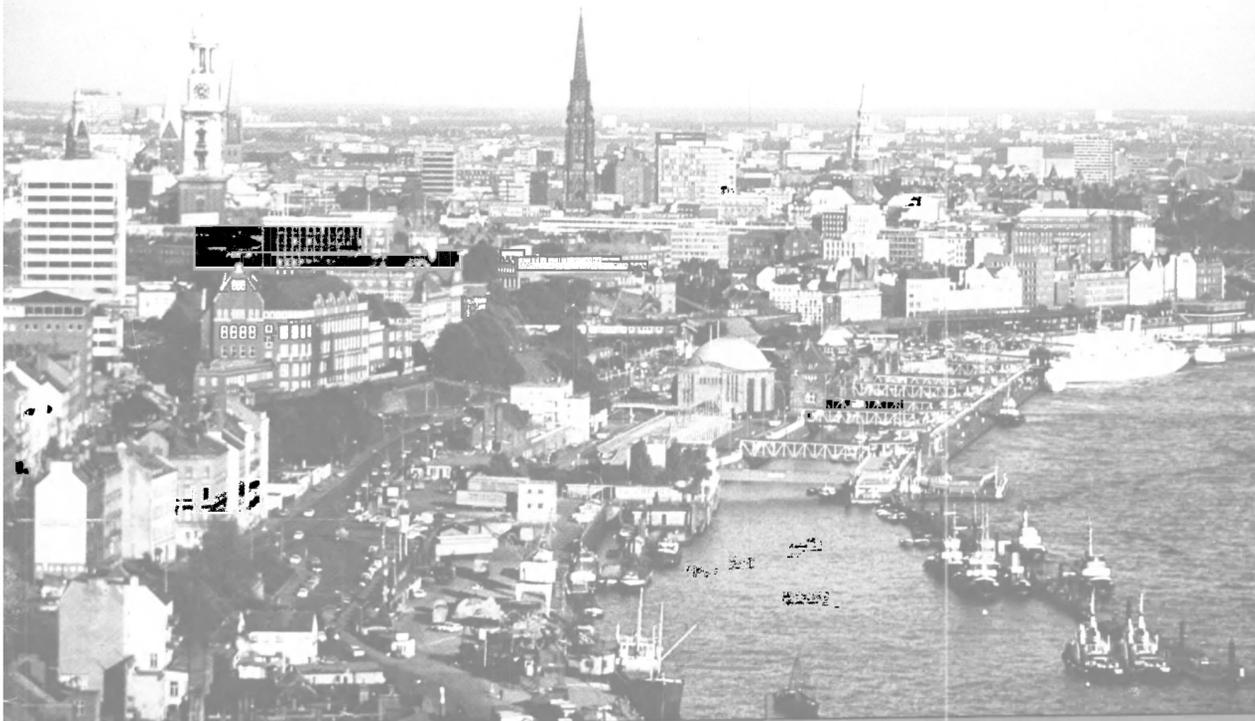


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- Previews -

SMM '82 - HAMBURG
and
A.S.N.E. FALL MEETING



Hamburg Harbor

**Ship Machinery, Marine
Technology International
Exhibition And Congress
Hamburg, Germany**
(SEE PAGE 4)

**- Previews -
ASNE Fall Symposium
and
SNAME Ship Costs & Energy '82**
(SEE PAGE 4)

SEPTEMBER 1, 1982

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**Dome Exploration And
Production Interests**

Acquired By BP And LASMO

Dome Petroleum Limited of Calgary, Alberta, BP Petroleum Development Limited, and London and Scottish Marine Oil p.l.c., both of London, England, announced recently that agreement

has been reached for the sale to BP and LASMO of Dome's shareholding in companies which, via subsidiaries, hold international exploration and production interests, principally in Indonesia.

As a result of this sale, BP and LASMO will in effect acquire control of 87.5 percent of all those interests outside North America formerly held by Hudson's Bay Oil and Gas Company

Limited which, in 1982, became a wholly owned Dome subsidiary.

The sale is effective July 1, 1982, with closing scheduled for the end of October. The total purchase price is approximately \$270 million (\$340 million Canadian).

BP and LASMO will have an equal interest in each of the companies holding the Indonesian properties. LASMO will acquire all of the Dome shareholding in

the other companies holding exploration and production interests in Australia, Brazil, Egypt, the United Kingdom, Italy, the Netherlands, and Norway.

The overall transaction, which is subject to various consents, involves 30 contract and license areas of 31.9 million gross acres (10.8 million net). Net current production is approximately 11,000 barrels per day of crude oil from the southeast Sumatra area of Indonesia, with additional developments planned to come on stream in 1983 and 1984.

**Hempel's Names Hickey
U.S. Technical Director**



Jack E. Hickey

Finn Olander, president and chief executive officer of Hempel's Marine Paints, Inc., New York, N.Y., recently announced the appointment of Jack E. Hickey as technical director of the company's U.S. operations.

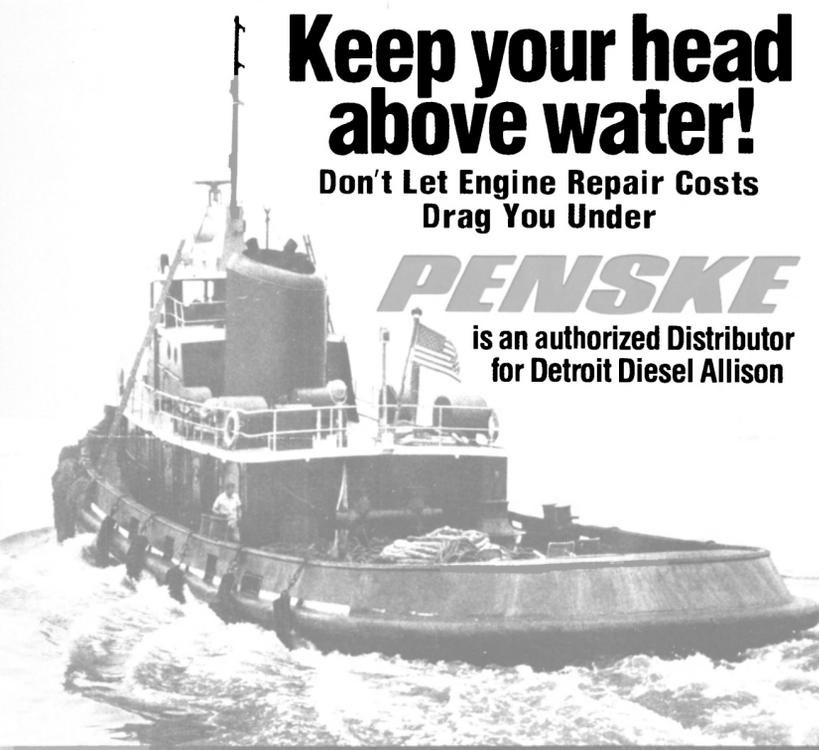
Hempel's Marine Paints, in expanding their operations in North America, have also recently opened a corporate research and development laboratory in Houston, Texas — Hempel Technology Inc. — under the management of Dr. Malcolm Hendry.

Mr. Hickey will be in charge of all local research and development as well as production control. He will work closely with the corporate research and development laboratory in Houston as well as the corporate centers in Europe. Mr. Hickey's experience includes a long career in technical management, most recently with International Marine Paint Company.

**Swedish Firm Appointed
Agents For Megasystems
In Three Countries**

Megasystems, Inc., Boca Raton, Fla., a manufacturer of diesel combustion analysis equipment and marine automation systems, announced the appointment recently of Salen and Wicander of Solan, Sweden, as exclusive agents for sales and service in Sweden, Poland, and West Germany.

Salen and Wicander will represent the complete line of diesel combustion analysis equipment including the MS 2500, Seamatic, and the new direct optical tuning (D.O.T.) diesel plant tuning system.



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SHIP COSTS & ENERGY 82

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ago for both Thursday and Friday in the Empire Room of the hotel. Prof. **Harry Benford**, University of Michigan, will speak at the Thursday luncheon, and the Hon. **Harold E. Shear**, Maritime Administrator, Department of Transportation, will speak at the Friday luncheon.

A no-host general reception will take place on Thursday evening at 6:00 p.m. in the Hilton Room.

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2:00 p.m.—"Are the Existing Methods to Obtain Maximum Propulsion Efficiency Appropriate?" by **O. Fagerjard** and **K. Anderson**, Det norske Veritas, Norway.

3:00 p.m.—"Energy Losses

the New Generation" by **F. Bouthelier**, **F. Saez-Parga**, **E.N. Elcano**, Spain, and **C.F. Horlitz**, Combustion Engineering Inc.

Friday, October 1

8:30 a.m.—"Petroleum Coke Oil Slurry as an Alternative Marine Fuel" by **R.C. Nunn**, Chevron Research Company, and **M.T. Wahlgren**, Chevron Shipping Company.

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4:30 p.m.—"Maintaining Propeller Smoothness: A Cost Effective Means of Energy Saving" by **P.A. Fitzsimmons** and **D. Byrne**, British Ship Research Association, Great Britain.

Symposium Committee

First Of Four Exxon Tankers Delivered By China Shipbuilding

The Esso Mexico, the first of four 89,000-dwt fuel-efficient tankers being built for Esso Tankers, Inc., Florham Park, N.J.,

at the Kaoshiung shipyard of China Shipbuilding Corporation, Taiwan, was delivered recently.

The tanker was designed primarily to carry crude oil from Caribbean ports to Exxon's U.S. refineries. The vessel's cargo tanks, equipped with heating coils and integrated piping, have the

capability of transporting up to four grades of fuel oil.

The 805.1-foot-long Esso Mexico incorporates the latest technology to assure high operating efficiency and maximum safety. Recently completed trials showed a 30 percent total fuel consumption improvement over conven-

tional tankers of similar size and speed.

Major fuel efficiency features include a direct drive, long-stroke slow-speed B&W/Hitachi 6L90 GFCA diesel engine. The engine is designed to operate on heavy fuel oil, significantly reducing fuel consumption. The engine produces 17,100 hp and a service speed of 15 knots.

Also incorporated is a Mitsui integrated duct, located forward of the propeller, which uniformly directs flow to the propeller increasing propulsion efficiency. Exxon has retrofitted the duct on its existing tankers with good

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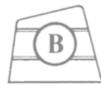
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FMC Corporation recently delivered the 205-foot ice-strengthened barge Arctic Endeavor to Crowley Maritime Corporation.

FMC Launches Ice-Strengthened Barge For Service In Beaufort Sea

FMC Corporation's Marine and Rail Equipment Division, Portland, Ore., recently delivered the ice-strengthened barge Arctic En-

deavor to Crowley Maritime Corporation. At Crowley Maritime's request, FMC accelerated its production schedule by 10 days, en-

abling Crowley to move the barge to the Beaufort Sea off Alaska's north coast while the Arctic Sea ice is still open this summer.

Measuring 205 feet long by 90 feet at the widest point of its teardrop shape, the Arctic Endeavor's ice-strengthened hull will clear ice and carry deck cargo to offshore oil operations. She will be pushed by two 2,110-hp tugs, also recently acquired by Crowley. Designed for the shallow waters of the Beaufort Sea, Crowley says the Endeavor will effectively extend ocean supply operations to the offshore rigs until the ice pack thickens enough for ice roads to be completed.

FMC launched the Endeavor from their 750-foot-capacity side-launch ways, the largest on the West Coast. Occupying the same ways was a nearly completed 420-foot derrick barge under construction for Morrison-Knudsen Company and scheduled for launching in September.

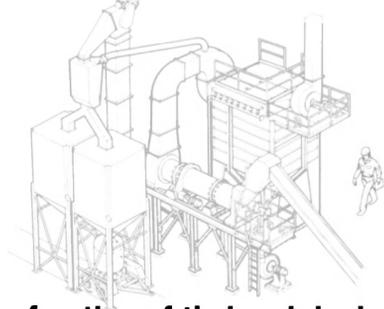
Literature Offered On Grove/Manlift's New Aerial Work Platform

Manlift, Inc., Shady Grove, Pa., has introduced a new Grove/Manlift telescoping-boom self-propelled aerial work platform capable of elevating men and equipment to a working height of 76 feet at 79° boom elevation angle.

The company has published literature on the platform, designated model MZ76. The gas-engine-powered unit features an exclusive positively synchronized three-section Grove trapezoidal boom—a light yet strong structure that can lift heavier loads with less boom deflection both vertically and laterally. The external power-trak permits easy inspection and maintenance of hydraulic and electrical lines.

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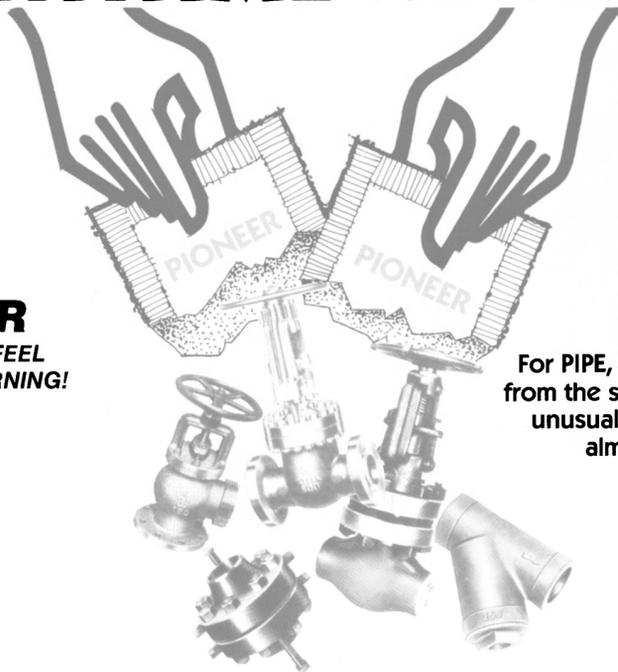
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"Energy" as a separate but related topic will concentrate on the technical aspect of design and operation. Many innovative changes in traditional approaches have taken place. New energy-efficient designs, practical operational alternatives and conversions for increased fuel efficiency will be discussed.

Luncheons have been sched-

uled for both Thursday and Friday in the Empire Room of the hotel. Prof. Harry Benford, University of Michigan, will speak at the Thursday luncheon, and the Hon. Harold E. Shear, Maritime Administrator, Department of Transportation, will speak at the Friday luncheon.

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Friday, October 1

8:30 a.m.—"The U.S. Shipbuilding Standards Program Long Range Plan — A Realistic Approach to Reducing Shipbuilding Costs" by S. Wolkow, consultant, and Y. Ichinose, IHI, George G. Sharp, Inc.

9:30 a.m.—"The Economics of Ship Conversion: Comparison of Power Plant Retrofit Alternatives" by W.L. McCarthy, Seaworthy Engine Systems, Inc.

10:30 a.m.—"The Impact of the U.S. Flag on Shipping Cost

and Productivity" by J. Binkley, Simat, Hetliesen & Eichner, Inc.

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3:00 p.m.—"Energy Losses Due to Steering Gear Installations on Merchant Ships: Theory and Practice" by R.E. Reid and M. Youhanaie, University of Illinois; M. Blanke, Technical University of Denmark, and J.C. Nortof Thomsen, EMRI, Inc., Denmark.

4:00 p.m.—"New Approach to Development of Waste Heat Recovery System for Diesel Ships" by T. Yamada, Y. Terashima and A. Hashimoto, Mitsubishi Heavy Industries, Japan.

5:00 p.m.—"Operation 'Cut and Glue'—The First Two Ocean-Going Coal-Fired Bulkcarriers of

the New Generation" by F. Bouthelie, F. Saez-Parga, E.N. Elcano, Spain, and C.F. Horlitz, Combustion Engineering Inc.

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4:30 p.m.—"Maintaining Propeller Smoothness: A Cost Effective Means of Energy Saving" by P.A. Fitzsimmons and D. Byrne, British Ship Research Association, Great Britain.

Symposium Committee

The Ships Costs & Energy Symposium was planned by a committee of the New York Metropolitan Section of SNAME. R.J. Baumler and D.A. O'Neil served as co-chairmen of this committee. Other members of the committee were: P. Anderson, N. Bachko, J.D. Connors, J.T. Cotter, J.C. Daidola, N.R. Farmer, J. Femenia Jr., W.H. Garzke Jr., J. Higginbotham, A.C. Landsburg, J.E. Larner, T. Lewis-Jones, E.E. Lithen, R. Lowry, W.M. McLean, N.F. Pergola, N.E. Reddy, D.C. Shafer, A.M. Stein, R. Vulovic and C.W. Wilson.



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First Of Four Exxon Tankers Delivered By China Shipbuilding

The Esso Mexico, the first of four 89,000-dwt fuel-efficient tankers being built for Esso Tankers, Inc., Florham Park, N.J.,

at the Kaoshiung shipyard of China Shipbuilding Corporation, Taiwan, was delivered recently.

The tanker was designed primarily to carry crude oil from Caribbean ports to Exxon's U.S. refineries. The vessel's cargo tanks, equipped with heating coils and integrated piping, have the

capability of transporting up to four grades of fuel oil.

The 805.1-foot-long Esso Mexico incorporates the latest technology to assure high operating efficiency and maximum safety. Recently completed trials showed a 30 percent total fuel consumption improvement over conven-

tional tankers of similar size and speed.

Major fuel efficiency features include a direct drive, long-stroke slow-speed B&W/Hitachi 6L90 GFA diesel engine. The engine is designed to operate on heavy fuel oil, significantly reducing fuel consumption. The engine produces 17,100 hp and a service speed of 15 knots.

Also incorporated is a Mitsui integrated duct, located forward of the propeller, which uniformly directs flow to the propeller increasing propulsion efficiency. Exxon has retrofitted the duct on its existing tankers with good results.

Other efficiency features are self-polishing, antifouling paint from International Paint Company; an improved auxiliary steam turbogenerator system from Aalborg that uses exhaust heat from the main engine to help furnish electrical power; and a cargo and ballast water pumping system which uses superheated, steam-driven, three-stage turbines.

The four tankers have safety and pollution prevention systems that meet or exceed the current IMO standards, including a fully segregated ballast system, a Butterworth crude oil washing system, and an Air-Fileco inert gas system.

The vessels are equipped with an emergency hydraulic rudder system that is immediately activated in the event of main steering gear failure. In addition, the vessels have sophisticated navigation and communications equipment including a Norcontrol collision avoidance system, Decca radars, a Marisat/Japan Radio Corp. automatic satellite communications system, Magnavox satellite navigation system, radios by ITT, and Loran C by Northstar. The four ships are built to ABS classification.

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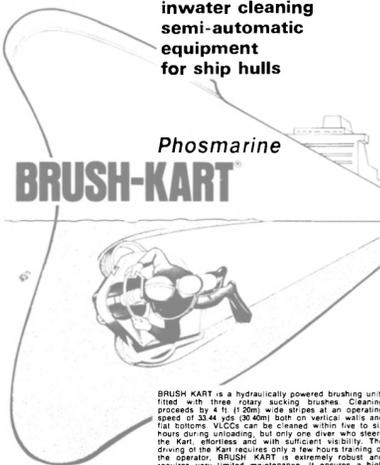
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12

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Varenchik Named Director Of Information Services For Dillingham Maritime

Frank Varenchik has been named director of information services for the Dillingham Corporation, San Francisco, Calif., maritime group, according to David B. Ballash, Dillingham group vice president-maritime.

Mr. Varenchik, formerly manager, information systems, for the company's mainland operations, will be responsible for all technical and line management functions pertaining to information services for Dillingham's worldwide maritime operations. His offices will be located in San Francisco.

Mr. Varenchik joined Dillingham in 1971 as systems manager with Cal Gas Corporation, the company's Sacramento-based marketer and distributor of LP-gas.

Maritime Reporter/Engineering News

New Renk Subsidiary Opens In South Carolina

A new Renk Augsburg-owned subsidiary recently opened in Duncan, S.C. The German company is a leading manufacturer of marine gears as well as other machine products and equipment. In the first phase of construction, a 1,500-square-meter plant has been built along with associated offices. Renk has invested \$10 million in the first construction stage.

The new Renk Corporation facility will primarily assemble products coming from the Renk Wulfel branch in Hanover, intended for sale in the U.S., Canada, and Mexico. The plant will also act as a service center for all other Renk products.

Shipbuilders Council Names Stocker To Vice President Post

John Joseph Stocker, previously on the staff of Assistant Navy Secretary George A. Sawyer, has been appointed vice president of the Shipbuilders Council of America, the organization announced recently in Washington.

Mr. Stocker had been on Secretary Sawyer's staff as assistant director, ship programs and planning, with responsibilities for long-range programming and planning in connection with Navy shipbuilding programs.

He was previously national defense analyst in foreign affairs and national defense division, Congressional Research Service, Library of Congress, and earlier had been on the staff of the Chief of Naval Operations.

Mr. Stocker succeeds Stuart S. Adamson who has resigned as vice president of the council.

FCC Okays Automated Communication System For Inland Waterways

The Federal Communications Commission recently issued a license to Waterway Communications System, Inc. (Watercom), Jeffersonville, Ind., for the construction and operation of an automated communications system serving the Mississippi, Ohio, and Illinois Rivers, and the Gulf Intracoastal Waterway.

Watercom was founded in 1974 by 16 companies engaged in barge and towing operations along the Mississippi River system. In 1981, American Commercial Barge Line Company (ACBL), a subsidiary of Texas Gas Transmission Corporation, purchased Watercom and assumed responsibility for development and construction of the system.

"For almost a decade, the industry has been awaiting this

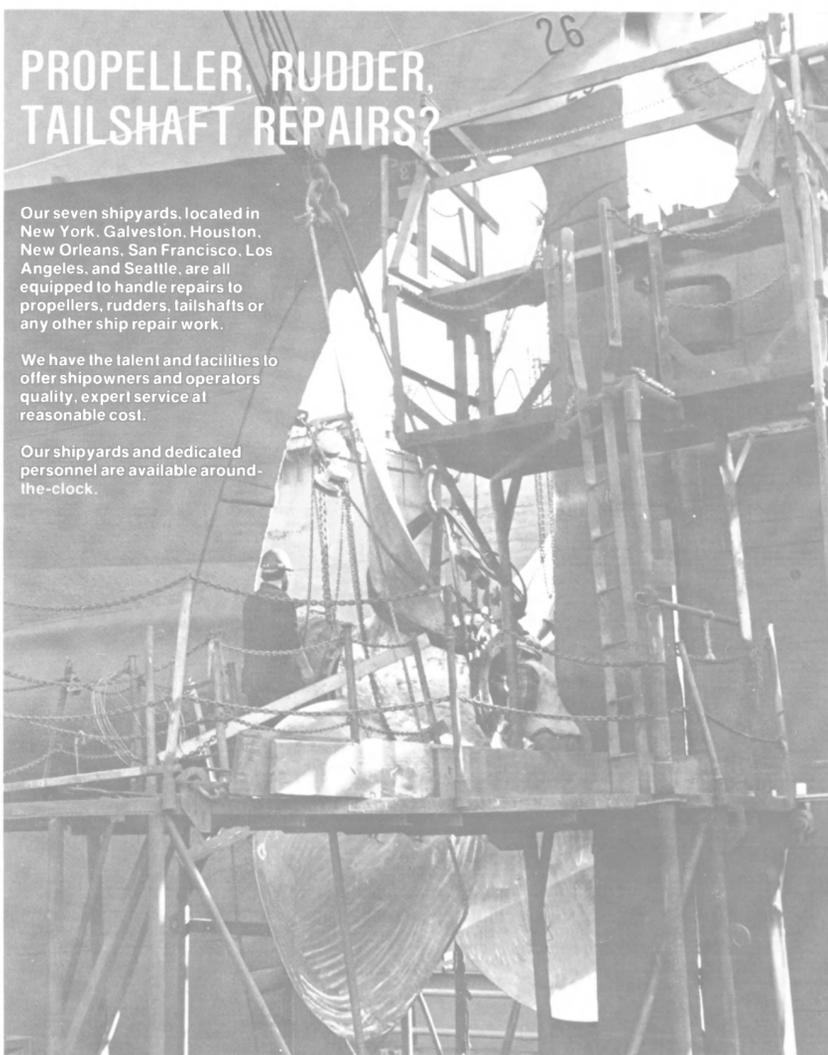
day and the potential that improved communications will bring," said J.H. Bobzien Jr., president of ACBL. "It will allow development of a premier communications system and the related benefits that will enhance the management of the waterborne transportation industry's fleets and other marine operations."

Helmut Eller Opens Winch And Equipment Service Facility In Jacksonville

Helmut Eller Hamburg of Hamburg, West Germany, recently announced the establishment of a complete service facility, Helmut Eller & Son, Inc., in Jacksonville, Fla. Helmut Eller is an established hydraulic winch and equip-

ment service company representing A/S Hydraulik Brattvaag of Norway and Fukushima, Ltd. of Japan.

The opening of a fully staffed office in Jacksonville became necessary to serve the company's many clients more efficiently in the maritime and offshore supply industry located in the U.S. and Caribbean area.



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Jackup Griffin-Alexander VII Outfitted, Starts Drilling In Gulf Of Mexico



The Griffin-Alexander VII under way from its outfitting location at Sabine Pass, Texas, headed for the coast of Louisiana where it will begin drilling for Shell Oil Company.

The mobile offshore drilling unit Griffin-Alexander VII departed from its final outfitting location at Sabine Pass, Texas, recently and went to its first drilling site off the Louisiana coast in Vermillion Block Number 292 to drill for Shell Oil Company.

The rig is the seventh Bethlehem Steel Corporation mat-type cantilevered mobile offshore drilling rig to be delivered to Griffin-Alexander Drilling Company in the past 16 months. The Griffin-Alexander VII was christened by its sponsor, Mrs. Jo Ann Blackburn, wife of Charles Blackburn, executive vice president of Shell Oil Company, prior to its being moved to Sabine Pass for final outfitting.

The Griffin-Alexander VII was delivered 32 days ahead of schedule by Bethlehem's Beaumont, Texas, yard.

Loy D. Griffin, chairman of Griffin-Alexander, said that with the financing of Griffin-Alexander VII, his company has successfully completed in excess of \$250 million in equity and debt financing in the 31 months since the construction contract for Griffin-Alexander I was signed with Bethlehem in December 1979. Industry sources indicated that this is a record for an offshore drilling company less than three years old. Major participants in these financial arrangements were investment bankers Jones, Loyd and Webster; First City National Bank of Houston; Det Norske Creditbank; and Shearson-American Express, Inc.

Headquarters for Griffin-Alexander Drilling Company's worldwide operations are in Houston and recently were relocated to the new Benchmark Building on Northwest Freeway and Tidwell where the company became the first tenant of the building. Griffin-Alexander's main operations office is in Lafayette, La., with field offices in Aracaju, Brazil, and Bombay, India.

In addition to Mr. Griffin, the principal officers of Griffin-Alexander are J.W. Alexander, president; R.B. Linke, vice president, operations; and William A. Elmer, vice president, finance.

The Griffin-Alexander VII is the first of a new series of Bethlehem 250-foot water depth, cantilevered, mat-supported rigs.

It has been designed to solve "footprint" problems; the mat of the rig has been specially strengthened so that the holes, or "footprints" left by other rigs next to a platform will not interfere with its position.

The rig can work more than 75 percent of the areas of all known and anticipated oil reserves in the continental shelves of the world, and 90 percent of the total world jackup territory.

On location the rig has a total variable load capacity of 4.5 million pounds, which includes a maximum drilling load of 1 million pounds. At the rig's maximum cantilever reach of 45 feet, the drilling load capacity is 750,000 pounds at the rig centerline.

Jacksonville Shipyards Orders 30,000-Ton Floating Dock From GHH Sterkrade

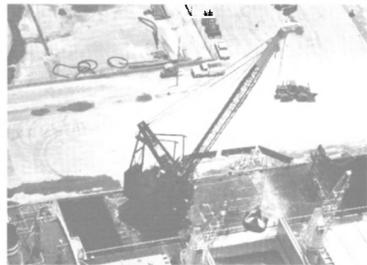
M.A.N.-GHH Sterkrade, Oberhausen, Germany, recently received an order from Jacksonville Shipyards for a floating dock with a lifting capacity of 30,000 tons.

The dock has been ordered under a \$35-million extension investment program at the Jacksonville, Fla., yard.

Principal dimensions of the floating dock are: lifting capacity 30,000 tons; length 227 meters; width 42 meters; and height 18.20 meters.

M.A.N.-GHH Sterkrade had built a 33,000-ton dock for Jacksonville Shipyards in 1973. The new floating dock is scheduled for delivery to Jacksonville Shipyards in May 1983.

80-Ton Floating Crane Delivered To Great Southern



Clyde model 24 Whirley mounted on Bergeron-built barge.

Great Southern Derrick Barge Company has taken delivery of a \$3-million 80-ton floating crane to enhance their operations in the Tampa Bay, Fla., area.

Mounted on a 125 by 52-foot barge built by Bergeron Industries, Inc., St. Bernard, La., the crane is a newly constructed Clyde model 24 Whirley with a 120-foot boom outreach and is specially designed for fast duty cycle work. It is presently equipped with a 15-yard bucket for discharging dry materials at a rate of up to 800 tons per hour. The crane will be equipped to handle any type of dry material, dredging and salvage work, as well as scrap metals, containers, and heavy lifts.

Great Southern is a recently formed joint venture of Standard Gypsum Company of Ft. Lauderdale and Peraco Chartering Corporation of New York. Standard Gypsum, a shipping and trading company, and their affiliate, Bulk Stevedores, Inc., operate dry bulk terminal facilities in the Port of Tampa and Port Everglades.

Paul D. deMariano, president of Great Southern and Standard Gypsum, announced that the crane has been stationed in Tampa to accommodate imported dry materials in a manner more commonly associated with major ports on the Mississippi River and in the New York/New Jersey/Baltimore area.

SMM '82

(continued from page 18)

sored by the Deutsches Komitee für Meeresforschung und Meerestechnik e.V. (German Committee for Marine Sciences and Ocean Engineering), the Wirtschaftsvereinigung industrielle Meerestechnik e.V. (Marine Technology

Trade Association), and the Vereinigung Deutscher Schiffingenieure (Association of German Marine Engineers). The congress has been organized by Hamburg Messe und Congress GmbH.

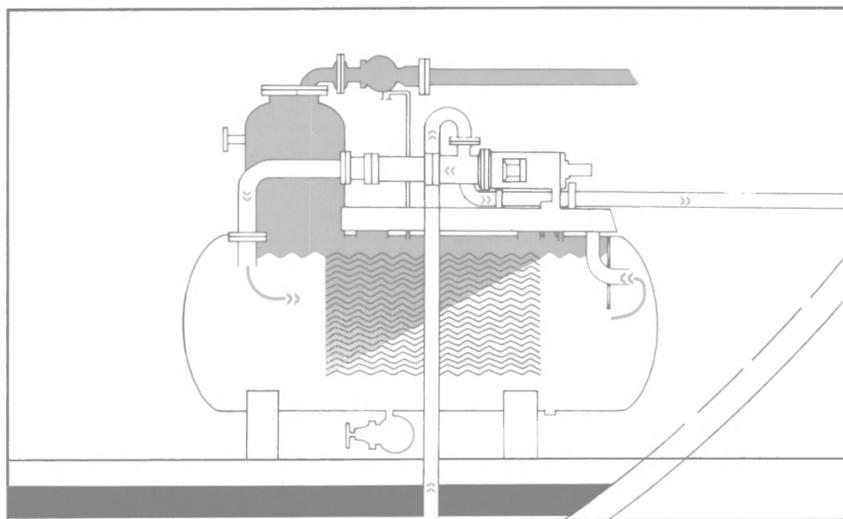
Professor Dr.-Ing. C. Kruppa of the Technische Universität Berlin, Institut für Schiffs- und Meerestechnik, is the congress chairman for Intermaritec '82.

A total of 92 papers will be

presented during six sessions covering the areas of offshore technology, ice technology, oil pollution abatement, coastal engineering, marine research and ship technology.

Offshore Technology

Twenty five papers will be presented during the session on offshore technology.



The sinusoidal passages between Fram's patented oleophilic coalescer plates greatly enhance the gravity separation of oil and solids from shipboard bilge water. And the ultra-compact size of this Fram 2NP unitized system makes it the ideal choice for tugs, fishing fleets, crew boats and other small vessels.

Exceeding IMCO standards, the Fram 2NP processes 2 gallons per minute to purities of 15 ppm oil content or less. With no consumables and remarkably low maintenance

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requirements. High reliability plus lower operating costs result in significant cost efficiencies over the long term. In addition, Fram's advanced separator plate technology is readily adaptable to the retrofitting of existing, less efficient systems.

Add them all up — higher efficiency, smaller size, cost efficiency, retrofit capability and worldwide parts and service availability. It's easy to see why Fram's 2NP oil/water separator is the preferred choice. The clincher? Model 2NP is the "little brother" of the Fram OPB-10NP unit already in widespread use on some of the largest vessels in the U.S. Navy.

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Harmonic analysis procedures for dynamic nonlinear platform analysis will be discussed by M.J. Mes of the Phillips Petroleum Co., Bartlesville, Okla. Experts from COPPE/UF RJ of Brazil will present a paper on the dynamic analysis of fixed offshore structures on the Brazilian coast.

Design problems and operational risks of crane vessels is the subject of a paper by specialists from Germanischer Lloyd, Hamburg.

The use of a semisubmersible platform as a (process-) methanol plant carrier will be treated by G. Laading, Norwegian Petroleum Consultants, and G. Meinhold, Chemische Werke Huls AG.

Experts from Linde AG will discuss problems encountered with the use of liquefaction plants onboard floating platforms.

H. Reimers of Siemens AG, Oslo will explain the supervisory control and data acquisition (SCADA) system for offshore applications.

C. Kuo of the University of Strathclyde, Glasgow, will discuss research into subsea maintenance of offshore structures.

The latest design aspects of and model test results for the RS 35 semisubmersible system will be presented by P. Bauer of ERNO Raumfahrttechnik GmbH and G. Clauss from the Technische Universität Berlin.

A method for continuous control of platform stability will be examined by A. Naess of the Norwegian Hydrodynamic Laboratories.

K. Haverty of Det norske Veritas (Sidcup, Kent) and J.F. McNamara and B. Moran of the University College, Galway, will present a talk on finite dynamic motions of articulated offshore loading towers.

Experts from RWTH Aachen and Ed. Zublin AG, Stuttgart, will report on pilot tests with prestressed concrete pontoons (SEADECK) as system elements in ocean engineering.

Scientists from AEG Telefunken, Hamburg, will present talks on a subsea oil-loading system for tankers and on a distance positioning system for offshore supply vessels.

The effects of wave loads on vertical cylinders will be examined by scientists from the Indian Institute of Technology in Madras, while German colleagues from the Technische Universität Berlin will describe simplified design formulae for static and dynamic structure analysis of deep-sea risers.

Two papers by German experts will discuss the press-butt welding technique for pipelaying according to the J-method: H. Langenberg of Blohm & Voss, Hamburg, will present a system

(continued on page 22)

PORTUGAL

Investment opportunity in Naval Shipyards and similar Industries

Portuguese State wishes to contact parties interested in the negotiation of temporary leasing cession of the industrial complex named «SETENAVE - Estaleiros Navais de Setúbal, EP», by means of a contract to be established between the State of Portugal and a Company fulfilling the Reference Terms defined for the purpose.

These Reference Terms will be available to the interested parties at the Portuguese Embassies, at the Delegation of the Institute of Foreign Trade and the Portuguese Banking Branches and Representative Offices abroad and in Lisbon at the Secretary of State of Finance and Industry, and in Setúbal at the SETENAVE, P.O. Box 135 - Setúbal, Portugal, Telex 13143 - SETENAV P, Telephone 20100.

The interested parties have to submit to «Secretaria de Estado das Finanças - Comissão Setenave», in sealed envelopes and not later than September 15, 1982 their letters of intent of bidding for «SETENAVE» exploitation, accompanied by the documents deemed relevant for their pre-qualification, including as obligatory, those which give the profile of the Company: articles of association, board, balance sheets reports and operating accounts covering the last three years, industrial equipment of their own, references as to shipping and naval experience and other areas directly connected hereto.

THE COMMITTEE

SMM '82

(continued from page 20)
analysis with emphasis on the lay barge, while H. Musch and J. Langer of Mannesmann Anlagenbau AG will describe use of the technique in great water depths.

A refined analysis of environ-

mental conditions for the design of marine pipelines will be the subject of a paper presented by scientists from the Danish Hydraulic Institute in Horsholm.

H. Schonfeldt and G. Schwiers of Blohm & Voss will examine production requirements of offshore structures with an emphasis on welding.

H. Kuhn from the Menck Di-

vision of Koehring GmbH will report on underwater stabbing with a hydraulic hammer.

Scientists from DFVLR (Cologne) will examine research in diving medicine using the new diving simulator Titan, while colleagues from Profoline Unterwassertechnik and Ocean Consult GmbH will describe the use of Medusa, an unmanned remote



controlled underwater vehicle, for track survey and pipeline inspection.

The development, construction and handling of a remote controlled soil investigation vehicle will be treated in a paper by German experts.

J. Grunberg of IMS GmbH, Hamburg, will report on progress in the development of a computer program for the hydrodynamic analysis of fixed compact offshore structures.

Developments in German offshore oil and gas production will be discussed by three German scientists.

Ice Technology

Experts from the United States, Canada and Germany will present technical papers on such subjects as the test results determining mechanical properties of ice; methods of evaluating strength and elasticity of ice covers; analytical investigation of ice forces on cylindrical structures; and analytical predictions of ship resistance in ice. Two papers will be presented on the topic of the ice breaker Max Waldeck.

A report on tests of air-water jets to reduce resistance of ice going vessels will be presented as well as a discussion of icebreaking hopper suction dredges.

The use of partly frozen artificial sand islands as foundations for exploration platforms in Arctic Seas will be examined, as well as the effect of sea ice conditions on the accessibility of research stations on the Weddell Sea.

A report on first-year pressure ridges in the Beaufort Sea by D. McGonigal and B.D. Wright of Gulf Canada Resources will conclude the session on ice technology.

Oil Pollution Abatement

Fourteen papers will be presented during the session on oil pollution abatement. Specialists from B.P. International, Ltd.,

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In what may be maritime history, Bay-Houston Towing Company recently christened the four newest members of the fleet all on the same day. Left to right: The Captain W.D. Haden, the W.D. Haden, II, the Barbara H. Neuhaus and the Mark K.

A FAMILY AFFAIR.

The biggest harbor towing company on the Texas Gulf Coast is no faceless corporation. It's Bay-Houston Towing. And it's owned and operated by the Hadens, a family that has been

involved in the towing business for over 100 years.

That's why their fleet of diesel tugs, all the way up to the 4,200-horsepower Captain W.D. Haden, bears family names.

Doing the job better than anyone else can is more than a challenge. It's a family tradition.

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HARBOR AND COASTWISE TOWING
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London, will discuss flexibility as the key to oil-spill contingency planning while a German and American team of experts will look at environmental sensitivity mapping as a means of minimizing the impact of oil spills.

A.C. Hill (Seicon Computer Services) and Milton Keynes will describe SCOOP, a computer program to simulate oil spills, while J.W. Dippner of the Institut für Meeresforschung in Bremerhaven will report on the oil drift model, OIPASIPA.

Conceptual design of and practical experience with vessels for use in containing and combating oil spills will be the subject of two of the papers to be presented.

R. Klimek of ERNO Raumfahrttechnik and G. Clauss of the Technische Universität Berlin will explain the development of an oil skimming and separating system to combat oil spills at sea. Three experts from VWS, Berlin, will report on experimental investigations of the operating mechanism of the Blunk oil skimmer.

Oil-water flow characteristics in front of barriers will be examined in a paper by H.-H. Munte of Jastram-Werke. K. Dietzel of Krefeld will report on the use of polyurethane flexible-foam barriers against oil pollution.

A scientist from the Forschungsinstitut Senckenberg will discuss the influence of crude oil and crude oil dispersants on tidal flat ecology.

A report by R. Leo and B. Nill of Leo Consult GmbH, Bremen, will describe recovery, treatment for re-use, and disposal of oily sludges and debris resulting from drilling and transport spills in the Wadden Sea area.

Coastal Engineering

Twenty-three papers covering such subjects as surveying, models, tidal gauges, new pontooning systems for coastal waters, tidal waves, coastal protection, etc. will be presented at the session on coastal engineering. The conference language for this session will be German only.

Marine Research For Coastal Engineering

Eight more papers are concerned with marine research for coastal engineering. The use of satellites to explore coastal waters will be the subject of a paper by H.G. Gierloff-Emden of the Universität München.

D. Schmidt and W. Gerwinski of the Deutsches Hydrographisches Institut will examine the feasibility of monitoring marine pollution by remote sensing. Specialists from the Forschungsstelle für Insel- und Küstenschutz will discuss the registration and transmission of hydrographic data.

M. Engel from the Universität

Hamburg will report on hydrodynamic-numerical investigation of the circulation of the North Sea, while R. Klochner will discuss modelling and sediment transport of the North Sea.

Scientists from the Deutsches Hydrographisches Institut will examine the application of a numerical ocean wave model to hindcast the seastate during dis-

asters such as the sinking of the 'München' and the Fastnet race.

Navigational aids for coastal engineering and offshore activities will be the subject of a talk by H.-D. Vogt of Wasser- und Schifffahrtsdirektion Nord, Kiel.

H.D. Böhm and H.-G. Müller of Pintsch Bamag Antriebs- und Verkehrstechnik will describe methods of supplying power for un-

manned equipment carriers in ocean engineering.

Ship Technology

Focusing mainly on energy conservation, the International Congress of Ship Technology (ICST '82) has been organized by the Verein der Schiffs-Ingenieure zu

(continued on page 24)

STAY UNDER WAY

"We save thousands of dollars in labor costs a year with Shell CAPRINUS R Oil in Fairbanks Morse engines."

What a difference in performance between Shell's CAPRINUS R engine oil and the oil we used before," continues Jim Pinkerman, Port Engineer, Ohio River Company, Cincinnati, Ohio.

"That oil formed hard deposits around the exhaust ports of our Fairbanks Morse 38D8 1/8 engines. Eventually these deposits would start cutting our power. We could tell that when the scavenging air pressure rose to 5 psi from a normal 2-4 psi."

To control this problem, the Ohio River Company had the exhaust ports regularly punched in its eight Fairbanks Morse-powered towboats. This amounted to thousands of dollars a year in labor costs alone. Vessel downtime costs not included!



Jim Pinkerman has many years' experience as a Port Engineer. "Ohio River's rigid maintenance program and a top-quality oil like CAPRINUS R help keep our medium-speed diesels operating smoothly," he says.

CAPRINUS R Oil solves problem Two years ago, Ohio River put all of its towboats and workboats on MVI naphthenic CAPRINUS R Oil.

"There was an immediate improvement in the Fairbanks Morse engines," says Jim Pinkerman. "CAPRINUS R Oil forms soft, flaky deposits that don't build up excessively and require frequent costly punching. A lot of them blow right out the stack. That's the kind of deposits we like!"

CAPRINUS R Oil also gets high marks for performance in the



Jim Pinkerman (right) and Tom Risely of Ohio River's Engineering Department are pleased with the performance of CAPRINUS R Oil in the firm's 70-vessel fleet.

other engines used by Ohio River vessels. Included are B & W Alphas, EMD 645 E7B's, a Caterpillar D379 and a Detroit Diesel 12V-71.



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Shell for answers

Write 333 on Reader Service Card

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A versatile performer

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SMM '82

(continued from page 23)

Hamburg e.V. in Vereinigung Deutscher Schiffingenieure.

Chairmen for ICST '82 are Direktor i. R. Albert Schutt and Jens W. Mahrt.

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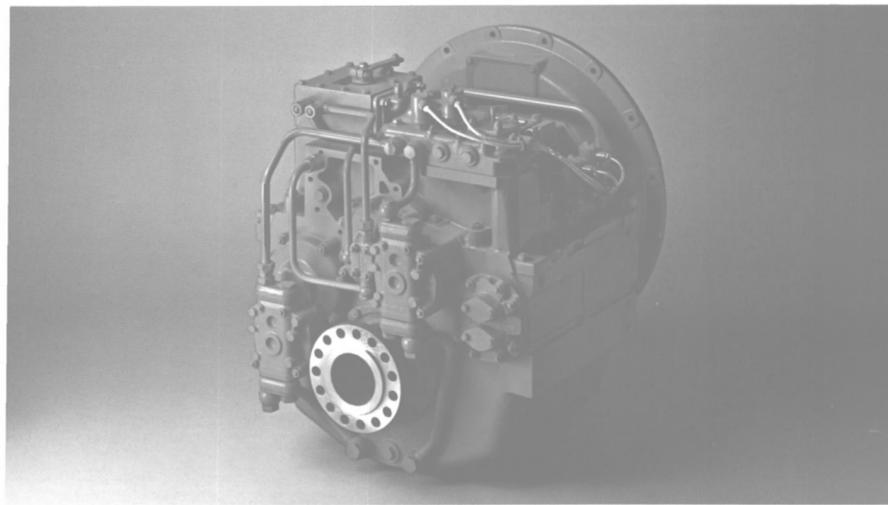
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Minimum Size. Maximum Power.

The ZF BW 250 marine gear series offers all the advantages of compactness and light weight. Without sacrificing speed, power and durability. In fact, the BW 250 series is designed to handle up to 1,500 hp over a wide range of marine applications. From hard working work boats to high performance pleasure craft, the ZF BW 250 handles maximum power per pound in a compact, modular design that's easy to operate and easy to maintain.

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able service and parts back-up. The BW 250 marine gears series. Only from ZF. Write us at our new U.S. address for complete specs and more information. Or contact Motive Power Corporation, P.O. Box 365, Mineola, NY 11501 (516/742-1900).



ZF of NORTH AMERICA, INC.

3225 Commercial Avenue
Northbrook, Illinois 60062



London, will discuss flexibility as the key to oil-spill contingency planning while a German and American team of experts will look at environmental sensitivity mapping as a means of minimizing the impact of oil spills.

A.C. Hill (Seicon Computer Services) and Milton Keynes will describe SCOOP, a computer program to simulate oil spills, while J.W. Dippner of the Institut für Meeresforschung in Bremerhaven will report on the oil drift model, OIPASIPA.

Conceptual design of and practical experience with vessels for use in containing and combating oil spills will be the subject of two of the papers to be presented.

R. Klimek of ERNO Raumfahrttechnik and G. Clauss of the Technische Universität Berlin will explain the development of an oil skimming and separating system to combat oil spills at sea. Three experts from VWS, Berlin, will report on experimental investigations of the operating mechanism of the Blunk oil skimmer.

Oil-water flow characteristics in front of barriers will be examined in a paper by H.-H. Munte of Jastram-Werke. K. Dietzel of Krefeld will report on the use of polyurethane flexible-foam barriers against oil pollution.

A scientist from the Forschungsinstitut Senckenberg will discuss the influence of crude oil and crude oil dispersants on tidal flat ecology.

A report by R. Leo and B. Nill of Leo Consult GmbH, Bremen, will describe recovery, treatment for re-use, and disposal of oily sludges and debris resulting from drilling and transport spills in the Wadden Sea area.

Coastal Engineering

Twenty-three papers covering such subjects as surveying, models, tidal gauges, new pontooning systems for coastal waters, tidal waves, coastal protection, etc. will be presented at the session on coastal engineering. The conference language for this session will be German only.

Marine Research For Coastal Engineering

Eight more papers are concerned with marine research for coastal engineering. The use of satellites to explore coastal waters will be the subject of a paper by H.G. Gierloff-Emden of the Universität München.

D. Schmidt and W. Gerwinski of the Deutsches Hydrographisches Institut will examine the feasibility of monitoring marine pollution by remote sensing. Specialists from the Forschungsstelle für Insel- und Küstenschutz will discuss the registration and transmission of hydrographic data.

M. Engel from the Universität

Hamburg will report on hydrodynamic-numerical investigation of the circulation of the North Sea, while R. Klochner will discuss modelling and sediment transport of the North Sea.

Scientists from the Deutsches Hydrographisches Institut will examine the application of a numerical ocean wave model to hindcast the seastate during dis-

asters such as the sinking of the 'München' and the Fastnet race.

Navigational aids for coastal engineering and offshore activities will be the subject of a talk by H.-D. Vogt of Wasser- und Schifffahrtsdirektion Nord, Kiel.

H.D. Bohm and H.-G. Müller of Pintsch Bamag Antriebs- und Verkehrstechnik will describe methods of supplying power for un-

manned equipment carriers in ocean engineering.

Ship Technology

Focusing mainly on energy conservation, the International Congress of Ship Technology (ICST '82) has been organized by the Verein der Schiff-Ingenieure zu

(continued on page 24)

STAY UNDER WAY

"We save thousands of dollars in labor costs a year with Shell CAPRINUS R Oil in Fairbanks Morse engines."

"What a difference in performance between Shell's CAPRINUS R engine oil and the oil we used before," continues Jim Pinkerman, Port Engineer, Ohio River Company, Cincinnati, Ohio.

"That oil formed hard deposits around the exhaust ports of our Fairbanks Morse 38D8 1/8 engines. Eventually these deposits would start cutting our power. We could tell that when the scavenging air pressure rose to 5 psi from a normal 2-4 psi."

To control this problem, the Ohio River Company had the exhaust ports regularly punched in its eight Fairbanks Morse-powered towboats. This amounted to thousands of dollars a year in labor costs alone. Vessel downtime costs not included!



Jim Pinkerman has many years' experience as a Port Engineer. "Ohio River's rigid maintenance program and a top-quality oil like CAPRINUS R help keep our medium-speed diesels operating smoothly," he says.

CAPRINUS R Oil solves problem Two years ago, Ohio River put all of its towboats and workboats on MVI naphthenic CAPRINUS R Oil.

"There was an immediate improvement in the Fairbanks Morse engines," says Jim Pinkerman. "CAPRINUS R Oil forms soft, flaky deposits that don't build up excessively and require frequent costly punching. A lot of them blow right out the stack. That's the kind of deposits we like!"

CAPRINUS R Oil also gets high marks for performance in the



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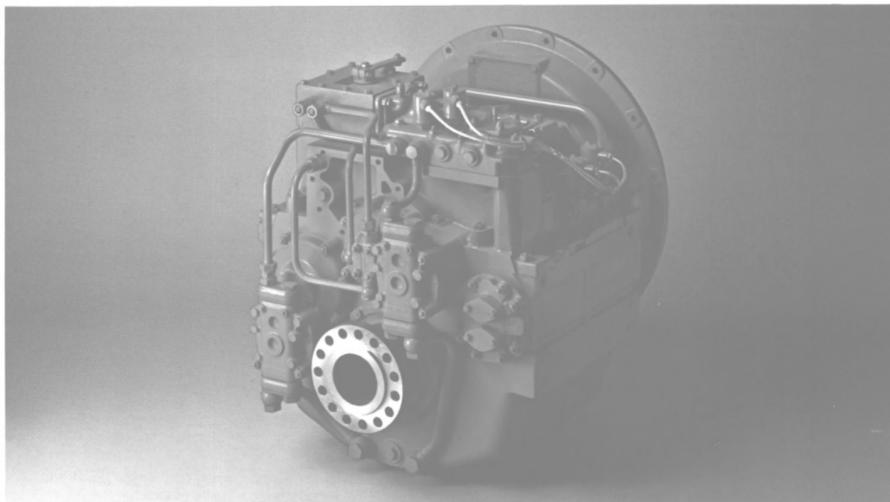
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(continued on page 27)

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Ideal for workboats and fishing boats where space is at a premium, Model 6410 and Model 6425 are also superb back-up radars for large, high-seas vessels. Each features a big 10-inch display in an extremely compact unit that may be pedestal, bulkhead, table-top, or overhead mounted. A number of extra-performance options are available including gyro-stabilization now required on large ocean-going vessels.

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Economical installations.

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- Ten ranges from 1/4 to 64 miles for river, harbor, and high-seas navigation.
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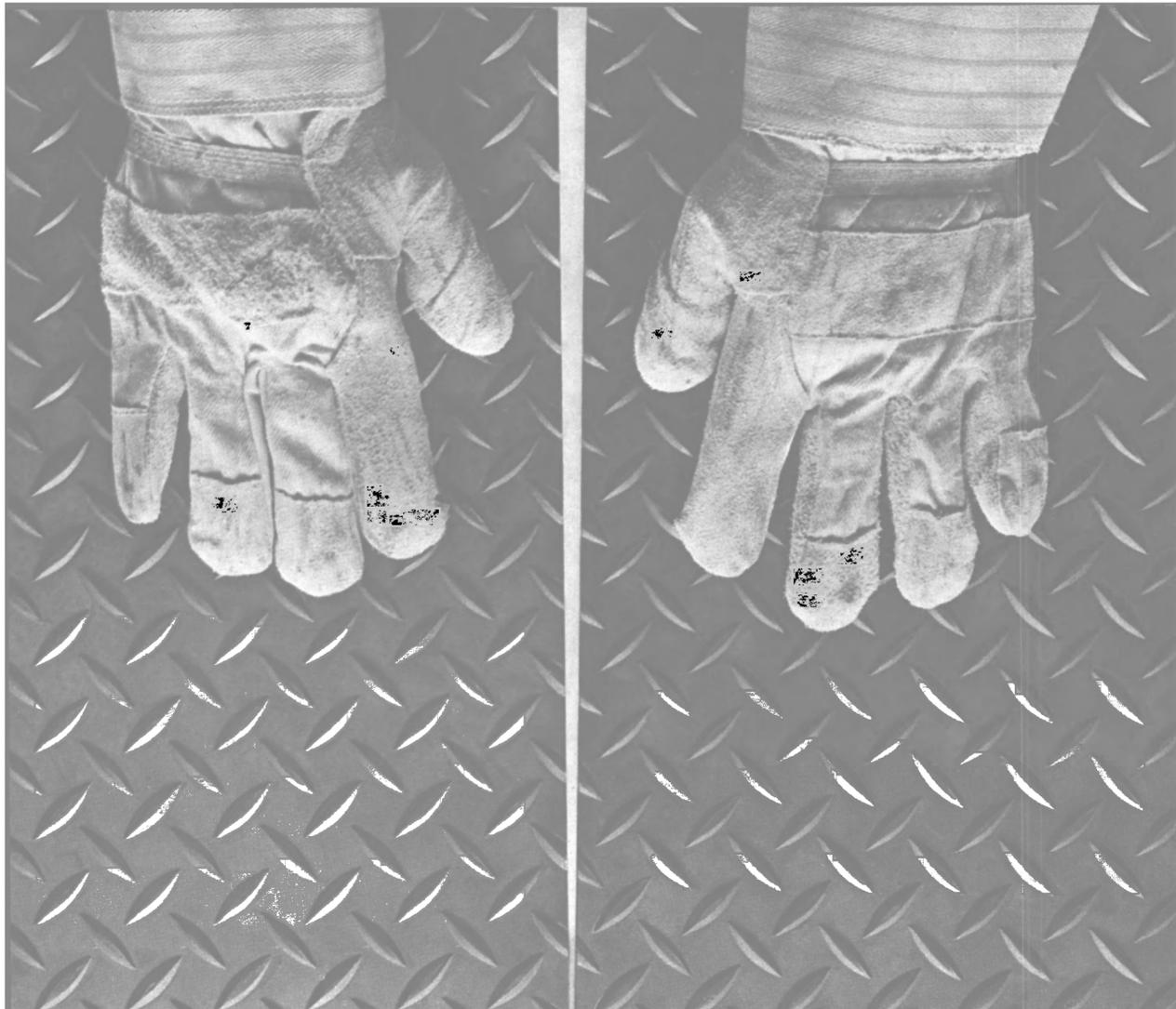
- Off-centering kit.
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- Optical magnifier for the equivalent of a 15-inch picture.
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People say we're a great match.

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And all this is on top of two other Sure-Foot® benefits: excellent skid resistance, plus Lukens

quality that gives you durability, strength and support. It's more than a match for the heavy traffic on stairs, ramps, walkways, docks, work tables, truck floors, tailgates and kickplates.

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Lukens Steel

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SMM '82

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(continued from page 25)

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(continued on page 28)

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And gives you 51 years of experience free.

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Clean your tanks without breaking your bank.

If your business needs to preserve its capital,

tying up money in portable tank cleaning machines doesn't make sense. Especially when leasing is so reasonable. And we are so reliable.

Should one of our leased machines need repair, we'll just replace it out of our worldwide supply network. And if you need more machines than you contracted for, we'll make sure you have what you need, when and where you need it.

The portable that saves you time, money and manpower.

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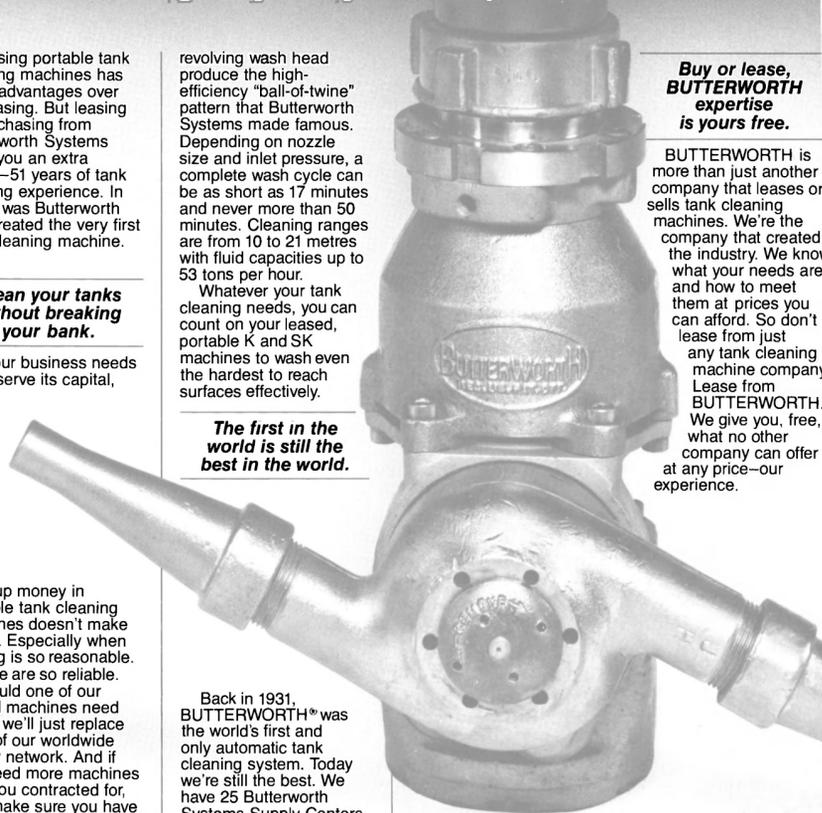
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SMM '82

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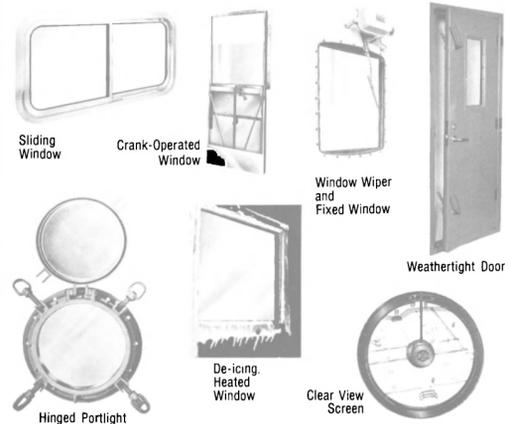
(continued from page 27)

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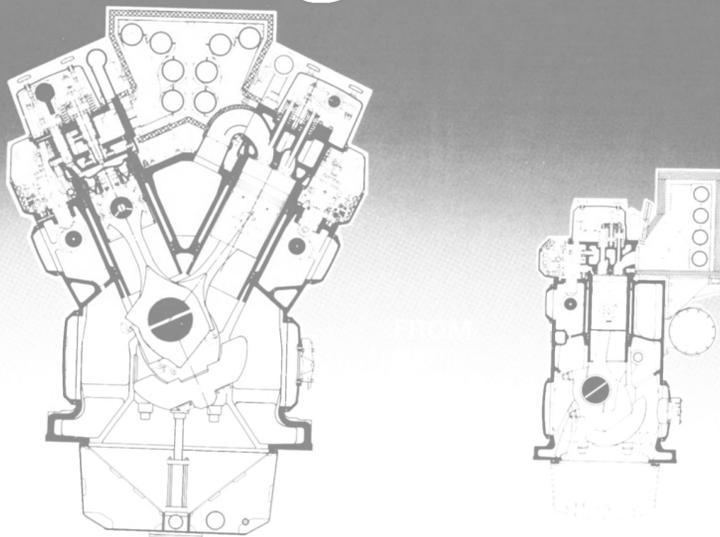
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Maritime Reporter/Engineering News

(continued on page 30)

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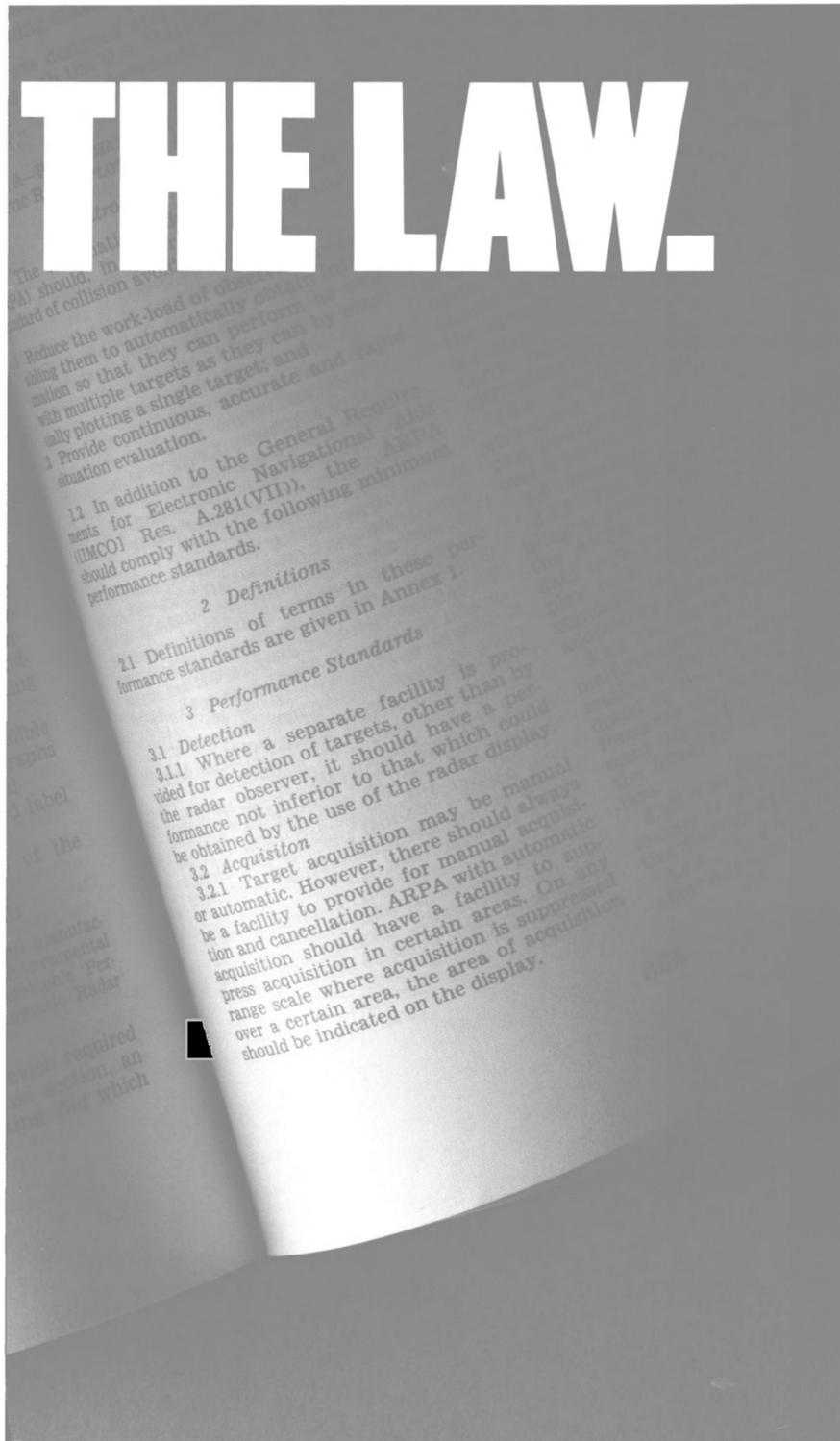
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New Marine, Container Repair Company Formed — Literature Available

The establishment of a company to perform marine, industrial, and container repairs — B.F.C. Marine Services, Inc. of Brooklyn, N.Y. — has been announced by Ira S. Bushey, chairman of the board and chief executive officer.

The company provides turbine, diesel engine, and mechanical repairs worldwide. Valve, fuel injection, and in-place crankshaft grinding services will also be provided, stated Mr. Bushey, along with total container repairs and shipboard services.

Christopher Clark has been announced as president of the BFC Marine Division and Douglas

Forrest as president of the Container Division.

For more information on the new marine repair company, Write 49 on Reader Service Card

MarAd Approves Title XI Increase For Tugboat

The Maritime Administration has approved an increase in the actual cost of a twin-screw tug-

boat owned by Beker Shipping Co. from \$8,036,770 to \$8,951,800.46. The maximum amount of MarAd's Title XI guarantee as a result of this change has been fixed at \$7,832,000. The maximum guarantee previously was \$7,032,000.

The revised cost for the vessel resulted from an increase in owner-furnished equipment, a decrease in design and inspection, and an increase in interest during construction. The owner-furnished equipment represents costs incurred by Beker for outfitting and equipping the vessel for the initial complement of spare parts.

The tug was built by Marinette Marine Corporation, Marinette, Wis., and delivered in April. It is used to tow barges which transport phosphate rock from the Port of Manatee across the Gulf of Mexico to a fertilizer complex at Taft, La.

Reed Heads New Singapore Energy Products Office For Transamerica Delaval



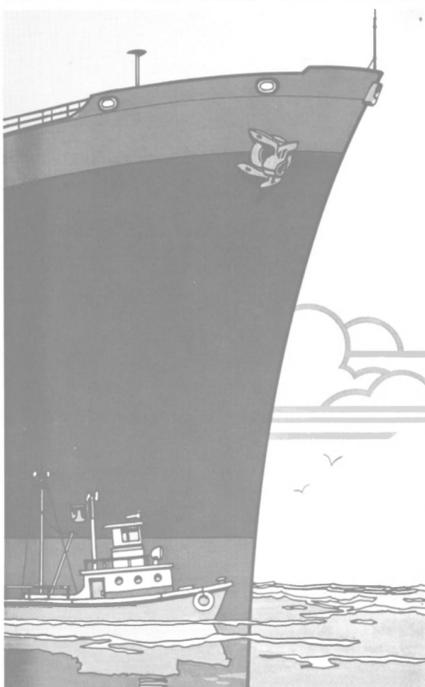
Donald B. Reed

Transamerica Delaval, Lawrenceville, N.J., has taken an important step to strengthen its position in the Southeast Asia energy markets with the establishment of an office in Singapore to be headed by Donald B. Reed, it was announced recently. The office is expected to be operational in September.

Mr. Reed, who had been general manager of the company's international division, headquartered in Lawrenceville, will continue to report in his new position to Bern E. Deichmann, vice president-marketing, Transamerica Delaval.

In making the announcement, Mr. Deichmann emphasized the potential for the sale of diesel engines to power corporations and for compressors and steam turbines to the process, oil, and gas industry in Southeast Asia, "especially in countries such as Australia, Indonesia, Malaysia, and Thailand, where substantial supplies of gas and oil are available within those countries' borders."

Mr. Reed, who joined the company in 1962, has been closely associated with the company's efforts in developing international markets for its products.



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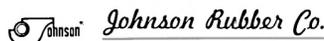


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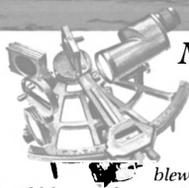
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Maritime Reporter/Engineering News



Mariners Seek Texaco's "STAR" Products

The Crab Nebula, as seen through a color telescopic camera, is actually the gaseous remnant of a star that blew itself asunder. More familiar is Aldebaran the eye of Taurus or the Seven Sisters, the Pleiades, which guide ships beyond number to Hong Kong's magnificent harbor. For marine service and products proven to be as reliable as these celestial bodies, mariners seek Texaco and its star products.



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Lake Shore Offers Literature On Start-Master For Cummins Engines

Lake Shore Electric Corporation recently introduced Start-Master (automatic engine controls) for Cummins engines. Designed for unwired engines, controls utilize ribbon cable with

connectors between lights, switches, and printed circuit board. Wiring is therefore simplified, which provides for ease of installation and adds greater cost effectiveness. No modifications are required for interphasing between the control and the engine.

This advanced system, available for automatic engine start/stop control, is available with a

highly sophisticated programmable multi-crank control and also a single-crank control model.

The Start-Master meets NFPA-76A requirements.

For free literature on Lake Shore Electric's Start-Master engine controls for Cummins Engines,

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Kosonen Appointed At Life Cycle Engineering



Charles G. Kosonen

Life Cycle Engineering, Inc. (LCE) of Charleston, S.C., recently announced the association of Charles G. Kosonen as a consulting engineer. Mr. Kosonen will provide technical expertise in the fields of performance monitoring, material condition assessment, engineering management, and maintenance engineering.

Prior to joining LCE, Mr. Kosonen was deputy director of the submarine performance monitoring and material condition assessment programs for the U.S. Navy. He has over 20 years' experience in the management, administrative, and technical aspects of performance monitoring programs, marine engineering, and underwater systems. He is a member of the Special Committee on Underwater Systems and Vehicles of the American Bureau of Shipping, and is past chairman of the technical papers committee of The Society of Naval Architects and Marine Engineers, Los Angeles chapter.

LEEVAC Names Stone To Customer Service Post

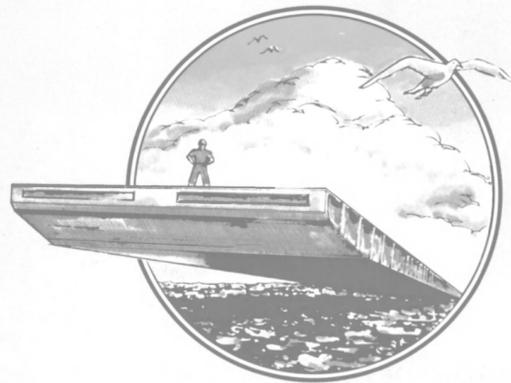
LEEVAC Marine Transportation, a division of LEEVAC Corporation, has announced the appointment recently of Tom Stone as customer service representative. Based on LEEVAC Marine Transportation's concept of combining their customer service department with their sales department, Mr. Stone will be involved with operations/traffic as well as customer service and sales.

This concept permits LEEVAC to "better serve our customers and assure a free flow of communication since our sales people and service people are one in the same," said Steven C. Hair, director of sales/customer service.

Mr. Stone came to LEEVAC from Stone Construction, a family-owned enterprise, and previously held positions with Lykes Lines, New Orleans; Seatrain International; and Johnson Motor Lines, special commodities division.

Mr. Stone's primary responsibility will be LEEVAC's new offshore bunkering service.

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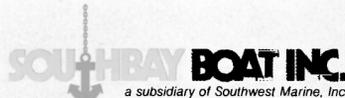
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**Hvide Shipping Appoints
Fitzgerald Vice President
Government Relations**



Jean Fitzgerald

Jean Fitzgerald has been appointed vice president, government relations, at Hvide Shipping Incorporated and its affiliates. Prior to joining the Fort Lauderdale-based company, he served as the executive director of the Port Everglades Association.

Mr. Fitzgerald was president of Tracor Marine, Inc., at Port Everglades from 1976 to 1979, and director of engineering at Tracor's systems technology division in Rockville, Md., 1974-76.

Hvide Shipping Incorporated, established in 1958, is involved in many facets of the marine transportation industry, including vessel ownership and operation, vessel design and construction, deepsea tug/barge transportation, liquid and dry bulk terminal design and management, and harbor towing.

**Holland America Names
Technical Vice President**



Edwin J. Roland Jr.

Edwin J. Roland Jr., a naval architect and marine engineer, has been appointed vice president, technical, of Holland America Line, Stamford, Conn., parent company of Holland America Cruises.

Prior to this appointment he was vice president of The Coastal Corporation of Houston, in charge of the marine operation. At Holland America he will have functional authority over engineering, nautical, and maintenance of both its travel and tourism and products and services groups.

Jacob van den Berg, Holland America's senior vice president, technical, with offices in Rotterdam, Holland, continues to be responsible for the planning, di-

rection, design, and supervision of the construction of the two new luxury ocean liners being built for Holland America Cruises at the Chantiers de l'Atlantique shipyard, St. Nazaire, France. Mr. Roland will work closely with Mr. van den Berg on these new ships, the Nieuw Amsterdam and the Noordam, and will be responsible for all future new shipbuilding and fleet modernization.

**New Loran Models
From II Morrow Inc.
—Literature Available**

II Morrow Inc., Salem, Ore.-based navigation equipment manufacturer, has published product literature on its new Avenger 501 and 502 Loran models.

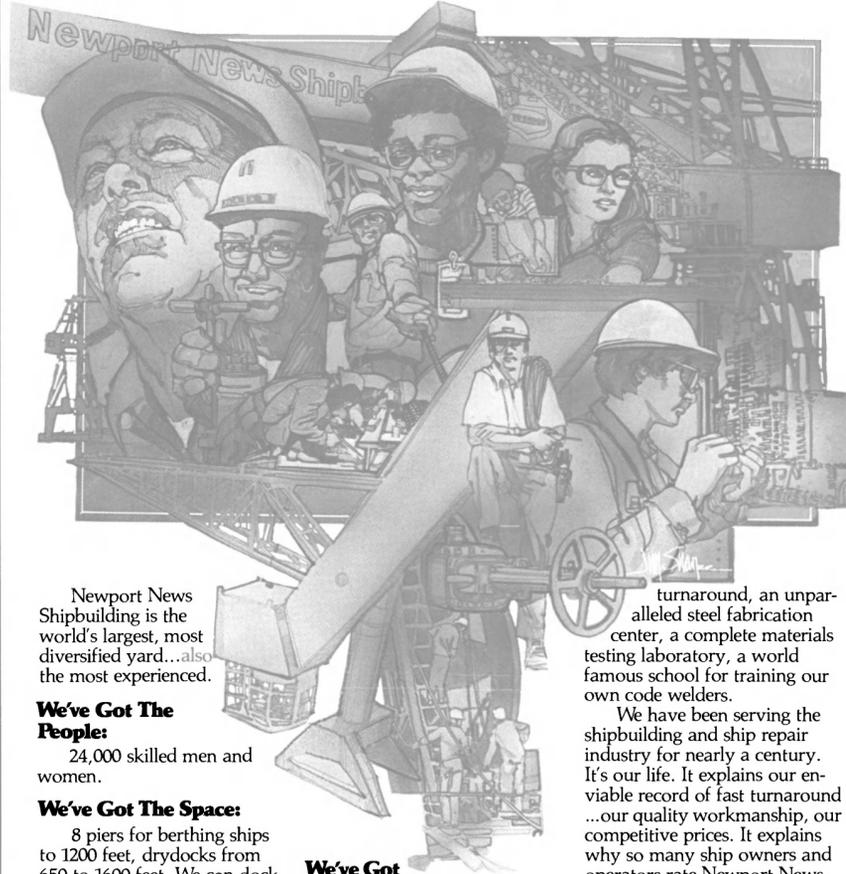
Included in the literature is a four-color photograph of the in-

strument, dimensional drawings, display drawings, a table of specifications, and the main features of both units. II Morrow was founded by Ray and Jim Morrow who have more than 12 years of experience in the manufacture and design of marine electronics.

For more information on the Avenger 501 and 502 Loran models,

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As of December 31, 1981, 58,867 MTU high-performance diesel engines were in operation worldwide. Of these, 18,358 perform in marine applications.

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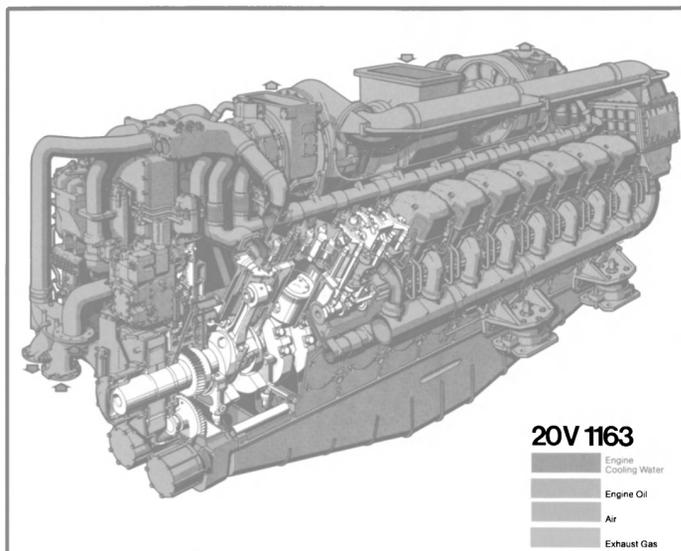
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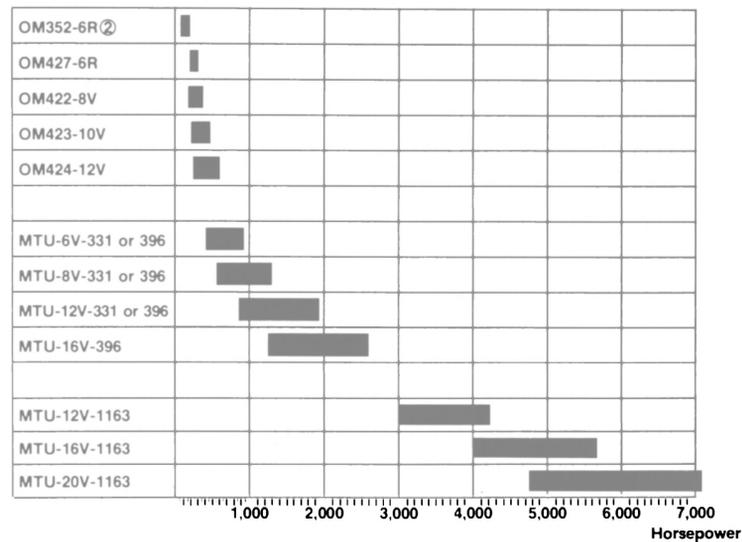
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Notes: ①DHP ranges cover all applications. Subject to change without notice.
②OM engines for marine applications only

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Here's how it works

Input data comes directly from you. All the input for the program comes directly from your engine room log. No special equipment or training is necessary.

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sell you our product. But first, we want you to be convinced that Ferrous Catalyst works. If you're interested in putting your vessels to the test, or simply learning more about Ferrous Catalyst, fill out the coupon below and send it to Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009. Phone 206/454-6320, TWX 910 443 2326.

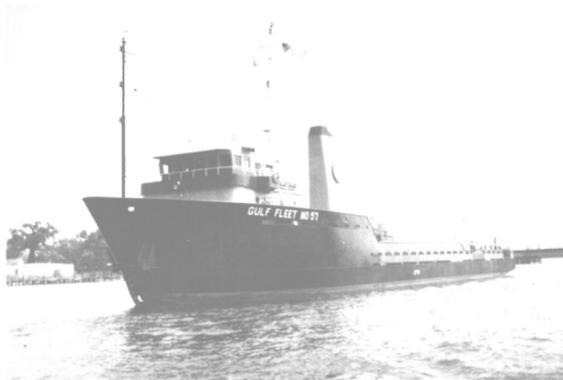
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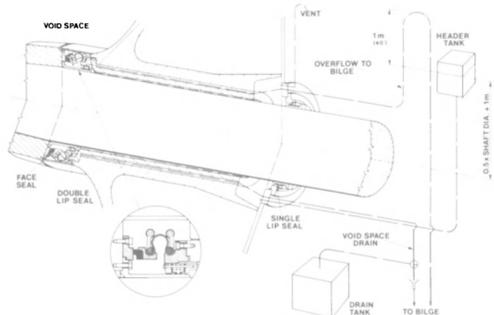
Capacities include: 11,200 gallons of potable water, 66,000 gallons of fuel oil, 1,250 barrels liquid mud storage, and 6,000 cubic feet of bulk mud storage.

On-deck cargo equipment includes a Gearmatic Deck Tugger winch and a towing winch by Intercontinental. Other equipment includes Gorman Rupp bilge, fuel, and fire pumps; three Carlisle & Finch searchlights; Pauluhn and Hubble running and navigation lights; Zodiac lifesaving gear; and a fire monitor on the pilot-house.

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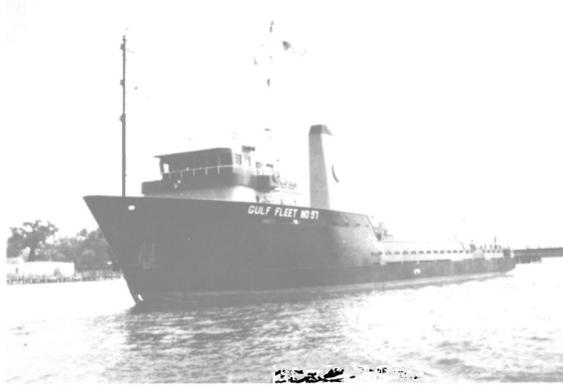
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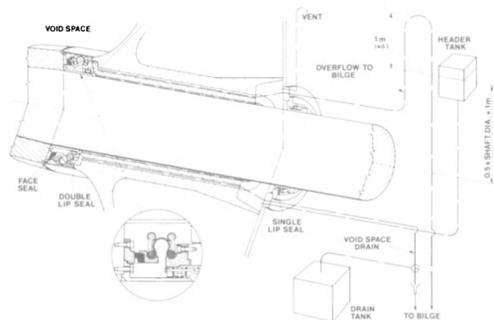
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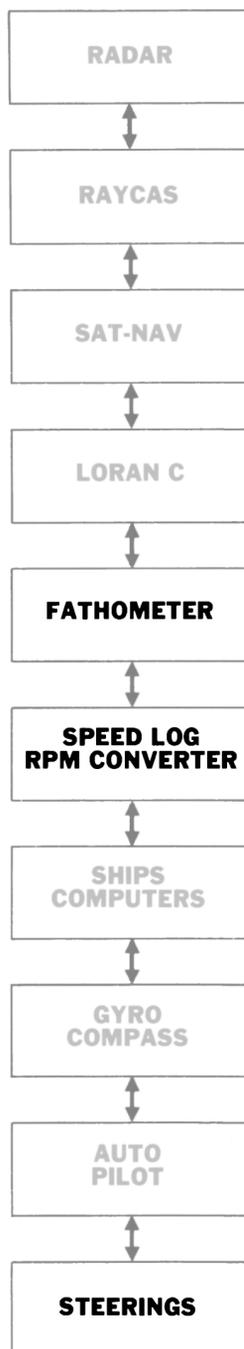
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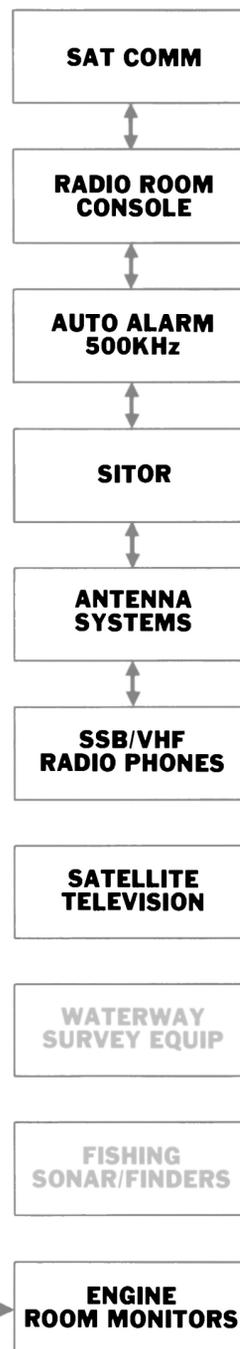
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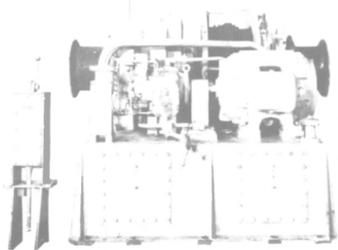
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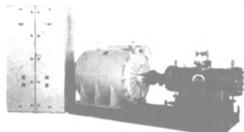
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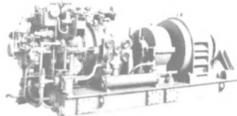
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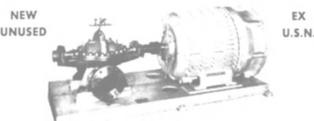
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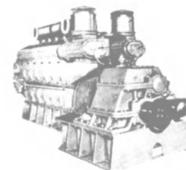
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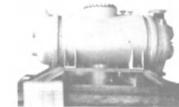
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Allis-Chalmers pump Model 402-432-501 — 6000 GPM — 180 ft. head — 1225 RPM. Size 12X10 — type SH — serial number 64445.

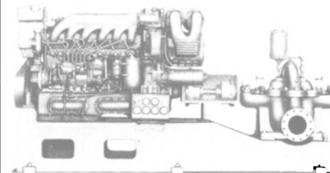
TURBINE

G.E. — Model 7TDPY125MR93 — serial number 126769 — 340 H.P. — 5000 RPM. Steam pressure 775 P.S.I.G. (835 maximum) — steam temperature °F 530 TT — (600° maximum) — exhaust 53 P.S.I.G.

REDUCTION GEAR

G.E. — type S233 — form AR — serial number 134071 — 340 H.P. — 4997/1225 RPM

SELF-PRIMING 1000 GPM ALLIS-CHALMERS BRONZE FIRE PUMP



280' HEAD - 1800 RPM PUMP

Manufactured by Allis-Chalmers — 20 ft. suction lift — 6" suction — 5" discharge. Complete with priming valve, Nash belt-driven priming pump and priming tank.

DIESEL ENGINE

Hercules DWXDS diesel engine—4-stroke—150 B.H.P. — 6 cylinder — 4 $\frac{3}{4}$ " X 4 $\frac{3}{4}$ " — 1800 RPM. Complete with Roots supercharger — piston displacement 404 cubic inches. Heat exchanger cooled.

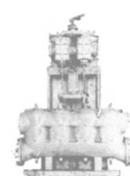
NIJHUIS 5-STAGE HIGH PRESSURE MODEL HD-5 CENTRIFUGAL PUMP



5"
SUCTION
AND
DISCHARGE

AT 2000 RPM: 440 GPM @ 200 PSI requires approx. 100 HP—550 GPM @ 170 PSI requires approx. 125 HP.
AT 1800 RPM: 500 GPM @ 140 PSI requires approx. 115 HP.
Steel Construction.

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



1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction—10" discharge — 2 $\frac{1}{2}$ " steam — 4" exhaust. Overall width 6'8" — overall height 9'1 $\frac{1}{2}$ " — depth 3'9 $\frac{1}{2}$ ". Wt. approx. 10,000 lbs.

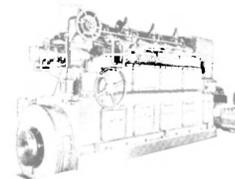
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ABS — READY TO GO

NEW U.S. MARAD-TYPE AXIAL FLOW FANS



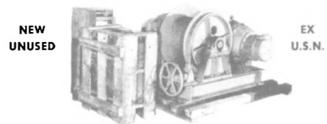
(3) 10,500 CFM Model AF-100, "Baldor" 5 HP motor — 440/3/60 — 40° — 1750 RPM — 7 amps.
(1) Same as above, but 2-speed 1750/750 RPM — Frame 184TCZ
(2) 12,880 CFM — Size 15AF — Baldor Motor — 7.5/1.9 HP — 440/3/60 10/3.5 amps — 1750/880 RPM — 40°C — Frame 215TCZ
20,000 CFM — 1.9" SP — Size 200AF — 10 HP — 440/3/60 — 1750/880 RPM
(2) 40,665 CFM — size 43AF — 60 HP Baldor Motor — 440/3/60 — 1760 RPM — 75 amps — 50° rise — Frame 364TZ Ins. F
(1) 6000 CFM — AF40 — Baldor Motor — 3 HP — 440/3/60 — 1750 RPM — Ins. F — 40°C — Frame 182TCZ

NEW CLARK 500BHP DIESEL 4-CYL. — AIR STARTING



500 BHP @ 400 RPM. 4-Cylinder straight inline type — 12 $\frac{1}{2}$ " X 16" — 2-stroke single acting — liquid cooled — direct reversible — CW rotation. With standard shaft-connected starting air compressor. Weight 25,000 lbs. — 228" long — 98" wide — 132" high. Designed for heavy duty, rugged use, its extreme simplicity will result in lower operating and maintenance costs.

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A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB —1750 RPM—type KR—full load amps 32. Motor drives winch through Falk reduction gear. Has compressor hand brake.

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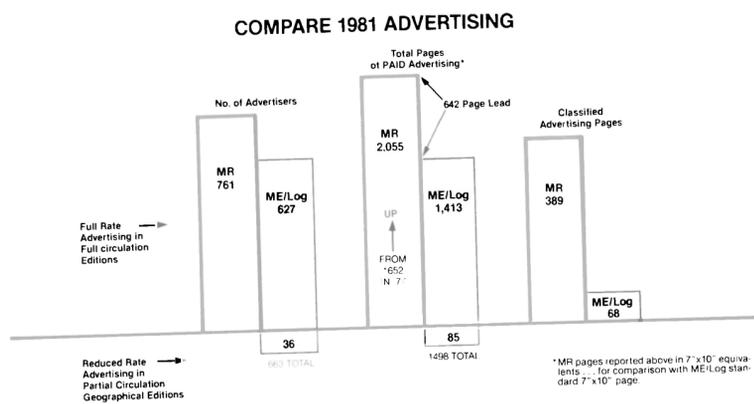
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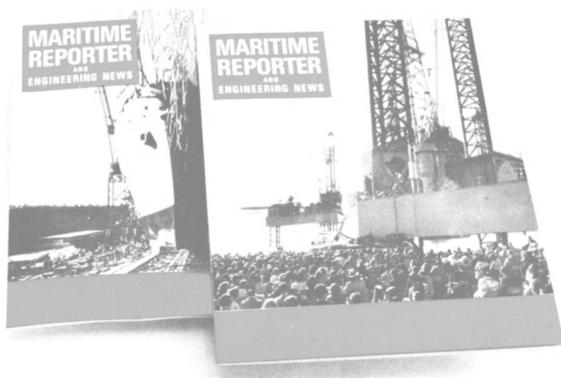
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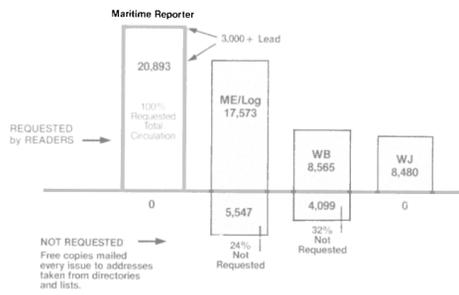
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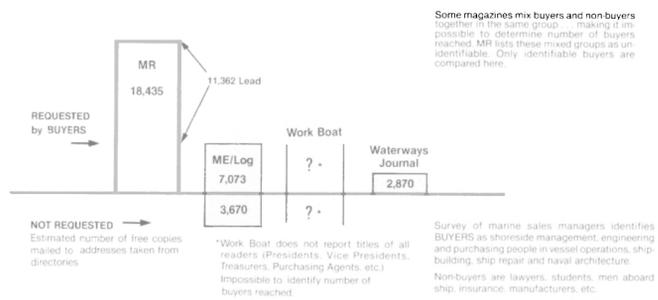
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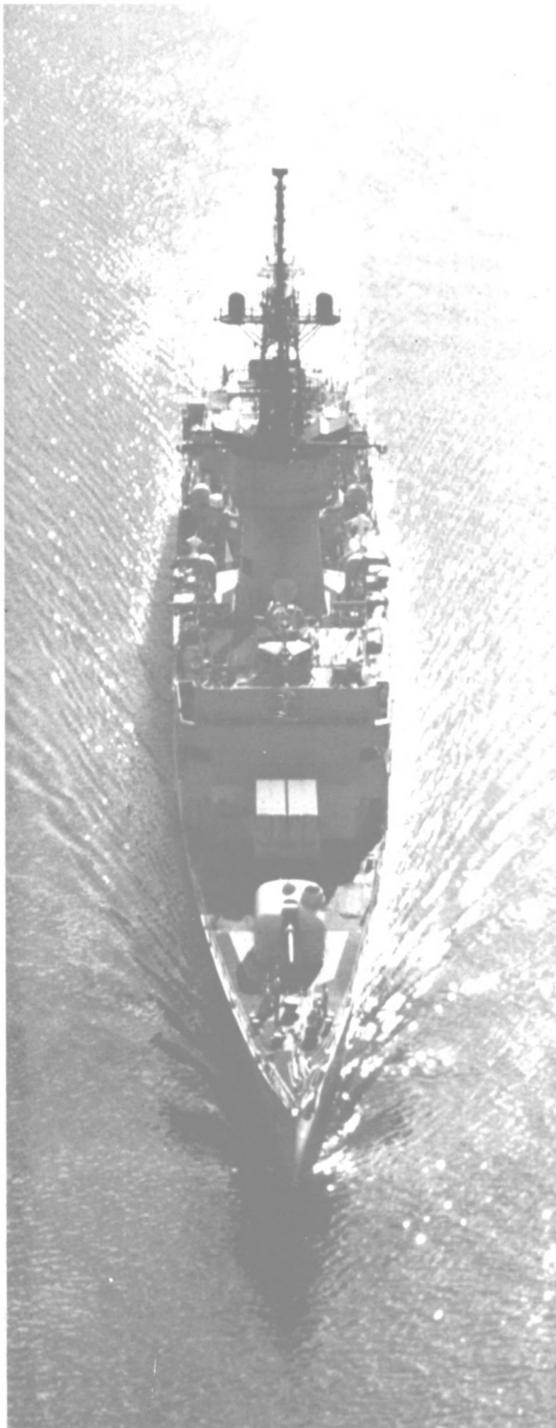


Photo - McDonnell Douglas

50

ASNE



September 30 - October 2
Biloxi, Mississippi

The American Society of Naval Engineers, in conjunction with the Ingalls Shipbuilding and Data Systems Divisions of Litton Industries and the Supervisor of Shipbuilding, Conversion and Repair, U.S. Navy, Pascagoula, Miss., are sponsoring a symposium entitled "Destroyer, Cruiser, and Frigate Technology." The symposium, to be held in Biloxi, Miss., will run from September 30 through October 2, 1982.

Featured speakers for the three-day event will include the Hon. **George H. Sawyer**, Assistant Secretary of the Navy for Shipbuilding and Logistics; Vice Adm. **Robert L. Walters**, USN, Deputy Chief of Naval Operations for Surface Warfare; and Rear Adm. **Wayne E. Meyer**, USN, who is project manager for the Navy's newest cruiser program, the Ticonderoga (CG 47) class of Aegis guided-missile cruisers. Admiral **Meyer** also has been named project manager for the Navy's next destroyer program, DDG 51.

Fred W. O'Green, chairman of the board of Litton Industries, will be the guest speaker for the symposium's banquet on Friday, October 1.

Designed to bring the Navy and industry together for an interchange of technical ideas for future ship design, the symposium gets underway Thursday, September 30, with two sessions for classified papers at Keesler Air Force Base. The morning session, "Combat Systems Technology," will include presentations on weapons technology, future combat systems, and aircraft support requirements for surface combatant ships. The moderator

for the morning session will be **Dr. Thomas Clare**, head of the Combat Systems Department, Naval Surface Warfare Center, Dahlgren, Va.

Thursday afternoon's session, entitled "Survival and Foreign Technology," includes papers on ship detectability reduction, U.S. and foreign ship technology, and ship survivability. Moderator for this series will be **William D. O'Neil**, Director of Ocean Warfare in the Office of the Under Secretary of Defense for Research and Engineering.

Friday's sessions, which are unclassified, will be held at the Biloxi Hilton Hotel. The morning program is on "Naval Architecture and Shipbuilding Technology." Included in the presentations are discussions on structural design and stress loads, naval architecture, crew requirements and general shipbuilding technology. The moderator will be **Wolfgang Reuter**, executive vice president, Designers and Planners, Inc.

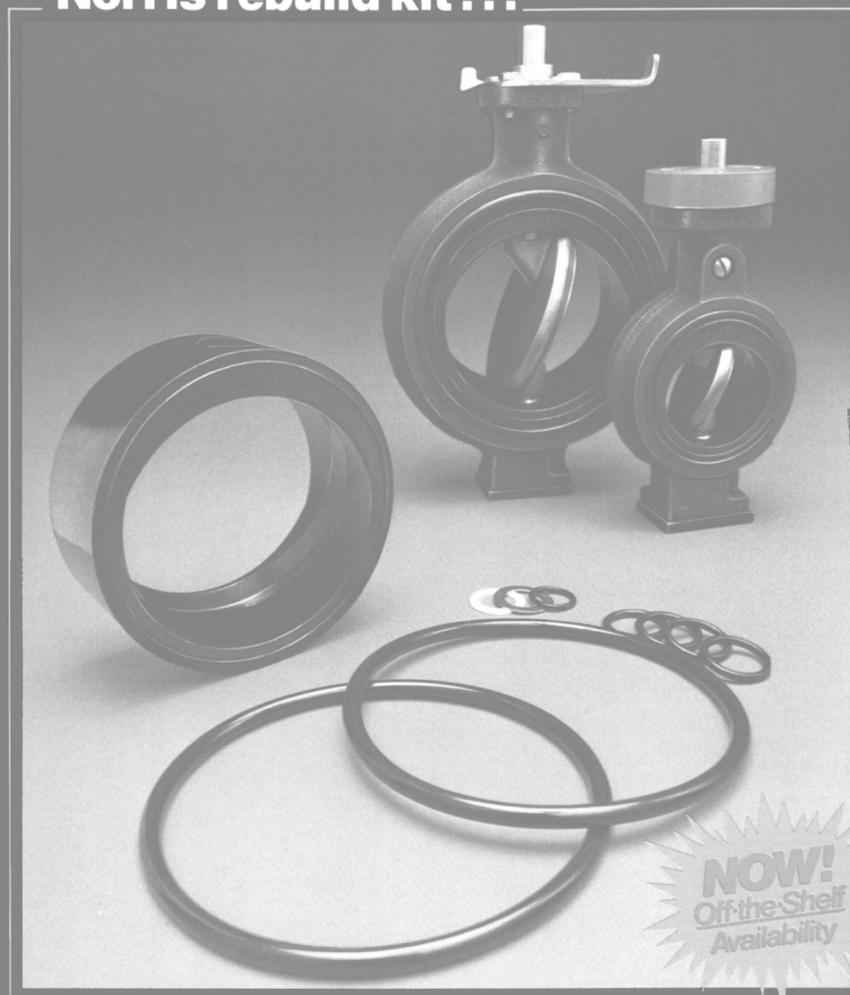
The Friday afternoon session, "Machinery and Logistics Technology," includes papers on propulsion and auxiliary machinery, and manufacturing technology. The moderator for this program will be **Edward T. Kinney**, executive director, Deputy Commander for Ship Systems, NAVSEA 05.

Saturday morning, October 2, will include tours of Ingalls Shipbuilding, lead shipbuilder of four new classes of surface combatants in the past decade. In addition to the above tour, guided tours will be conducted aboard the U.S. Navy's newest guided-

(continued on page 52)

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**John Crane-Houdaille
Names McLaughlin
Vice President**



George McLaughlin

George McLaughlin has been appointed to the management team of John Crane-Houdaille, assuming the position of vice president of marketing and sales, succeeding Robert J. Stark Jr., who officially retires at the end of 1982.

Mr. McLaughlin was selected by John Crane-Houdaille on the basis of his impressive background in marketing and operations. His experience includes management level positions at TRW Inc. Before joining John Crane-Houdaille, Mr. McLaughlin was vice president at Sandvik Inc.

Mr. McLaughlin will be part of the restructured John Crane-Houdaille organization, which aligns domestic and international sales activities.

**Plans For Five Ships
Finalized In ACL Vessel
Replacement Program**

Atlantic Container Line's British shareholder, the Cunard Steam-Ship Company, reached agreement recently with British Shipbuilders to build a new ship at Swan Hunter Shipyard of Newcastle for delivery in the first half of 1984. The signing finalized plans for the fourth vessel in ACL's five-ship vessel replacement program.

Compagnie Generale Maritime, the French-flag participant in Atlantic Container Line, has reached an agreement with France-Dunkerque Shipyards in Dunkirk, France, in which the yard will build a new vessel for the French carrier, it was announced by ACL.

The new vessel, to be delivered in July 1984 and operated by CGM, concludes the arrangements for the fifth of five ACL third generation "LeaderShips."

ACL's Swedish shareholders recently signed a contract with Kockums shipyard of Malmo, Sweden, for the construction of three vessels. The Swedish con-

tract amounted to \$160 million. Financial details of the British and French contracts were not announced.

The ACL "LeaderShips" will have a total capacity of about 2,300 TEUs each. They have been designed by ACL for maximum flexibility of operations and will be able to use a variety of cargo configurations. A typical load could be 1,410 TEUs of contain-

ers, 205 forty-foot trailers or the equivalent in ro/ro cargo and 900 medium-sized cars. The vessels will have economical diesel engines giving a service speed of 17½ knots.

Major features of the new ships include a large quarter ramp, and permanent cell guides on the weatherdeck to allow safe and easy stacking of containers four-

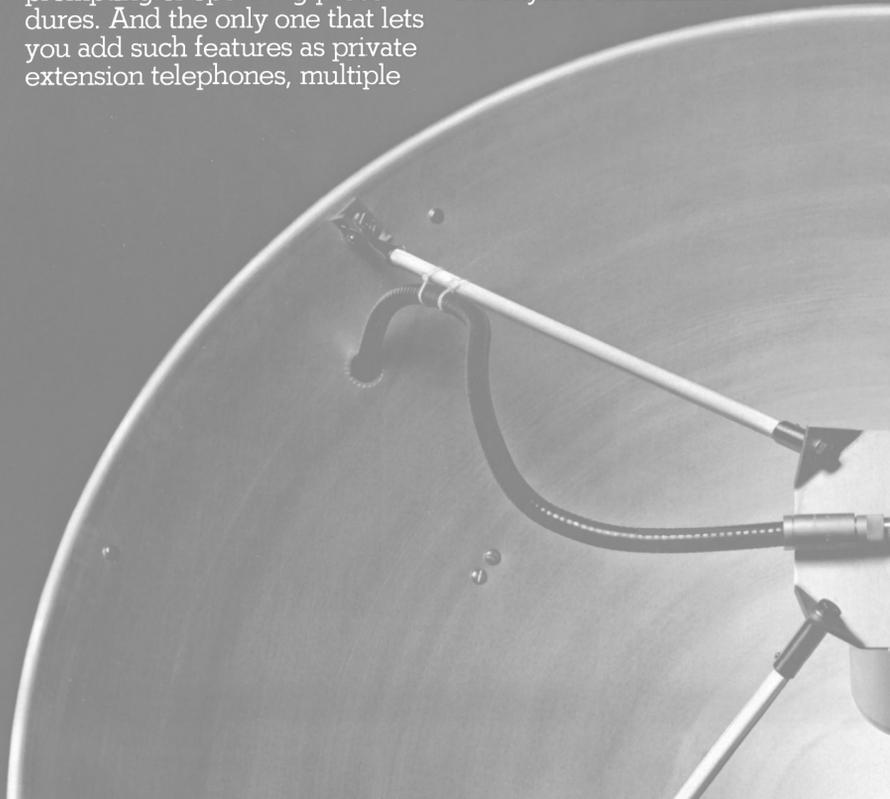
high. The vessels have a capacity of 600 cars in the stern superstructure, 1,410 TEUs of containers on the weatherdeck and in cellular holds, and three decks for normal, heavy or outsized ro/ro cargo or for block stowage of containers. In addition, two of the ro/ro decks will incorporate hoistable cardecks. There will also be 150 reefer points—double the existing capacity on current ACL ships.

A CLEAR MESSAGE! MOST ADVANCED SATELITE

At this very moment, Navidyne satellite communicators are sending and receiving messages all over the world. Navidyne's ESZ-8000 Satellite Communicator is the only marine satcom terminal with a fully integrated operator's console offering on-screen message composition and automatic prompting of operating procedures. And the only one that lets you add such features as private extension telephones, multiple

computer, facsimile and navaid interfaces, plus thousands of lines of telex message memory. All of this and more without expensive equipment alterations.

The clearest message of all is that the ESZ-8000, like the thousands of Navidyne satellite navigators in service today, demonstrates Navidyne's commitment



**New Deck Drains
Featured In Free
Wager Literature**

The Robert H. Wager Company, Inc., has introduced an extensive line of Wager deck drains, complementing the company's manufacture and marine supply of vent valves, boiler accessories, and both visual and photoelectric

smoke monitors. New literature available free from Wager describes the new drains in detail and includes dimensional diagrams and charts, with weights and open area ratios of all sizes.

Wager deck drains are of economical commercial grade, consisting of a galvanized steel body and a bronze strainer plate that is removable, secured by three stainless-steel flat-head screws.

The strainer plate has full openings to provide the desired drainage with pipe of minimum size.

Six deck drain sizes are supplied for butt weld, socket weld, or threaded connection, accommodating pipe sizes of 1½, 2, 2½, 3, 4, and 6 inches.

For free copies of the deck drain literature,

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**Peter Brix Elected To
Board Of Twin City Barge**



Peter J. Brix

Peter J. Brix, president of Knappton Corporation, Portland, Ore., has been elected to the board of directors of Twin City Barge, Inc., South St. Paul, Minn., John W. Lambert, chairman of the board and chief executive officer, announced recently.

Twin City Barge and Knappton Corporation last month announced the signing of an agreement in principle for the merger of Knappton, the largest barge line operating on the Columbia River, into a wholly owned subsidiary of Twin City Barge.

Mr. Brix, as president of Knappton, will continue to direct Knappton operations as Twin City Barge's West Coast profit center. He is a member of the Oregon Transportation Commission, a trustee of Lewis and Clark College, a member of the board of directors of American Waterways Operators, Inc., and is a vice president of the Pacific Rim Trade Association.

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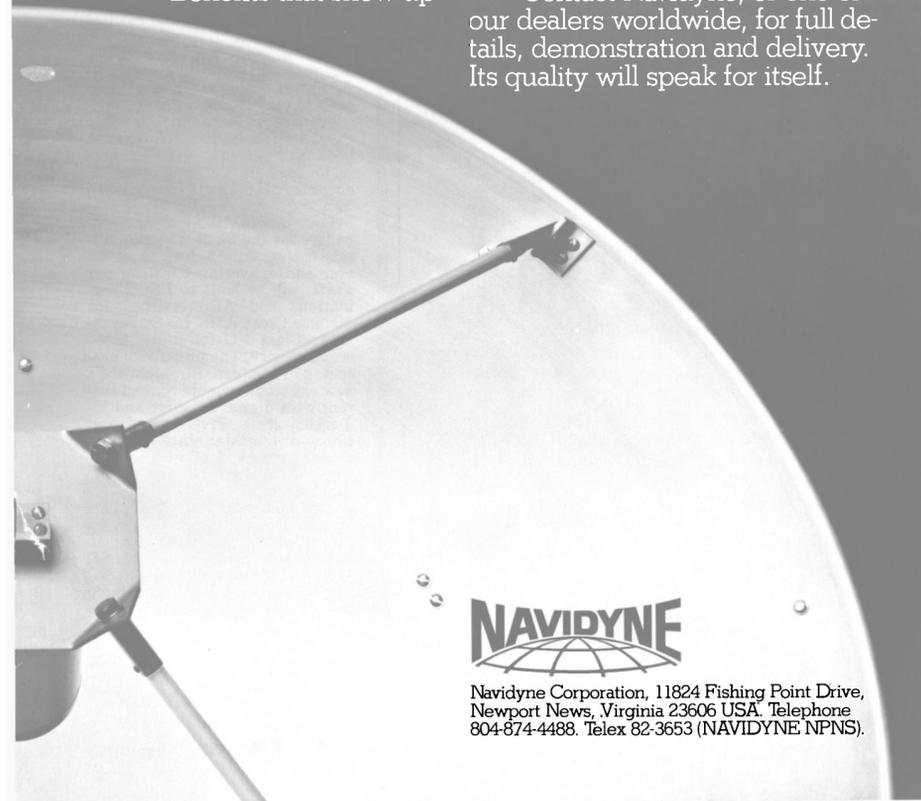
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**MarAd Opens Fire-Fighting
Training Center In Ohio**

The Maritime Administration recently opened its new Merchant Seaman Fire Training Center at Swanton, Ohio. It is intended to serve the eight-state Great Lakes mid-continent area, including inland waterways. This is the fourth such facility MarAd supports. The others are at Earle, N.J., Treasure Island, Calif., and New Orleans. The first two are operated jointly with the Military Sealift Command.

Howard W. Watters, deputy maritime administrator, represented MarAd at the 30-minute dedication ceremony, and said it underscored the maritime industry's "historic endeavor to safeguard the lives of sailors."

The facility will cost about \$700,000 a year to provide 32-hour training programs for ship-board fire-fighting and a 16-hour program to control fires on barges. The facility is located on a three-acre site near the Toledo-Express Airport.

Write 282 on Reader Service Card

**CV Hellenic Cape
Delivered To Hellenic
By Singapore Yard**

Hellenic Lines Limited of Piraeus, Greece, officially christened its new 432-TEU container-

ship, the CV Hellenic Cape, in a ceremony held recently in Singapore. The commissioning of the Hellenic Cape marks the completion of one important phase of Hellenic Lines' vast program of modernization. It is the third of three new fully cellular contain-

erships built to the specifications of Hellenic Lines by Singapore Shipbuilding & Engineering Limited.

Like its sisters, the Hellenic Dawn and Hellenic Island, the ship has a capacity of 432 TEUs, and together the three vessels

will provide a 13-day frequency on the UK/Continent-Eastern Mediterranean route.

The containerships are part of Hellenic's \$320-million expansion program which also includes the purchase of the CV Hellenic Pearl for the line's Sharjah-Karachi/Bombay feeder service, and the conversion of four Pride-class vessels to 1,205-TEU cellular containerships in Palermo, as well as the addition of 20,000 specially built containers. The first of the Pride-class conversions, the Hellenic Faith, was completed in August and will make its maiden voyage to the U.S. this fall.

The CV Hellenic Cape is 399 feet long and has a displacement of 10,500 dwt. Intended for worldwide service, the ship has two cranes enabling her to swiftly and safely load and unload containers and on-deck heavy lift cargo at almost any port in the world, even the most minimally equipped. The ship has two continuous decks with hatch dimensions for 20 and 40-foot containers and interchangeable cells. It is outfitted with specially constructed Navire swing hatch covers for completely independent hatch cover removal.

The hull design incorporates a full flaring stern, a long parallel, midship body, a v-shaped stem with streamlined rudder, and a diesel bow thruster with controllable-pitch propeller. Machinery space and superstructure are aft.

Joseph A. Modica, vice president of liner services, speaking on behalf of Gregory Callimanolos, owner and general manager of Hellenic Lines, introduced Mrs. Jer Dubash, the sponsor of the Hellenic Cape and the wife of Mr. Dubash who has worked with Hellenic in Bombay for 30 years.

**MarAd Approves Title XI
Application For 82 Barges**

The Maritime Administration has approved in principle an application from Canal Barge Co., Inc., New Orleans, La., for a Title XI guarantee to aid in financing or refinancing 75 coal barges and 7 tank barges.

Of the coal barges, 30 were built by Equitable Shipyards, Inc., New Orleans, La., and 45 by Twin City Shipyards, Inc., St. Paul, Minn. The tank barges were built by St. Louis Ship, St. Louis, Mo. All have been delivered. The approved Title XI guarantee is for \$18,798,000, approximately 75 percent of the estimated depreciated actual cost of the vessels.

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THE RTA SUPERLONGSTROKE

2. IT CUTS SPECIFIC FUEL CONSUMPTION

The RTA Superlongstroke produces the shipping world's lowest specific fuel consumption: with a thermal efficiency of over 50% the engine gets down to 125 g/bhph at 100% load or even 122 g/bhph at 85% or 90% load. This is the result of the super long stroke with high scavenging efficiency and the utilisation of well-proven Sulzer technology in high maximum combustion pressures.

4. IT CUTS ENGINE LENGTH

But does the greatly increased stroke mean an over-large answer is No. The compact design of the RTA Superlongstroke makes it shorter than other engines of comparable performance. The ship owner can gain up to two metres of additional cargo space.

The shorter RTA, therefore, gives the ship owner a net profit in cargo capacity or a corresponding saving on capital expenditure.

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Reynolds Marine Division Moves To New Offices Near Padre Island, Texas

The offices for operations of the marine division of Reynolds Metals Company and its subsidiary, Caribbean Steamship Company, S.A., have been centered in a new location in Corpus Christi, Texas, it was announced recently.

The move from the Petroleum Tower in the downtown area of Corpus Christi to the recently constructed Atrium II Building near Padre Island will increase operating efficiency, according to Alfred R. Philbrick, manager of Reynolds' marine division and vice president of Caribbean Steamship Company. Warehouse and shipping facilities will remain at Gregory, Texas.

The new address for the Reynolds marine division and the Caribbean Steamship Company is suite 500, Atrium II Building, 5155 Flynn Parkway, Corpus Christi, Texas 78411.

Oceaneering Elects Rogers Chief Executive Officer

Oceaneering International, Inc., Houston, Texas, has announced the election, effective November 1, 1982, of J. Wesley Rogers as vice chairman and chief executive officer. Mr. Rogers is currently executive vice president of Oceaneering.

Mr. Rogers will succeed Edward A. Wardwell who will continue as Oceaneering's chairman of the board and chairman of the executive committee. Bruce C. Gilman will continue to serve as Oceaneering's president and chief operating officer.

Free Literature Offered On Marinette Marine's Two New Offshore Vessels

Marinette Marine Corporation, Marinette, Wis., has available new product literature relative to its Marinette 145-class deep-notch tugboat, and its new Explorer-class 204-foot offshore tug/supply vessel. Additionally, Marinette has an updated 24-page four-color corporate brochure illustrating the latest capabilities of its shipyard.

The Explorer-class tug/supply vessel is a new generation offshore service craft of 6,140 up to 8,000 hp, designed to meet the requirements of deepwater, worldwide operation. The Marinette 145-class tug is a 7,200-hp deep-notch tug, previously built for Beker Shipping, and designed for either notch or conventional towing service.

For free copies of this literature, Write 78 on Reader Service Card

September 1, 1982

MarAd Approves Title XI Application For 86 Barges, Towboats Jeffboat, Toutant

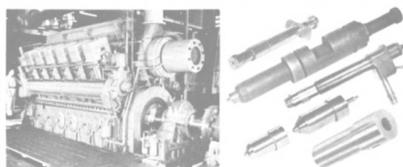
The Maritime Administration has approved in principle an application from American Commercial Lines, Inc., Houston, Texas, for a Title XI guarantee to

aid in financing or refinancing two towboats and 86 hopper barges.

The vessels were built by Jeffboat, Inc., Jeffersonville, Ind., and delivered last year. The towboats, the M/V Jeffboat and the M/V W.T. Toutant, are 145 feet long and rated at 6,600 hp. Of the

barges, 49 are 195 feet long, with a capacity of 1,446 net tons each; 18 are 200 feet long with a capacity of 1,625 tons each; and 19 are 200 feet long with a capacity of 1,648 tons each.

The approved guarantee is for \$19,722,000, approximately 75 percent of the depreciated actual cost of all the vessels.



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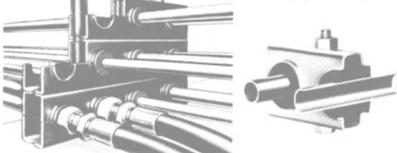
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Raymond Unit Signs \$5.6 Million Contract For Use Of Jackup In Arabian Gulf

A unit of Raymond International Inc., Houston, Texas, has received a \$5.6-million contract for charter of the jackup barge Regulus in the Arabian Gulf. The one-year contract with National Petroleum Construction Compa-

ny, an Abu Dhabi firm, calls for use of the Regulus as an accommodations and maintenance vessel in support of wellhead platforms in the Zakum field.

The Regulus, a 230-foot vessel with living spaces for 84 workers, is owned by Raymond International Builders (Liberia) Inc., a unit of Raymond International Inc.

Bestobell Level Switches, Flowmeters To Be Handled By Armtec Industries

Bestobell's level switch and flowmeter product lines have been consolidated into Armtec Industries, Inc., an established instrument manufacturer headquartered in Manchester, N.H. Columbia Controls Company is no

longer responsible for these Bestobell product lines. All orders are being received by Armtec Industries, company officials announced recently.

Bestobell personnel involved in the marketing of level switches and flowmeters have been transferred to Armtec, ensuring continued support of customers and existing sales representatives. The merging of Bestobell into Armtec provides strength by pooling technical and marketing skills together with a substantial manufacturing capability.

Bestobell Limited, an international group of companies headquartered in London, England, acquired Armtec at the beginning of the year to expand its marketing and manufacturing skills in the U.S.

For further information and free literature on Bestobell's product lines,

Write 72 on Reader Service Card

Louis Allis Awarded Navy Contract Of \$7.9 Million For Sonar Power Kits

A firm fixed-price contract for \$7,937,936 has been awarded to the Louis Allis division of Litton Industries by the Naval Sea Systems Command, Washington, D.C.

The Milwaukee-based manufacturer of electric motors, solid-state motor drives, and power conversion equipment for industrial and naval uses is to supply 56 SQS-26 sonar power supply/engineering change kits, with an option for 29 additional kits. In addition, Louis Allis is to produce spare parts and supply engineering, installation, and check-out services, as well as training.

The 80-year-old Litton division has been supplying motors and other equipment for U.S. Navy requirements since 1940. It has produced approximately 150 secondary propulsion units for frigates and submarines; 125 sonar power supplies for cruisers, destroyers, and frigates; and 46 degaussing power supplies for Navy ships in the past 15 years.

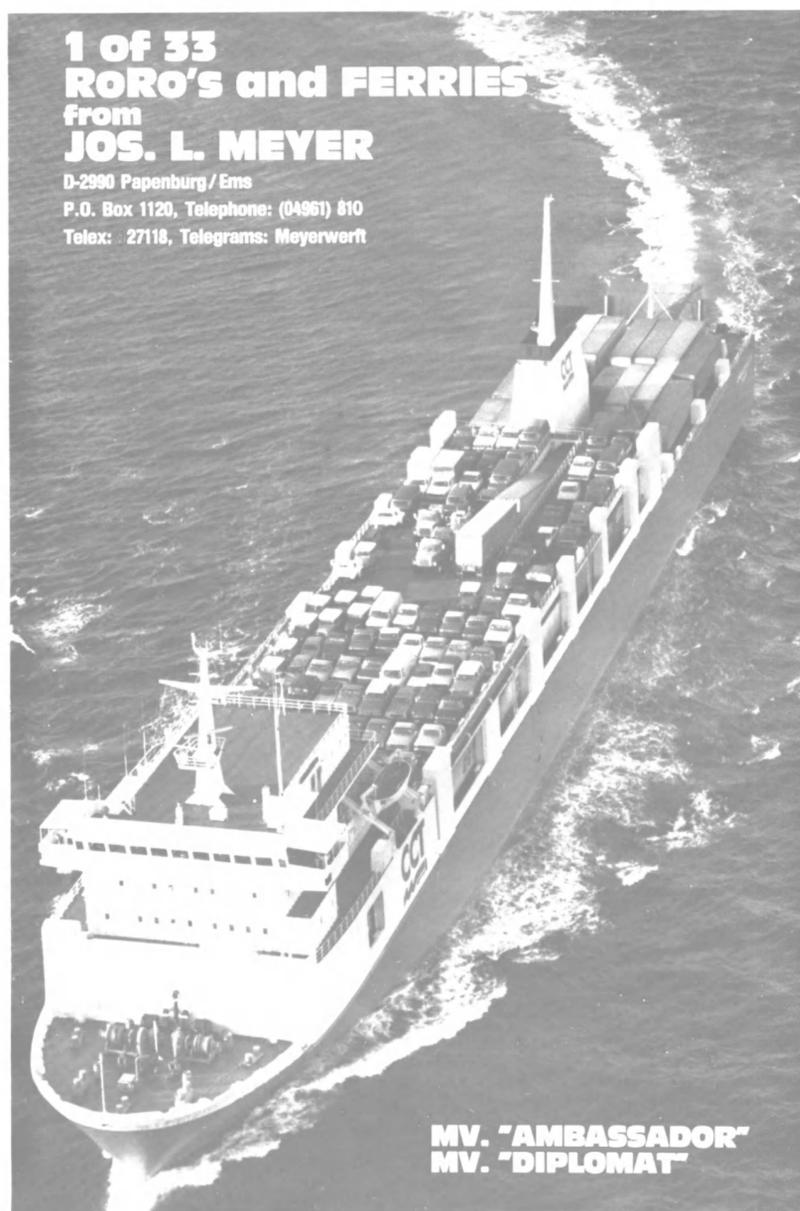
Universal Marine Appoints Alexander Marine Agents For U.S. East Coast

Ted Pitsios, president of Universal Marine Services, Inc., Mobile, Ala., recently announced the appointment of Alexander Marine Associates of Port Washington, N.Y., as their exclusive agent in the U.S. East Coast area. Universal Marine Services offers shipboard repair services at dockside as well as during the vessel's voyage with riding crews.

Universal Marine is equipped and experienced to install inert gas systems and sewage treatment systems. A brochure is available detailing the range of services offered by Universal.

For a free copy,

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**MV. "AMBASSADOR"
MV. "DIPLOMAT"**

Royal Viking Appoints Vice President For Marketing, Planning

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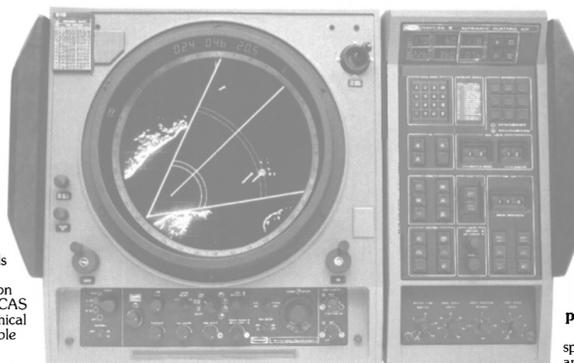
The separators have been approved by the U.S. Coast Guard to process ships' bilge water to an internationally acceptable discharge level of 15 ppm or less and will be used by NOAA on their Seattle-based research ships in order to comply with discharge regulations. The ships are the Oceanographer, Discoverer, Sur-

veyor, Fair Weather, Rainier, Miller Freeman, McArthur, Davidson, Chapman, J.N. Cobb, and Murre II.

SRS is an Irvine-based company and is a leading manufacturer and distributor of oil pollution abatement equipment for processing bilge water waste and has offices in London and Tokyo, with technical services available in major seaports.

The Law says ARPA. Common sense says RAYCAS V.

The latest model of the most widely used ARPA ensures IMCO compliance, proven performance and economy.



Over 1,000 in use.

Over 1,000 RAYCAS units—more than any other ARPAs made—are now operating on vessels of all flags.

Unique installation options make RAYCAS V the most economical and the most sensible choice.

Unequaled bright display.

A key element in the effectiveness of RAYCAS V is the Raytheon 16-inch Bright Display. In addition to unexcelled direct daylight viewing, it features digital readouts of Ship's Heading, EBL and VRM... along with two-level video, interference rejection, and the noise-free picture so essential for reliable target acquisition and tracking.

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apply familiar radar plotting concepts aided by computer generated data.

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- **User-designed controls:** Human engineered—color coded—back lighted—positive "feel" switches.
- **Relative Motion—True-Motion Display.**
- **Course-up—North-up Display**
- **Manual or Automatic Target Acquisition.**
- **Tracks 20 Targets.**
- **Target Vectors—True or Relative.**
- **Target Trails.**
- **Automatic Identification of Dangerous Targets.**
- **PCP Display (Potential Collision Points).**
- **Digitally Displayed Data:** CPA/TCPA, Course/Speed, Range/Bearing, BCR (Bow Crossing Range)/BCT (Bow Crossing Time) of selected target, own vector length/time, own ships speed/course.
- **Trial Maneuvers.**
- **Visual and Audible Warnings.**
- **Accepts Gyro and Dual Axis Speed Log Inputs.**
- **Auto-Drift—Locks on fixed targets.**
- **16 Navigation Lines.**

User demanded options:

Programmed Fairways pre-programmable with up to 1500 waypoints. Displays tracks to be steered, fairways and significant navigation points.

Printer/RS-232 interface.

RAYCAS V can transmit own ship and target data at specified time intervals to optional printer or other equipment.

Unmatched product support.

Factory service centers, spare parts distribution and training facilities located in the USA, Europe and Japan, provide support for our extensive worldwide

service and parts network located in major ports everywhere. We constantly monitor field service data to improve product reliability and to ensure that the correct parts and quality service are immediately available when and where needed. Technical and operational training programs will be provided upon request.

For more detailed information, contact the Raytheon Marine Company office nearest you:



Raytheon Marine Company
676 Island Pond Road
Manchester, N.H. 03103
Tel: 603-668-1600
Telex: 94-3459

- New York, N.Y., USA,** Tel. 212-720-6800
- Tampa, FL, USA,** Tel. 813-877-9418
- New Orleans, LA, USA,** Tel. 504-835-6491
- Houston, TX, USA,** Tel. 713-941-2700
- Los Angeles, CA, USA,** Tel. 213-533-5959
- Seattle, WA, USA,** Tel. 206-285-6843
- London, England,** Tel. 44-1-623-4451
- Copenhagen, Denmark,** Tel. 45-1-570611
- Yokohama, Japan,** Tel. 81-45-212-3633



CALENDAR OF COMING EVENTS

SHIP-trans-PORT Symposium
Rotterdam, Netherlands Sept. 6-10
Sponsored by the Maritime Research Institute Netherlands (MARIN) and the Port of Rotterdam to celebrate the 50th anniversary of both organizations.
Contact: MARIN, P.O. Box 1555, 3000 BN Rotterdam, Netherlands, Tel. (010) 114768; telex 27067 nemar nl.

Kormarine '82
Busan, Korea September 6-11
Organized by Industrial and Trade Fairs, Ltd.

International Shipbuilding, Marine, Small Ships, and Fishing Exhibition.
Contact: Kallman Associates, 5 Maple Court, Ridgewood, N.J. 07450. Tel. (201) 652-7070.

IREAPS Ninth Annual Symposium
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Sponsored by The Institute for Re-

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Contact: Linda Bender, IIT Research Institute, 10 W. 35th Street, Chicago, Ill. 60616. Tel. (312) 567-4618.

Canadian Offshore Resources Exposition
Halifax, Nova Scotia September 15-17
Organized by Industrial Trade Shows of Canada.

Contact: James E. Myles, CEM, Manager, Trade Shows of Canada, 36 Butterick Road, Toronto, Ontario, M8W 3Z8, Canada. Tel. (416) 252-7791.

Oceans '82
Washington, D.C. September 20-22
Sponsored by the Marine Technology Society.

Contact: George Gowans, Marine Technology Society. Tel. (202) 659-3251.

American Association of Port Authorities
New York, N.Y. Sept. 27-Oct. 1

Sponsored by the AAPA.
71st Annual Convention and Exposition. Contact: J. Ronald Brinson, AAPA, 1612 K Street N.W., Washington, D.C. 20006; or AAPA Exposition, c/o Impact International Inc., Suite 2505, John Hancock Center, Chicago, Ill. Tel. (312) 266-7111.

Ship Machinery, Marine Technology International
Hamburg, Germany Sept. 28-Oct. 2
Sponsored by the German Marine Engineers, German Shipbuilding Industries Association, and Hamburg Messe und Congress, GmbH.
Contact: See Congress Intermaritec '82.

Congress Intermaritec '82
Hamburg, Germany Sept. 28-Oct. 2

Sponsored by the DKMM — German Committee for Maritime Research and Marine Technology, WIM — Association of Industrial Marine Technology, and VDSI — Association of German Marine Engineers.

Contact: Hamburg Messe und Congress, GmbH, Postfach 302-360, D-2000, Hamburg 36, Germany.

Ship Costs & Energy Symposium
New York, N.Y. Sept. 30-Oct. 1
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ASNE Symposium '82—Destroyer, Cruiser & Frigate Technology
Biloxi, Miss. Sept. 30-Oct. 2

Sponsored by American Society of Naval Engineers and the Supervisor of Shipbuilding, Pascagoula, Miss.
Contact: Jack Youngworth, Registration Chairman, P.O. Box 252, Pascagoula, Miss. 39567. Tel. (601) 935-3441.

Gastech '82
Port Maillot, France October 5-8
Organized by Gastech Ltd.

Ninth International LNG/LPG Conference and Exhibition. Contact: Peter Ingram, 2 Station Road, Rickmansworth, Herts, WD3 1QP, England. Tel. (09237) 76363; telex 924312 Gastech.

2nd International Conference On Floating Plants
Point-a-Pitre, Guadeloupe October 11-13
Sponsored by SEPIC.

Contact: SEPIC, 40 Rue du Colisee, F75381, Paris, Cedex 08, France. Tel. 1-359-1030; telex 640450F SEPIC.

Scaffolding Conference
Hunt Valley, Md. October 14, 1982
Sponsored by the Scaffold Industry Association.

Contact: Scaffold Industry Association, Inc., 14089 Sherman Way, Van Nuys, Calif. 91405. Tel. (213) 782-2012.

Fish Expo
Boston, Mass. October 17-20
Exhibition and seminars organized by

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seven seas
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Main propulsion for merchant ships, container-carriers, passenger-boats, supply vessels, tug boats.

Ratings up to 10,000 hp per engine. Auxiliaries and emergency sets 50 and 60 cycles from 150 kW up to 4000 kW. Low fuel consumption, easy maintenance, full availability of spare parts, efficient service, standard heavy fuel treatment units.

M.S. Abeille Normande (shown on the picture) and its sister ship M.S. Abeille Provence: 16,000 hp tug boats are amongst the biggest used in Europe for towage and salvage assistance.

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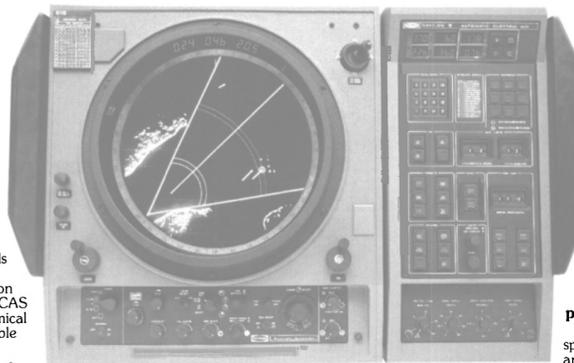
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**Unmatched
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For more detailed information, contact the Raytheon Marine Company office nearest you:

Raytheon Marine Company
676 Island Pond Road
Manchester, N.H. 03103
Tel: 603-668-1600
Telex: 94-3459

- New York, N.Y., USA,** Tel. 212-720-6800
- Tampa, FL, USA,** Tel. 813-877-9418
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Contact: See Congress Intermaritec '82.

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Sponsored by American Society of Naval Engineers and the Supervisor of Shipbuilding, Pascagoula, Miss.

Contact: Jack Youngworth, Registration Chairman, P.O. Box 252, Pasca-goula, Miss. 39567. Tel. (601) 935-3441.

Gastech '82
Port Maillot, France October 5-8

Organized by Gastech Ltd.

Ninth International LNG/LPG Conference and Exhibition. Contact: Peter Ingram, 2 Station Road, Rick-mansworth, Herts, WD3 1QP, England. Tel. (09237) 76363; telex 924312 Gas-tech.

2nd International Conference On Floating Plants
Point-a-Pitre, Guadeloupe October 11-13

Sponsored by SEPIC.

Contact: SEPIC, 40 Rue du Colisee, F75381, Paris, Cedex 08, France. Tel. 1-359-1030; telex 640450F SEPIC.

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Exhibition and seminars organized by National Fisherman Expositions.

on the
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sacm diesel



Main propulsion for merchant ships, container-carriers, passenger-boats, supply vessels, tug boats.
Ratings up to 10,000 hp per engine.
Auxiliaries and emergency sets 50 and 60 cycles from 150 kW up to 4000 kW.

Low fuel consumption, easy maintenance, full availability of spare parts, efficient service, standard heavy fuel treatment units.

M.S. Abelle Normande — shown on the picture, and its sister ship M.S. Abelle Provence, 16,000 hp tug boats, are amongst the biggest used in Europe for towing and salvage assistance.

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F 92203 NEUILLY-SUR-SEINE CEDEX - Tel. (1) 747 51 00 - Telex GROSSOL 620207 F

SACM BORE 175, 195 and 240 mm
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RUE DE LA FONDERIE - 57 1210
F 68054 MULHOUSE CEDEX - Tel. (89) 46 01 08 - Telex SACMM 881699 F

Agent for the U.S. F.W. DONNELLY COMPANY
1939 WEST GRAY / HOUSTON TEXAS 77019
Tel. 713 526 6792 / TWX 910 881 5766 (DONNCO HOU)

Contact: NFE, 21 Elm Street, Camden, Maine 04843. Tel. (207) 236-4342; cable NATFISH.

ISOSO VII—Maritime Management Conference & Exhibition
New York, N.Y. October 18-20
Sponsored by the Maritime Association of the Port of New York.

Contact: MAPONY, Suite 3400, 80 Broad Street, New York, N.Y. 10004, Tel. (212) 425-5704.

4th Annual Meeting Western Dredging Association
New Orleans, La. October 21-22
Cosponsored by the Society of American Military Engineers (SAME) and the Permanent International Association of Navigation Congresses (PIANC).

Contact: George M. Watts, executive secretary, WEDA IV, P.O. Box 826, Kenner, La. 70063. Tel. (703) 524-6367.

Supply '82
Sandvika, Norway November 16-19
Sponsored by K/S Selvig Publishing A/S.

International Exhibition of Offshore Supply Shipping. Contact: Inforama, P.O. Box 597, 1301, Sandvika, Norway.

SNAME—90th Annual Meeting
New York, N.Y. November 17-19
Sponsored by The Society of Naval Architects and Marine Engineers.

First International Maritime Exhibition. Contact: Office of the Secretary, SNAME, One World Trade Center, Suite 1369, New York, N.Y. 10048. Tel. (212) 432-0310.

Seaward To Distribute Sumitomo Marine Fenders In U.S.—Literature Available

Seaward International, Inc., Falls Church, Va., has expanded its line of marine fenders with the addition of the Sumitomo brand rubber dock fenders for which Seaward is now the exclusive U.S. representative.

Sumitomo Rubber Industries, Ltd., makes a wide variety of rubber fenders, primarily for docks and piers, which complement Seaward International's line of foam-filled marine fenders.

Seaward manufactures the Sea Cushion® fender. More recently, Seaward International developed the Floating Donut piling fender and the Sea Guard fender in response to specific fendering needs of the offshore and marine industries.

Seaward will be offering Sumitomo's Pi and Lambda fenders. The Pi fenders have two outstanding features. The span of the buffers of the Pi fender can be adjusted so that a larger rubbing board can be fitted in order to offer lower face pressures, meet wide tidal variations, or cover a wide area of quay wall. The Pi fender can also be installed either vertically or horizontally without the need for additional specific supports.

The Lambda fender was designed so that its face contacts the ship's hull evenly, offering

stable performance during berthing operations.

As exclusive distributors, Seaward International will be able to offer a full range of support services to the U.S. purchasers of Sumitomo fenders.

For full details and free literature on Seaward's line of marine fenders,

Write 71 on Reader Service Card

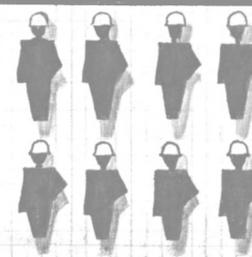
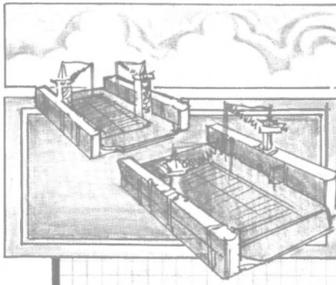
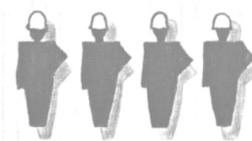
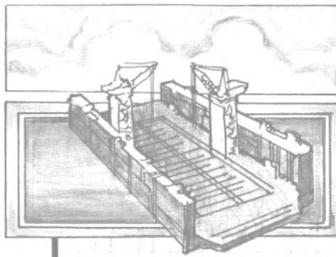
Cable Ship Refit Contract Awarded Burrard Yarrows

The Burrard Yarrows Corporation of Vancouver, British Columbia, Canada, has won a major nine-week refit contract, worth in excess of C\$1 million, for a cable and wireless cable ship.

The vessel is the British-flag 4,358-gt Cable Enterprise. Work

on the ship began in early August at Burrard Yarrows's Victoria Division. Work to be carried out includes general overhaul and refit, modifications to the bow structure and cable-laying sheaves, the installation of an engine room monitoring system, upgrading of the radio communications center, and increasing the capability of the AC electrical distribution system.

TWICE THE DOCKS TWICE THE PERSONNEL TWICE THE SERVICE



- Avondale is adding a new large dry dock that can lift 20,000 tons and accommodate Panamax ships up to 775 feet in overall length. The dock will enter service in late 1982.
- The number of personnel will be doubled to support the new dock and provide fast efficient service.
- The New Construction Engineering

Department is available for strenuous structural analyses, implementation of the latest fuel-saving innovations, and compliance with the Port and Tanker Safety Act of 1978.

- All of the new construction shops, machine tools, coating facilities, etc., are available for repair customers.

Avondale Shipyards



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Concorde Line Names Otero Vice President

George Spiotta, executive vice president of Concorde Line-Atlantic Division, New York, N.Y., announced recently the promotion of Victor Otero from line man-

ager to vice president. "While he had performed some of these assignments before," said Mr. Spiotta, "he will now be fully responsible for management of the service for both the United States and Canada. In his executive capacity, Mr. Otero's duties will

include marketing, sales, pricings, and full day-to-day operation. Basically, his job will be to see that the ships are full and that Concorde is a profitable operation."

Mr. Otero has been with Concorde since the inception of the

Atlantic service to which he came after more than 20 years' experience in the transportation industry.

Mills Named V.P. Sales At Blue Water Marine

James L. Mills, who has served Blue Water Marine Supply, Inc. in various sales capacities for 10 years, has been named vice president-sales of the Houston-headquartered firm.

Blue Water markets worldwide to the offshore drilling, maritime, and aviation industries, and has consumer products divisions operating retail outlets in the Texas Gulf Coast area. Prior to joining Blue Water, Mr. Mills was manager of a boat manufacturing concern.

Halter Announces Opening Of Drydock For Ship/Rig Repair—Literature Available

Halter Marine's drydock at Chickasaw, Ala., is now available for ship and rig repair work. The announcement was made by R.J. Shopf, president of Halter Marine, Inc., who said the drydock was built in 1980 to service Halter's CATUG construction program. "That program," he said, "has progressed to a point where the drydock is now available for other use such as ship and rig repair and conversion."

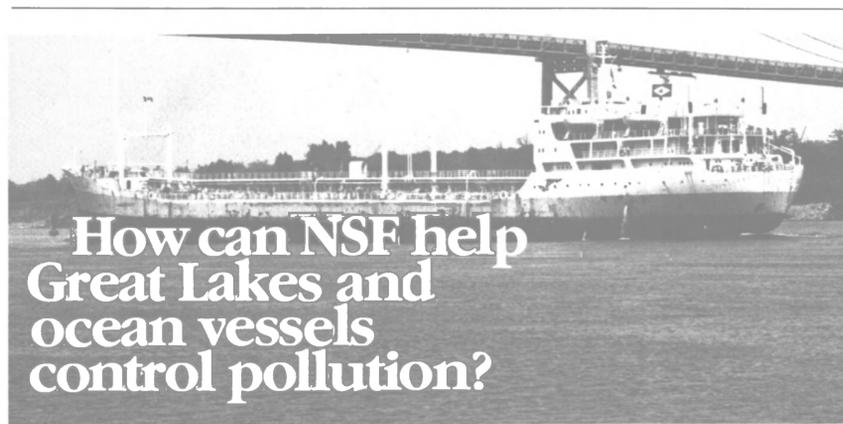
Located near Mobile, with easy access to the Gulf of Mexico, the drydock is 160 feet long and 120 feet between the wingwalls. It has a lift capacity of 4,000 dwt and can accommodate vessels with drafts to 330 feet. It is served by two 450-kw generators and a large variety of construction and repair equipment.

The drydock draws from nearly 1,000 shipfitters, welders, pipefitters, carpenters, electricians, machinists, sandblasters, and painters employed at the Alabama facility. They are supported by a complete range of shops, warehouses, plattens, and lift equipment including two 300-ton crawler cranes with booms of 140 feet.

Mr. Shopf pointed out that the Chickasaw operation is also supported by five other shipyards in the Halter group as well as two wholly owned subsidiaries which specialize in marine supply and the manufacture of marine electrical equipment.

For further information and a copy of free literature on Halter's Chickasaw drydock,

Write 77 on Reader Service Card



The National Sanitation Foundation is certified by the United States Coast Guard (USCG) as a "recognized facility" for testing and evaluating marine sanitation devices (MSD's) and marine oil pollution prevention equipment. NSF is also recognized by the Canadian Environmental Protection Service for testing MSD's for conformance with the Great Lakes Sewage Pollution Prevention Regulations.

U.S. regulations mandate that any vessel in U.S. waters, regardless of the flag it flies, be equipped with a USCG approved MSD.



Since receiving USCG and Canadian recognition, more than 30 domestic and 20 foreign manufacturers of marine sewage treatment devices have turned to NSF for assistance in achieving the certification required by law. Devices evaluated by NSF for compliance with the USCG regulations and the Intergovernmental Maritime Consultative Organization (IMCO) have been tested on board ships ranging in size from



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river barge tugboats to ocean-going freighters and luxury liners.

Oily water equipment tested and evaluated by NSF includes separators, bilge alarms and cargo monitors. Currently, these tests are conducted at the manufacturer's facility with sample analysis on location or at NSF.

In addition, MSD's may be evaluated and listed under NSF Standard No. 23 "Marine Sanitation Devices." This standard eliminates the discharge of untreated sewage from vessels into waters of the United States. These devices are NSF listed and entitled to bear the NSF seal, an interna-

tionally recognized symbol among public health officials.

Wastewater testing and equipment evaluation services are provided by NSF at our extensive laboratory in Ann Arbor, and our wastewater testing facility in nearby Chelsea, Michigan. Additionally, our testing capabilities are extended by our trained professionals who travel on board ship, or to operating field units to conduct on-location testing.

Should you have any questions, please contact Ray Thursby at NSF.

Inquiries from equipment manufacturers, shipowners, shipbuilders and ship suppliers or marine regulatory officials from anywhere in the world are welcome.



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Sessions 9:15-11:30AM
Reception / Lunch 12:00-2PM
Sessions 2:15-4:30PM
Reception 5-6PM

TUESDAY, 10/19
Cont. Breakfast 8-9AM
Exhibits 9AM-6PM
Sessions 9:15-11:30AM
Reception / Lunch 12:00-2PM
Sessions 2:15-4:30PM
Reception 5-6PM

WEDNESDAY, 10/20
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Exhibits 9AM-5PM
Sessions 9:15-11:30AM
Reception / Lunch 12:00-2PM
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SPAR Associates, Inc. of Annapolis, Md., announced the sale of a triad of shipyard production planning and cost/schedule control systems to Saint John Shipbuilding & Drydock Company in Saint John, New Brunswick, Canada.

The three systems have been implemented on a PRIME minicomputer and include WORK-PAC (labor), MAT-PAC (material) and PERT-PAC (job scheduling using critical path). Not only are the three systems fully linked to coordinate all shipyard production activities, but in addition they support government cost/schedule control reporting requirements. Saint John has been using two of the systems on a time-sharing basis since 1978.

For additional information and free literature on SPAR Associates systems,
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**TANO Appoints Lowrey
And Albert Vice Presidents**

Thomas M. Lowrey and Ben Albert have been appointed vice presidents by TANO Corporation, the New Orleans, La.-based automation controls company.



Thomas M. Lowrey

Ben Albert

Mr. Lowrey, named vice president of sales and marketing, was formerly an officer and vice president of administration for The Western Company of North America in Fort Worth, Texas.

Mr. Albert, formerly director of systems, has been named vice president of systems engineering. He joined the company in 1981. Mr. Albert will direct the development and engineering of TANO control systems hardware and software.

TANO Corporation designs, manufactures and markets marine automation systems for military and commercial ships and energy control systems for oil and gas pipelines, production fields, tank farms and energy management applications.

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Doyle Named Project Manager At Post Buckley Office In Clearwater

Post, Buckley, Schuh & Jernigan, Inc., consulting engineers and planners of Clearwater, Fla., has recently named **Richard T. Doyle** as transportation project manager for the Clearwater and Tampa regional offices, according to **Ed Mazur**, Clearwater regional manager.

In his new position, Mr. Doyle will produce, coordinate, and market transportation planning projects in the Tampa Bay area. Prior to joining Post Buckley, Mr. Doyle was marketing coordinator for H.W. Lochner, Inc., St. Petersburg, and for the City of St. Petersburg as a city planner.

HUD Nears Completion Of \$80 Million Conversion Of Bulk Carrier To Drillship For Australia

Hongkong United Dockyards' (HUD) largest ship conversion contract is nearing completion at the company's Tsing Yi Island yard.

The \$30-million one-year contract, due to be completed in the third quarter of 1982, is for the conversion of an 18,949-dwt bulk-carrier into a sophisticated 9,215-dwt variable load drillship. The total value of the contract with the purchase of special drilling equipment is about \$80 million.

Called the Energy Searcher, the vessel is owned by Pacific Supplier Inc. and will be managed by Atwood Oceanics on behalf of the owners, which include Offshore Oil NL, an Australian oil and gas exploration and production company. She will operate in Australian offshore waters and fly the Australian flag.



The 160-foot drilling derrick being erected on the Energy Searcher.

The conversion has involved more than 2,000 tons of new steel for extensive modification, rebuilding and extending the accommodation area and services for 110 personnel to meet Australian crew regulations; the fitting of a heli-deck to take Sikorsky S61N helicopters; the installation of a sophisticated eight-point mooring system and sponsons; and the fitting of hundreds of pieces of specialized equipment.

The 160-foot drilling derrick on the Energy Searcher was installed on its platform over the moon pool in just 22 days and with total accuracy.

When completed, the Energy Searcher will be capable of drilling to 20,000 feet in 1,500 feet of water.

Astilleros Espanoles Yard Launches Two OBOs

The Puerto Real shipyard of Astilleros Espanoles, S.A., simultaneously launched the first two of six OBOs being built for American Ultramar Ltd., Liberia.

The 243.80-meter-long ships are powered by ASEA-B&W engines developing 15,200 bhp. The ships are designed to carry grain, coal, ore, and oil in bulk, with nine holds and two crude residue tanks located aft.

Strachan MacKoe Offers Brochure On Yorkshire Imperial Alloys Products

Strachan MacKoe Corporation, distributors of Yorbcalbro (aluminum brass) and Kunifer (90/10 and 70/30 copper nickel alloy) tubes and fittings made by Yorkshire Imperial Alloys (YIA) of Leeds, England, is offering a new issue of Yorkshire Imperial Alloys' "Facts and Figures."

The publication summarizes product information for YIA copper alloy tubes including the alloy composition, mechanical properties and dimensional details.

Technical information is provided on YIA tubes for condensers, heat exchangers, salt-water piping, heating coils, hydraulic systems as well as other general applications of copper alloys.

For a free copy of the YIA booklet from Strachan MacKoe,

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The rebuilding of the St. Killian in 106 days

The Dutch are still making history

Amsterdamsche Droogdok Maatschappij BV in Amsterdam, Holland, re-delivered the Ro-Ro passenger ferry "Saint Killian" to her owners after successful sea trials. In a record-beating time of 106 days, the vessel was rebuilt and lengthened 31.85 metres. The part of the ship that had to be mounted into the vessel was ready when the "Saint Killian" arrived at the yard. In a floating dock the vessel was cut in two pieces. Kept in balance by a floating crane the aft-part of the ship was towed out of the floating dock, while the ship's fore-part stayed in place. Then the mid-body was brought into the floating dock as close as possible to the fore-part. Next the ship's aft-part was brought in

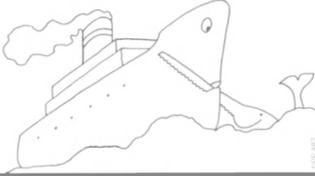
again while divers controlled the measurements under water. The floating dock was then raised leaving the 3 parts of the ship dry. After a complex job of making "one ship" again and of taking care of the interior works, the result is that the "Saint Killian III" can carry 98 more cars and 500 more passengers than before. ADM's modern equipment, careful planning and skilled workers made this giant lengthening project possible, just as another tight-schedule project, the fitting out the "Finjet" with a diesel-electric propulsion unit, was performed in time. Therefore, when quality and the time of delivery count, your choice should be ADM. Our agents will tell you more about it.



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 INSP/DELY U.S. GULF
 PRICE \$2,150,000

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900 HP MODEL BOW WITH PUSH KNEES
 TWIN SCREW 12 V 71 DETROIT DIESEL
 ONE EACH 2/71 AND 3/71 20/30
 KW GENERATOR UNITS LOA 66 FT.
 BREADTH 21 FT. DRAFT 7 FT.
 CREW CAPACITY FOUR
 COMMUNICATION EQUIPMENT FULL
 COMPLIMENT
 FUEL CAPACITY 8000 GALLONS
 POTABLE WATER 5000 GALLONS
 LIST PRICE \$250,000

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247 FOOT ROLL ON ROLL OFF VESSEL
 Terms: \$850,000.00
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 30 Used Units in Stock,
 sold as is or
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SELF PROPELLED RAIL CAR FERRY
 (Convertible to Ferry, Offshore Barge, Processing Plant, Etc.)



370' x 59' x 16'

EXCELLENT CONDITION

Gross Tons-2255 DWT Capacity-3000 LT
 Propulsion 3 Enterprise Diesels, DMG 38, 2100 HP
 Diesel Fuel Capacity 42,000 Gallons
 Built-Portland, Oregon to ABS 1957
 Bottom & Sides 1/2" Steel Keel & Sheer Strake 1/4" Steel
 Deck Capacity 28 100 Ton Rail Cars



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Classed Maltese Cross A-1
International Load Line

U.S.C.G.
Oceans
Certificate of Registry
Gross Tons — 8514
Panama Canal Tonnage
Certificate

Length	400' 0"
Beam	99' 5"
Depth	25' 0"
Deadrise	27'
Draft Light	3' 11"
Draft Loaded	19' 4"
Transverse Bulkheads	5 O.T.
Length Bulkheads	3 O.T.
No. Tanks	20
Rolled Bilge	48" R.
Mich. Bow	60' length
Sq. Raked Stern	80' length

DECK CARGO

Open Deck Area	37,886 S.F.
Deck Load	1,500 PSF
D.W.T.	15,800 L.T.

AS OIL BARGE

Oil Cargo	148,500 BBLs
	21,000 L.T.
Cargo Piping	14" Mains 10" Suctions



Self Unloading Aggregate Barge

ZAG-501

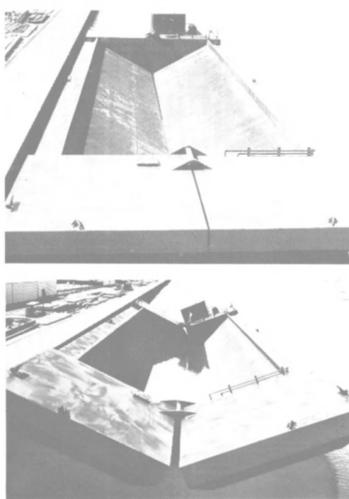
Length (O.A.)	248' 0"
Beam	63' 0"
Depth	16' 0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2' 7 1/2"
Draft Loaded (F.W.)	11' 8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd.

Hopper Unloading Gates: 27'-36" x 36" Horiz. sliding gates w/ individual hydr. controls.

Main Unloading Conveyor: 48" wide belt, 30 H.P. elect. motor, 250 ft./min. Max. disch. rate — 667 cu. yd./hr.

Transfer Conveyor: 42" wide belt, 10 H.P. elect. motor, 350 ft./min. off loading location — Stbd. side fwd. at 9 ft. above deck.

Hull Plating: Deck, side shell & bott. 3/16"



Split Type Self Dumping Scows

Built 1979. For sale, long or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (MLD)	180' 0"
Beam (MLD)	50' 0"
Depth of Mid-Body (MLD)	14' 0"
Hopper Length (MLD)	128' 0"
Level Hopper Volume	1421 cu. yd.
DWT @ d	10,22 ft.
Rake Lengths F & A	26' 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped up	2' 0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5 Sec.
Time To Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd & 2 Aft)	
Plating	18" Diam. 120" Stroke
Side	3/16"
Bottom	3/16"
Hopper	3/16"

Combination Deck Cargo & Tank Barge

Fully-Classed
Ocean Service



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

Length O.A.	230' 0"
Beam	60' 0"
Depth	15' 6"
Deadrise	6"
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Devalval IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location	Below Deck Pumproom in fwd. Rake
Diesel Engines	Two Detroit Model 6V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8 ANSI 150# FLG P/S
Heating Coils	2" Sch. 80 Pipe For Shore Steam
Hull Plating	Deck 1/2", Side Shell 3/16", Bott. 3/16", Shear Strake 1/2"
Deck Cargo Dwt. at Loadline	3900 S.T.

For additional information or to make an appointment to inspect, call or write:
Tom Sherwood, Andy Canulette, Jr.



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AVAILABLE NOW FOR IMMEDIATE SHIPMENT

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



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

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

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

Units Can Be Modified
Possible other uses:
1) Moving heavy equipment
2) Dam Sites
3) Concrete Prefab plants
4) Railroad yards
5) Steel plants
Geared Track is also available at extra cost



American Crane Barge

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

CRANE DATA	
Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T
Boom (Certified rating with 140' length, 160' available)	2,200 ft., 1/2" C - 6 x 36 I.P.S.
20 part rigging	2-166 ft., 1 1/2" C - 6 x 36 I.P.S.
4 part standing standing bail	3,250 ft., 1" C - 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part rigging)	3,250 ft., 1" C - 6 x 36 I.P.S.
20 part rigging	3,250 ft., 1" C - 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	635 ft., 1/2" C - 6 x 66 I.P.S.
2 part rigging	635 ft., 1/2" C - 6 x 66 I.P.S.

FOUR 30-TON Container Cranes 70-foot Track Span

NEW 1970-72

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

AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.
MG set: 250 HP-AC-170 KW 230 DC.
• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M. • 32'0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.
Other areas of possible use:
1) Pipe and steel yards
2) Barge building
3) Concrete pre fab plants



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For further details contact:
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**TRAWLER
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BARGES FOR LEASE

One ocean barge (285' X 78' X 18')
 7000 DWT — Built in 1982
 w/Wear deck & Ballast Tanks
 Two ocean barges (230' X 60' X 15')
 3400 DWT — Built in 1981
 All ABS Class
 Available immediately in Seattle, Wa.
 Contact —
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 ON GULF COAST OF FLORIDA**



MISNER BARGE AND BOAT RENTAL, INC.
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CREWBOAT/PARTY BOAT — Aluminum, 77' Gulf Craft 1981. Twin GM12V71NTI's (1,000 hr.). Twin Disc MG 514 2.5:1 Gears, GM3-71N 30KW Delco Generator (2,000 hr.). Extra Shaft/Wheels, 31' x 17.5" Afterdeck, Hydraulic Steering and Anchor Winch, CG Certified for 75, 150 Miles. CG Topside and Hull Reinspection April 1982. Crew quarters for Four. Two Four Ton Central Air And Heat Units. Two Heads, Shower, H.W., Full Galley/Snack Bar, 52 Case Can Cooler, Radar, VHF, AM, SSB, Two Loran C's, Two Fathometers, Sonar, Auto Pilot, Constant, Four Station Hailer, Stern Controls, Removable Canopy and 1,500 lb. capacity ice chest.
713-337-1057, \$510,000.00.

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110' UTILITY — \$780,000.00
70' MODEL BOW TUG — \$685,000.00

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One 125KW Detroit 6-71, skid-mounted, radiator cooled, mounted control panel, standard safeties.
 PRICE: \$10,500.00

One 45KW Cummins VTA 1710G, skid-mounted, radiator cooled, mounted control panel, circuit breaker, standard safeties.
 This unit is just over one year old and is in excellent condition.
 PRICE: \$39,500.00

Two 700KW Cummins KTA 2300G, skid-mounted, heat-exchanger cooled, control panel, circuit breaker and safeties.
 This unit has limited running hours and is in excellent condition.
 PRICE: \$69,000.00

All 440 volt, 3 phase, 60/50 Hz.
 Located in our Jersey City warehouse.

CANCELLED ORDER
 Two new Ingersoll-Rand Compressors Model H253XGE, 20 C.F.M., 250 P.S.I., complete with SHP electric motor.
 PRICE: \$1,100.00

Model H15TX, 68 C.F.M. Complete with 15HP electric motor on common base plate.
 PRICE: \$2,250.00

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165 — ¾"	120 — 4"	22 — 18"
560 — 1"	478 — 5"	3 — 20"
267 — 1¼"	42 — 6"	2 — 24"
110 — 1½"	12 — 8"	2 — 26"
612 — 2"	6 — 10"	2 — 30"
111 — 2½"	10 — 12"	2 — 34"
775 — 3"	24 — 14"	

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Office & Eating Area	136 Sq. Ft.
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Fresh Water Tanks	36,000 Gal.
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Ballast System	None

CRANE DATA	
Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
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4 part standing standing bail	2,186 ft., 1/2" C - 6 x 36 I.P.S.
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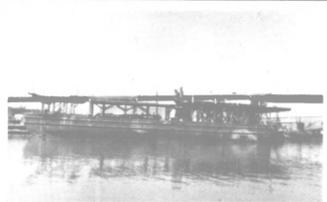


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 EMD — 6-557A, 8-12-557A, 8-BC
 FAIRBANKS MORSE — 38DB/g — 6, 8, 10 Cyl.
 ENTERPRISE — 8-DSM38 (new)
 ALSO — PARTS FOR THE ABOVE

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 1000 KW. ENTERPRISE, New w/all switchgear
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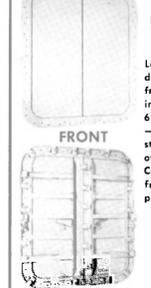
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 <p>20" ROUND HATCH</p> <p>18" Coaming — 3 brass dog drop bolts. Coaming 12mm thick — top 11mm. Bosmet #68</p>	 <p>CARGO HATCHES</p> <p>69" x 75" x 12" 48" x 48" x 9" 72" x 74" x 12" 72" x 72" x 12"</p>	 <p>FLUSH HATCHES</p> <p>24" x 30" 30" x 30" 4 Dogs bottom — T-key top opener. 4" Maximum coaming. Coaming 8mm thick — top 7mm.</p>
 <p>QUICK-ACTING 4-DOG HATCHES</p> <p>Heavily constructed. Handwheel operated. Handwheels top & bottom. Size A: 23" x 21" w/12" coaming. Size B: 31" x 31" w/12" coaming. For ocean-going barges, etc.</p>	 <p>QUICK-OPENING HATCH</p> <p>Handwheel top & bottom. 4 Dogs. 16" x 24" with 5" coaming. Drawing #68/40</p>	 <p>WATERTIGHT DOORS</p> <p>24" x 36" — 3-DOG Right & Left Hand</p>
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RELIEF VALVES	VACREL PRESSURE RELIEF VALVES 6" ALL BRONZE						
8" 6" 6" ANGLE 2"	<table border="1"> <thead> <tr> <th>FIG. 120</th> <th>FIG. 130</th> </tr> </thead> <tbody> <tr> <td>Atmospheric venting— 3.0 PSI max. relief setting. Pressure only. Flanged connection. Approx. wt. 140 lbs.</td> <td>Closed venting. With lifting gear. Flanged connection. Max. relief setting: 3.0 PSI Pres- sure—1.0 PSI Vacuum. Approx. wt. 285 lbs.</td> </tr> <tr> <td>\$675</td> <td>\$675</td> </tr> </tbody> </table>	FIG. 120	FIG. 130	Atmospheric venting— 3.0 PSI max. relief setting. Pressure only. Flanged connection. Approx. wt. 140 lbs.	Closed venting. With lifting gear. Flanged connection. Max. relief setting: 3.0 PSI Pres- sure—1.0 PSI Vacuum. Approx. wt. 285 lbs.	\$675	\$675
FIG. 120	FIG. 130						
Atmospheric venting— 3.0 PSI max. relief setting. Pressure only. Flanged connection. Approx. wt. 140 lbs.	Closed venting. With lifting gear. Flanged connection. Max. relief setting: 3.0 PSI Pres- sure—1.0 PSI Vacuum. Approx. wt. 285 lbs.						
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BM-10	¾"	10"	4.76"	16.5"	22"
BM-12	1"	12"	5"	24"	28"
BM-14	1¼"	14"	5"	28.3"	31.9"
BM-18	1½"	18"	5.98"	32"	39.4"

PRICES
BM-10 \$2950 BM-12 \$3250 BM-14 \$3950 BM-18 PRICE ON REQUEST

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The self-elevating offshore drilling unit Pool Arabia Rig 145 was delivered to the Pool Company of Houston, Texas, 47 days ahead of schedule by Far East-Levingston Shipbuilding Limited (FELS), Singapore. The rig is the fourth unit built by FELS for the Pool Company since 1978. Pool Arabia Rig 145 is scheduled to work for Aramco in Ras Tanura, Saudi Arabia.

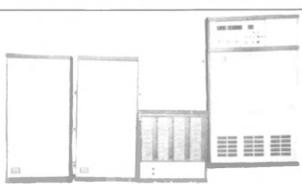
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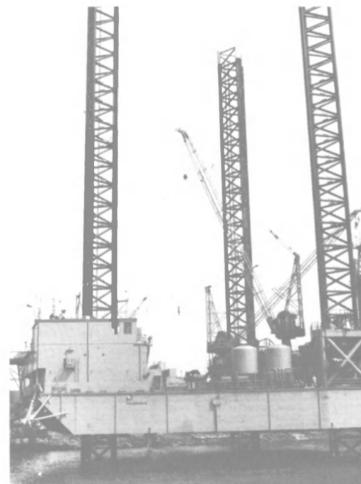
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The recently completed jackup Pool Arabia Rig 145 is scheduled to work offshore in Saudi Arabian waters for Aramco.

The unit, designed to work in water depths of up to 150 feet, is equipped with a Brissonneau & Lotz jacking system. The unit's triangular-shaped platform measures 154 feet by 132 feet by 15.75 feet, and has accommodations for 64 crew.

During construction, extensive re-engineering and upgrading of the drilling and service machinery were jointly carried out by FELS and the Pool Company without affecting delivery.

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Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90745

MACHINERY MAINTENANCE, REPAIR, OVERHAUL AND TESTING
Helmut Eller & Son, Inc., 2000 East Bay Street, Jacksonville, FL 32202
Schmitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

METALS
Filergate Corporation, P.O. Box 344610, Dallas, TX 75234
International Grating, Inc., 7625 Parkhurst, Houston, TX 77028
Lukens Steel Company, Coatesville, PA 19320
Milliron Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

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

NAME PLATES—BRONZE—ALUMINIUM
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1000), Arlington, VA 22202
Agemor, Ave. 17 No. 108-129, P.O. Box 1465, Maracaibo, Venezuela
American Systems Engineering Corp., P.O. Box 4265, Virginia Beach, VA 23454
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 25 Wisconsin Circle, Chevy Chase, Md. 20015
Art Anderson Associates, 148 First St., Bremerton, WA 98310
B.C. Research, 3650 Westbrook Mall, Vancouver, B.C., Canada V6Z 2T6
Del Breit Inc., 326 Picaquery Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Ste 222, 9951 Atlantic Blvd., Jacksonville, FL 32211
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Cranford Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crone Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norton, DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates, Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 1725 Jefferson Davis Highway, Suite 700, Arlington, VA 22202
Donhauser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sinksink Drive East, Port Washington, N.Y. 11050
Friedel and Goldman Ltd., 935 Gravier St., New Orleans, LA 70112
GEDO Corporation, 73 Oak Ridge Road, NJ 07438
Giannini & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glendon Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
J.J. Heny Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., P.O. Box 186, Glen Head, NY 11545
Hydraulics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
R.D. Jacobs & Associates, 11405 Main St., Roxco, IL 61073
Capt. Ernest James, 2849 Beavercrest Dr., Lorain, OH 44053
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Kragen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Nils Lucander, 5307 N Pearl St., Tacoma, WA 98407
Alon C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 195 Patterson Avenue, Little Falls, NJ 07424
Rudolph F. Metzger & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metriplate, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petuh, Inc., 1380 S.W. 57th Avenue, Fort Lauderdale, FL 33317
Pilotate Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013
and 657 Mission St., San Francisco, Calif.
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Secor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perin Blvd., Cherry Hill, NJ 08003

Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
Simmons Associates, P.O. Box 760, Sarasota, FL 33578
R.A. Stearn, Inc., 252 N. 1st Ave., Sturgeon Bay, WI 54225
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Timsko, 622 Azalea Road, Mobile, AL 36609
Townsend Marine Consultants, 18 Church Street, Georgetown, CT 06829
Uhlig & Associates, Inc., 8295 SW 188th St., Miami, FL 33157
Wadon Wartsila Helsinki Shipyard, P.O. Box 132, SF-00131
Helsinki 15, Finland
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
James Weisback, 240 O'Kell Street, Buffalo, NY 14220
Thomas B. Wilson Associates, 920 North Avaton Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
Frank L. Beier Radio, P.O. Box 10307, Jefferson, LA 70181
Comat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Dentronics Co., P.O. Box 204, Boca Raton, FL 33432
DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
EPSCO Marine, 550 Wholesalers Parkway, Harahan, LA 70123
Fleet Marine, 1820 N.E. 146th Street, North Miami, FL 33181
Furuno U.S.A., 221 Harbor Way, S. San Francisco, CA 94080
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
Hull Electronics Company, 7563 Conroy Court, San Diego, CA 92111
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Informing Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Ison Corp., 5 Alfred Circle, Bedford, MA 01730
Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
Kongsberg Vapenfabrik, Narcontrol Division, P.O. Box 145, Horten 3191, Norway
Krupp Atlas-Elektro, 241 Erie Street, Jersey City, NJ 07302
G.E. McKay Company (Dymek), 111 South College Avenue, Lawrence, MA 01911
Maremax Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
Maribel, Inc., 8230-R Telegraph Road, Odenton, MD 21113
Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
North American Phillips Communication Corp., 55 Knights Bridge Road, Piscataway, NJ 08824
Northern Radio Co., 14715 N.E. 40th, Redmond, WA 98052
P. J. Plishner Marine, 2 Lake Ave. Ext., Danbury, CT 06810
RCA Service Co., Building 204-2, Camden, N.J. 08101
Racal-Beecha Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Raytheon Ocean Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Marine Systems, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21041
Robertson Auto Pilot, 135 Fort Lee Road, Leonia, NJ 07605
Scientific Atlanta Communications, 3845 Pleasantdale Road, Atlanta, GA 30340
Simrad, Inc., 2215 NW Market St., Seattle, WA 98107
St-Text Marine Electronics, P.O. Box 4700, Clearwater, FL 33518
Sperry Marine Systems, Great Neck, NY 11020
Sperdy Instruments, Inc., P.O. Box 225012 M/S 84, Dallas, TX 75265
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil, New York District Sales Office (Domestic), 433 Hackensack Avenue, Hackensack, NJ 07601
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Centrica, Inc. (Westfalia Separator), 100 Fairway Court, Northvale, NJ 07647
From Industrial, P.O. Box 33210, Tulsa, OK 74135
McTigue Industries Inc., 1615 Ninth Avenue, Suite 1 South, Bohemia, NY 11716
National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425

PAINTS—COATINGS—CORROSION CONTROL
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
Bywater Coatings, 1610 Engineers Road, Belle Chasse, LA 70037
"CONSOL" manufactured by Hontline's, Const Div., Contact Point & Chemical Co., Inc., 200 S. Franklinton Rd., Baltimore, MD 21223
Devco Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
E.I. Dupont De Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Northvale, NJ 07647
Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA 94080
Hempel Marine Paints, Inc., 65 Broadway, New York, NY 10006; P.O. Box 41, So. Houston, TX 77587; P.O. Box 10265, New Orleans, LA 70181
International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
Jotun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
Magnus Marine International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Palmer Products Inc., P.O. Box B, Worcester, PA 19490
Salby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143

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

PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
Hydra-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Knights' Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567

Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Metropolitan Plumbing Supply Corp., 5000 Second St., Long Island City, NY 11101
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
Sanchem, Inc., 1400 South Canal Street, Chicago, IL 60616
Tioga Pipe & Supply Company, 2450 Wheatseaf Lane, Philadelphia, PA 19137

PLAQUES—BRONZE—ALUMINUM
Ducumox Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

PLASTICS—Marine Applications
Griffolyn Company, P.O. Box 33248, Houston, TX 77033
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Copellers, Shafts, Turbines
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Armo Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
Combustion Engineering, Inc., Windsor, Connecticut 06095
Cummins Engine Company, Inc., 40642, 1000 Fifth Street, Columbus, IN 47201
Diesel-Motors International, Ltd., c/o NORSHIPCO, P.O. Box 2100, Norfolk, VA 23501
Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505
Escher Wyss GmbH, (Member Sulzer Group), Ravensburg, Germany
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
General Motors, Electro-Motive Division, LaGrange, IL 60525
George Engine Company, Inc., Lafayette, La
Jacuzzi Bros. Division, P.O. Box 3533, Little Rock, AR 72203
Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
Krupp Mak Diesels, Inc., 9701 West Higgins Road, Rosemont, IL 60018
MTU of North America, One E. Putnam Ave., Greenwich, CT 06820, 10450 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City, LA 70303
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 2B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnistruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30387, New Orleans, LA 70190
Penfisk GM Power, Inc., 180 Route 17 South, Lodi, NJ 07644
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Spacium Systems, Inc., 21213 76th Ave. So., Kent, WA 98031
S.A.M. (Societe Alsacienne De Constructions Mechaniques De Mulhouse) 1, Rue De La Fonderie, Boite Postale 1210, 68054 Mulhouse Cedex, France
Shubert of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, Pa. 16512
Stearns Corporation, 1020 East 8th Street, Jacksonville, FL 32206
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98403
Transamerica Delaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Tricon Corporation, P.O. Box 149, Redding, CT 06875
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Valth Schneider America, 159 Great Neck Rd., Ste 200, Great Neck, NY 11021
Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
Waukesha Engine Division, Waukesha, WI 53187
ZF of North America, Inc., 3225 Commercial Avenue, Northbrook, IL 60062

PUMPS—Repairs—Drives
Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
EMMI Corporation, P.O. Box 925, Flemington, NJ 08822
Kings Craft, Inc., 236 S. Dean Street, Englewood, NJ 07631
Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Warren Pumps Division, Bridges Avenue, Warren, MA 01083
Wilden Pump & Engineering Co., 22660 Van Buren St., P.O. Box 845, Cotton, CA 92324
Worthington Group/McGraw Edison Co., 270 Sheffield Street, Mountainside, NJ 07092

REFRIGERATION—Refrigerant Valves
Boiley Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROPE—Manila—Nylon—Hawsters—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Somson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

RUDER ANGLE INDICATORS—STEERING
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Wm. E. Hough Company, 1129 NW Ballard Way, Seattle, WA 98107
Robertson, 135 Fort Lee Rd., Leonia, NJ 07605

SAFETY EQUIPMENT
Darrex, 3795 N.W. 25th Street, Miami, FL 33142

SANITATION DEVICES—Pollution Control
American United Marine Corp., 575 Madison Avenue, New York, NY 10022
Arge Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401
Envirovac (Division of Domestic Inc.), 1260 Turret Drive, Rockford, IL 61111
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105
Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111

SCAFFOLDING EQUIPMENT—Work Platforms
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
Swiss Fabricating Inc., Camp Horne Rd., Emsworth, Pittsburgh, PA 15237
Waco Ladder & Scaffolding Co., Inc., 4315 41 St., P.O. Box 126, Brentwood, MD 20722

SHACKLES
West Footscrew Engineering Works P/L, 52 Cross Street, West Footscrew, Melbourne, Victoria, 30 12, Australia

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
Crane Packing Company, 435 Regina Dr., Clarksburg, MD 20734
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002

SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL
Armo Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
Arsenale Triestino S. Marco, Passeggio S. Andrea 11, 34143 Trieste Italy
Amer Shipyards Co., Astilleros y Maestranas de la Armada, Prat 856, Piso 14, Castillo 150-V, Valpariso, Chile, S.A.
Astilleros Balboa, S.A., c/o Jackson Marine Corp., 17 Battery Street, New York, NY 10004
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N. Apdo. Postal 647, Veracruz, Ver., Mexico
Atlantic Dry Dock, P.O. Box 276, Ft. George Island, Jacksonville, FL 32226
Atlantic Marine Inc., P.O. Box 138 Ft. George Island, Jacksonville, FL 32226
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blom & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Bludworth Bond Shipyards Inc., P.O. Box 5065, Houston, TX 77012
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Burmeister & Wain Skibsvaerft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark
Burton Shipyards, Inc., P.O. Box 3636, Port Arthur, TX 77640
Caddell Drydock & Repair Co., P.O. Box 327, Foot of Broadway, Staten Island, NY 10310
Cantiere Navali Luigi Orlando, Piazza Mazzini, 92-57100 Livorno, Italy
Cantiere Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty. Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
China Shipbuilding Corp., 6th Floor, 20 PA Teh Road, Sec. 3 Taipei, Taiwan (105) Republic of China
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Cunaco Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
Golden Gulf Marine Operations, Inc., 814 Howard Avenue, New Orleans, LA 70151
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hong Kong United Dockyards Ltd., P.O. Box 534, Kwloon Central Post Office, Kowloon, Hong Kong
Hudson Shipyards, Inc., P.O. Box Q, Pascagoula, MS 39567
I.N.M.S.A., 19100 Lussac, France, le S. Bartolomeo 362, Italy
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kegpel Shipyards Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409
Kings Craft, Inc., Industrial Park, Florence, AL 35603
Koch Ellis Barge & Ship Service, P.O. Box 187, Westwego, LA 70094
Levington Shipbuilding, P.O. Box 968, Orange, TX 77630
Lisnave Estaleiros Navais De Lisboa, P.O. Box 2138, Lisbon, Portugal
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott, Incorporated, 1010 Common Street, New Orleans, LA 77227
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Marathon LeTourneau Offshore Co., 1700 Marathon Bldg., 600 Jefferson, Houston, TX 77002
Marinette Marine Corp., Ely St., Marinette, WI 54143
Mation Shipyards Co., Inc., P.O. Box 645, Cahoes, New York 12047
Midland Marine Corporation, One Pennsylvania Plaza, New York, NY 10001
Misaner Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newark Shipbuilding & Repair, Inc., 302 Cypress Street, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Penco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Pearlman Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Pennsylvania Shipbuilding Company, Chester, PA 19013
Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
Puerto Rico Drydock & Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903
Rauma-Repola, 26100 Rauma 10, Finland
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau St., St. Louis, Mo. 63111
Savannah Shipyards Co., P.O. Box 787, Savannah, GA 31402
Southbay Boat Inc., P.O. Box 13308, San Diego, CA 92113
Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Tandonor (Piacentini), Anterida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
Thunderbolt Marine, Inc., P.O. Box 5628, Savannah, GA 31404
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

BUYERS DIRECTORY

Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
 Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
 Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
 Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
 Valmet Oy, Helsinki Shipyard, Laivanrakentajantie 2, P.O. Box 910 SF 00101 Helsinki 10, Finland
 Waterman Supply Co., 2815 E. Anaheim St., P.O. Box 596, Wilmington, CA 90748
 West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2

SHIPPING-PACKING
 Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
 World Courier, Inc., 19 Rector Street, New York, NY 10006

SMOKE INDICATORS
 Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STEVEDORING
 Eller & Co., 701 E. 24th St., Ft. Lauderdale, FL 33316

STUFFING BOXES
 Johnson Rubber Co. (Marine Div.), 14025 Johnson St., Middlefield, Ohio 44062

SURVEYORS AND CONSULTANTS
 Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
 Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING
 Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Flatbush Park, N.J. 07932
 Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
 Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
 Salwicko, Inc., 5 Marine View Plaza, Hoboken, NJ 07030
 Sybron/Gamlen, 121 South Maple Avenue, South San Francisco, CA 94080

TANK LEVELING INDICATORS
 Kockumation AB, Box 1044, S-212 10 Malmo, Sweden
 Norcontrol, 135 Fort Lee Rd., Leonia, NJ 07603
 Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062
 Vitronics, P.O. Box 42305, Houston, TX 77042

TOWING-Barges, Vessel Chartering, Lighterage, Salvage, etc.
 Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
 Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
 Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
 James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
 McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
 McDonough Marine Service, P.O. Box 26206, New Orleans, La.
 Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
 Ocean Salvors Company, One World Trade Center, New York, NY 10048
 Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
 Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
 Turexoma Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

VALVES AND FITTINGS
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 Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
 Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
 Liton Industrial Products, Inc. (Cantromatics Division), 222 Roberts Street, East Hartford, CT 06108
 Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
 Metropolitan Plumbing Supply Corp., 50-09 Second Street, Long Island City, NY 11101
 Newmans Inc., 9 Joanna Court, East Brunswick, NJ 08816
 Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
 Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
 William E. Williams Valve Corporation, 38 52 Review Avenue, Long Island City, NY 11101
 Wine, Inc., 34655 Mills Road, North Ridgeville, OH 44039
 Zidell Explorations, Inc., (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

VIDEO TRAINING FILMS
 Video Library Systems, 100 13th Ave., Ronkonkoma, NY 11779
 Videotel Marine International Ltd., 44 Great Marlborough Street, London W1V 1DB

WATER PURIFIERS
 Drew Chemical Corporation, One Drew Chemical Plaza, Boonton, NJ 07005
 Everpure, Inc., 640 N. Blackhawk Dr., Westmont, IL 60559
 Specific Equipment Company, P.O. Box 55626, Houston, TX 77055

WINCHES AND FAIRLEADERS
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 Beebe Brothers, Inc., 2724 6th Avenue South, Seattle, WA 98134
 CONWACO, Inc., 820 Kansas Ave., P.O. Box 5097, Kansas City, KS 66119
 Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
 McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, W. Biloxi, MS 39531
 Reel-O-Matic Systems, Inc., 418 Hellam Street, Wrightsville, PA 17368
 Timberland Equipment Ltd., Box 490, Woodstock, Ont. Canada N4S 7Z2

WINDOWS
 Kearliff Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE
 Ahlster Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
 Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
 Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007
 Universal Wire & Cable, 6609 Supply Row, Houston, TX 77261

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 Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
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**Pomeroy Promoted To
Electrical Engineering Post
At Marinette Marine Yard**



Allen R. Pomeroy

Marinette Marine, Marinette, Wis., recently announced the promotion of **Allen R. Pomeroy** to the position of lead engineer/designer in the electrical section of the shipyard's engineering department. Mr. Pomeroy has more than 16 years' electrical design experience and has been a design draftsman with Marinette Marine the past five years.

His new responsibilities include supervision of electrical draftsmen and providing general assistance to the chief electrical engineer in new construction and design bid work.

**Foss Alaska Line Names
Olson Area Manager
For Southeast Alaska**

Greg Olson has been appointed southeast Alaska area manager for Foss Alaska Line (FAL), a division of Dillingham Maritime, Seattle, Wash. The appointment was announced by **Theo McCulloch**, FAL vice president and general manager.

Mr. Olson will be responsible for all Foss Alaska Line activities in southeast Alaska and will be based in Juneau. He replaces **Ralph Hunt**, with Foss Alaska Line since the company was organized in the spring of 1970, who is retiring. Mr. Olson was previously with a major seafood processing company, most recently as plant manager in southeast Alaska.

**Navy Subcontract
Awarded Peck & Hale**

Peck & Hale, Inc., West Sayville, N.Y., has been awarded a contract to supply cargo shoring systems for the fleet ballistic missile ship USNS Vega.

Boland Marine and Manufacturing Company, New Orleans, La., was awarded the prime contract for the vessel and subcontracted the \$300,000 cargo shoring system to the Long Island company. Cargo shoring systems prevent cargo from shifting in heavy sea. The design of such a system becomes complicated when the cargo consists of a wide variety of shapes and sizes. In addition to the missile cargo, these Navy vessels will also carry general cargo to supply the fleet.

The contract also stipulated that Peck & Hale engineers provide design services to the naval architects. The company has developed a computer program that provides a dynamic analysis of the forces acting on cargo in all types of seas, depending on each ship's particular characteristics.

For further information,
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**RJR International Offers
Literature On Bunkering
And New Oil/Slop Service**

RJR International Inc., New York, N.Y., now provides clients with waste oil/slop disposal in addition to its worldwide bunkering services. The company has literature available describing both services.

The slops service is provided by barge transfer at ports in Louisiana, Texas, Florida, and New York City. RJR International is headed by **V. Richard Rabito**, formerly with WORMS Shipping Group, Paris, for whom he directed bunkering operations in New York.

For literature on RJR services,
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HEARD ANY GOOD RUMORS LATELY?

Take one of the latest rumors, for example. The one that would have you believe some navigation light manufacturers "could save you big bucks" on lights. Sounds almost too good to be true, doesn't it. That's because it is too good to be true.

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*Complies with SOLAS and IMO recommendations.



RW-105 Watch Receiver

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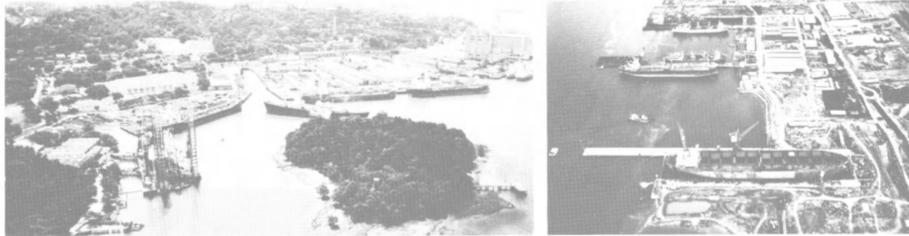
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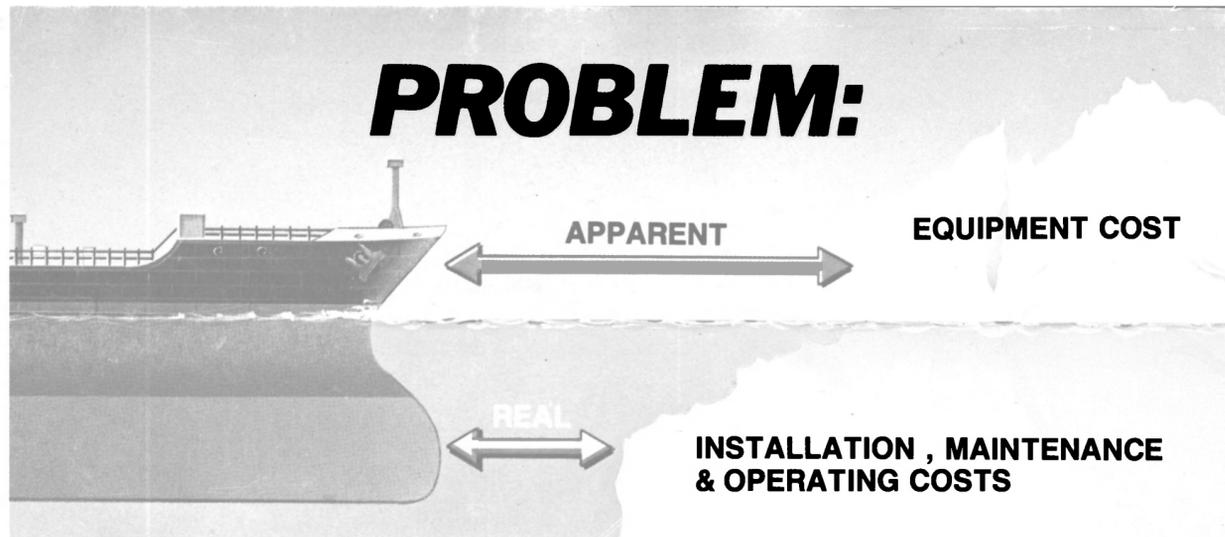
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