

# MARITIME REPORTER

AND  
ENGINEERING NEWS

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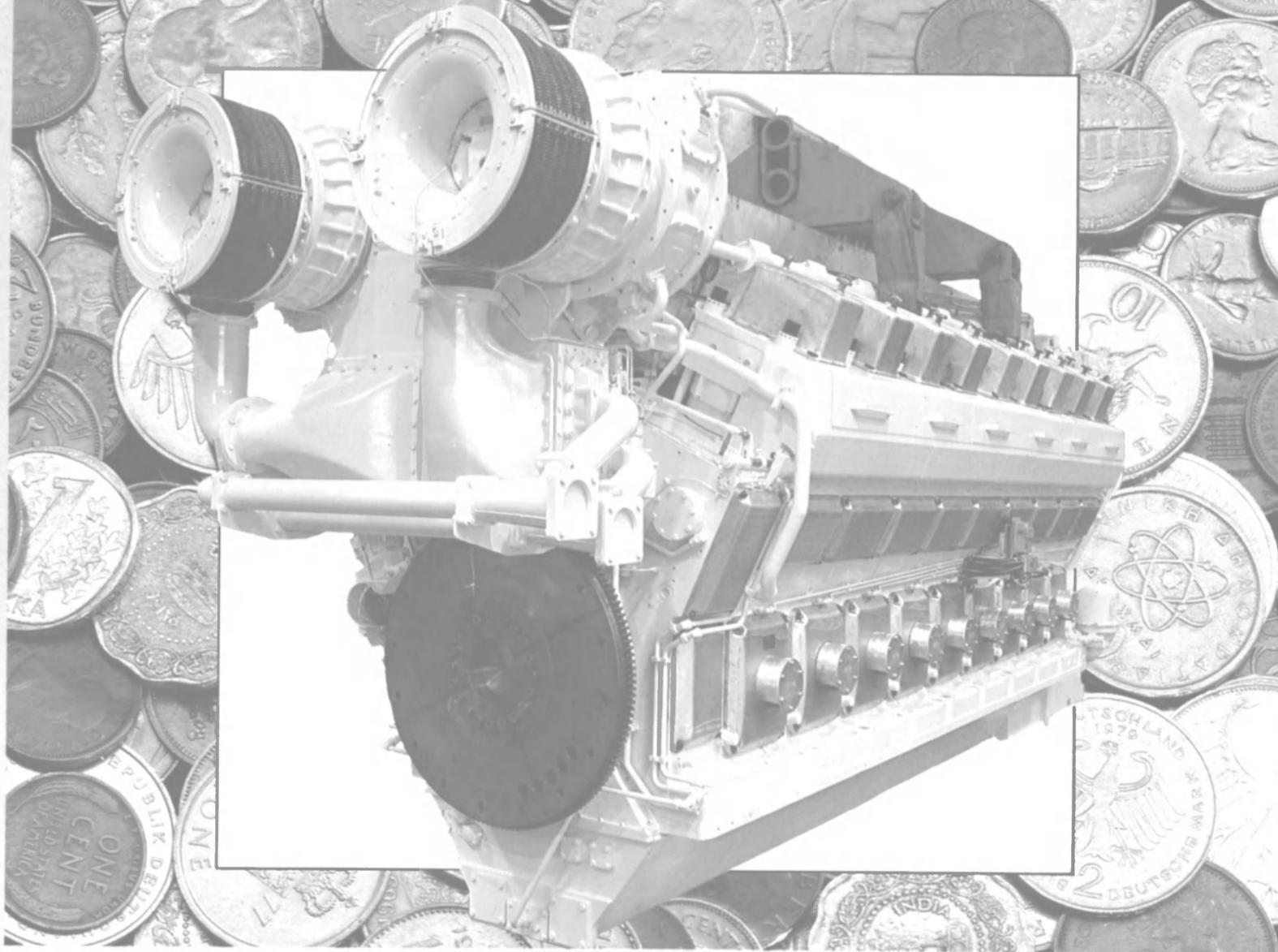
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View Of New York Harbor

# 91ST SNAME ANNUAL

NOVEMBER 1, 1983 ISSUE

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Painting courtesy Norman Kjeldsen, Esq.

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In 1895, the Wavertree arrived at New York under sail. This painting by Oswald Brett depicts the historic event. While we cannot say for certain, the Wavertree may have been met by one of the McAllister tugs which have served New York Harbor since 1864. Legends are made of such moments. The Wavertree and her sister ships, in their day, were our responsibility.

We at McAllister take pride in being part of the history and lore of New York Harbor. The Wavertree is now at the South Street Seaport Museum and we support her restoration in order to keep maritime and nautical traditions alive for future generations. Bear a hand. Send your donation to: Ship Trust, c/o National Maritime Historical Society, 15 State Street, New York, N.Y. 10004.

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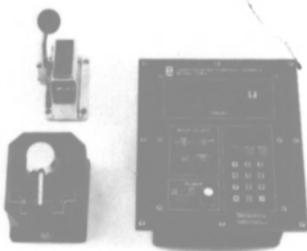


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PAGE 54

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Subjects to be addressed include establishing a data base, design criteria, review and selection of pipeline installation and trenching methods, and cost estimates.

Companies interested in joining the study as a late participant should contact **Jim Gillespie** at the RJBA Houston office, telephone (713) 683-9333, telex 762186 or 4620114.

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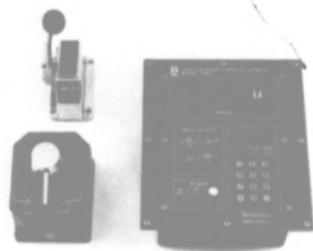


360° Maneuvering,  
Slow-Speed Propulsion,  
Ice Management!

- ◆ Thrusts Underway
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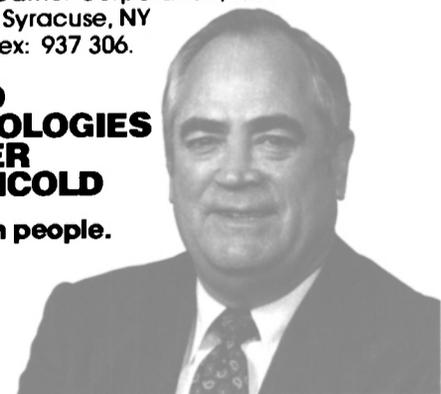


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## Marine Consultants To Conduct Study For MarAd On Bulk Carriers

The U.S. Department of Transportation, Maritime Administration, recently awarded a contract to Marine Consultants & Designers, Inc., Cleveland, Ohio, for a conceptual applications study con-

cerning loading, discharge and cargo topping off of bulk carriers. The study will evaluate the Low Pressure System of Cargo Conveying which purportedly utilizes a new air entrainment technology for the pipeline transport of bulk materials and which is capable of being employed in marine shipboard and shoreside cargo handling applications.

The study will address single and multiple systems for pneumatic conveying of bulk products including; coal, phosphate rock, cement, cement clinker, limestone, iron ore, gypsum, alumina and other bulk products. If found to be cost effective, the development of the system would benefit shipping companies through less expensive conversions to self-unloaders and

would assist mining, steel and energy companies in their efforts toward more economic production through less costly transportation and cargo-handling installations.

Marine Consultants & Designers, Inc. is a business concern engaged in the professional activities of naval architecture, marine and mechanical engineering, and electrical engineering.

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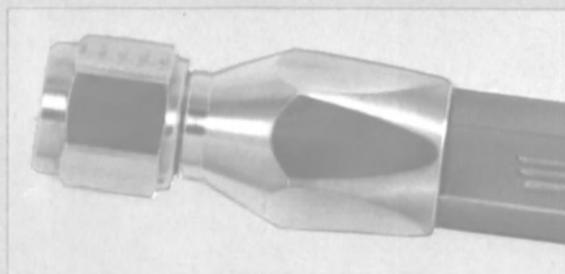
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Write 7701 on Reader Service Card

## Glomar Robert F. Bauer Christened At FELS

Far East Livingston Shipbuilding Ltd. (FELS) recently christened the Glomar Robert F. Bauer, a 2,500-foot wd drillship. The vessel was christened by Mrs. Dorothy M. Bauer, wife of the former president and founder of Global Marine.

The drillship, measuring 135 m by 23 m by 11 m, was developed to incorporate the latest in conventionally moored drillship technology. The water depth capability of 2,500 feet permits effective and economic operation in water depths normally requiring dynamic positioning. The Glomar Robert F. Bauer has a completely self-contained propulsion system, mooring system and marine riser system and requires no support while on location. The high transit speed (approx. 14 knots) large variable load of 7,000 t. wide water depth range (100 to 2,500 feet) and proven safety features give this unit an overall capability unsurpassed for self-sufficiency, versatility, economy of operations and safety.

Glomar Robert F. Bauer represents the fifth and largest drillship to be built by FELS. It is also the largest drillship built in this region. It joins Global Marine Drilling Company's fleet of some 28 rigs of which 7 are drillships.

## Webb Institute To Hold Annual Alumni Banquet

The Annual Banquet of the Alumni Association of Webb Institute of Naval Architecture will be held on Thursday, November 10, in the Ballroom of the Lowes Warwick Hotel, 54th Street on the Avenue of the Americas, New York City.

There will be a reception at 5:30 p.m. followed by dinner at 7:00 p.m. Robert Taggart, president of the Association, will introduce the program. The highlight of the evening will be the presentation of the W. Selkirk Owen Award to Richards T. Miller. He will be the 18th recipient of the award which was established to honor alumni of outstanding achievement and service to their professions and alma mater, and given in memory of W. Selkirk Owen.

The president of Webb Institute, Adm. C.R. Bryan, USN (ret.), will deliver the annual "State of the Institute" message.

## Watt and Parsons To Provide Engineering For Endicott Reservoir Project

Brian Watt Associates, Inc., Houston, Texas, has been retained by Ralph M. Parsons Company, Calif., to provide engineering services for the possible development of the Endicott Reservoir in Alaska's Beaufort Sea.

Parsons is performing engineering design services work for oil and gas production facilities for Sohio Construction Company, a wholly owned subsidiary of The Standard Oil Company (Ohio). Sohio is the operator and a major owner in the project.

If development proceeds, oil and gas production facilities will be constructed on two gravel islands located near the Sagavanirtok River Delta. Causeways would connect the two islands to shore.

Parsons is the engineering main contractor for the Endicott facilities design and construction. BWA will assist Parsons in the design of the islands and causeways and the foundations for the process facilities.

## Free Ship Earth Station Equipment Guide Is Available From COMSAT

The updated guide to available ship earth station equipment published in COMSAT's Marifacts magazine has been reprinted in booklet form for those wishing to review the salient features of all the available systems which are certified by Inmarsat to use the Inmarsat Satellite system.

Equipment produced by 12 manufacturers is described in detail along with the salient points of each. Photos of each system are included as well as the addresses, telex and telephone numbers of the manufacturers and, where applicable, the U.S. representatives.

For your copy of "Updated Guide to Available Ship Earth Station Equipment,"

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## McDermott Plans Study Of Fixed Platforms For 1,600-Foot Water Depths

McDermott Engineering is planning a study of fixed platforms for 1,600-foot water depths. The study will investigate the technical and financial viability of conventional platforms for environments like those found in the Gulf of Mexico.

"The study will provide decision-making data for economic evaluations of deepwater leases in the Gulf of Mexico," said **Stephen A. Will**, manager of McDermott's Engineering Development Department. "The results will also be applicable to waters around the world with similar characteristics."

The jointly sponsored study is being pursued after a meeting in

Houston to test industry interest in the project. It is still open to participation by interested members of the industry, who will share resulting critical data about deepwater concepts and costs of all phases of operations from design to fabrication, transportation and installation.

"McDermott recognizes that many of the sponsoring companies

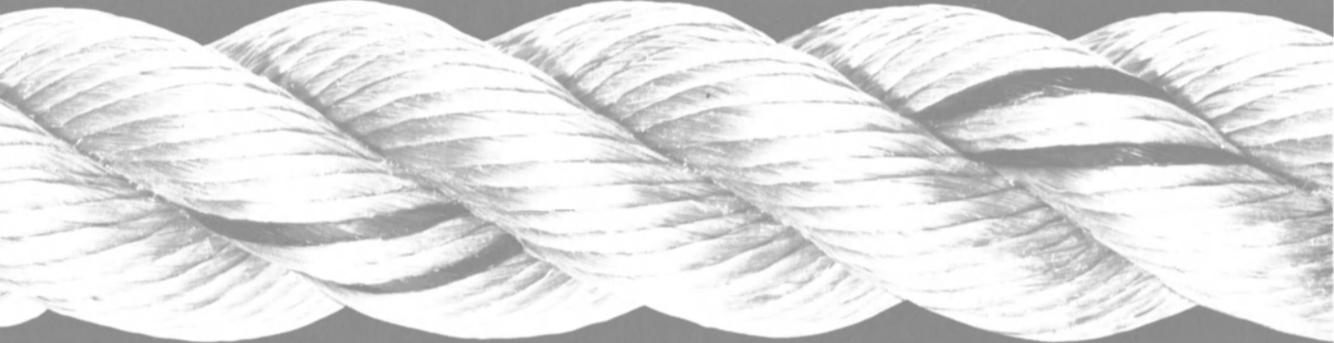
can make important contributions to the project," said Mr. Will. "Programs like this one also provide for sharing costs so individual investments will be at acceptable levels."

McDermott has fabricated and installed four structures for waters of approximately 1,000-foot depths. It has designed two of these platforms and has completed extensive

engineering studies for fixed platforms in water depths up to 1,350 feet. These studies, funded entirely by McDermott, along with actual design and construction experience in deep water, will serve as the basis for pursuing the solutions necessary to move into even deeper waters.

The project is scheduled to be completed by the end of 1984.

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40% STRONGER

than conventional polypropylene rope, plus higher abrasion resistance and lower stretch, at the same price.

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STEEL LINE is available in 3 or 8-strand construction, in diameters 1½ inches and larger. And it's manufactured in the United States from domestic materials.

Want more facts—or quick shipment? Phone us at 919-835-6888 or write: Wall Industries, Inc., P.O. Box 560, Elkin, NC 28621.

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## North Sea Maureen Field Commences Oil Production

Oil production began recently from the Maureen field, 163 miles east-northeast of Aberdeen, Scotland, near the center of the North Sea.

Phillips Petroleum Company United Kingdom Limited, operator of the field, said Maureen is ex-

pected to reach peak production of about 72,000 barrels per day early next year. Maureen crude has an API gravity of 36 degrees and is produced from a reservoir about 8,000 feet below the seabed.

The Maureen production platform is a steel gravity platform built entirely onshore (in two parts), while the wells were being drilled offshore by a semisubmer-

sible drilling rig. It is reported to be the world's largest steel gravity platform and the first such unit to be built for the North Sea.

The 112,000-ton Maureen platform uniquely combines flotation, ballasting and oil-storage requirements. Storage capacity in the platform's three massive underwater tank-legs totals 650,000 barrels, allowing continuous pro-

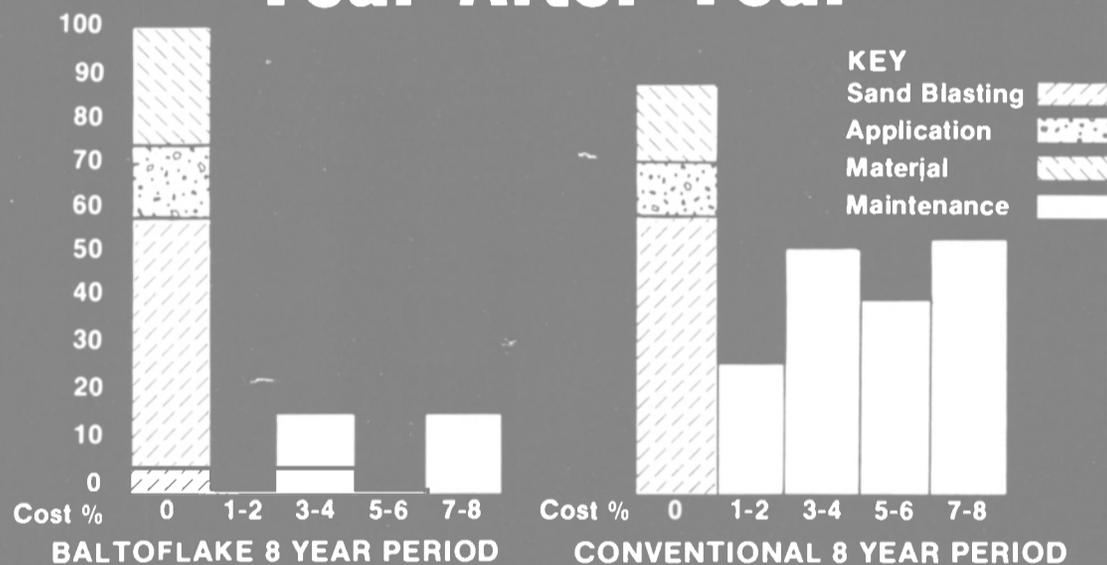
duction and flexibility of tanker-loading in the event of extreme weather.

The platform is connected by short pipeline to a nearby articulated loading column. Two 51,000-deadweight-ton dedicated tankers, the Phillips Oklahoma and the Phillips Arkansas, have been modified for bow-loading at the column. The Phillips Oklahoma is scheduled to handle the first cargo from the field.

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New Jersey Office: JOTUN Marine Coatings Inc.  
 500 Division Street  
 Perth Amboy, New Jersey 08861  
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## Philadelphia Port Corp. Elects Malone President

John J. Malone, director-port operations of the Philadelphia Port Corporation, was elected president of the organization by a unanimous vote of the board of directors today.

Mr. Malone has been with the Port Corporation since 1968. He succeeds G. Fred DiBona Jr. who resigned as president in July to become president of the Greater Philadelphia Chamber of Commerce.

The Philadelphia Port Corporation is a quasi-public agency charged with developing, maintaining and promoting maritime facilities and activities in Philadelphia. Under Mr. DiBona the corporation began a reorganization 18 months ago and moved from a landlord function to that of a full service port agency. New marketing offices have been established in Philadelphia, New York City, Pittsburgh and Chicago, with others to follow. A traffic and regulatory department has been formed as well as a governmental and public affairs office.

## Literature Describes New Cable And Chain Stop From Fritz Culver

Fritz Culver, Inc., in addition to a recently introduced capstan line, is now marketing a newly developed cable and chain stop for use in anchor handling operations. Free literature is now available providing full details on the new equipment.

The Culver cable and chain stop features a simple, rugged design incorporating a pivoting unit which is below deck in the closed position. (This design is similar to that used in the Fritz Culver, Inc., tow pin.) Inserts are also incorporated to provide interchangeability when handling pendant cable or rig chain.

For further information on the new Fritz Culver cable and chain stop,

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systems to improve their manufacturing methods.

For example, the fabrication of spheres for LNG tankers has been improved by using special VeVeY designed jigs and welding fixtures. For the fabrication of submarine hull sections, manhours have been significantly reduced and the tolerances

and quality level greatly improved by the automated frame and cylinder fabrication line supplied by VeVeY.

These important achievements were accompanied by extended assistance with training and fabrication during the starting-up phase.

Today VeVeY is working on increasing the profitability of one of the largest shipyards in the U.S. by improving:

- design details
- reference line system
- dimensional criteria
- pre-outfitting
- sub-assembly fabrication procedures (so as to reduce or eliminate out of position welding)
- preparation of work data
- tolerances at work and machining stations
- welding
- lifting and positioning devices
- cradle configuration
- etc.

In the naval shipyard world, the approach to ship fabrication has as many variations as there are shipyards and VeVeY has the reputation of adapting its assistance to the needs of each individual customer.

**First:** VeVeY studies the existing fabrication procedure from every angle and ultimately proposes a cost-effective and pragmatic solution to improve production methods and facilities.

**Second:** VeVeY assists the customer in the implementation of the above recommendation by providing down-to-earth specialists, working in close collaboration with the customers' own engineers and shop people.

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For free literature on all Hyde deck machinery,

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The new oil meets the requirements of all General Motors-Electro-Motive Division marine diesel engines, including those equipped with silver wrist pin bearings. Extensive fleet service and laboratory testing have proven its performance in General Electric,

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Mobil states the sustained high alkalinity of Mobilgard 450 (TBN

13.5) provides superior corrosion protection for steel, silver, copper, bronze and white metal engine components, especially when high sulfur fuels are used. Its high oxidation and thermal stability provide better performance under heavy loads and reduce deposit build-up in port openings. High

quality base stocks, combined with detergent-dispersant additives, assure longer oil and filter life. The low volatility of the base stocks reduces oil consumption.

For more information on Mobilgard 450,

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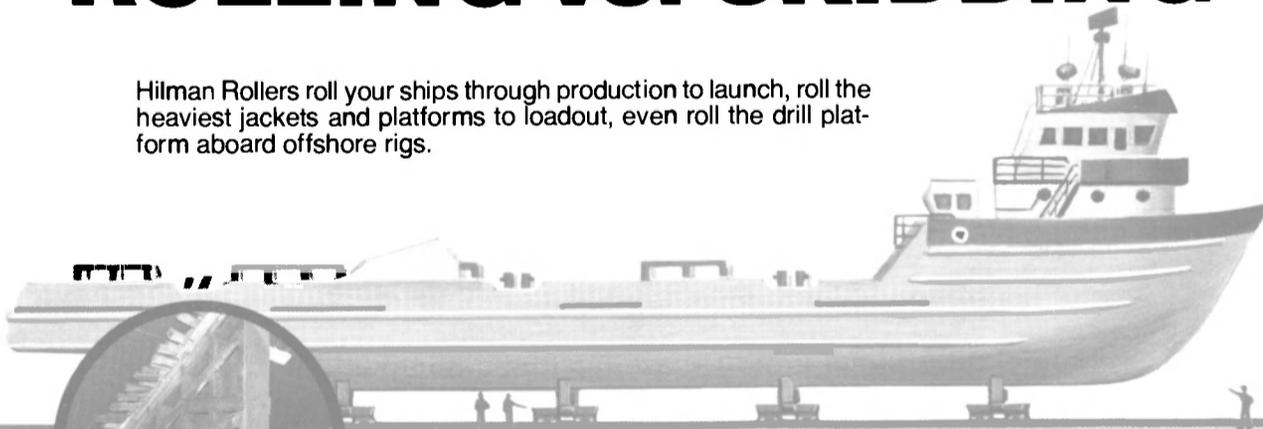
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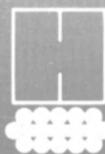
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## Nichols To Build New Seattle Fireboat

Seattle's new fireboat, designed by Nickum & Spaulding Associates, is being built by Nichols Brothers Boat Builders of Freeport, Wash., and will carry an A.B.S. classification when completed in mid-1984.

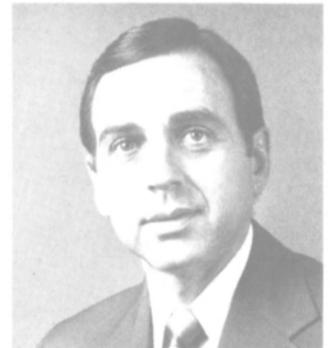
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"With 19 years of international sales and management experience, Jim Casteleyn's knowledge of the international marketplace brings an added dimension to our corporation," Mr. Wessel said.

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A Government Perspective on the Safety of Marine Structures; (22) The USAF Approach to Structural Life Management; and (23) Civil Engineering Applications of the Theory of Structural Reliability.

For free information on the sym-

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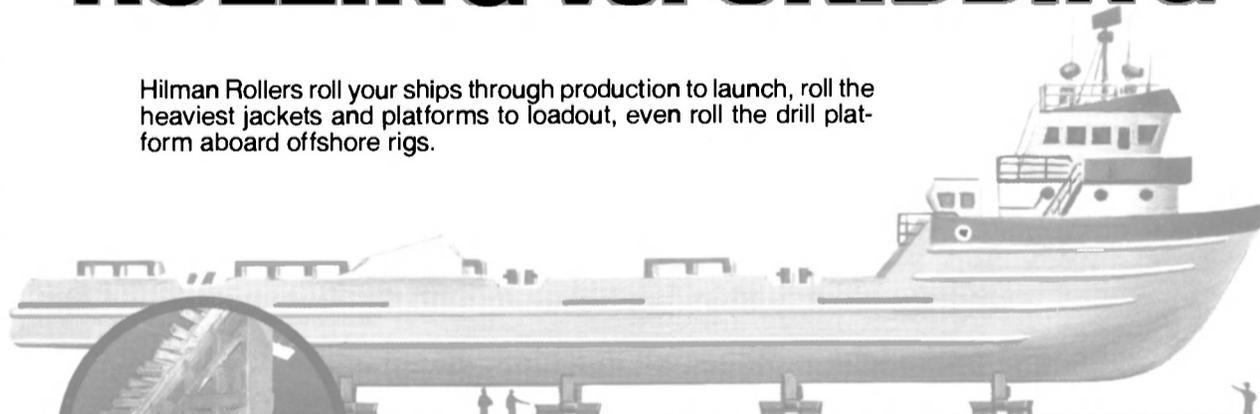
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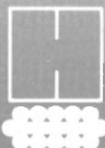
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The Vickers installation is the latest addition to the Syncrolift family which now includes 158 installations in 58 countries. Pearlson Engineering is a member company of Northern Engineering Industries, PLC.

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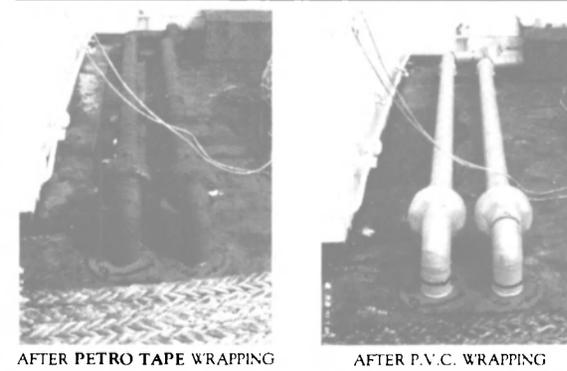
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## Transoceanic Shipping Appoints Villanueva To New Orleans Post

Juan Villanueva was recently appointed to the position of Manager of Ocean Forwarding Operations for Transoceanic Shipping Company's New Orleans office.

Mr. Villanueva will be responsible for coordinating all documentation, consular invoices, letters of credit, insurance and all other necessary related services.

According to TSC executive vice president Roland J. Ledet, "Mr. Villanueva's new position is part of a nationwide strategy to place seasoned professionals on every level of operation."

## Farrell Lines To Test U.S. Sea Shed System's Commercial Applications

Adm. Harold E. Shear, USN (ret.), Maritime Administrator, announced recently that the Maritime Administration (MarAd) and Farrell Lines, Inc., of New York have signed a cooperative agreement under which the steamship company will commercially test the feasibility of carrying oversized cargoes in the holds of containerships in its regularly scheduled service. The tests will employ a system called Sea Shed (see MR 3/1/82, p 65; 12/15/82, p 6).

MarAd and the Naval Sea Systems Command will jointly fund the \$550,000 project, tentatively scheduled to begin in November and to continue through April 1984.

In the operational/commercial sea testing phase of the program, the government will pay for engineering, design and installation of ship modifications, test planning, training, data collection and analysis.

At no cost to the government, Farrell Lines will provide three vessels to be modified and to carry Sea Sheds and cargo, marketing to acquire cargo, all handling and lashing of cargo, supervision and support personnel and services.

The project also will provide a standard vessel modification for containerships, representing significant savings in the government's strategic sealift program, and potentially increased revenues for U.S.-flag carriers if commercial applications of Sea Shed prove viable.

The "universal adaptor" to be developed will minimize vessel modifications and allow most existing containerships with 40-foot container cells to accommodate the Sea Shed system.

Farrell will modify three containerships sailing regularly in its U.S. East Coast/Mediterranean service—the Argonaut, Export Pa-

triot and Export Freedom. The modifications, to be made at the lines' Port Elizabeth, N.J., terminal, will include the strengthening of cell guides (used normally for standard containers) and electrical work.

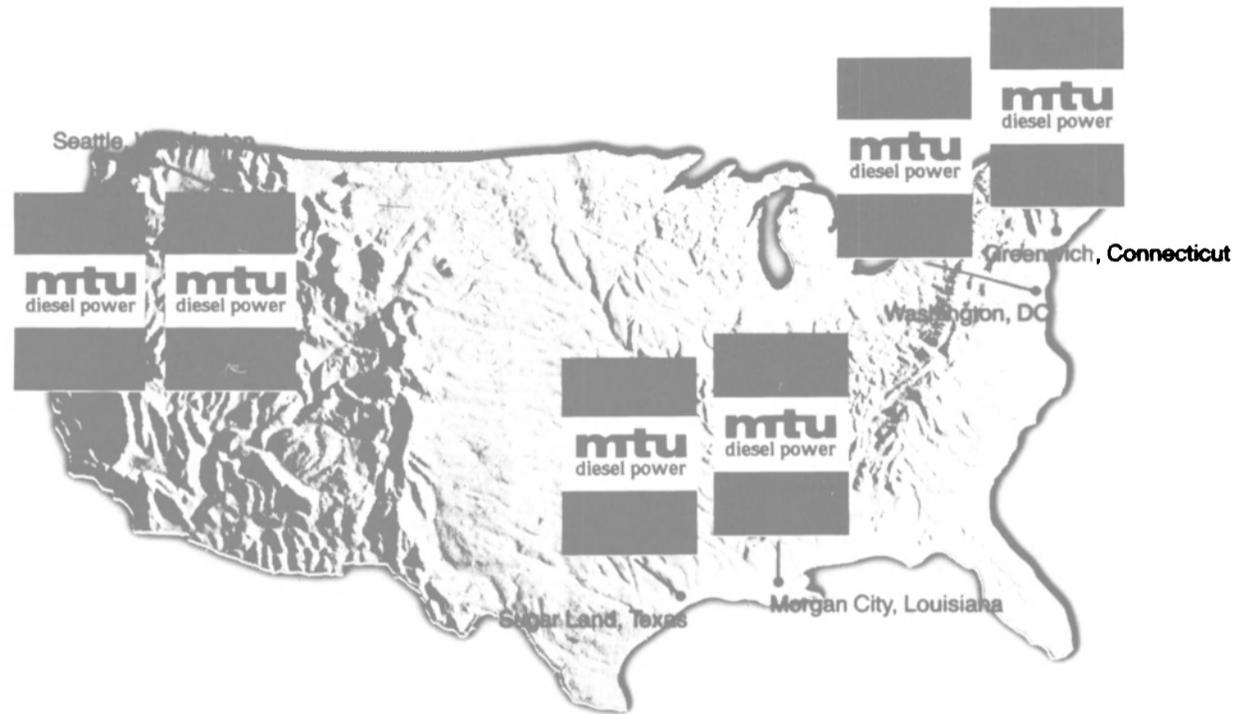
As a portable tween-deck system, a Sea Shed fits into three adjacent cells of a containership. When stacked in the vessel, cargo

is passed through and stowed at different levels by opening and closing Sea Shed's work through floors.

Farrell will have the option of stacking three Sea Shed prototypes in the same location in a single ship or utilizing them singly or any feasible combination of two or more aboard the test vessels simultaneously.

The liner company will offer service to shippers of large sized cargo beginning with the sailing of the Argonaut (tentatively in early November) from Norfolk, Va.

M. Rosenblatt and Son was the design agent for the Sea Shed system. The prime contractor for program development is Information Spectrum, Inc., of Arlington, Va.



### MTU of North America, Inc.

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**CSSRA 1984 Technical Conference Set For February 14 In Montreal**

Plans are moving ahead quickly for the Thirty-Sixth Annual Technical Conference of the Canadian Shipbuilding and Ship Repairing Association to be held at the Queen Elizabeth Hotel, Montreal, Quebec on February 14, 1984.

The Annual Technical Conference, always held in Montreal, is by far the largest, best known and best attended CSSRA event.

The program will be presented in two separate halls: one primarily for shipbuilders, the other of more general interest to both shipbuilders and allied industries: (1) "An Integrated Shipyard Production Planning and Cost Control System," **W. Clark**, Computer Systems Manager, Port Weller Dry Docks; (2)

"Computer Aided Manufacturing (CAM) Related to Shipyard Productivity," **Jean-Pierre Lepage**, Davie Shipbuilding Ltd.; (3) Not yet selected, **Donald Tremblay**, Director of Production, Marine Industrie Limitee; (4) "Designing for Productivity," **Robert Thompson**, Naval Architect, Marystown Shipyard Limited; (5) "A Tale of Two Arctic Class Supply Vessels," by **R.G. Allan**, president, Robert Allan Ltd.; (6) "Recent Research in Welding Technology to Improve Productivity and Quality," by **M.J. Pates** and **D.E.H. Reynolds**, Research and Technology Centre, AMCA International Ltd.; (7) "Increased Efficiency in Shipyard Painting Operations" by **R.A. (Bob) Hartley**, vice president-Technical International Paints (Canada) Limited.

Also: (8) "Education for the Shipbuilding Industry," by **M.E. Bishop**, Director of Naval Architecture & Shipbuilding, College of Fisheries, Navigation Marine Engineering & Elec-

tronics; (9) "Productivity Improvement: Management's Responsibility Labour's Enigma," by **W.J. Riley**, president, Ubique Riley Enterprises, Ltd.; (10) "Upgrading Cargo Access Equipment on Older Tonnage," by **Stig-Ake Svensson**, MacGregor Navire International; (11) "Hullform of Icebreaker Ships—Background and Progress," by **J.G. German**, president German & Milne Inc.; (12) "High Technology Applications to the Marine Industry" by **I.F. Glen**, senior vice president, Arctec Canada Ltd.

(13) Not yet selected, by **D.R. Patterson**, senior manager-Technical Services, British Ship Research Association; (14) Title not yet selected—related to fuel economy in connection with Arctic operations by **Ingmar Alqvist**, Wartsila Diesel Division; and (15) "Shaft Driven Alternators" by **Gottfried H. Versock**, vice president-marketing, F. Tacke KG.

Those who wish to attend the conference can obtain full details by contacting **Jay MacPherson**, Secretary Treasurer, CSSRA, Suite 801, 100 Sparks Street, Ottawa, Ontario K1P 5B7, Canada—(613)-232-7127.

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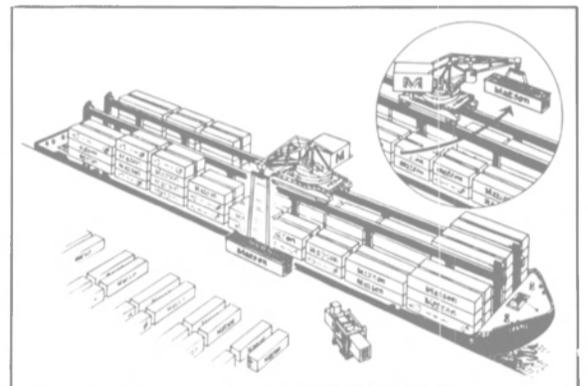
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## McDermott To Build \$6-Million Matson Container Barge

A unique 350-foot self-loading barge for Matson Navigation Company's interisland cargo service in Hawaii will be built by McDermott, Inc., of Louisiana, at a cost of nearly \$6 million.



The drawing of a unique container barge showing the elevated rail crane used for container positioning. Inset details how the container is held parallel to the barge.

The barge will have capacity to carry 216 containers of various sizes, including dry and refrigerated containers and auto frames, plus 1,700 long tons of molasses.

Construction of the barge is scheduled for completion next August. An innovative on-deck revolving crane will be built under a separate contract. Bids from crane manufacturers throughout the world are being reviewed. The completed barge is expected to be ready for service from Honolulu by the end of October. It will be named Haleakala, for Maui's famous mountain.

The barge will be built in three sections in different McDermott yards: the bow section in New Iberia, La., the stern section with machinery in Morgan City, La., and the midbody in Gulfport, Miss., with final assembly in Morgan City.

The barge, towed by a chartered tug, will supplement Matson's containership Mauna Kea in transshipping Pacific Coast-Hawaii cargo between Honolulu and the islands of Hawaii, Maui and Kauai.

New features designed by Matson engineers include movable cell-guides to secure containers on deck, the revolving crane that will keep containers parallel with the barge during loading and unloading and a radio-controlled stern-thruster to assist in docking operations.

### Monopol And Hempel Form New Norwegian Paint Company

A new joint paint company has been formed in Norway between Monopol Maling—og Lakkindustri A/S of Bergen and Hempel's Marine Paints A/S of Copenhagen.

The new company—which is to be called Monopol-Hempel A/S—will absorb both companies' activities in Norway, with Hempel of Copenhagen holding the majority shareholding.

The company will be headquartered in Bergen, where Monopol has its production plant, and will manufacture both companies' range of marine, offshore, container and industrial paints as well as heavy duty coatings.

Monopol has been manufacturing specialized coatings for the Norwegian market since the 1920s.

Monopol will have access to the Hempel range of coatings—as well as to Hempel's worldwide service organization.

### American Systems Awarded \$413,775 Contract For Engineering Services

Carl M. Albero, president of American Systems Engineering Corporation, Virginia Beach, Va., announced that the company has been awarded a \$413,775 contract to provide management, engineering and technical services in support of material assessment, maintenance planning, as well as preparations for Light Off Examination and Board of Inspection and Survey Trials for Battleship (BB) Class Ships. The services will be predominantly performed in Pascagoula, Miss. Similar services were performed last year during the Navy's reactivation of the USS New Jersey at the Long Beach Naval Shipyard in California.

AmSEC is one of Tidewater's fastest growing small business firms. The company provides marine and field engineering support services to manufacturers of maritime propulsion plant machinery and to the U.S. Navy.

### New 8-Page Brochure On Micro=Lam Scaffold Planks Offered Free By Trus Joist

High-strength Micro=Lam laminated veneer lumber scaffold planking is featured in a new brochure released by Trus Joist Corporation of Boise, Idaho.

The new eight-page guide illustrates several different applications for the exceptionally durable

product and provides specification data on its design properties, including deflection and loading.

Uniform strength characteristics of Micro=Lam scaffold planking are attributed to Trus Joist's proprietary lamination process which has been used in manufacturing the company's structural building materials for years. Each Micro=Lam plank is made up of

many thin layers of veneer, which have been coated with waterproof adhesives and densified by heat and pressure. Each board has been ultrasonically graded and laid up in a predetermined pattern to produce planking with predictable, unparalleled performance.

Because knots, grains and splits are dispersed throughout the many layers of veneer, the finished prod-

uct guarantees extremely high safety standards and can last two to three times longer than most planking products on the market today. Micro=Lam scaffold planks are lighter in weight and shorter in length than conventional planking which simplifies both installation and transport.

For a free brochure, Write 63 on Reader Service Card

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**New Updated Edition Of  
"American Harbour Pilot"  
By Hans Gade Is Available**

Hans Gade's *American Harbour Pilot* has now been published in a new updated edition—the third in the series.

The appearance of the book is the same as the previous editions; however, the 1,100 pages which

describe more than 700 harbors and ports of call in North, Central and South America, supplied with detailed harbor plans, are filled with new information.

In the *American Harbour Pilot* shipbrokers, shipping companies and others find valuable information about position, entrance, anchorage, harbor and cargo handling facilities, documents required, communication etc. The majority

of the harbor descriptions are accompanied by detailed charts which give a clear picture of each area.

The publisher also issues: *European Harbour Pilot* (since 1912), *African Harbour Pilot*, and *Loading Places For Oil Tankers In The World*.

Copies of *American Harbour Pilot* may be obtained from Harbour Pilots Succ. A/S, Malmøgade 3, 2100 Copenhagen Ø, Denmark.

Phone: 01-260621—Telex: 16121. Price: \$88 (£47) excluding forwarding costs.

**Robert Gamble Elected  
Director And VP Of  
Foster Wheeler Boiler**

Robert L. Gamble has been elected a director and vice president of Foster Wheeler Boiler Corporation, Livingston, N.J.

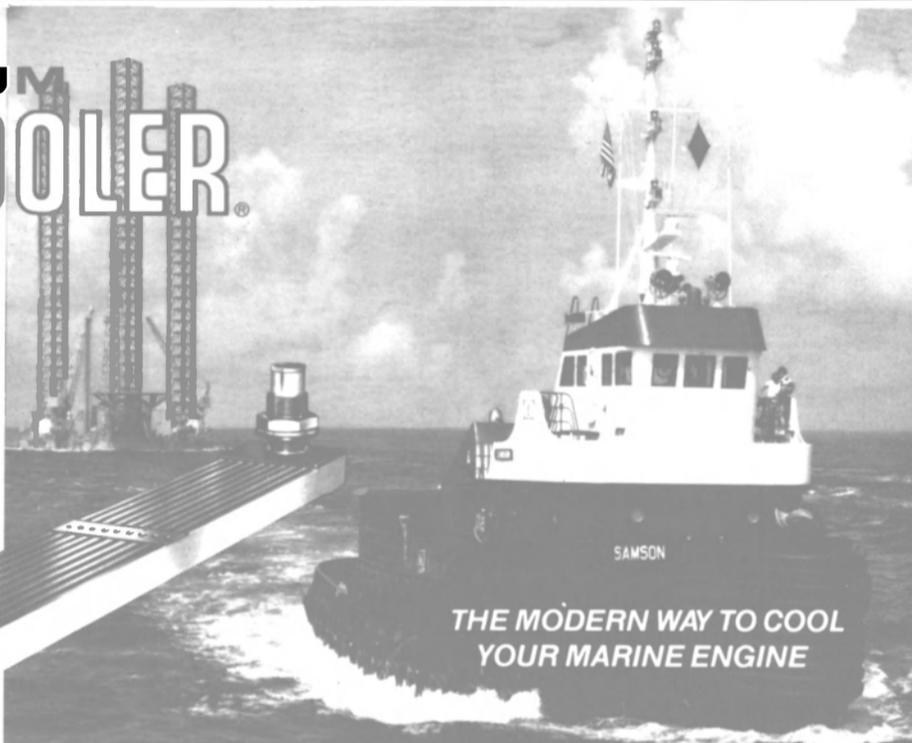
Mr. Gamble is the 1980 recipient of the George Westinghouse Silver Medal Award from the American Society of Mechanical Engineers. He is a 1968 graduate of Northeastern University and the author of a number of technical papers and holder of several domestic patents. He is also a member of the American Society of Mechanical Engineers.

Foster Wheeler Boiler Corporation, a wholly owned subsidiary of Foster Wheeler Corporation, supplies industrial boilers for a wide range of stationary applications and marine steam generators to the world's fleets.

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**CRC Welding Systems  
Moves To Houston**

Crutcher Resources Corporation, announced the move of its CRC Welding Systems, Inc. operation from Nashville to Houston. CRC Welding Systems designs and manufactures high technology welding equipment systems and controls for a variety of industrial applications, including robotic welding. Featured products include THRUARC Adaptive Positioners for cross seam tracking and torch-to-workpiece control; and the Arc Data Analyzer, a weld information processor that monitors, calculates and records welding parameters.

CRC Welding Systems will share manufacturing facilities with CRC Automatic Welding, a division of Crutcher Resources Corporation specializing in automatic welding systems for oil and gas pipeline construction and industrial applications. Tim Carey, president of CRC Welding Systems, Inc. and CRC Automatic Welding, said the relocation was the result of CRC's efforts to consolidate technical expertise and enhance manufacturing efficiency. Mr. Carey said both operations will continue to operate autonomously.

Crutcher Resources Corporation is an oil and gas services and pipeline and welding equipment company headquartered in Houston, Texas.



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## ACR Projects Business Improvement For 1984

ACR Electronics, Inc., manufacturers of marine search, safety and rescue equipment, held its annual National Sales Conference August 11-13 in Ft. Lauderdale. This year an expanded program included all regional ACR sales representatives and their wives. The conference reviewed sales forecasts and projected a 20 percent increase in all territories for the upcoming fiscal year.

Last year's sales accomplishments were recognized in a formal ceremony. **Ray Thomas** of Ray Thomas and Associates-Houston was cited as top producer for ACR. Representative organization of the year was awarded to Ocean Marketing-Boston (previously Peter Sutton Co.). The largest percentage increase of sales was granted to **Jack Laurain** of Rhumb Line-San Diego.

According to **George Woods**, new marketing programs were introduced to strengthen ACR's user awareness including the 1983/84 media schedule, new literature, price schedules, terms and policies, a revised inquiry handling and screening program, and a dealer kit.

For information on ACR products,

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## Salen & Wicander Opens South Korean Office

Salen & Wicander AB, Solna, Sweden, has opened an office in Pusan, South Korea, promoting all the group products including Siwertell ship unloaders and marine radars. The office will be managed by **Hans Repling**. Concurrently, **Tommy Olsson** will become manager of the Jungner Marine New York office, and **Claes Lindblad** will assume management of the Gothenburg office.

## Ogden Corporation Announces Spinoff Of Ogden Marine Inc.

**Ralph E. Ablon**, chairman of Ogden Corporation, has announced that Ogden's board of directors have approved a plan to distribute the stock of Ogden Marine, Inc. (OMI) to Ogden stockholders. It is expected that the spinoff will be completed in late December 1983 or early 1984, conditioned upon deliveries of three vessels later in the year, and completion of certain pending financings and other matters. OMI currently owns and operates 29

oceangoing ships approximating 1,780,000 deadweight tons, including 18 tankers, 5 bulk carriers, 3 car/bulk carriers, 2 liquefied petroleum gas vessels and 1 ore/bulk/oil carrier.

Ogden is seeking a ruling from the Internal Revenue Service that the spinoff will be tax-free to Ogden stockholders and expects the

ruling to be favorable. The exact record date, distribution date and ratio for the OMI spinoff will be announced later. The OMI shares will trade in the over-the-counter market.

**Mr. Ablon** said that the spinoff supports the Ogden strategy of emphasizing service activities which are not debt-intensive, cap-

ital-intensive or cyclical. He added that the capital commitments required to maintain and expand the OMI fleet would conflict with the services-oriented strategy.

Following the spinoff, OMI's current management is expected to continue. **Michael Klebanoff**, president of OMI, will also continue to serve on the Ogden board.



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AQUAMET 18—Economical strength, corrosion resistance and superior toughness.

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AQUAMET 22—Best seawater corrosion resistance plus excellent strength and toughness.

### Full information—FREE

Write us today for your free copy of the Armco AQUAMET Boat Shafting Product Data Bulletin. This 44-page bulletin contains complete mechanical and physical properties, corrosion resistance information, machining guidelines, and design curves. Armco, Stainless Steel Division, Dept. SS-143, Box 600, Middletown, Ohio 45053.

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## COMSAT Issues Maritime Telephone/Telex Directory For INMARSAT Ships

The Communication Satellite Corporation (COMSAT) has published a directory of the telephone/telex number for all ships currently carrying INMARSAT (International Maritime Satellite Or-

ganization) ship earth stations. The 42-page book also includes instructions on how to make "shore-to-ship" telex and telephone calls.

Detailed instructions are given for using any of the six telex common-carriers. For information on the "Ship Telephone/Telex Directory",

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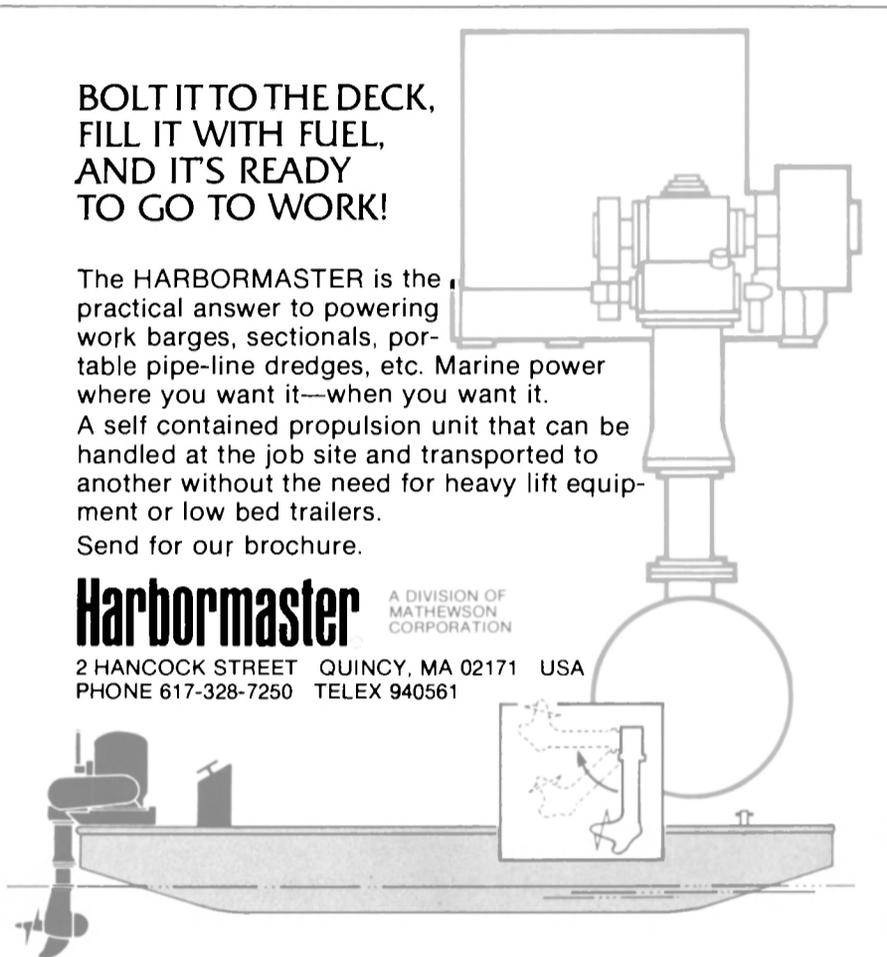
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# AWO Perspective

## Rail Deregulation, User Taxes Threaten Barge And Towing Industry

In the keynote speech before the annual meeting of the Warrior-Tombigbee Development Association, **Joseph A. Farrell**, president of The American Waterways Operators, Inc., warned of two major threats to the future survival of the inland and coastal water transportation industry.

Mr. Farrell stated that recent deregulation of the nation's railroads as well as the Reagan Administration proposals to impose new taxes on commercial users of the waterways could pose serious dangers to the barge and towing industry. "These initiatives share one thing in common," Mr. Farrell said. "They threaten the barge industry's viability as an alternative to the railroads for shipments of bulk freight. They fly in the face of the best interests of the American taxpayers and consumers, who depend on a cheap, competitive transportation system to stabilize the economy."

Mr. Farrell noted that the Interstate Commerce Commission (ICC), the federal arm which regulates the railroads, has begun removing rate restrictions on boxcar shipments and rail shipments of



Joseph Farrell

coal bound for export. In addition, the ICC has recently allowed the CSX railroad, one of the nation's largest, to attempt to acquire a barge line with which it is in direct competition. Ownership of a barge line by a railroad has, in the past, been prohibited by law.

According to Mr. Farrell, this trend toward deregulation of the railroads could have serious and long term effects on competition among the various forms of transportation, and on the nation's economy as a whole. Deregulation in this instance, Mr. Farrell said, will allow the railroads "to exercise ever-increasing monopolistic powers."

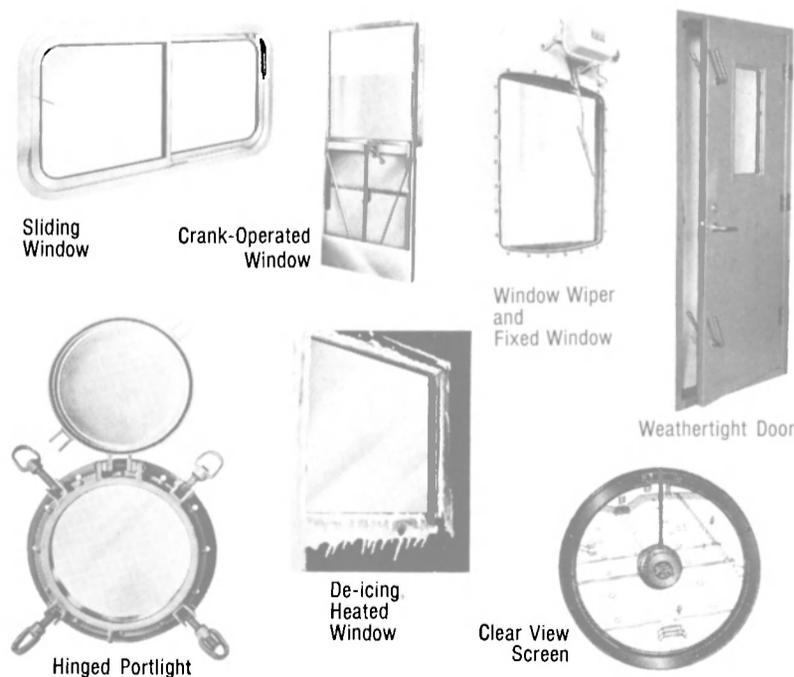
Mr. Farrell told the Warrior-Tombigbee development group that a second threat to the barge industry, an Administration proposal to impose additional user fees, was "ominous." Currently, the barge industry pays a fuel tax of 8¢ per gallon for use of the waterways. Under the new proposal, the Administration would hope to recover 70 percent of federal expenditures from the barge industry, a move Mr. Farrell claimed could put the barge lines out of business.

"We in the industry agree with the principle that the users of a transportation system should pay their fair share of the costs for that system," Mr. Farrell said. He noted however, that no accurate accounting of the cost allocation among various beneficiaries of the waterways has ever been determined, and that his industry would fight against any new taxes unless and until such a fair allocation of costs is determined.

Mr. Farrell is president of The American Waterways Operators, Inc., the largest national trade association representing the interests of the barge and towing industry and the shipyards that service the industry.

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### Icebreaker Contract For Halifax Shipyard Totals Can. \$54 Million

Halifax Shipyard of Nova Scotia has won a Can. \$54-million contract from the Canadian Government to build one type 1100 Navaid/Light icebreaker vessel.

Construction will begin early next year with delivery to the Canadian Coast Guard scheduled for May 1986.

President and chief executive of Halifax Industries Limited **Kenneth Wood**, said today: "This important and much needed contract was won against stiff competition from other yards in Canada."

The contract will provide work for over 200 people during the construction period.

The principal characteristics of this new Coast Guard icebreaker are: length—83 meters; breadth—16.20 meters; depth—7.75 meters; displacement—4,662 tons; horsepower—8,445; speed—15.3 knots; range—6,500 nautical miles at 15 knots; and crew—52.

The ship is to be equipped with twin-screw diesel electric propulsion, and the hull will be suitable for icebreaking purposes as Arctic Class II vessel.

### \$6-Million Navy Contract Modification To GTE

GTE Products Corporation, Sylvania Systems Group, Western Division, Mountain View, Calif., is being issued a \$6,627,811 unpriced modification to a previously awarded contract issued by the Naval Electronics Systems Command, Washington, D.C. This modification is being issued to cover provisioning of spare parts for the countermeasures receiving set, AN/WLQ-4 (V), as authorized on the original contract. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity (N00039-82-C-0030).

### AMP Introduces New Line Of Ribbed Wire Splices —Literature Available

A new line of ribbed funnel-entry butt splices has been introduced by AMP Special Industries Division of AMP Products Corporation, Valley Forge, Pa.

The new wire splices, which are an addition to the company's line of ribbed insulated terminals, offer reliable solderless electrical connections because of their unique crimp-locating ribs. The ribs eliminate the guesswork always involved in making connections with conventional smooth splices because they allow precise positioning of the crimping tool.

The new AMP® PLASTI-GRIP®

ribbed splices, because of their funnel-entry feature, allow faster wire insertion than with non-funnel splices. This virtually eliminates strand turnback, thereby providing improved mechanical and electrical characteristics. The new splices are available for wire size 22-16 and 16-14 AWG.

For free literature containing more information on AMP splices,

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### Waterman Appoints T.C. Foote Senior VP Sales and Marketing

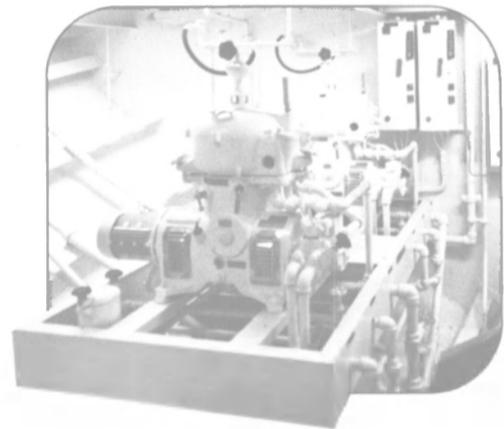
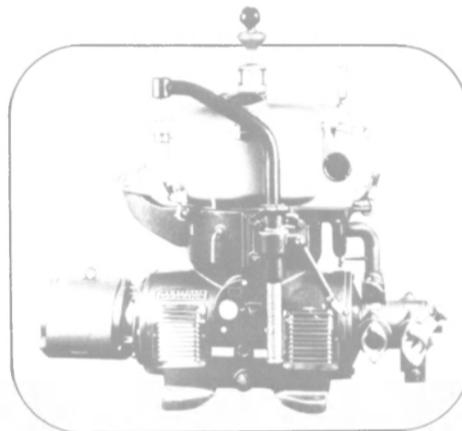
Waterman Steamship Corporation, New York, N.Y. has announced the appointment of **Theron C. Foote** as senior vice president, sales and marketing. Mr. Foote, who joined Waterman in 1979, was most recently vice president of pricing and will con-

tinue to have responsibility for that department.

He is a graduate of Drexel University and holds a Bachelor of Science degree. Mr. Foote is on the faculty of the Franklin D. Roosevelt Institute, was past chairman of The Steamship Operators Intermodal Committee and serves on the board of directors of The New York Chapter of The National Defense Transportation Association.

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- **FACT** A 15 year service history of providing deck maintenance cost savings on all types of high wear deck surfaces including aircraft carrier flight decks, helicopter landing platforms on military ships and on offshore drilling rigs, cruise ships, cable laying ships, ice breakers, fishing vessels and ocean going towboats of all types.

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Once moisture reaches your steel deck, harmful corrosion begins immediately. Constant replacement and costly maintenance are the only solution.

A PRC Proreco® coatings system protects your deck better because it protects itself. The elastomeric base coat is not brittle, so it won't crack like epoxy coatings or cement-type deck coverings. It resists the heaviest impact and abrasion. The corrosion-inhibiting primer does not sacrifice itself as does zinc, so it stops corrosion about even if a rupture occurs.

No other company offers products with a track record of more than 10 years' service with virtually no maintenance costs.

All types of ships use the PRC Proreco systems to virtually eliminate ongoing deck maintenance costs: towboats, offshore rigs, cruise ships, commercial fishing boats, U.S. Naval and U.S. Coast Guard ships of all types.

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Requires regular maintenance.	Requires no maintenance.

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# COSTS

## The PRORECO® III Deck Coating System



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### Icebreaker Contract For Halifax Shipyard Totals Can. \$54 Million

Halifax Shipyard of Nova Scotia has won a Can. \$54-million contract from the Canadian Government to build one type 1100 Navaid/Light icebreaker vessel.

Construction will begin early next year with delivery to the Canadian Coast Guard scheduled for May 1986.

President and chief executive of Halifax Industries Limited **Kenneth Wood**, said today: "This important and much needed contract was won against stiff competition from other yards in Canada."

The contract will provide work for over 200 people during the construction period.

The principal characteristics of this new Coast Guard icebreaker are: length—83 meters; breadth—16.20 meters; depth—7.75 meters; displacement—4,662 tons; horsepower—8,445; speed—15.3 knots; range—6,500 nautical miles at 15 knots; and crew—52.

The ship is to be equipped with twin-screw diesel electric propulsion, and the hull will be suitable for icebreaking purposes as Arctic Class II vessel.

### \$6-Million Navy Contract Modification To GTE

GTE Products Corporation, Sylvania Systems Group, Western Division, Mountain View, Calif., is being issued a \$6,627,811 unpriced modification to a previously awarded contract issued by the Naval Electronics Systems Command, Washington, D.C. This modification is being issued to cover provisioning of spare parts for the countermeasures receiving set, AN/WLQ-4 (V), as authorized on the original contract. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity (N00039-82-C-0030).

### AMP Introduces New Line Of Ribbed Wire Splices —Literature Available

A new line of ribbed funnel-entry butt splices has been introduced by AMP Special Industries Division of AMP Products Corporation, Valley Forge, Pa.

The new wire splices, which are an addition to the company's line of ribbed insulated terminals, offer reliable solderless electrical connections because of their unique crimp-locating ribs. The ribs eliminate the guesswork always involved in making connections with conventional smooth splices because they allow precise positioning of the crimping tool.

The new AMP® PLASTI-GRIP®

ribbed splices, because of their funnel-entry feature, allow faster wire insertion than with non-funnel splices. This virtually eliminates strand turnback, thereby providing improved mechanical and electrical characteristics. The new splices are available for wire size 22-16 and 16-14 AWG.

For free literature containing more information on AMP splices,

Write 36 on Reader Service Card

### Waterman Appoints T.C. Foote Senior VP Sales and Marketing

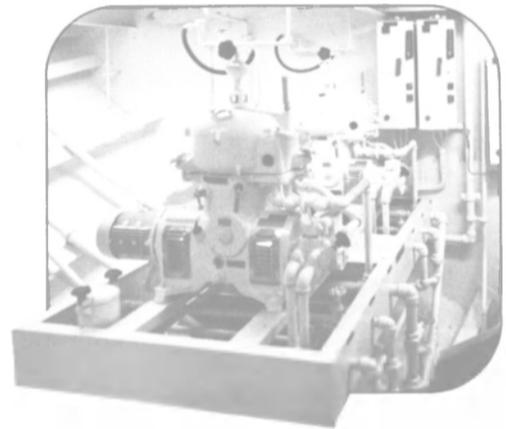
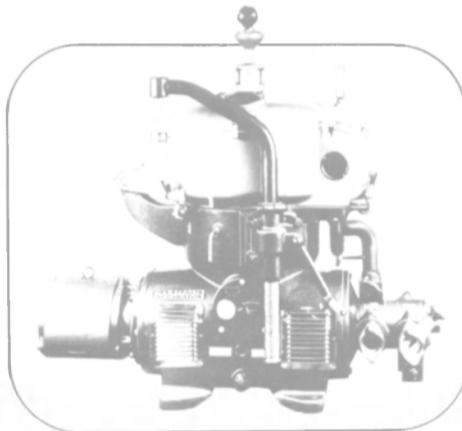
Waterman Steamship Corporation, New York, N.Y. has announced the appointment of **Theron C. Foote** as senior vice president, sales and marketing. Mr. Foote, who joined Waterman in 1979, was most recently vice president of pricing and will con-

tinue to have responsibility for that department.

He is a graduate of Drexel University and holds a Bachelor of Science degree. Mr. Foote is on the faculty of the Franklin D. Roosevelt Institute, was past chairman of The Steamship Operators Intermodal Committee and serves on the board of directors of The New York Chapter of The National Defense Transportation Association.

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downtime drops...plus you can recycle your lube oil over and over again.

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**Most deck coatings have a fatal flaw.**

Even when they're called "heavy duty," conventional paint type coatings are brittle. They crack, chip, and spall easily because they have no long term resistance to a ship's normal structural movement and vibration. Nor do they resist impact.

**Moisture is harmless, until your deck coating gives it a break.**

Once moisture gets under the coating, it causes a chemical reaction that starts the corrosion process. The corrosion starts at the point of entry and spreads outwards. The corrosion is hidden until it's too late. The only way to stop it is to remove the coating and re-coat the deck. This is a costly and time-consuming process.

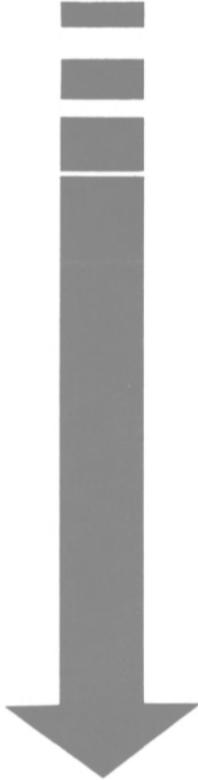
**Proreco Deck Coating Systems**

Proreco Deck Coating Systems are the only deck coatings that are self-protecting. They are made of a special elastomeric base coat that is not brittle, so it won't crack like epoxy coatings or cement-type deck coverings. It resists the heaviest impact and abrasion. The corrosion-inhibiting primer does not sacrifice itself as does zinc, so it stops corrosion short even if a rupture occurs.

No other company offers products with a track record of more than 10 years' service with virtually no maintenance costs.

All types of ships use the Proreco systems to virtually eliminate ongoing deck maintenance costs. The boats, offshore rigs, cruise ships, commercial fishing boats, U.S. Naval and U.S. Coast Guard ships of all types.

Ask about our Proreco interior and exterior decking systems. Write to: Rodney N. Morris, Marine Products Manager, Products Research & Chemical Corp., P.O. Box 1800, Glendale, CA 91209.


**Before a coating can protect your deck, it has to protect itself.**

**PAINT AND ZINC**      **PRC PRORECO® III**

When you use paint and zinc, you have to re-apply the coating every few years. The zinc coating wears away, and you have to re-apply the paint. This is a costly and time-consuming process.

When you use Proreco Deck Coating Systems, you have a proven track record in the most demanding high-wear conditions. Decks coated with PRORECO® III have been years of heavy abuse with absolutely no repairs.

Whether you operate towboats, crew or supply boats, offshore drilling platforms, or the largest commercial vessels, you will find that PRC Deck Coatings pay for themselves many times over.

For information, call your nearest PRC representative or write to Rodney N. Morris, Marine Products Manager, PRC, 5430 San Fernando Road, Glendale, Calif. 91209.

**The PRORECO® III Deck Coating System**



# COSTS

## The PRORECO® III Deck Coating System



Products Research & Chemical Corporation  
5430 San Fernando Road, P.O. Box 1800  
Glendale, CA 91209  
(213) 240-2060



# Partial list of PRC marine products

	Product	Description	Product	Description		
<b>Deck Coating</b>	Proreco® I Interior Deck Coating System	Impact and abrasion resistant elastomeric coating. Fire retardant. Has electrical insulation properties. Decorative color chips and non-slip types available.	<b>Protective Coatings</b>	PR-475-S	Sprayable, abrasion resistant coating for the protection of insulating materials such as foam, fiberglass. Polyurethane.	
	Proreco® III Weather Deck Coating System	Impact and abrasion resistant, elastomeric non-skid coating for use over primed wood, steel or aluminum decks. Polyurethane. Both deck coating systems include corrosion resistant primer, base coat, non-skid or decorated topcoats. Military Approval: U.S. Navy Technical Manual, Chapter 634, Deck Coverings		PR-1539-US	Sprayable, fire-retardant, abrasion resistant coating. Polyurethane	
<b>Caulking</b>	Proreco® Marine Rubber Calk™	A complete all purpose marine caulk, for use above and below the water line. One-part polysulfide		PR-1120	Two-part, anti-corrosion all purpose coating for fuel, ballast and CHT tanks. Polyurethane. MIL-P-23236.	
	PR-365-H	One-part, used when fast cure, structural strength and adhesive bonding is required. Polyurethane		PR-1005-L	One-part, highly flexible synthetic rubber, used as protective tank coating for metals, and synthetic rubber sealants. MIL-S-43838 (2)	
	Rubber Calk™ 3095 Sealant	Two-part, self-leveling sealant, used as a caulking and bedding compound. Polyurethane. MIL-S-24340.		PR-1436-G Sprayable	Two-part, corrosion inhibitive, fuel resistant coating. Polysulfide. MIL-S-81733	
	PR-7091	One-part bedding compound		<b>Electrical Insulating</b>	PR-1201-Q	Two-part, general purpose flexible potting and molding compound for electrical connectors. Elastomeric, fuel resistant. Polysulfide. MIL-S-8516E (2)
<b>Putties, Tapes, Adhesives</b>	PR-615-HF	One-part, fire retardant, moldable, damming compound. Nonsag, soft, workable, noncuring putty. MIL-I-3064A			PR-1568	One-part, thin film, moisture and heat resistant coating for electrical circuit board applications. MIL-I-46058C (2)
	PR-945	Two-part, elastomeric, chemically curing adhesive with excellent adhesion to properly prepared metal, plastics, wood and ceramic surfaces. Epoxy			PR-1547	Two-part, high performance, high temperature resistant compound for potting, molding and encapsulating. Polyurethane. MIL-M-24041.
	PR-380-M	Two-part, fuel resistant adhesive, with high cohesive and tensile strength. Resistant to fuel, oil and weather. Polysulfide			PR-1539-U	Abrasion resistant insulating deck covering for use in electronic and electrical areas.
	Chrome-Lock™ Type N Felt Tape	Anti-corrosion, anti-electrolysis impregnated wool felt for tape and cut gasket uses in flanges and tape joints. MIL-G-20241C				

This is only a partial listing of the many superior PRC products available. Detailed information on these and other PRC products is available on PRC Technical Data Sheets. Write or call Rodney N. Morris, Marine Market Manager.

"PRC", "Chrome-Lock" and "Proreco" are trademarks of Products Research & Chemical Corporation registered with the U.S. Patent Office. "Rubber Calk" is a trademark of Products Research & Chemical Corporation.



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## Dock Express Changes Management Structure

Dock Express Shipping, b.v., a specialized heavy-lift shipping company based in Rotterdam, the Netherlands, has undergone a change in management structure, it was announced by **Warren R. Wheelock**, president of Dock Express Contractors, Inc.

The management of Dock Express Shipping, b.v. is now in the hands of joint managing directors, **J.A. Dijkstra** and **H.M. Bekker**. Mr. Dijkstra was formerly with the parent company, PHS Van Ommeren, while Mr. Bekker was formerly with Dock Express as managing director-commercial operations.

Concurrent with the announce-

ment of the appointment of Messrs. **Dijkstra** and **Bekker**, Dock Express reported that former Dock Express directors **Dr. Willem Cordia** and **B.J. van der Laan** have resigned from the company to pursue other interests.

Dock Express Shipping, b.v. is represented in the United States by its agent and wholly owned subsidiary, Dock Express Contrac-

tors, Inc. of Houston, Texas. Dock Express Contractors performs both commercial and operational functions for the Dock Express Dutch-flag fleet of nine specialized heavy lift vessels, and will itself be the time charter operator of an American flag heavy-lift vessel in the near future.

# The Tri-Feature "DL Series" — New Technology from Daihatsu.

In response to modern demands for fuel conservation, Daihatsu has developed the DL Series Tri-Feature Diesel Engine. The DL Series is designed for improved combustion efficiency at low load, easier start-up and higher durability, with future fuel trends also taken into consideration.

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DL Series, Extra Economy with:

Low-quality fuel burning  
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Efficient combustion even at low load conditions.

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## Booz Allen Awarded \$11.8-Million Contract For Saudi Navy Support

Booz, Allen and Hamilton Incorporated, Bethesda, Md., is being awarded an \$11,815,156 cost-plus-fixed-fee contract for technical and engineering services in support of the Saudi Naval Expansion Program. The Naval Regional Contracting Center, Washington, D.C., is the contracting activity (N00600-83-C-2081).

## New Automatic Solid-State Flasher Detailed In Free Tideland Signal Bulletin

An automatic solid state flasher with a six-place lampchanger which can be operated independently or synchronized with other units for use in marine lanterns is described in a new product bulletin from Tideland Signal Corporation, Houston, Texas.

The TF-3B "Synrostat" flasher/lampchanger, 6 or 12-volt dc, includes a fail-safe sunswitch that assures continued light operation even if the sunswitch itself fails. It relamps after each lamp burn-out and turns power circuits off after usage of all six lamps.

Replaceable plug-in circuit cards minimize field repair problems and require minimal spare parts for the unit which can be used with most marine signal lanterns, including Tideland's ML-300 and ML-155 "MaxLumina" lanterns. Tideland was the first to design a flasher/lampchanger that allowed lights to operate in a synchronized arrangement instead of traditional "master/slave" relationship.

For literature that more fully describes Tideland's series of flasher/lampchangers,

Write 56 on Reader Service Card

## New Naval Architectural Firm Formed In Michigan

Northern Marine, a newly formed consulting firm is opening an office in Traverse City, Mich. Northern Marine will specialize in naval architecture, marine engineering and marine surveying projects. The office is headed by **Herbert G. Stephens Jr.** The address is P.O. Box 1169, Traverse City, MI 49685. Telephone (616) 946-5959.

## Newport News Advances Whitman To Senior VP



Carl E. Whitman

Newport News Shipbuilding, Newport News, Va., has named **Carl E. Whitman** to the position of senior vice president and general counsel. He will have overall responsibility for all legal matters and governmental affairs for the company.

Mr. Whitman moves to the shipyard from J I Case company in Racine, Wisc., where he has been senior vice president, secretary and general counsel. Both Case and Newport News Shipbuilding are subsidiaries of Tenneco Inc.

Mr. Whitman has been with Tenneco-affiliated companies for more than 27 years. He joined Case in 1974. Prior to that, he held several positions of increasing responsibility at Tenneco's Packaging Corporation of America, including the post of treasurer and tax counsel.

## \$5.8-Million Contract Awarded Vitro Labs

The Automation Industries Incorporated, Vitro Laboratories Division, Silver Spring, Md., is being awarded a \$5,875,000 cost-plus-fixed-fee contract for engineering services in support of the fleet ballistic missile program. The Navy Strategic Systems Project Office, Washington, D.C., is the contracting activity (N00030-83-C-0168).

## Italcantieri Yard Begins Construction Of 50,500-Dwt Bulk Carrier

The Italcantieri Castellammare di Stabia Shipyard has announced the keel-laying for a 50,500-dwt diesel-powered bulk carrier for Deulemar of Cagliari. The ship will be built to Registro Italiano Navel requirements for ships intended to transport dry cargo or ore cargo in all holds.

## RMI Adds Four Members To Board Of Directors

RMI, Inc., National City, Calif., recently announced the election of four new directors.

**Edward Hidalgo**, partner in

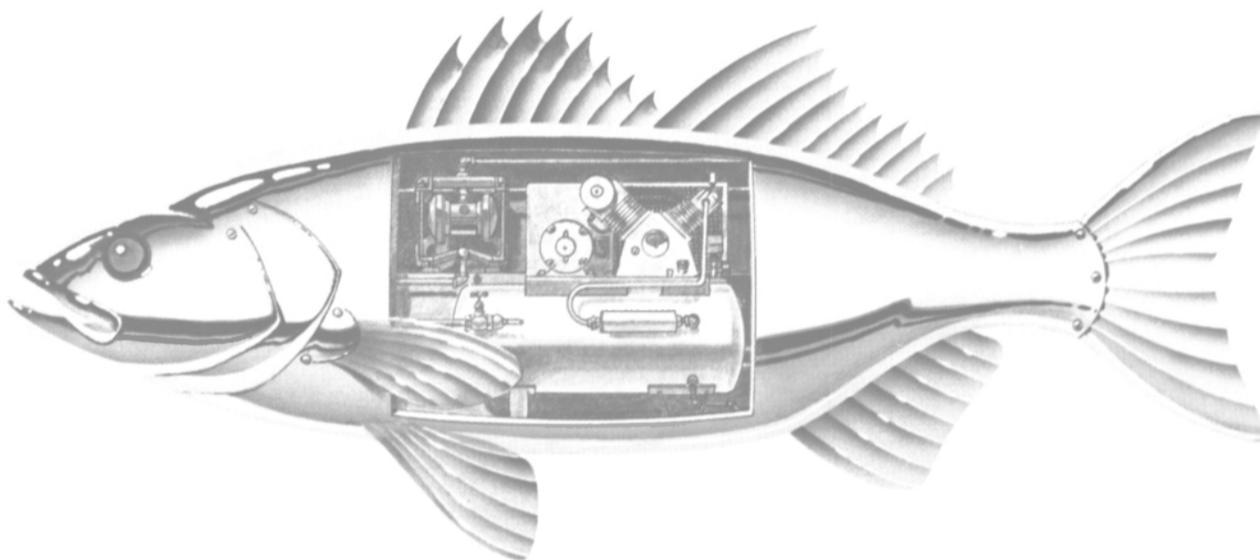
the Richmond, Va., law firm of Mays, Valentine, Davenport, and Moore, and former Secretary of the Navy; **Barry Shillito**, chairman of Teledyne-International, former Assistant Secretary of the Navy, and former Assistant Secretary of Defense; **Bob Wilson**, president of the Washington Industrial Team, WITCO, a consulting firm, former ranking minority

member of the House Armed Services Committee, and Congressman from San Diego for 28 years; and Adm. **Elmo (Bud) Zumwalt Jr.** USN (Ret.), Chief Executive Officer of American Medical Buildings, Inc., and Chief of Naval Operations from 1970 to 1974. This action expands RMI's Board of Directors from 5 to 9 members.

RMI, Inc., a privately owned

company, places primary emphasis on the design, development, and production of advanced marine vehicles for both military and commercial applications. The company's present business also includes: ship repair, the manufacture and repair of ship components, tow-basin testing services, and environmental chemical analysis.

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## Wiggins Promoted At Palmetto Stevedoring

**Robert C. Jacobi**, executive vice president, Palmetto Shipping and Stevedoring Company Inc., Charleston, S.C., has announced the promotion of **Leroy C. Wiggins Jr.** from stevedoring foreman to headquarters stevedore superintendent. In his new position, Mr. **Wiggins** will be responsible for planning, coordinating, and supervising stevedoring operations in Charleston S.C., and Savannah, Ga.

Mr. **Wiggins**, a Charleston native, served six years in the Army Reserve and joined Palmetto in 1981, bringing with him 13 years of valuable experience in the stevedoring industry.

## The Marine Board Of The National Research Council Plans November Symposium

Plans for the international Design-Inspection-Redundancy Symposium on November 14-16, 1983, at the Fort Magruder Inn and Conference Center in Williamsburg, Va., are nearing completion. The symposium will be sponsored by the interagency Ship Structure Committee, whose member agencies are: the U.S. Coast Guard, the Naval Sea Systems Command, the Military Sealift Command, the Maritime Administration, the American Bureau of Shipping, and the Minerals Management Service.

The purpose of this symposium is to examine the emerging technologies of ultimate strength and failure mode analysis, as applicable to marine structural systems, and to delineate the most pressing problems. Twenty-three technical papers comprise the technical program that emphasizes the role of design, inspection, and redundancy in marine structural reliability:

(1) The Design-Inspection-Redundancy Triangle; (2) Interrelation Between Design, Inspection and Redundancy in Marine Structures; (3) Structural Design of Mono Hull Ships; (4) Application of Subjective Reliability Analysis to the Evaluation of Inspection Procedure on Ship Structures; (5) Structural Redundancy and Damage Tolerance In Relation to Ultimate Ship-Hull Strength; (6) Strategies for Assessing Design and Inspection Requirements for Redundant Structures; (7) Fixed Offshore Platforms Design Considerations; (8) Reserve and Residual Strength of Pile-Founded Offshore Platforms; (9) Offshore Platform Inspection; (10) Design-Inspection-Redundancy Investment vs. Risk for Pile Founded Offshore Structures.

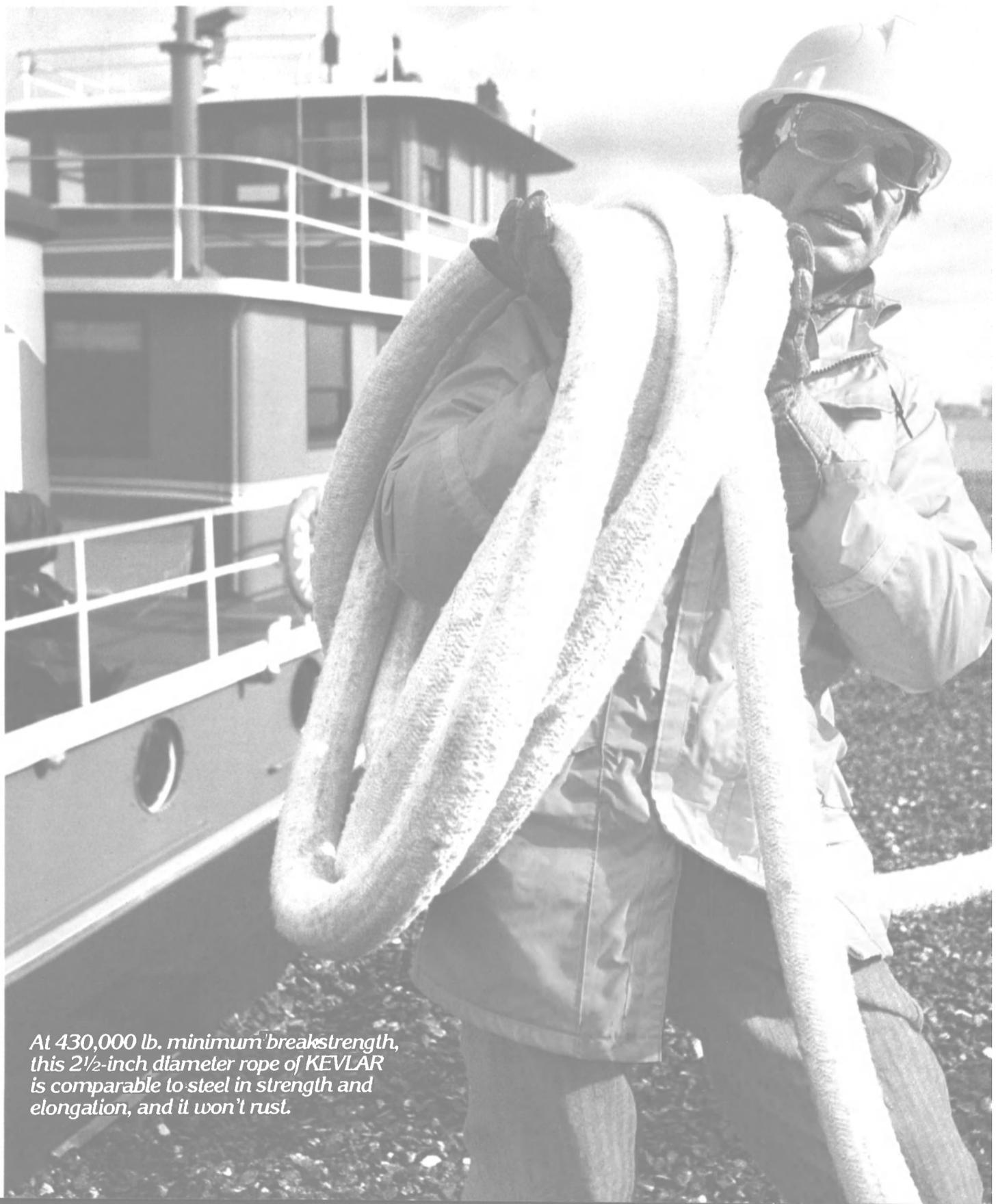
Also, (11) Design and Floating Offshore Platforms; (12) Inspection of Floating Offshore Platforms; (13) Redundancy Considerations in the Structural Design of Floating Offshore Platforms; (14) Synthesis—Floating Offshore Platforms—Problems and Prescriptions, from Design to Inspection; (15) Safety Evaluation of Buildings and Bridges; (16) Design Inspection and Redundancy of

Pressure Vessels; (17) Integration of Design, Fabrication, and Inspection Procedures for Attaining and Maintaining Safe Submersible Pressure Hull Structure; (18) Design and Inspection Interrelation for Commercial Jet Transport Structure; (19) Design, Fabrication, Inspection and Redundancy Aspects of the Landing Craft Air Cushion Structure; (20) Research Needs for Marine Structures; (21)

A Government Perspective on the Safety of Marine Structures; (22) The USAF Approach to Structural Life Management; and (23) Civil Engineering Applications of the Theory of Structural Reliability.

For free information on the symposium, write Committee on Marine Structures, Marine Board, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

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## Navy Saves \$22 Million In Three Months With Competitive Bidding Plan

The Navy has identified \$22 million in cost avoidance through opening previously sole source contracts to competition during the period April-June 1983.

Since the spring of 1982, the Navy has established Competition

Advocates at all major contracting activities. These Competition Advocates examine all major non-competitive contracts, single out candidates for competitive bidding, and help contracting officers find qualified competitors. The newly appointed Competition Advocate General of the Navy, Commodore **Stuart F. Platt**, Supply Corps, USN, coordinates the efforts of Command Competition Advocates.

Typical examples are: When buying material for an ordnance alteration, the center developed a more complete technical description permitting more vendors than just the original supplier to compete. A contract for 10 units was awarded for \$700,000 (40 percent) less than the previous sole-source price. Another \$2.3 million savings is projected on future buys.

A contractor, who had been the sole source for radiation measur-

ing equipment, reduced his price by 22 percent to win a competitive contract for the equipment with savings of \$54,000.

A final award for switches used in a missile system was \$554,000 less than the previous sole-source price.

The Navy paid \$1,686 in a competitive procurement for steam turbine washers which had been offered by the original source for \$32,514.

# breakstrength of steel and 1/20 the weight in water!

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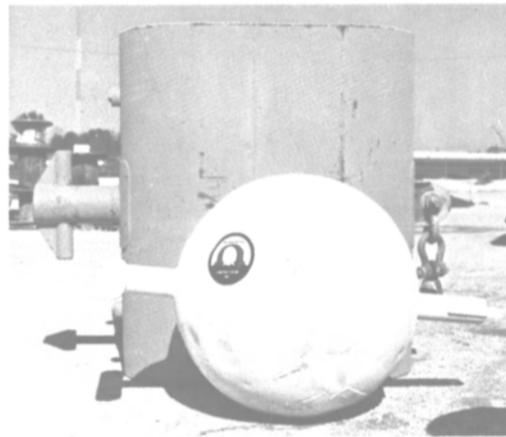
Now you can get the strength you need in large marine ropes for offshore oil rigs and other maritime applications—at only 1/5 the weight of steel in air and 1/20 the weight in water.

In pendant applications, for example, lightweight ropes of DuPont KEVLAR aramid fiber permit use of smaller, lighter buoys (photo at right) and allow faster anchor deployment and retrieval. Significant systems cost reductions can be realized.

In riser tensioner applications, ropes of KEVLAR last up to 4 times longer in actual field use, due to their superior cyclic fatigue properties. Ease of handling provides important savings in installation time and labor.

Towing lines of KEVLAR can provide extra years of service, because of superior fatigue and corrosion resistance.

Ropes of KEVLAR are unaffected by saltwater, organic



*The small, less expensive buoy handles a pendant line of KEVLAR. A buoy 20 times larger in volume is needed to handle the same length of steel line.*

solvents, drilling fluids and lubricants.

Ropes of KEVLAR are available in wire rope and other constructions to meet your specific needs. For more information and a list of quality manufacturers, call the toll-free number below. Or write: DuPont Company, Room G-15465, Wilmington, DE 19898.

\*DuPont registered trademark

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**In Houston, call: 880-5638.**



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## MTS Systems Awarded \$9.3-Million Contract For Navy Robotic Systems

MTS Systems Corporation, Minneapolis, Minn., is being awarded a \$9,340,647 cost-plus-fixed-fee contract for an articulating robotic system for laser assisted metalworking. The Naval Research Laboratory, Washington, D.C., is the contracting activity (N00014-83-C-2226).

## Butterworth Names Smith Tank Cleaning Machine Product Line Coordinator



Martin Smith

Butterworth Systems (U.K.) Ltd., recently announced the appointment of **Martin Smith** as Tank Cleaning Machine Product Line Coordinator. He is responsible for marketing of crude oil washing and water washing equipment for ships and for rental of portable tank cleaning and land based equipment worldwide.

Butterworth Systems, an affiliate of Exxon Corporation, parent of Esso Petroleum Co., is the pioneer in tank cleaning machines. Mr. Smith joined the Esso Group 17 years ago, serving in diversified marketing, sales and investment areas. He joined Butterworth Systems in 1981 as regional sales manager, with responsibilities for Europe, and for Central and South Africa.

Butterworth Systems provides a complete line of sophisticated equipment for tank cleaning, underwater hull cleaning, high pressure water jetting, and oil/water separation.

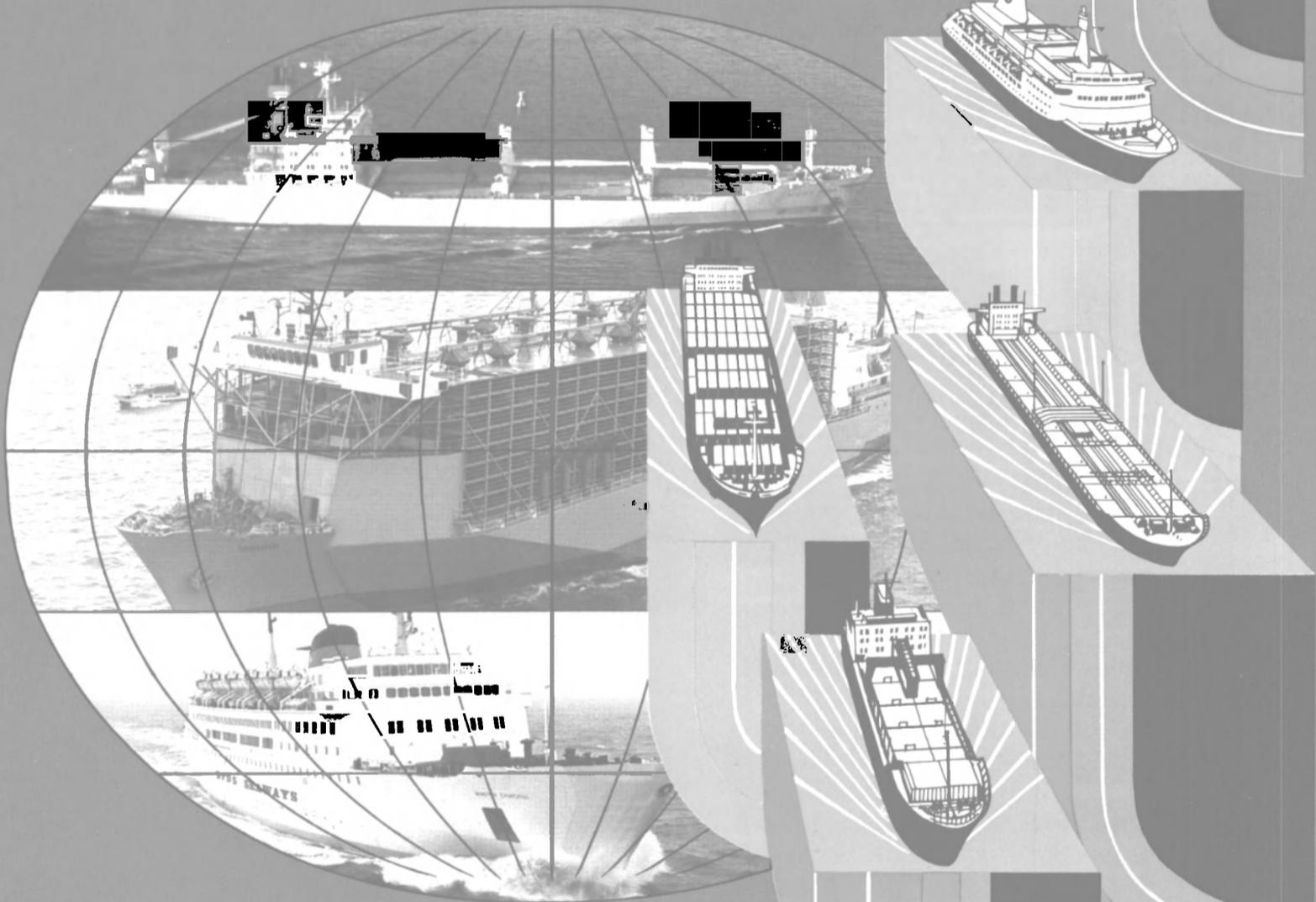
For free literature on tank cleaning and other Butterworth Systems equipment,

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## 147-Page Report On Worlds Merchant Fleets Available From MarAd

The Maritime Administration has released an updated edition of its publication, "A Statistical Analysis of the World's Merchant Fleets," with data as of January 1, 1982. The 147-page report includes a summary of statistics on the age, size, speed and draft of vessels of major maritime fleets and more detailed listings by ship type for countries having 100 or more merchant ships under their flags of registry.

Limited copies of the report are available from MarAd's Office of Public Affairs, Room 7219, 400 7th Street S.W., Washington, D.C. 20590.

### Louis J. Cedrone Appointed Sales Manager Of Viking Supply



Louis J. Cedrone

Viking Supply Corporation, Philadelphia, Pa., has announced the appointment of **Louis J. Cedrone** as sales manager for the corporation. Mr. Cedrone had been sales manager for the Marine Department, York Division, Borg-Warner Corporation. In his new position, Mr. Cedrone will be responsible for the marketing and sales of marine products which Viking distributes. The company primarily is a supplier of marine, military, and government air-conditioning and refrigeration equipment. Mr. Cedrone is a graduate of Villanova University.

### Rice Named Director of AMB Barge Train

**Bill W. Rice** has joined American Metal Bearing Co. (AMB) of Garden Grove, Calif. as director of its recently acquired Barge Train division. He is a program management, production, and sales specialist with more than three decades of experience.

Barge Train's sole product is the

Flexor, a flexible steel and synthetic rubber connector that—for the first time—enables freight barges to be closely connected for open-water operation. More than 200 Flexors are in use with the U.S. Navy and another 140 are on order.

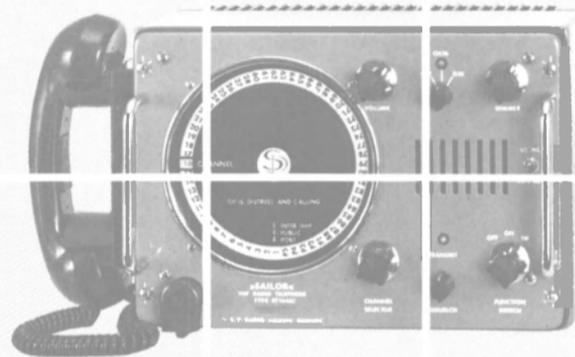
AMB purchased Barge Train,

Inc., early this year from its founder, **John Marriner**. The firm recently announced a marketing program to introduce the Flexor to commercial shippers with the goal of having barge trains criss-crossing the world's oceans, seas, rivers, and lakes.

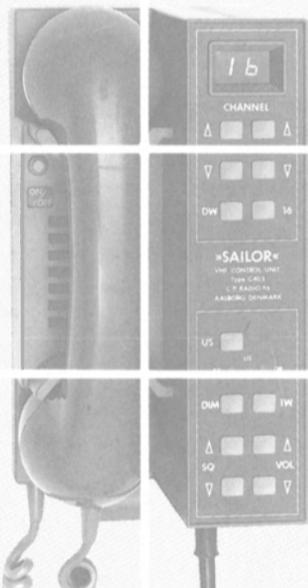
Announcing Mr. Rice's appoint-

ment, AMB president **Alan Ducommun** said: "Bill Rice has total responsibility for the naval and commercial domestic and foreign markets for the Flexor, as well as overseeing production. This is a doubly demanding assignment, but his experience very well qualifies him for it."

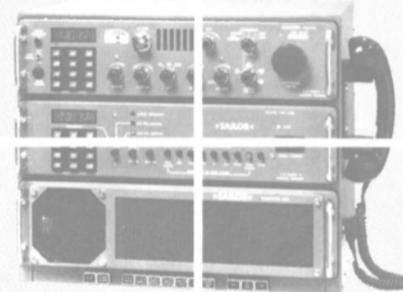
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**Halter-Built Paddlewheeler Is First Exhibit Completed For 1984 Louisiana World's Fair**

Reportedly the first completed exhibit of the 1984 Louisiana World's Fair became a reality recently when the 1,000 passen-

ger paddlewheel riverboat Creole Queen was christened in New Orleans.

The new 190-foot by 40-foot sternwheeler which was built by Halter Marine, Inc., New Orleans, La., for New Orleans Paddlewheels, Inc. will serve Fair visitors from her Mississippi River berth at the New Orleans Hilton hotel complex with seven daily,



This diesel-electric powered paddlewheeler uses Caterpillar engines, GE generators and Reliance drive motors.

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two-hour harbor cruises during the Fair.

**Warren Reuther Jr.**, president of New Orleans Paddlewheels, Inc., said the 8 a.m. cruise which will dock in time for the Fair's daily opening will feature a champagne breakfast complete with live Dixieland jazz, and the 8 p.m. cruise will include a Creole dinner, Dixieland band, and fireworks display.

**Mr. Reuther** said there are three major party/dining rooms on the Creole Queen: the Creole Room which can accommodate 300 people; the Queen's Room which can handle 125 people; and the King's Room which can serve 100 people. The Creole Room and the Queen's Room also contain dance floors, and all three are equipped with complete bars. The topside Promenade Deck can accommodate up to 125 people.

Breaking the traditional champagne bottles were **Mrs. Ann Reuther, Mrs. Betty Smith, Mrs. Rita Clare Quartano, and Mrs. Leslie Quartano**, wives of the owners.

"While the Creole Queen retains the look of a paddlewheel riverboat of a bygone era she utilizes an ultramodern diesel electric propulsion plant linked to a revolutionary cost-saving paddle drive system," said **R.J. Shopf**, president of Halter Marine, Inc.

**Mr. Shopf** said diesel electric propulsion was chosen because it makes the boat quieter, more fuel efficient, and vibration free. The Creole Queen's diesel electric system was provided by General Electric through Continental Electric Company of Harahan, La. She is powered by three Caterpillar D353 engines coupled to three General Electric 300-kw generators. Together they produce 900 kilowatts of electricity for the two 350-horsepower Reliance Electric motors that turn the paddlewheel. The Creole Queen operates on two of the three generators with the

CREOLE QUEEN Major Suppliers	
Main propulsion motors	Reliance Electric
Drive System	Halter
Generators	General Electric
Generator engines	Caterpillar
Bow thruster	Schottel

third in reserve as a spare or it can be used for additional power. These systems also provide for all of the riverboat's other electrical requirements including 200 hp Schottel bowthruster.

The Creole Queen also utilizes a new Halter-developed silent drive system to the paddlewheel which eliminates vibration, much of the maintenance required by other methods, and water pollution.

The Creole Queen is the 10th diesel electric vessel built by Halter Marine since 1978. Company officials say Halter has built more diesel electric workboats than any other U.S. shipyard. Halter owns and operates six shipyards in the Southeastern United States and has designed and built over 1,100 vessels since its founding in 1956.

### Commercial and Industrial Diving Appoints H. Hicks Vice President and GM

Commercial & Industrial Diving Company, Ltd., Hammond, La., has appointed **Henry L. Hicks** as vice president and general manager. He will be responsible for all of Cidco's offices, New Orleans, La., Boston, Mass., Mobile, Ala., Toms River, N.J. offshore and in-shore underwater services. Mr. Hicks will be based in New Orleans.

For the nine years prior to joining Cidco, Ltd., Mr. Hicks was employed by Taylor Diving and Salvage Company, Inc., working offshore as a diving superintendent in both the North Sea and Gulf of Mexico. He served as the assistant operations manager and the last three years as manager of sales and marketing.

### Risk/Loss Management Cuts Costs and Accidents —Literature Available

Risk & Loss Management Services Inc. of Hamburg, N.Y., is a company formed by Robert Gilham Associates, Ltd., marine surveyors and consultants, and Thomas A. Lisle & Associates, Inc., consultants in loss management. Services offered include management of: risk, loss control, and safety program development for the international marine community. The company reports that substantial results have been achieved in the safety/loss control management program being done for various marine vessel operators: "In an eight-month period after instituting the program aboard nine vessels of a particular fleet, a 44 percent reduction in workers' compensation costs and a 13 percent reduction in loss time accidents were achieved. Since the be-

ginning of the program over two and one-half years ago, one of the vessels has yet to have a lost time accident."

For free literature describing the services of Risk & Loss Management,

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### Navy Awards E-Systems \$6-Million Radio Contract

E-Systems, Communications Manufacturing Division, St. Petersburg, Fla., is being issued a \$6,101,200 estimated amount order under basic ordering agreement to purchase 1,114 transmit-

ters (P/N 00724-03-04219-001), 794 control converters (P/N 00724-03-0237-002), and 142 power supplies (P/N 00724-03-03236-002) for use in the AN/WSC-3 communication radios. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity (N00104-81-G-0033).

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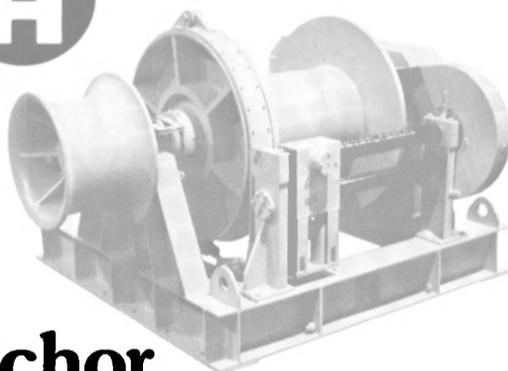
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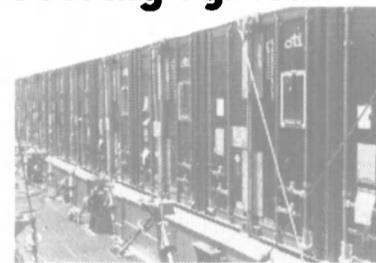
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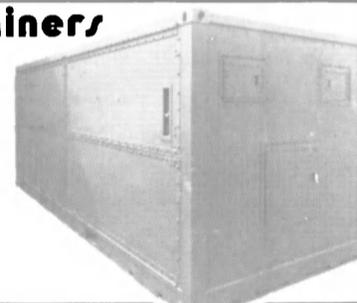
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**Bendix Awarded \$7-Million  
Satellite Contract Add-on**

Bendix Field Engineering Corporation, Columbia, Md., is being awarded a \$7,398,648 face value increase to a cost-plus-fixed-fee contract for design and development of advanced satellite digital systems, and development, operation, and maintenance of associated integration and test facilities, and command and tracking facilities. The Office of Naval Research, Arlington, Va. is the contracting activity. (N00014-80-C-0317).

**OFFSHORE  
RESURGENCE BEGINS**

By Hugh J. Kelly

**President and Chief Executive Officer  
Ocean Drilling & Exploration Company**

*(EDITOR'S NOTE: Last March at a meeting of financial analysts in New Orleans, Hugh J. Kelly, president and chief executive officer of Ocean Drilling & Exploration Company (ODECO), forecast a turnaround for the offshore drilling industry by early 1984 as the result of the Department of the Interior's open lease sales scheduled for the Gulf of Mexico in May, August and November of this year. He predicted 1,000 new leases in the Gulf of Mexico in drillable water depths by year-end. "Maritime Reporter/Engineering News" published Mr. Kelly's predictions in the June 1 Annual Yearbook Issue. In the following article, Mr. Kelly reports on the lease sale results to date and sees signs of a resurgence in offshore drilling.)*

I'd characterize the rig market like a man who is lying battered, bruised, bloody, flat on his back, but seriously contemplating rolling over and getting up on one knee. Obviously we have a long way to go before our business once again becomes profitable.

In addition to the big sales we have had here in the Gulf, the price of oil continues to remain firm and, indeed, has improved some, and the consensus on the gas surplus is that it will soon be gone. Indeed, we have evidence of this.

No need to go out and break open the champagne, though, because we face the rest of this year and next year in putting back to work all those 184 idle rigs. In August, we had the offshore Texas lease sale, and there were no disappointments there. This sale, which covered offshore Texas, had 773 bids. There were 436 high bids, 28 bids rejected with awards on 408 tracts. In total, for the May Louisiana and August Texas sales, there were 1,092 high bids on tracts and 1,031 leases awarded. Of that amount, 61 were rejected, or about 5.5 percent rate of rejection, even though over 60 percent of the bids submitted were single bids.

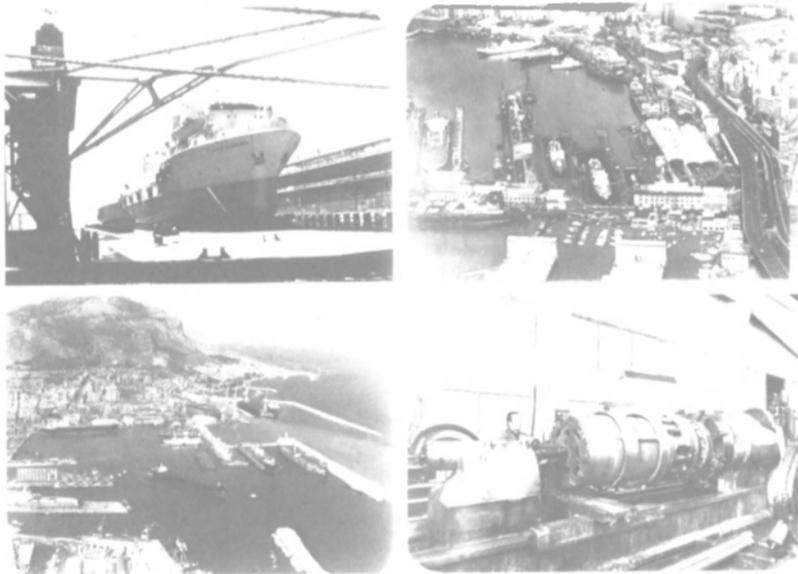
Our recent analysis of the rig market would indicate that we have, at last, reached the bottom of what has been the worst downturn in the history of the business. In mid-September, the Gulf of Mexico has 92 out of 213 rigs idle, for a utilization rate of 52 percent, and there are 92 out of 427 rigs idle in foreign areas, for a 78 percent utilization rate, or a worldwide rate of 71 percent; i.e. there are 184 rigs stacked out of 640. For several weeks now, the utilization rate has shown only a tiny improvement; nevertheless, it is the first time that has occurred in over 18 months. There are other signs—the customers are going out to bid on term contracts in the Gulf and foreign areas, and the inquiries have increased. It's nothing like a deluge of customer demand for rigs, and what I'm trying to do here is to claim I've seen the first birds flying south for the winter. The fundamentals are all good. We've now had the second record-breaking lease sale in the Gulf of Mexico, offshore Texas, and have over 1,000 new leases for drilling. Incidentally, ODECO has 44 of those leases and actually ranked 10th of some 26 companies that participated in those sales in number of tracts acquired.

There are many new exciting plays underway, but clearly the oil play going on in the deeper waters, known as the "flexure trend," will be very important. Oil has been discovered in that trend, and companies are already drilling leases awarded at the May sale. All of this offers exciting possibilities for the immediate future. This has occurred because of Department of the Interior's policy of the "open lease sale," which permits the industry, rather than the government, to select areas it believes have potential for oil and gas. While this is good for the industry in providing opportunities for finding oil and gas and putting people back to work, it offers the country the first real opportunity of making a national assessment of its oil and gas reserves.



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## New Monitoring System Can Reduce Fuel Costs —Literature Available

A hardware/software package used to monitor ship fuel consumption and propulsion engine efficiency, was announced recently by Marine Management Systems, Inc. (MMS), Stamford, Conn., and Seaworthy Engine Systems, Inc.

(SES) of Essex, Conn.

Albert C. Song, vice president/mini-micro systems at MMS, described the package—designated Comet (Computerized Onboard Monitoring of Energy and Trends)—as “an easy-to-use system which provides operating engineers and shoreside management with a daily analysis of actual machinery performance conditions compared against standards. The data is not only useful for main-

taining fuel economy but facilitates maintenance needs as well.

Mr. Song said the system includes a Hewlett-Packard HP-86 microcomputer and special software which facilitates the entry of significant data on machinery and hull performance.

He explained that the computer calculates the information entered, applying standards against very detailed operating data. A printout details the operating con-

ditions and indicates whether a problem exists. The system has the capability of finding a minor discrepancy of such as a malfunctioning steam trap to a major requirement such as a drydocking for bottom work.

In describing the hardware, Mr. Song said the basic computer features a memory capacity of 192K two 256K floppy disk drives, printer, a serial port, and a monochrome crt display. A larger capacity hard disk, starting at 10MB, can be added as the user's needs grow.

He added that the computer is designed so that it may be linked to other microcomputers via data communication network systems to provide fast, low-cost transmission of information.

Comet was developed by Seaworthy Engine Systems, Inc., (SES), Essex, Conn., in cooperation with MMS. SES has been involved in providing Marine Engineering Services for the last 10 years, specializing in plant monitoring and fuel conservation. Headquartered in Stamford, Conn., MMS has been the leader in the development and implementation of Management Information Systems in the maritime industry since 1969.

For complete literature describing the cost reducing advantages of COMET,

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## Smit International Appoints J.J. Driscoll Vice President Sales



John J. Driscoll Jr.

John J. Driscoll Jr. has been appointed vice president sales of Smit International (Americas) Inc., a wholly owned subsidiary of the Rotterdam based ocean towage and salvage firm, Smit International. The announcement was made by J. Willem Heldring, executive vice president of Smit International (Americas) Inc. in Houston.

Mr. Driscoll has been with the Smit organization since 1977, and prior to that time he was associated with Lykes Bros. Steamship Company.

Mr. Driscoll has a bachelor's degree in business administration from the University of Texas and a law degree from South Texas College of Law.



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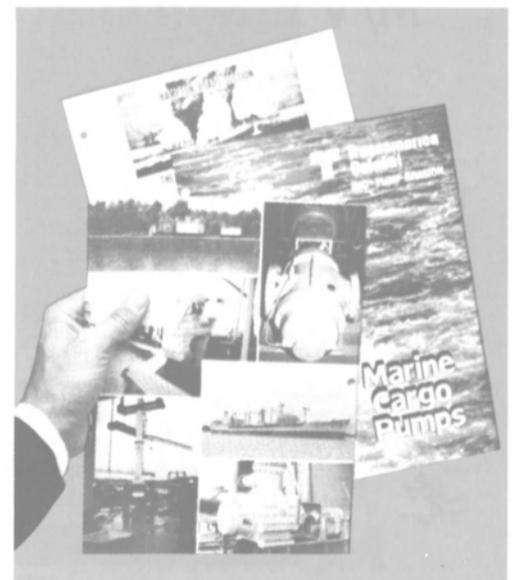
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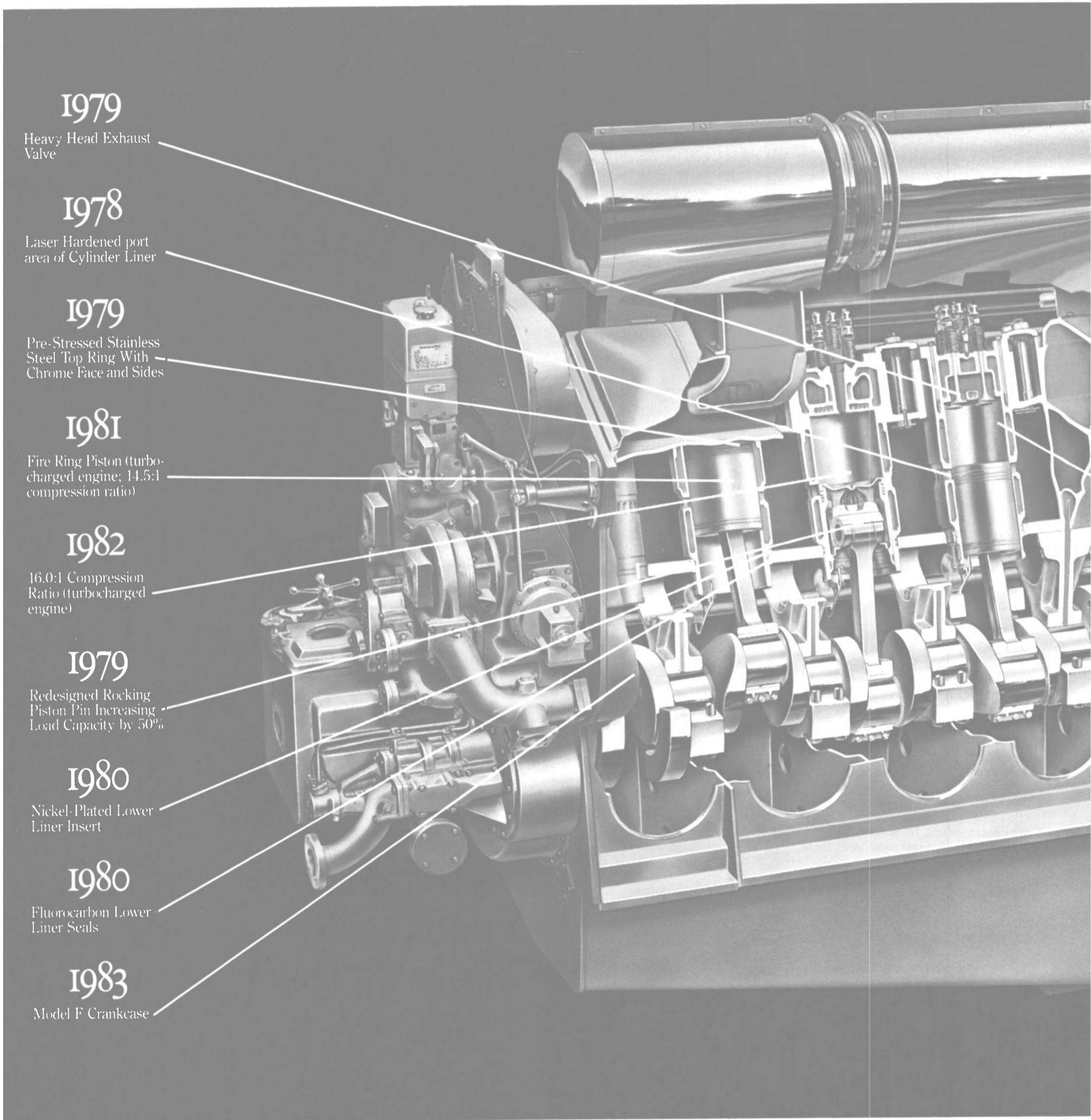
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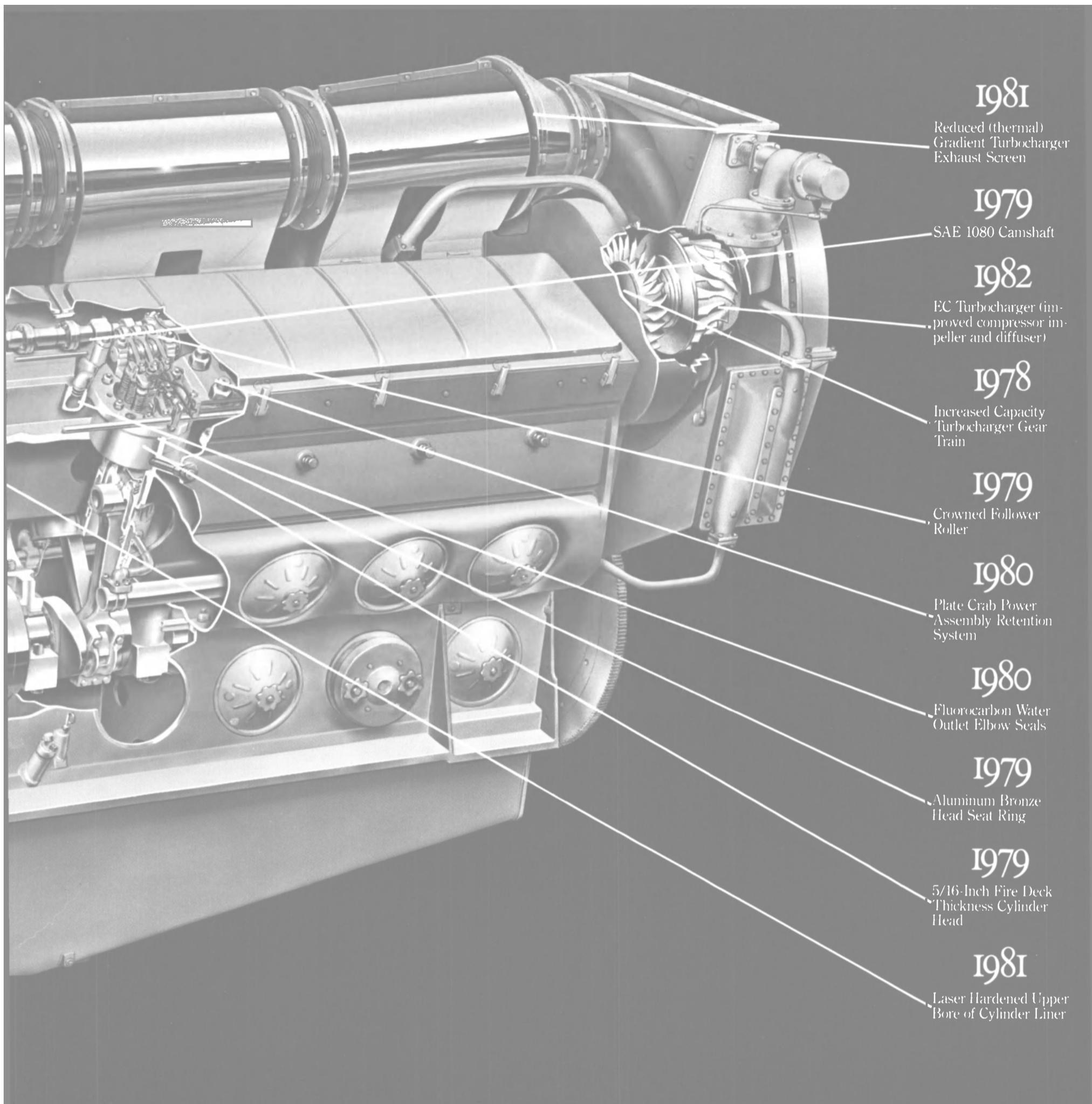
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**New Liquid Level Sensors  
Now Available From Gems  
Described In Free Brochure**

A new four-page brochure is now available from Gems Sensors Division, Plainville, Conn., with full details on a new line of miniature continuous liquid level indicators. Called the 800 Series, these transmitters provide level indication up to 70 inches in a broad spectrum of industrial liquids and chemicals.

Models included are as follows: The XMP-800 Series is designed for monitoring corrosive liquids. It is made of PVC, Polypropylene or PVDF for broad chemical compatibility. The XM-800, made of brass or stainless steel with a Buna N float, withstands temperatures up to 250°F in oil. Both of these units may be used in conjunction with Gems standard receiver packages, or they can be supplied with lead wires. The third model, the XT-800 is also available in brass or stainless steel, but it can be supplied with a signal conditioned output. It is designed to interface with customer instrument panels and control meters, controllers, and other remote terminal equipment.

These small 800 Series transmitters provide ±1/4-inch accuracy; they are available with NPT or flange mounting. They may be used in hazardous areas when interfaced to Gems intrinsically safe Zener Barriers.

For a free brochure on Gems compact level transmitters,

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**Mitsui Delivers The Kepbreeze**



The Kepbreeze is a bulk-carrier powered by Mitsui B&W diesel engines giving her a full load service speed of 14.8 knots.

The 40,876-dwt bulk carrier Kepbreeze was recently delivered at the Chiba Works of Mitsui Engineering & Shipbuilding Co., Ltd. Tokyo, to her owner, Kepmount Shipping Private Ltd. of Singapore.

She is an energy conserving, labor-saving flush deck bulk carrier with forecastle and poop, equipped with a fuel-efficient 6L67GA type main diesel engine.

The Kepbreeze is the first of six sister vessels ordered by the same owner from MES. It is equipped with four 25-ton electrohydraulic deck cranes and electrohydraulically driven single-pull type hatch covers. Her engine room is automated and a cargo stowage computer is incorporated. Electronic navigation equipment includes Satnav and Loran C receivers.

Principal particulars of the Kepbreeze are: length o.a. 182 meters; length p.p. 174 meters; molded breadth 30 meters; molded depth 15 meters; draft, full load 11 meters; gross tonnage 21,427 tons; deadweight 40,876 metric tons; and cargo hold capacity, grain, 49,970 cubic meters.

The main engine is a Mitsui B&W 6L67GA diesel with a maximum continuous output of 11,000 hp, producing a service speed under full load (at 10,000 hp, 15% sea margin) of 14.8 knots.

The vessel is classified by Lloyd's Register of Shipping.

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## The New Boston Shipyard Begins Operations

A new shipyard company, the Boston Shipyard Corporation, has formally opened in East Boston, Mass. The company has taken over the former Bethlehem Steel property, inactive since the fall of 1982.

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The newly opened Boston Shipyard.

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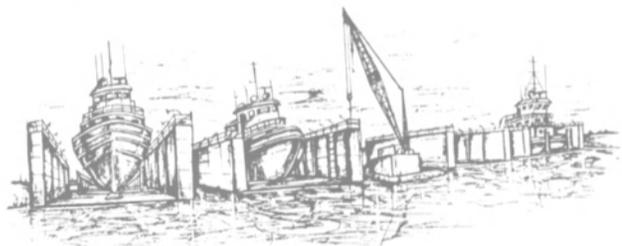
types of ships, tugs, and barges up to 600-feet in length, utilizing the newest modular ship construction techniques.

For free literature fully describing the facilities of Boston Shipyard and the type of design, new construction, repair and overhaul work conducted at the new yard,

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200' x 100'  
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70' Between  
Wing Walls

**850 Ton Dock**  
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50' Between  
Wing Walls

**300 Ton Dock**  
50' x 80'  
40' Between  
Wing Walls

#### HISTORY

Founded in 1948, Main Iron Works, Inc.'s current facilities are available for construction of new vessels ranging in size from 45' to 250' in length. Dry docking and a full range of repair services are also available, including a complete machine shop facility, sandblasting and painting services.

With over thirty years experience and our record of service to the towing industry, Main Iron Works, Inc. is ready to serve the needs of our past, present and future clients.

#### GENERAL SERVICES

Air control mechanics  
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Lathes: Capacity in feet — 36 Feet  
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#### Wet Slips:

Three slips available for your boats or barges to tie up while repairs or supplies are being completed

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### Marco Pacific Tuna Purse Seiner

(continued from page 47)

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MARCO tuna purse seiners and other vessels,

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The book is divided into four chapters which deal with the corrosion resistance of zinc and galvanized steel in a great variety of atmospheric, aqueous, underground and chemical environments. Extensive tabular presentations give details of corrosion

**New Liquid Level Sensors  
Now Available From Gems  
Described In Free Brochure**

A new four-page brochure is now available from Gems Sensors Division, Plainville, Conn., with full details on a new line of miniature continuous liquid level indicators. Called the 800 Series, these transmitters provide level indication up to 70 inches in a broad spectrum of industrial liquids and chemicals.

Models included are as follows: The XMP-800 Series is designed for monitoring corrosive liquids. It is made of PVC, Polypropylene or PVDF for broad chemical compatibility. The XM-800, made of brass or stainless steel with a Buna N float, withstands temperatures up to 250°F in oil. Both of these units may be used in conjunction with Gems standard receiver packages, or they can be supplied with lead wires. The third model, the XT-800 is also available in brass or stainless steel, but it can be supplied with a signal conditioned output. It is designed to interface with customer instrument panels and control meters, controllers, and other remote terminal equipment.

These small 800 Series transmitters provide ±1/4-inch accuracy; they are available with NPT or flange mounting. They may be used in hazardous areas when interfaced to Gems intrinsically safe Zener Barriers.

For a free brochure on Gems compact level transmitters,

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**Mitsui Delivers The Kepbreeze**



The Kepbreeze is a bulk-carrier powered by Mitsui B&W diesel engines giving her a full load service speed of 14.8 knots.

The 40,876-dwt bulk carrier Kepbreeze was recently delivered at the Chiba Works of Mitsui Engineering & Shipbuilding Co., Ltd. Tokyo, to her owner, Kepmount Shipping Private Ltd. of Singapore.

She is an energy conserving, labor-saving flush deck bulk carrier with forecastle and poop, equipped with a fuel-efficient 6L67GA type main diesel engine.

The Kepbreeze is the first of six sister vessels ordered by the same owner from MES. It is equipped with four 25-ton electrohydraulic deck cranes and electrohydraulically driven single-pull type hatch covers. Her engine room is automated and a cargo stowage computer is incorporated. Electronic navigation equipment includes Satnav and Loran C receivers.

Principal particulars of the Kepbreeze are: length o.a. 182 meters; length p.p. 174 meters; molded breadth 30 meters; molded depth 15 meters; draft, full load 11 meters; gross tonnage 21,427 tons; deadweight 40,876 metric tons; and cargo hold capacity, grain, 49,970 cubic meters.

The main engine is a Mitsui B&W 6L67GA diesel with a maximum continuous output of 11,000 hp, producing a service speed under full load (at 10,000 hp, 15% sea margin) of 14.8 knots.

The vessel is classified by Lloyd's Register of Shipping.

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90' Between  
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Piping and plumbing repairs  
Sandblasting and Painting  
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Cladding on main shafts  
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### Four Dry Docks:

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All of the services listed above are available on a 24-hour basis, seven days a week. Quotation and price schedules are available upon request.

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Three slips available for your boats or barges to tie up while repairs or supplies are being completed

### Shaft Storage Rack:

To avoid costly delay in waiting for transport of shafts, we provide our customers storage for their spare main shafts and rubber shafts

### Inventory:

Along with our parts inventory, we keep a stock of steel plates, pipe, angles, flat bars, and channels, all American Bureau of Shipping approved

We also have a supply of forgings and bar castings which enable us to supply your needs efficiently

### Crane Service:

100 Ton Fixed Stiffleg for Offloading and Loading Supplies.

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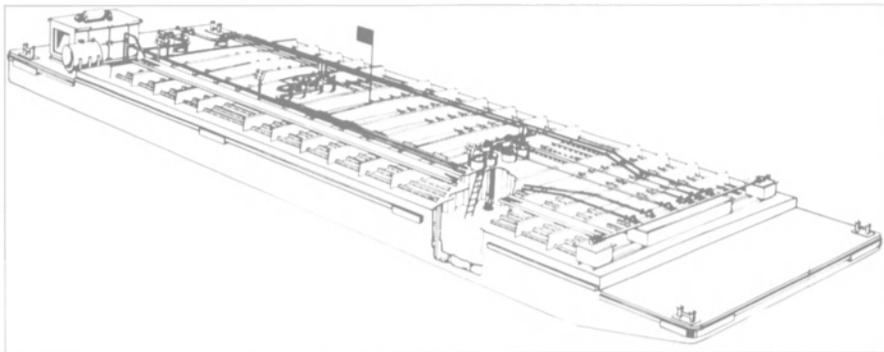
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A cutaway view of barge showing FRAMO barge system.

## A New Concept In Chemical Barge Transportation

In order to provide high quality chemical transshipment service in the U.S. Gulf area, Stolt-Nielsen, Inc., the Connecticut-based parcel tanker group, contracted with Maryland Marine, Inc. for three stainless-steel barges which meet the strictest requirements to barging between their large parcel tankers and terminals.

The barges, with stainless-steel tanks, have been upgraded with a cargo-handling system that meets the highest U.S. Coast Guard certification standards.

Based upon their experience with the Frank Mohn stainless-steel submerged pumps, used by Stolt-Nielsen throughout their fleet, two of the barges are retrofitted with individual submerged Frank Mohn pumps in all cargo tanks. This concept, the FRAMO barge system, being innovative in the barge operation, enables Maryland Marine to handle a vast number of different cargoes with the same efficiency and segregation as on-board Stolt-Nielsen's large parcel tanks. The combination of stain-

less steel tanks and lines, and individual in-tank mounted submerged pumps, ensures strict quality control and safety measures.

The first barge, which was converted at the Newpark Shipyard in Houston, entered service earlier this year, followed by the second barge two months later.

Equipped with a Stewart & Stevenson GM diesel engine driving the hydraulic power pack and being able to carry up to eight different cargoes simultaneously and discharge 300 to 450 tons/h, the barges provide exceptional performance with regard to turnaround time and cleanliness standards.

Frank Mohn Houston Inc., reports this is the first time the Frank Mohn pumps with their discharge performance and stripping capability have been installed in barges.

For a free descriptive brochure on the new "FRAMO Barge Concept,"

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## MARCO Pacific To Build New Design Tuna Purse Seiner

MARCO Pacific Shipbuilding Corporation, a subsidiary of MARCO Seattle, has announced plans to build a new design tuna purse seiner. The vessel is 58 meters long, 11.5 meters wide, and 5 meters deep, with a carrying ca-

capacity of 700 metric tons of frozen tuna in 12 refrigerated brine wells. The ship's 2,900-hp main engine will generate a service speed of approximately 15 knots.

The new vessel was designed by Campbell Industries of San Diego,



A profile view of MARCO Pacific's new 700-metric-ton tuna purse seiner.

one of the world's leading builders of tuna purse seiners. These ships are designed especially for operation from ports at medium distance from the fishing grounds.

The design is a refinement of vessels of this size previously built by Campbell Industries. It takes into account the best features of American tuna seiner design along with some modifications to the re-

frigeration system based on the most recent Japanese experience.

MARCO Pacific will market its vessels both in Taiwan and internationally. The company anticipates that its tuna seiners will be available with either American or Japanese main engines and auxiliaries, depending on the owner's preference. Deck machinery sys-

(continued on page 48)

## EN-TRONIC<sup>®</sup> CONTROLS EN-SPEC<sup>®</sup> 1000



# Saves fuel, improves engine performance.

EN-SPEC 1000 measures peak pressures quickly and accurately on gas, diesel and dual-fuel reciprocating engines. Microprocessor-based, it takes the guesswork out of balancing power cylinders, for more fuel efficiency and better engine performance.

With EN-SPEC 1000, you can precision-balance an engine to increase its life and efficiency, while eliminating the high operating temperatures and pressures that lead to bearing and piston damage. That saves both fuel and replacement parts. And EN-SPEC 1000 helps you pinpoint other problems such as worn piston rings and misfiring.

EN-SPEC 1000 has a LED display

that provides a running average of peak pressures. On paper tape, it lists up to 30 consecutive peak pressures and, using a bar graph, displays up to 100 consecutive peak pressures. Other data includes the average peak pressure and standard deviation by cylinder for up to 20 cylinders.

Portable, lightweight and compact, the EN-SPEC 1000 is easy to set up and use. The unit is battery powered and operates for up to three hours continuously without recharging.

For more information, contact Jon Butler, COOPER ENERGY SERVICES, Mount Vernon, Ohio 43050 USA. Phone: (614) 397-0121. Telex: 245388.



COOPER ENERGY SERVICES

## Marco Pacific Tuna Purse Seiner

(continued from page 47)

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The book, compiled by the Battelle Memorial Institute and commissioned by the International Lead Zinc Research Organization, is distributed in North America by Zinc Institute.

For a free copy of this book filled with information on zinc and its many applications,

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Suderman & Young tugs Sea King and The Judge.

## Serving the Texas Gulf Coast Since 1895

Suderman and Young has provided reliable harbor and coastwise towing to shippers along the Texas coast for 88 years. Our experienced people have the skills and equipment necessary to provide the finest in general harbor towing services. You can rely on Suderman and Young.

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## \$140-Million Contract To Daewoo Shipbuilding

Shipping Corporation of India Ltd. has placed an order with Daewoo Shipbuilding and Heavy Machinery Ltd. Seoul, Korea, for eight bulk carriers with an option for four more, the shipbuilding company president, **Hong, In-Kie** reported recently.

The U.S. \$140-million contract for the 45,000-dwt vessels was signed in Bombay, India.

The vessels are 189 meters in length and have a beam of 30.4 meters, a depth of 16.4 meters, and a draft of 11.3 meters.

The ships will be delivered between November 1985 and the middle of 1986.

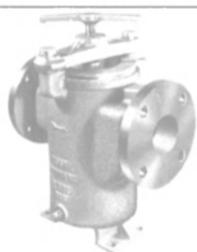
"Not including options accompanying the orders, we have received orders for 32 bulk carriers in 1983. The orders are from Malaysia, Norway, Iran, and now, India," said president **Hong**.

The Daewoo Group company is also filling orders for numerous other customers. Among the existing orders are 12 containerships for U.S. Lines, five chemical tankers for Stolt-Nielsen of Norway, two RO/RO carriers for Benargus A/S and Wilhelmsen Enterprise, both of Norway, a methanol carrier for National Shipping Company of Saudi Arabia, and four supply vessels for Essar Bulk Carriers Ltd. of India.

Daewoo is also building several plants at its Okpo Shipyard as well as two drilling rigs. Of the plants, two gas-compression platforms are under construction—one is for ARAMCO, the other for Kuwait Oil Company. Another plant under construction at Okpo is a linear low-density polyethylene plant for Al-Jubail Petrochemical Company of Saudi Arabia. The construction of this plant has introduced the modular method of construction to Korea.

After having completed four semisubmersible and two jack-up

## You Can Hardly Go To Sea... Without Something We Make!



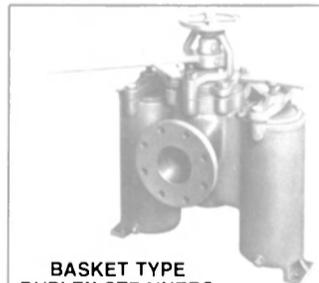
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SIMPLEX STRAINERS  
SIZES: 3" - 16"  
CAST IRON, BRONZE,  
CAST STEEL,  
STAINLESS STEEL

HAYWARD MARINE PRODUCTS, formerly Mechanical Marine, offers a broad line of quality engineered marine strainers, valves and fittings. Strainers can be supplied to Mil/Navy specifications. Our well known Vac-Rel and Memarco trademarks have been the industry standard for over 50 years. We continue to meet any challenge — Ocean Going, Offshore, Work Boats, Navy and Coast Guard. Please call or write for more information on our complete line of products.



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ANGLE  
CARGO VALVES



DECK DRAINS  
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Write 206 on Reader Service Card

drilling rigs this year, Daewoo is now building two more semisubmersible rigs at Okpo—one for Santa Fe Drilling Company, the other for Korea Drilling Company.

**Consolidated Barge Names Barker Marketing Manager**



Dan Barker

Consolidated Grain and Barge Company, St. Louis, Mo., has announced that **Dan Barker** has joined the company as marketing manager. Mr. **Barker** is a graduate of the University of Southern Mississippi and comes to Consolidated from Cooper Stevedoring. Mr. **Barker** will be responsible for coordinating Consolidated's marketing activities.

**Mapeco Products Awarded Sterngear Contract For Twelve U.S. Lines Ships**

**Clifford E. Hoitt**, president of Mapeco Products Inc., New York, announced receiving a contract award for Glacier-Pilgrim "Coast-guard" patented sterngear systems. Daewoo Shipbuilding Limited issued the contract for 12 new U.S. Lines container ships building in Korea.

Since the introduction of Glacier Products in 1976, more than 30 vessels have been fitted and a reputation for unusual ruggedness and reliability established. Mapeco is the exclusive U.S. agent for Glacier products.

The Glacier-Pilgrim "Coast-guard" sterngear system is manufactured by Universal Metallic Packing Co., Ltd. of England.

For complete information on Glacier products,

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**ASTM Standards Committee On Shipbuilding To Meet In Seattle In November**

The Seattle Hilton is the site for the November 29 to December 1, 1983, meeting of ASTM Committee F-25 on Shipbuilding. The committee's various subcommittees are currently processing hundreds of shipbuilding industry standards. Included is an initial group of Navy MIL-SPECS and Standard Drawings which are can-

didates for conversion to ASTM industry standards under a new Navy Document Conversion Program being undertaken as a joint effort between SNAME Panel SP-6 and the other SNAME technical panels and ASTM Committee F-25.

ASTM F-25 is composed of professionals from all sectors of the marine industry including shipyards, government and regu-

latory agencies, design aspects and suppliers. It is part of the National Shipbuilding Standards Program which is dedicated to improving the competitive capability of U.S. shipyards through the development of shipbuilding industry standards.

Anyone who has an interest in the Shipbuilding Standards Program and who is willing to parti-

cipate is invited to attend the meeting. For further information contact **William F. Hulse**, ASTM F-25 Staff Manager, ASTM, 1916 Race Street, Philadelphia, Pa. 19103. Telephone (215) 299-5507 or **James E. DeMartini**, Secretary of ASTM F-25, c/o Bath Iron Works Corp., 700 Washington Avenue, Bath, Maine 04530. Tel. (207) 443-3311, Ex. 2157.

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## 91st S N A M E Second International



The Society of Naval Architects and Marine Engineers will hold its Annual Meeting, the 91st, in conjunction with an expanded International Maritime Exposition at the New York Hilton Hotel on November 9-12, 1983.

The Technical Program promises to be outstanding with presentations of 12 technical papers in the Trianon and Mercury Ballrooms. Subjects range from computer programs through ship systems and descriptions to a paper on the history of The Jones Act.

Last year's Exposition was so well received and so successful that for 1983 it has been expanded in both size and scope. Exhibiting will be 139 companies occupying more than 22,000 square feet of exhibit space on the second floor of the hotel.

Last year, all exhibit space was

fully booked at a very early date and when the exposition opened there was a long and impressive waiting list of leading firms hoping for last minute cancellations. Again this year, although the exhibit area has been substantially enlarged, a tremendous growth in interest in this premier marine trade show has resulted in another waiting list. Again, marine products and services of all types will be demonstrated and displayed before one of the most distinguished and influential audiences ever assembled at any marine exhibition. Over 3,000 of these important in-

dividuals attended last year's show. In an informal survey conducted at last year's exposition by Maritime Reporter, almost all exhibitors stated the SNAME Show was the most successful and productive in their experience.

Registration for the Annual Meeting entitles the registrant to free admission to the Exposition at any time it is open. Non-registrants to the Society's Technical Sessions may obtain daily admission tickets at the Exposition Registration Desk at \$7.00 each. The Exposition hours will be: Wednesday, November 9, from 2 pm to 6



# Annual Meeting Maritime Exposition

pm; Thursday, November 10, from 10 am to 6 pm, and Friday, November 11, from 10 am to 4 pm.

The Annual Business Session will immediately follow the President's Luncheon in the Grand Ballroom at 2 pm on Thursday, November 10. The agenda for this meeting will include a report of the elections which occurred at the Council Meeting on Wednesday, November 9, consideration of proposed amendments to the Bylaws and such other business as may be introduced by the chair. Society President **C.L. French** will preside at this meeting as well as at

other functions.

Special breakfasts (by invitation only) will be held. Authors, presiding officers and assistant presiding officers will meet at breakfasts on the days of their sessions at 7:30 am on Thursday in Suite 524 and on Friday in Suite 520. The Society's Membership Committee will meet for breakfast at 7:30 am on Thursday in Suite 520. The Sections Committee will meet for breakfast at 7:30 am on Friday in Suite 517.

Society President, Mr. **French**, will make his annual address at the President's Luncheon on

Thursday, November 10. Featured on the program will be the presentation of several important awards.

The 91st Annual Banquet, open to members and guests will take place at 7:30 pm on Friday, November 11, in the Grand Ballroom. Featured on the Banquet program will be the presentation of the Society's top awards. The David W. Taylor Medal "for notable achievement in marine engineering" will be awarded to **Jens T. Holm**, retired professor of marine engineering, Webb Institute of Naval Architecture. The Vice Admiral "Jerry" Land Medal "for

outstanding accomplishment in the marine field" will be given to **Edwin M. Hood**, president emeritus of, and consultant to the Shipbuilders Council of America. Finally, **Joe W. Key**, maritime consultant of Houston, Texas, will receive the Blakely Smith Medal "for outstanding accomplishment in ocean engineering."

After the bestowing of these awards, Mr. **French** will introduce the main speaker of the evening, **Ralph L. Lewis Jr.**, retired vice president of Gulf Oil Corpo-

(continued on page 56)



## 91st SNAME Annual Meeting

### — A Preview

(continued from page 55)

ration and corporate communications coordinator for Gulf.

The final affair of the Annual Meeting will be the Dinner Dance to be held on Saturday evening. The reception will be held in the Grand Ballroom Foyer, starting at 7:00 pm, followed at 8:30 pm with dinner in the Grand Ballroom. Music for dancing will be provided by Steven Scott Productions under the direction of **Stuart White**.

A ladies' hospitality room will be located in Suite 524/526 and will be open from 9:00 am to 4:00 pm Thursday and Friday. Information on places to visit and interesting things to do in New York City will be available as well as maps, brochures and other helpful suggestions. Also a tour has been planned for spouses for Friday from 9:30 am to 2:00 pm. This tour

will include a visit to Decorating & Design Showroom \* Private Home and lunch at the Tavern on the Green.

#### Technical Papers

(See table for time and place.)

**Paper No. 1.** "An Interactive Computer-Aided Design Synthesis Program for Recreational Powerboats" by **D.E. Calkins**.

**SYNOPSIS**—A computer program based on the design spiral concept has been developed for recreational powerboat design synthesis. The program combines conversational input with graphical output, which allows the designer to communicate with the program in an interactive mode. The program is based on 10 design and analysis technology modules, including configuration initialization, hull architecture, mass properties, hydrostatics, hydrodynamics, propulsion, performance, dynamic stability and response, structural design and operating economics.

**Paper No. 2.** "Design and Construction of a 25-M High-Speed Aluminum Motor Yacht" by **Pe-**

**tros A. Lalangas and Panayiotis L. Yannoulis**.

**SYNOPSIS**—This paper presents the design, construction and performance of a 25-m (82-foot), 32-knot, all-aluminum, luxury motor yacht. Model resistance and seakeeping data are given and compared with other efficient planing hull forms. The design of bottom structure, details on outfitting materials and weights, and noise abatement treatments are also discussed. Actual trial results and noise measurements are shown and compared with those of other planing craft.

**Paper No. 3.** "Revival of the Flettner Rotor—Beneficial or Not for Merchant Vessels, Fishing Boats and Recreational Craft" by **Ake Williams and Hans Liljenberg**.

**SYNOPSIS**—Experiments have been carried out at the Swedish Maritime Research Centre (SSPA) aiming at rotor-powered merchant vessels, fishing boats and recreational craft. Wind tunnel tests were performed to compare rotor and sail propulsion of a coaster of 950 tons deadweight. Complemen-

tary "half-scale" tests at sea were carried out by use of a 6-m (20-foot) rotor-equipped test boat.

**Paper No. 4.** "Ultimate Strength of Ship Structures" by **Yung-Kuang Chen, Lembit M. Kutt, Christopher M. Piaszczyk and Maciej P. Bieniek**.

**SYNOPSIS**—Described in this paper is a method of analysis of the ultimate strength, as well as the total response, of ship structures subjected to static or dynamic loads. The analysis takes into account elasto-plastic properties of the material, geometrically nonlinear behavior of the elements and their buckling and post-buckling strength. The finite element based approach is applicable to individual structural components of a ship and to the hull girder as a whole. Selected applications to typical ship structural problems are presented.

**Paper No. 5.** "The Jones Act: Foreign-Built Vessels and the Domestic Shipping Industry" by **Warren G. Leback and John W. McConnell Jr.**

**SYNOPSIS**—Section 27 of the Jones Act prohibits the transpor-

tation of merchandise between U.S. points on any vessel other than one built in and documented under the laws, and owned by citizens, of the United States. Although this particular statute dates only from 1920, similar statutes date from the early 1800s. The paper tracks the history of the requirement that U.S. vessels engaged in the U.S. foreign and domestic trade must be not only owned by citizens of the U.S. but built in the U.S., and how this requirement for such vessels has been abolished in the foreign but maintained in the domestic trades. It also follows the rise of competing land modes of transportation, which have no similar requirement as to the equipment used by them, and the decline, and almost total demise, of domestic ocean shipping. It recommends abolition of the requirement that such vessels be built in the United States as a possible means of restoring domestic ocean shipping.

**Paper No. 6.** "Effects of Propeller Design Point Definition on the Performance of a Propeller/Diesel Engine System with Regard to In-Service Roughness and Weather Conditions" by Miro Kresic and Bruce Haskell.

**SYNOPSIS**—This paper investigates the performance of a fixed-pitch propeller/diesel engine sys-

tem as a function of propeller design definitions and time in service. The hull roughness, propeller smoothness, and environmental factors are taken into consideration for analyzing changes in propeller open-water efficiency, propulsion components, resistance, and consequently, propeller power absorption.

**Paper No. 7.** "Sea-Land's D9 Container Ships—Design, Construction and Performance" by R.J. Baumler, Toshio Watanabe and Hiroshi Huzimura.

**SYNOPSIS**—In October of 1978 Sea-Land contracted for 12 diesel-powered 1678 TEU container vessels for delivery in 1980. This paper briefly explores the background behind this construction decision, reviews the engineering studies, and discusses the bidding and contract requirements. It also describes the major design features, evaluates the construction schedule and quality control process, and finally summarizes the actual vessel performance.

**Paper No. 8.** "A Study of Drag Coefficients for Truss Legs on Self-Elevating Mobile Offshore Drilling Units" by N. Pharr Smith, David B. Lorenz, Carl A. Wendenburg and John S. Laird II.

**SYNOPSIS**—The accurate prediction of drag coefficients for truss-type jackup legs is important not

only for the rig's structural design but also for the analysis of vessel stability. This paper outlines a series of wind tunnel tests performed on truss legs and compares the test results with the value obtained from some of the classification society rules. An improved "building block" method is proposed, and several examples are provided.

**Paper No. 9.** "Conceptual Design Process of a Tension-Leg Platform" by Frank S.F. Chou, Subobhan Ghosh and Edward W. Huang.

**SYNOPSIS**—This paper presents a conceptual design process of a tension-leg platform (TLP) with optimization of its performance as the primary consideration. Guidelines for the preliminary estimation of various important parameters are suggested for the designer's use.



**Paper No. 10.** "Modern Analytical Techniques for Salvage Engineering Using Portable Computers" by J.D. Porricelli, J. Huntly Boyd and Keith E. Schleiffer.

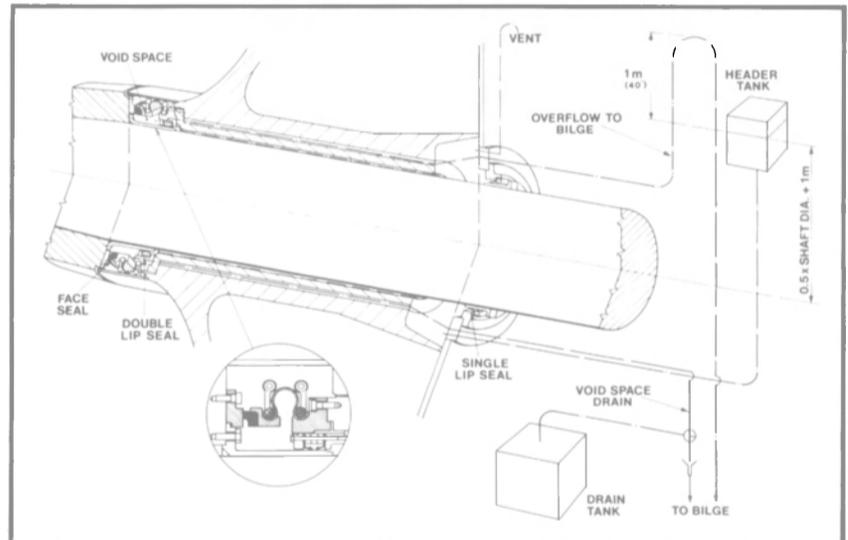
**SYNOPSIS**—This paper demonstrates a series of analytical techniques developed for use within a portable computer by marine salvors in a stranding situation. The techniques provide improved estimation processes for the salvor (continued from page 58)

### TECHNICAL MEETING SCHEDULE

THURSDAY		
	TRIANON	MERCURY
9:00	1. Computer Program for Recreational Powerboats Calkins	3. Revival of Flettner Rotors . . . Williams-Liljenberg
10:30	2. Design & Construction of 25-M High-Speed Yacht Lalagas-Yannoulis	4. Ultimate Strength of Ship Structures Chen-Kutt Piaszczyk Bieniek
12:00	PRESIDENT'S LUNCHEON Grand Ballroom Reception, East Ballroom Foyer	
2:00	BUSINESS SESSION Grand Ballroom	
2:30	5. The Jones Act: Foreign-Built Vessels and the Domestic Shipping Industry Leback/McConnell, Jr.	
3:30		

FRIDAY		
	TRIANON	MERCURY
9:00	6. Effects of Propeller Design Point Definition . . . Kresic/Haskell	8. Drag Coefficients for Truss Legs on Offshore Drilling Units Smith/Lorenz Wendenburg/Laird II
10:30	7. Sea-Land's D9 Container Ships . . . Baumler/Watanabe/Huzimura	9. Conceptual Design Process of Tension Leg Platform Chou/Ghosh Huang
12:00		
2:00	10. Salvage Engineering Using Portable Computers Porricelli/Boyd/Schleiffer	12. Design for Adequate Ship Maneuverability Landsburg Card/Crane, Jr./Alman/Bertsche/Boyston/Eda/Keith/ McCallum/Miller, Jr./Taplin
2:30		
3:30	11. Predicting Ship Performance in Level Ice Kotras/Baird/Naegele	
4:00		
5:00		
7:00		
7:30	91st ANNUAL BANQUET Grand Ballroom	
8:30		

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**91st SNAME  
Annual Meeting**

**— A Preview**

(continued from page 57)

and permit him to better formulate his salvage strategy at an early stage. Many of the tech-

niques also provide new and updated data and methods for use by naval architects in preliminary ship design.

**Paper No. 11.** "Predicting Ship Performance in Level Ice" by **Thomas V. Kotras, Andrew V. Baird and John N. Naegle.**

**SYNOPSIS**—Presented in this paper is an analytical model to aid designers in estimating a ship's

performance in level ice as a function of size, major hull characteristics and hull geometry. Included is correlation of the model predictions with full-scale ice trials data for seven icebreaking ships, ranging in size and hull shape from an icebreaking tug to an icebreaking tanker.

**Paper No. 12.** "Design and Verification for Adequate Ship Maneu-



verability" by **Alexander C. Landsburg, James C. Card, C. Lincoln Crane Jr., Philip R. Alman, William R. Bertsche, John W. Boylston, Haruzo Eda, Virgil F. Keith, Ian R. McCallum, Eugene R. Miller Jr. and Abraham Taplin.**

**SYNOPSIS**—SNAME Panel H-10 (Ship Controllability) has reanalyzed what constitutes a good maneuvering vessel and how to achieve it. An extensive data base of trials results is presented, plus surveys of pilot performances and usual designer practice. Regulatory proposals currently under review nationally and internationally are discussed. Design tools to assure desired inherent maneuverability are outlined along with trial agendas for verification.

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## 1983 INTERNATIONAL MARITIME EXPOSITION

### List of Exhibitors

Exhibitor	Space
AMT INC. ....	931
ADMIRAL MARINE CO. INC. ....	708
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AMERON ....	604
ANSCHUETZ OF AMERICA ....	324
AQUA-CHEM INC. ....	211
AQUA-SIGNAL BROWNING MARINE INC. ....	814
THE ARNESSEN CORPORATION ....	237





Exhibitor	Space	Exhibitor	Space	Exhibitor	Space
FOSTER MARINE DIVISION	912	HAYWARD MARINE PRODUCTS		HOLEC GAS GENERATORS (SMIT)	932
GARLOCK	910	HAYWARD INDUSTRIAL PRODUCTS INC.	712	HYDE PRODUCTS INC.	728
GENERAL DYNAMICS ELECTRIC BOAT DIVISION	504	J. J. HENRY CO. INC.	600	HYDRANAUTICS HYDRAULIC SYSTEMS	514
GENERAL ELECTRIC COMPANY	936	HENSCHEL CORPORATION	513	HYUNDAI CORPORATION	519
GENSTAR STONE PRODUCTS COMPANY	512	HITACHI ZOSEN CORPORATION	227	ITT MACKAY	432
GOLAR METALL	922	HOFFERT MANUFACTURING CO. INC.	905		

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Exhibitor	Space
W. B. ARNOLD CO./PISTON PRODUCTS	609
ASEA STAL-LAVAL INC.	110
ASTECH	232
ATLANTIC SANDBLASTING & COATINGS INC.	231
AUTRONICA MARINE U.S.A.	330
B & W DIESEL INC.	908
BAILEY DISTRIBUTORS	904
BATH IRON WORKS CORP.	309
BAY SHIPBUILDING CORPORATION	915
BENDER SHIPBUILDING & REPAIR	440
BETHLEHEM STEEL	F-10
BIOSPHERICS INCORPORATED	839
BIRD-JOHNSON COMPANY	734
BLUME WORLDWIDE SERVICES	828
JERED BROWN BROTHERS INC.	909
BULL & ROBERTS INC.	202
CDI MARINE COMPANY	210
CATERPILLAR ENGINE DIVISION	716
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CRANE PACKING	F-6
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ESGARD INC.	819
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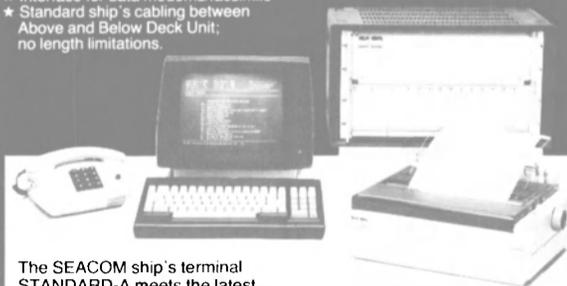
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**Second  
International  
Maritime  
Exposition**

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Exhibitor	Space
INGALLS SHIPBUILDING	800

Exhibitor	Space	Exhibitor	Space
JAMESBURY CORPORATION	833	WARD LEONARD ELECTRIC CO. INC.	918
JOTUN MARINE COATINGS INC.	219	LINE FAST CORPORATION	118
KEY HOUSTON	327	MTU OF NORTH AMERICA INC.	818
WALTER KIDDE DIV. KIDDE INC.	941	MACGREGOR-COMARAIN INC.	213
KRUPP MAK DIESEL INC.	900	MAGNAVOX ADVANCED PRODUCTS COMPANY	444
LLP MARITIME & BUSINESS PUBLISHING INC.	807	MARINE DECISIONS INC.	926

Exhibitor	Space
MARINE ENGINEERING/LOG	825
MARINE & INDUSTRIAL HYDRAULICS INC.	100
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MARINE MOISTURE CONTROL	530
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WARREN PUMPS DIVISION HOUDAILLE INDUSTRIES INC.	132
WARTSILA DIESEL	700
WAUKESHA BEARINGS CORP.	101
WINEL INC.	914

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# DIRECTORY

## U.S. NAVY BUYING OFFICES

The following is a directory of major buying offices and locations with responsibility for procuring and purchasing machinery, products and equipment for U.S. Navy new construction, conversion and repair projects.

Since the mid 1960s, all new U.S. naval vessels have been constructed in private commercial shipyards.

In addition, approximately 30 percent of all Navy repair work is also accomplished in private commercial shipyards.

Management, engineering, design and purchasing personnel in the commercial yards engaged in naval work are responsible for the selection and purchase of upwards of 50 percent of the marine equipment and products used aboard U.S. naval vessels.

Marine suppliers who desire to sell to the Navy are more than familiar with the commercial yards engaged in naval work. This list of Major Navy Buying Offices is published as an added convenience to complete the sales contact picture for all firms interested in selling to the Navy.

This list was first published in the June 1, 1983 Yearbook of MARITIME REPORTER/Engineering News. Because of the tremendous demand for additional copies and reprints received by our office, it was decided to repeat this list in this issue for the convenience of marine suppliers and manufacturers.

### DEPARTMENT OF THE NAVY MAJOR BUYING OFFICES

*Within the Department of the Navy, matters relating to procurement and production are the responsibility of the Assistant Secretary of the Navy (Shipbuilding and Logistics). Matters relating to research, development, test and evaluation are under the general purview of the Assistant Secretary of the Navy (Research, Engineering and Systems). The offices of the assistant secretaries of the Navy are primarily concerned with policy matters. They do not maintain bidders lists or perform a purchasing function.*

*The Chief of Naval Material, under the Chief of Naval Operations, commands all activities of the Naval Material Command. The Naval Material Command includes five principal subordinate commands—Naval Air Systems Command, Naval Electronic Systems Command, Naval Facilities Engineering Command, Naval Sea Systems Command, and the Naval Supply Systems Command. Through these Commands, the chief of Naval Material is responsible for providing material support for the operating forces of the Navy and for certain Marine Corps needs. Other major organizations which have procurement responsibility under the Chief of Naval Operations are the Military Sealift Command and the Naval Automation Data Command.*

*The Office of Naval Research, which is concerned with basic and applied research and technology, is responsible also for assisting and coordinating the research programs of the respective commands, bureaus, offices, and other agencies of the Department of the Navy.*

*NOTE: Telephone numbers are for the Small and Disadvantaged Business Specialist and the Industry Liaison Officer at the activities listed.*

### COMMANDS AND OFFICES

**Commandant of the Marine Corps (Code LS)**  
Headquarters, U.S. Marine Corps  
Washington, D.C. 20380

Tel: 202/694-1939  
Electronics equipment, specialized vehicles, and equipment peculiar to the Marine Corps.

**Chief of Naval Operations**  
Naval Department Procurement  
Branch (OPNAV—09B31)  
Room 5E587, The Pentagon  
Washington, D.C. 20350

Tel: 202/697-3155  
General procurement for the central offices, bureaus, and headquarters of the five Commands of the Department of the Navy. Procurement items include office supplies and equipment; printing equipment and specialty forms; periodicals; and office machine rental; repair and maintenance.

**Commander**  
Military Sealift Command  
Tamol Building, 4228 Wisconsin Ave., N.W.  
Washington, D.C. 20390

Tel: 202/282-2601  
Procurement of contracts for ocean shipping services, including ship chartering and ocean towage, and contracts of repair of oceangoing ships. Bids or proposals for services are solicited principally by the Commander, MSC, in Washington, D.C. Contracts for ship repair are entered into by MSC area commanders at the Military Ocean Terminal, Bayonne, New Jersey, and the Naval Supply Center, Oakland, California.

**Chief of Naval Research**  
Department of the Navy

Arlington, Virginia 22217  
Tel: 202/696-4601

Support of long range scientific research, applied research and exploratory development which offer potential for advancement and improvement of naval operations. Contract studies are in the areas of mathematical and physical sciences, environmental sciences, engineering sciences, life sciences and technology projects.

**Commander**  
Naval Air Systems Command  
Department of the Navy  
Washington, D.C. 20361  
Tel: 202/692-0936  
202/692-0933

Material support responsibility for Navy and Marine Corps aircraft systems; air-launched weapons systems and subsystems; airborne electronics systems; air-launched underwater sound systems; airborne pyrotechnics; astronautics and spacecraft systems; airborne mine countermeasures equipment (except for explosive, explosive components and fuzing); aeronautical drones and towed target systems, including related ground control equipment and launch and control aircraft; photographic and meteorological equipment; overhaul and modification of all Naval aircraft/engines; operation and maintenance of weapons training ranges.

**Commander**  
Naval Electronic Systems Command  
Department of the Navy  
Washington, D.C. 20360  
Tel: 202/692-6091

Shore (ground) electronics; shipboard communications, IFF, ECM, radio-navigation; fixed underwater surveillance systems; navigation aids; landing aids and air traffic control aids, except airborne communications via satellite and space surveillance systems; shore-based strategic data systems; communication data-link systems; radac equipment; special communications for fleet ballistic missile systems; standardized telemetry equipment and components; cryptographic equipment; expeditionary and amphibious electronic equipment; multi-platform electronic systems not otherwise assigned; antenna design and integration.

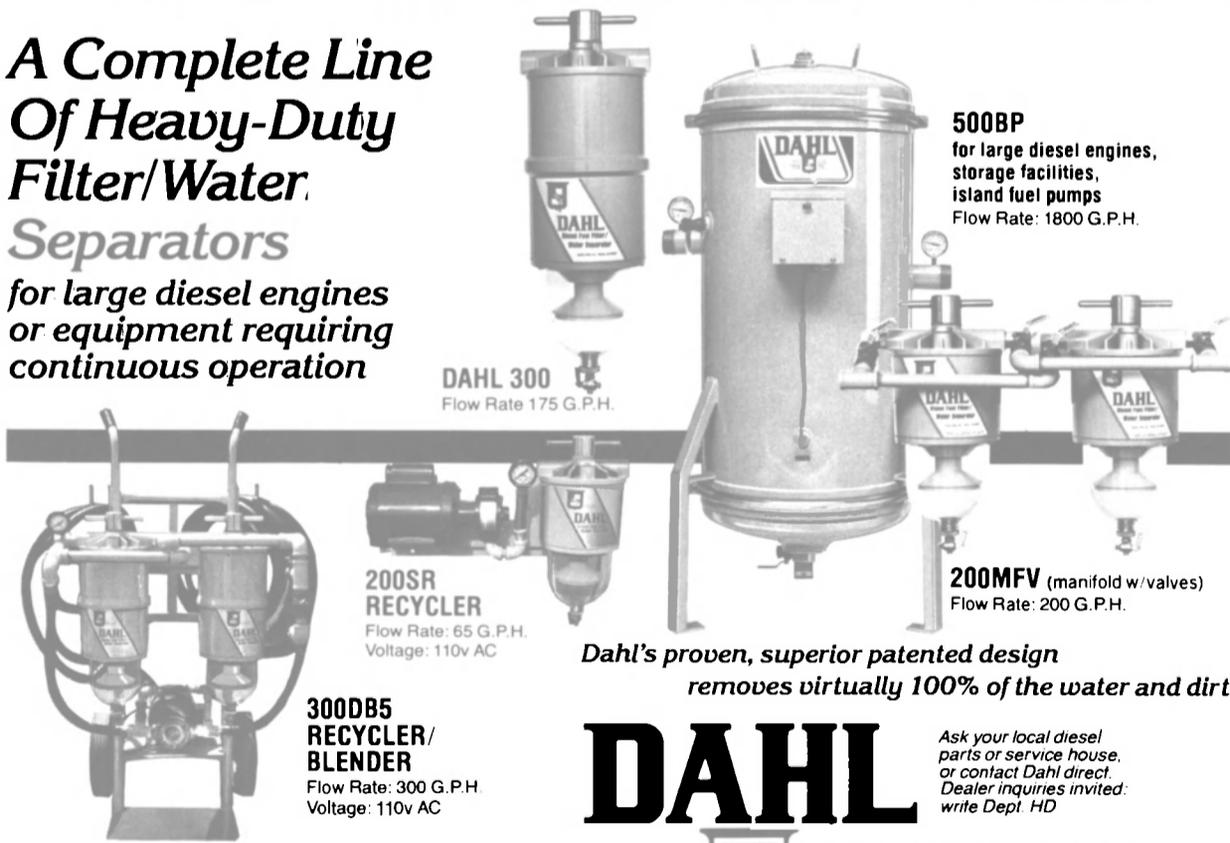
**Commander**  
Naval Facilities Engineering Command  
Department of the Navy  
200 Stovall Street  
Alexandria, Virginia 22332  
Tel: 202/325-8550

Cranes; powerplants; floating piledrivers; major boiler



## A Complete Line Of Heavy-Duty Filter/Water Separators

for large diesel engines  
or equipment requiring  
continuous operation



**500BP**  
for large diesel engines,  
storage facilities,  
island fuel pumps  
Flow Rate: 1800 G.P.H.

**DAHL 300**  
Flow Rate: 175 G.P.H.

**200SR  
RECYCLER**  
Flow Rate: 65 G.P.H.  
Voltage: 110v AC

**200MFV** (manifold w/valves)  
Flow Rate: 200 G.P.H.

**300DB5  
RECYCLER/  
BLENDER**  
Flow Rate: 300 G.P.H.  
Voltage: 110v AC

Dahl's proven, superior patented design  
removes virtually 100% of the water and dirt!

# DAHL

Ask your local diesel  
parts or service house,  
or contact Dahl direct.  
Dealer inquiries invited:  
write Dept. HD



DAHL MANUFACTURING, INC. 2521 Railroad Ave.,  
P.O. Box 5 Ceres, CA 95307  
(209) 538-1122 TELEX: 364412 INTR

Convert waste diesel crankcase oil into  
fuel. Keeps storage tanks clean, extend  
service life of replaceable filter elements.

plants and electrical generators; and permanent facilities (including acquisition and disposal of real estate). Responsible for the Navy's design and construction projects as well as station maintenance and repair, including public utilities services. (For information on contract awards see Navy Construction section.)

**Commander**  
**Naval Sea Systems Command**  
 Department of the Navy  
 Washington, D.C. 20362  
 Tel: 202/692-7505/7508  
 202/692-7712/7713

Production and research and development associated with shipboard weapons systems and components, including weapons direction equipment; fire control radars; infrared devices; computers and switchboards; guns; launchers; stowage and handling equipment integral to the launcher or gun system; ammunition, guided missiles, mines, torpedoes and all other surface and underwater ordnance expendables; air-launched mines and torpedoes, except air-borne compatibility aspects; small arms; infantry equipment; swimmer weapons; demolition materials; special equipment for explosive ordnance disposal; surface and underwater released pyrotechnic and cartridge-actuated devices; unmanned sea-borne targets; mine countermeasure explosives and explosive components and fusing, safing, and arming devices integral thereto; research and exploratory development (non-system oriented) for all explosives and propellants, and related actuating technology. Ship systems design and integration for all displacement-type ships, ground effect machine (GEM), or hydrofoil craft including construction, overhaul, modernization and conversion; propulsion; auxiliary power generating and distribution; navigational equipment; habitability and environment control features; shipmounted sonar, research, engineering, acquisition and support; shipmounted search radar; rescue and salvage systems; active and reserve ship maintenance and support; degaussing; shipboard mine-sweeping equipment including research and development needs for these items.

**Commander**  
**Naval Supply Systems Command**  
 Department of the Navy  
 Washington, D.C. 20376  
 Tel: 202/695-5954  
 202/695-5952

Technical control over field purchasing activities including all of those listed except the Commands, the Marine Corps, the Military Sealift Command, Chief of Naval Research, and the Chief of Naval Operations.

**PURCHASING/PROCUREMENT OFFICES**

**Commanding Officer**  
**Naval Regional Contracting Center**  
 Washington Navy Yard, Bldg. 200  
 Washington, D.C. 20374  
 Tel: 202/433-2957  
 202/433-2959

Central Procurement assignment for all Navy requirements of industrial plant equipment which includes manual and numerically controlled metal working equipment; miscellaneous industrial equipment such as furnaces, welders, flame cutters (steel plate), and testing equipment (industrial); materials handling systems; power distribution equipment (shore to ship); miscellaneous laboratory equipment; ADP equipment and computer software service; engineering and technical support service; organic chemicals; rockets and missiles, both loaded and inert required for rocket and missile testing; missile machined parts and igniters as required by activities in the Washington, D.C. area.

**Commanding Officer**  
**Naval Regional Contracting Center**  
 U.S. Naval Base  
 Philadelphia, Pennsylvania 19112  
 Tel: 215/755-4017

Purchasing responsibility for Naval activities in the 1st, 3rd, 4th and 9th Naval Districts, excluding those activities supported by the Portsmouth Naval Shipyard, in excess of their local purchase authority (normally \$2,500). Major procurements are for research and development services associated with launching, guidance and recovery of Navy and Marine Corps aircraft weapons systems and for underwater sound systems; miscellaneous services such as mess attendant, moving and storage of household goods, laundry and dry cleaning, tugboat, incineration of used film for silver recovery; services and materials in support of Naval Intelligence Processing Systems aboard aircraft carriers and amphibious command ships; field engineering, factory training, and in-plant maintenance engineering support of aircraft weapons systems, airborne missiles and related avionics. Other procurements include requirements

for ground support equipment for aircraft and air-borne weapons systems for the Navy and Marine Corps; armament support; avionics; propulsion and mechanical devices; components for submarine antenna systems; general supplies for base and shipboard support particularly in alterations, modifications, overhaul, and repair; technical publications, automated data processing equipment and services.

**Commanding Officer**  
**Naval Regional Contracting Center**

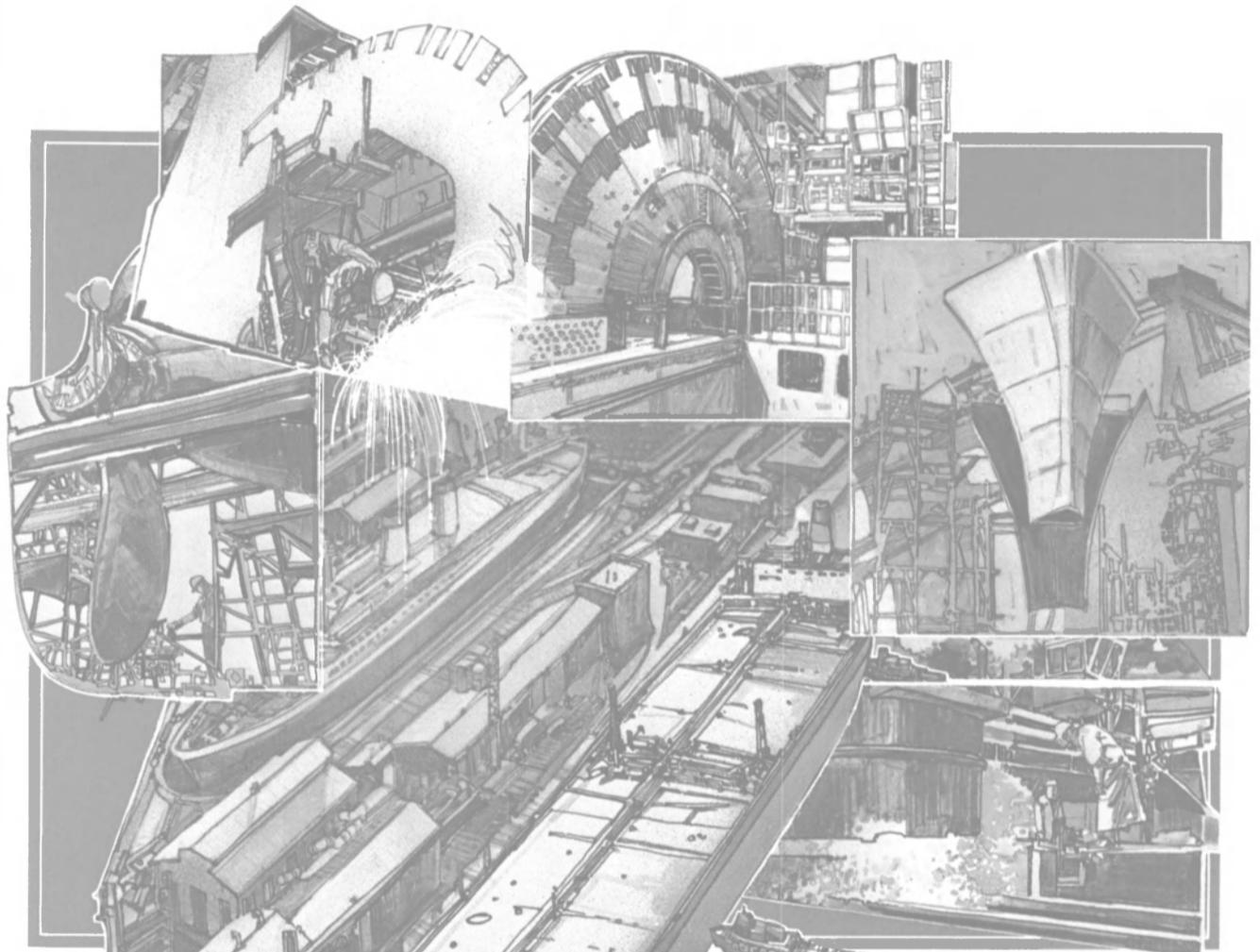
**Terminal Island**  
**Long Beach, California 90822**  
**Tel: 213/547-6628**

Acquisition responsibility for activities in the Southwestern Contracting Region (Southern California, Arizona, New Mexico) in excess of their local purchase authority. Major items purchased are of a technical nature including research and development requirements, and supplies and services for support of Naval research and development activities. Major Naval activities serviced include: Pacific Missile Test Cen-

ter, Point Mugu; Naval Ship Weapons Engineering Station, Port Hueneme, Long Beach Naval Shipyard and all ADPE requirements for Naval Weapons Center, China Lake. Contracting requirements are related to electronic communication systems and equipment; detection systems; warheads, fusing devices and torpedo parts; computer systems and equipment; aircraft and weapons development; engineering support and technical services related to

(continued on page 64)

# The do anything shipyard.



**Design**

Our design and engineering staff of over 2,000 provides sound, professional solutions to technical problems.

**Construction**

We have built more than 700 ships... tankers, cargo vessels, passenger liners, LNG carriers, ULCCs. We have the experience to plan major jobs so they are completed on time, on budget.

**Repair**

We can do any emergency or routine repair job. No one is better able to handle unexpected work discovered during the job

and still deliver your ship on schedule.

**Conversion / Jumboizing**

One of our strengths. We can convert/jumboize any ship to meet specific needs and market requirements. Our experience includes self-unloading coal colliers, heavy lift ships, passenger ships, molten sulfur carriers and all other forms of bulk tankers. No job is beyond our capabilities.

**Retrofit**

We design, install and test inert gas, segregated ballast and fire protection systems, collision avoidance aids and other

mandated modifications. We also install sanitation systems to latest Coast Guard requirements.

We are truly the do anything shipyard. Call us. Newport News Shipbuilding. Newport News, Virginia 23607. (804) 380-2600/Telex 82-3453/TWX 710-880-0007.

Please send me your new brochure on ship repair, conversions, jumboizing and upgrading to IMCO requirements.

Name \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_

**Newport News Shipbuilding**   
 A Tenneco Company MR1183

# U.S. Navy — Major Buying Offices

(continued from page 63)

specific weapons systems; and equipment, material, and services required to support the Long Beach Naval Shipyard in the overhaul and repair of Naval vessels.

## INVENTORY CONTROL POINT

**Commanding Officer**  
Navy Ships Parts Control Center  
P.O. Box 2020  
Mechanicsburg, Pennsylvania  
17055  
Tel: 717/790-3527

Ammunition and related products and components; batteries, bombs; weapons and weapon parts; chemicals and chemical products and gas cylinders; communication equipment; electrical and mechanical assemblies; firefighting, rescue, and safety equipment; friction and nonfriction bearings, gages and thermometers; gaskets, packing materials, and assemblies; heaters; hose and hose assemblies; ma-

chine tool accessories; marine hardware and hull items; metalworking supplies (electrodes and welding rods, solders, fluxes); minesweeping gear and repair parts, motors; navigation equipment; nonferrous ingots and pigs; optical components; pipes and tubes; power distribution equipment; precision machine work; shipboard furniture; survival-at-sea equipment; transformers; valves; welding, flamecutting, and metallizing equipment and supplies. Antennas and antenna accessories; amplifiers; attenuators; batteries, bearings, cable; cable assemblies; cabinets and test benches; capacitors; cavities, circuit breakers; coils; conduit and conduit fittings; connectors; contacts; brushes and electrodes; converters; crystals and filters; fuses and fuse holders; generators; gun fire control equipment and components; hardware; handsets, indicators, insulation, jack boxes, keyers; lamps and lighting fixtures; loudspeakers; meters and measuring equipment microphones and accessories; mixers; modulators; modules and printed circuit assemblies; motors; networks; oscillators; instrument panels; receivers; recorders and components; pressure regulators; relays, contactors and solenoids; resistors; semiconductor devices; tube shields and inserts; sockets; sound recording equipment; stuffing tubes; switches; terminal boards; terminal and lugs; transformers; transmitters; electron tubes and tuners; wave guides and accessories; optical sighting and ranging equipment; torque converters and speed changers, teletype and facsimile equipment, synchros; and general purpose electronic test equipment.

## NATIONAL CRANE is number one. Quality put us there.

Now more than ever your ship-side, dockside and offshore lifting operations call for a reliable, cost-efficient lift system. And now you can get it with National.

National's pedestal-mounted marine cranes are designed, engineered and specially conditioned for today's tough marine applications. They incorporate the dependability and durability features that make National a strong leader in the crane industry; features like extra strong booms constructed without extra weight. Mechanical boom locks for true sequential extension even under load. And

faster, smoother controlled slewing.

National offers a full line of telescoping cranes with capacities from 6,000 to 34,000 pounds; with 1-, 2-, 3-, or 4-section booms from 16 to 75 feet; as well as

standard or customized fixed boom models.

For the lift system that puts quality first, all the way down the line, see your National Crane dealer today.



DO NOT OPERATE NATIONAL CRANES OR ACCESSORIES WITHIN 10 FEET OF LIVE POWER LINES.

### NATIONAL CRANE

Subsidiary of Kilde Inc.  
**KILDE**

11200 North 148th Street  
Waverly, NE 68462  
(402) 786-2240

National Crane reserves the right to change specifications without notice.

**SERIES  
800**

© 1983 National Crane

## SUPPLY CENTERS AND DEPOTS

**Commanding Officer**  
Naval Supply Center  
Norfolk, Virginia 23512  
Tel: 804/444-1309

General procurement for Naval activities and ships in the COMNAV Base Atlantic Ocean and Mediterranean Sea areas including miscellaneous ship and marine equipment; operating supplies and equipment; electronic, electrical, and communication equipment and components; laboratory and test equipment; updating and modification of electronic and communication items; commissary and ship stores resale items. Services purchased include laundry and dry cleaning; mortuary; rental, repair and maintenance of equipment; mess attendant; packing, crating, storage and transportation of household goods; stevedoring, disposal of radioactive waste material; marine engineering, computer programming; radiological; pipe fitting; sheetmetal work; painting; small craft overhaul/repair; automated data processing equipment, word processing equipment; and keypunching services.

**Commanding Officer**  
Naval Supply Center  
Oakland, California 94625  
Tel: 415/466-5037

General procurement for Naval activities in the 12th Naval District and Pacific Ocean area overseas ships and bases including miscellaneous ship and marine equipment; automotive parts; engine accessories; aircraft parts; communications equipment; electrical and electronic equipment and components; pipe, tubing, hose, and fittings; cable, chain, and fittings; general supply items for West Coast ports and ships. Services purchased include funeral, printing, laundry, equipment repair, ship design, research and development advance planning, and monitoring of ship-overhauls and various types of engineering.

**Commanding Officer**  
Naval Supply Center  
Charleston, South Carolina 29408  
Tel: 803/743-2972

General procurement for Naval activities ashore and afloat in North Carolina (except the 16 northeastern coastal counties), South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Tennessee, Arkansas, Oklahoma, Puerto Rico, Republic of Panama & the Bahamas. In addition, purchase support functions are provided to the Atlantic Missile Range Facilities and overseas Fleet Ballistic Missile sites including miscellaneous ship and marine equipment; engines and accessories; communication equipment; electrical and electronic equipment; valves and actuators; subsistence items; general supply items; services including laundry, dry cleaning and linen rental, printing, mortuary, mess attendant, ship design engineering, security guard, towing, stevedoring, packing and crating of household goods, calibration of test equipment, and disposal of radioactive waste.

(continued on page 73)

◀ Write 483 on Reader Service Card



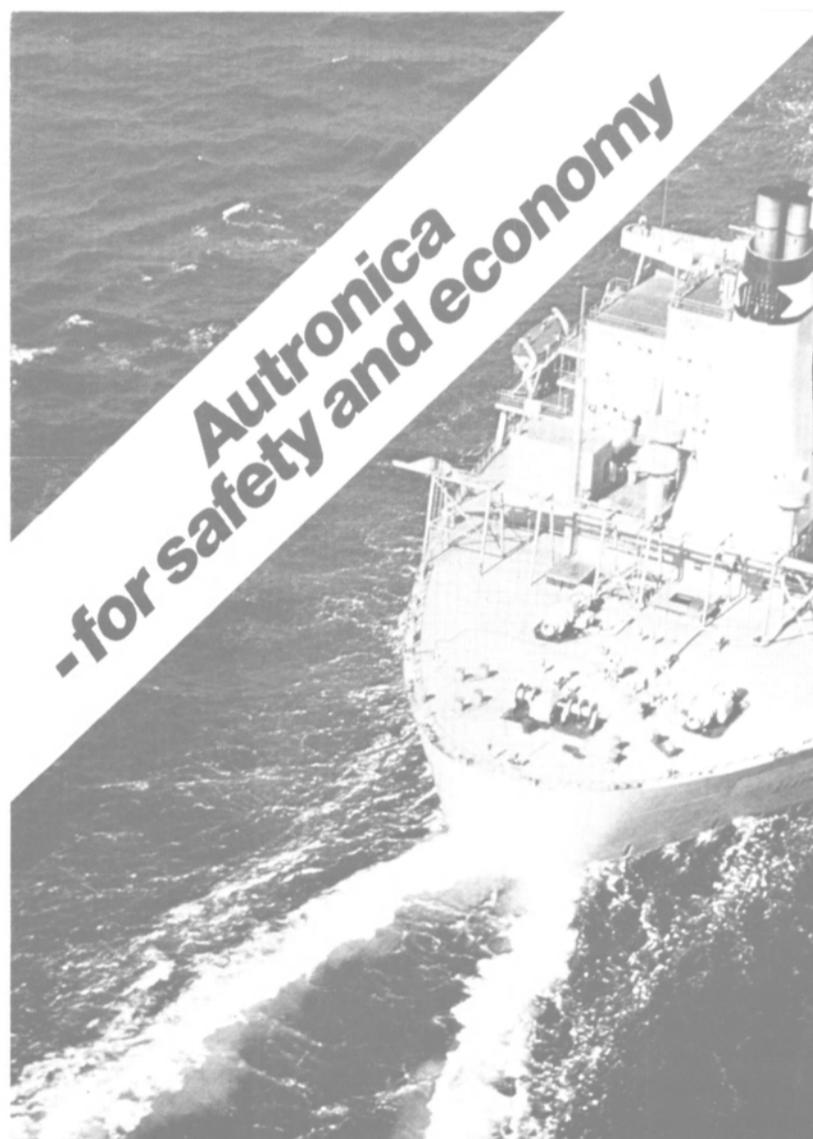
*Today, over 6,000 ships sail  
with Autronica Equipment*

**DATA LOGGERS/ORDER  
PRINTERS**

**TEMPERATURE AND  
PRESSURE SENSORS,  
THERMOCOUPERS AND  
MARINE PYROMETERS**

**INTRINSICALLY SAFE  
SYSTEMS**

**POWER SUPPLY UNITS  
AND CHARGERS**



**MICROPROCESSOR  
BASED MONITORING AND  
ALARM SYSTEMS**

**LIQUID LEVEL ALARM  
SYSTEMS AND CARGO  
MONITORING SYSTEMS**

**DIESEL PERFORMANCE  
MONITORING EQUIPMENT**

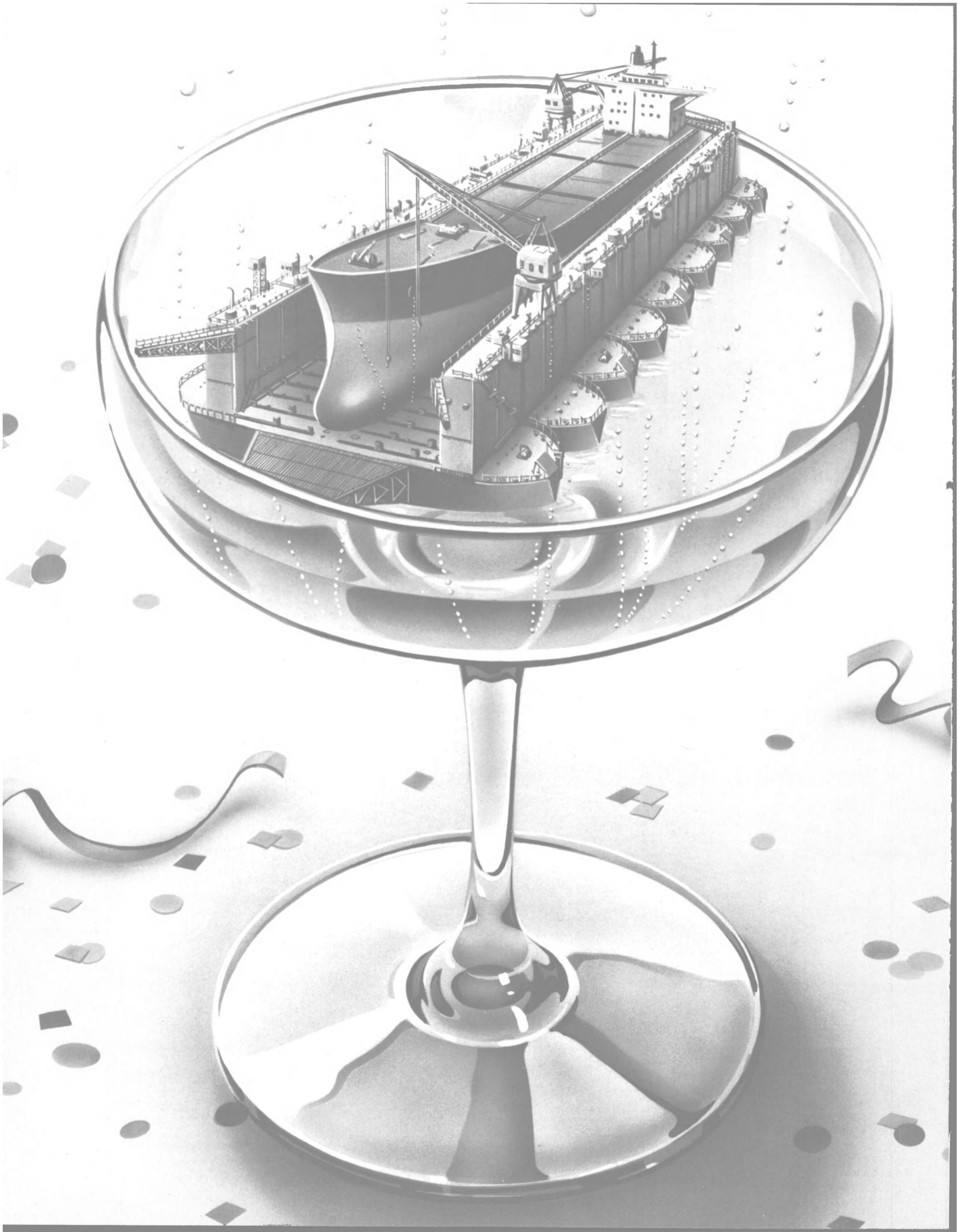
**FIRE DETECTION AND  
ALARM SYSTEMS WITH  
ADDRESSABLE  
DETECTORS**

**SEE**

**AT BOOTH #330**

**INTRODUCTION  
OF  
TWO NEW AUTRONICA  
SYSTEMS**

**AUTRONICA MARINE U.S.A., INC., 280 Industrial Pkwy., Northvale, N.J. 07647 (201) 768-1886**



# Soon we'll be the toast of the East Coast.

The biggest launch in the 100-year history of Bath Iron Works Corporation will soon take place—the opening of the new BIW Portland conversion and repair facility.

Scheduled to be operational in November 1983, BIW Portland will be a leader in naval and commercial repair. By combining superb repair personnel with complete and modern facilities, our ship repair yard promises to be the finest of its size on the East Coast.

Located in the center of the deep water port of Portland, Maine, our new conversion and repair facility is a fully equipped, self-contained unit just 40 minutes from the Bath Iron Works main shipyard. All of the necessary repair services and production shops are available, including:

1,000-foot and 600-foot piers

- Average minimum water depth (MLW) at piers—37-feet
- 60- and 25-ton pier crane capacity

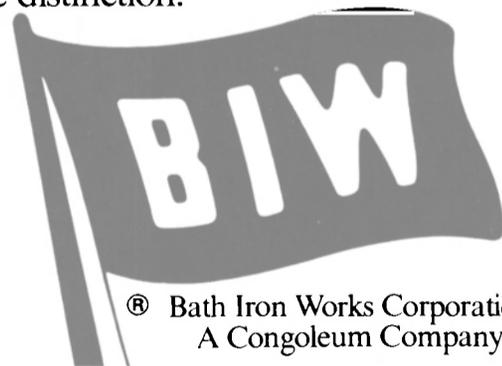
Floating dry dock

- 81,000-ton lift capacity
- 844-foot length
- 140-foot clear docking width
- 25-ton crane capacity, both wing walls

With 70,000 square feet outside storage and 25,000 square feet inside storage, the facility is serviced by rail, water, highway and air transportation.

BIW Portland offers modern office accommodations for owners, agencies and the U.S. Navy. And, of course, the best ship repair people in the world.

“Bath-built” has been a hallmark of distinction for nearly a century—earned through a proven reputation for aggressive management, precision planning and scheduling, superior quality and competitive pricing. These same values will be extended to BIW Portland in order that “Bath-rebuilt” immediately achieves the same distinction.



® Bath Iron Works Corporation  
A Congoleum Company

BATH, ME. 04530  
700 Washington St.  
Tel. 207-443-3311  
Telex 94-4455

PORTLAND, ME. 04101  
Commercial and Franklin Sts.  
Tel. 207-761-4800

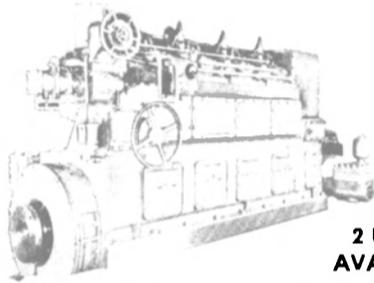
Write 685 on Reader Service Card

**BRONZE HORIZONTAL  
10HLV INGERSOLL-RAND  
CARGO PUMP**



Ingersoll-Rand 10HLV — 14"x10". Bunker Fuel: 5150 GPM — 370' head — 1885 RPM. Sea Water: 6000 GPM — 352' head — 1885 RPM. Reduction Gears: G.E. type S-233 — Form AE — 700 HP — 6002/1685 RPM. TURBINE: G.E. D.P. 25 Class 4 — 700 HP — 6002 RPM — PSIG 775 lbs — 825 — inlet temp. 560° - 600° max. Exhaust pressure 179" Hg absolute.

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



**2 UNITS  
AVAILABLE**

500 BHP @ 400 RPM. 4-Cylinder straight inline type — 12½" X 16" — 2-stroke single acting — liquid cooled — direct reversible — CW rotation. With standard shaft-connected starting air compressor. 46,000 lbs., net weight—228" long—98" wide—132" high. Designed for heavy duty, rugged use, its extreme simplicity will result in lower operating and maintenance costs.

**LOUIS-ALLIS M.G. SETS**

2.5 KW 120 Volt Single Phase 60 Cycle Output  
120 Volt D.C. Input — 1800 RPM  
or  
230 Volt D.C. Input — 1800 RPM  
NEW - UNUSED EX - U.S.N.

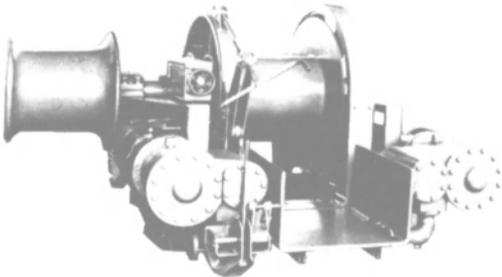


2½ KW—115 volts single phase A.C. output. GENERATOR: Type GNA—class 1G— Frame 28A—Form A—1800 RPM—5 KVA—2.5 KW 115 volts AC— 60 cycle —50% PF—43.4 amps. MOTOR: Louis Allis—Type GNA—Class E—Frame 25A—Form A—1800 RPM—115 volts DC—32 amps—shunt wound (with attached Ward-Leonard frequency regulator).

CAN FURNISH WITH 230 VOLT DC INPUT

**STEAM MOORING WINCHES**

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



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

Drum will show 1500 ft of 1½" wire in 9 layers. Steam inlet 3½"-4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' x 6' 3½" — overall 8' 4½" wide x 9' long. Mfg. by Friedrich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger." Suitable for vessels 75000/200000 tons.

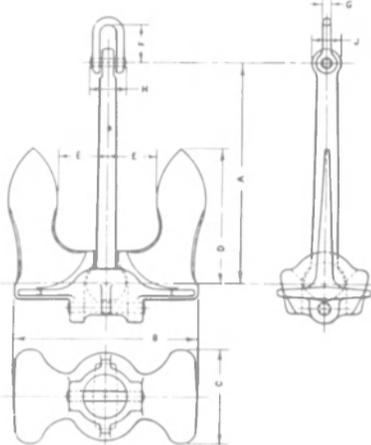
**ALSO IN STOCK**

12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

NEW — UNUSED — LARGE

**BALDT-TYPE  
ANCHORS  
WITH CERTIFICATES**



(1) — Stockless — 5050 kilograms (11,133 lbs.)

(1) — Stockless — 5100 kilograms (11,243 lbs.)

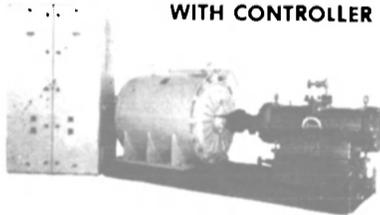
**NEW — UNUSED  
DANFORTH  
TYPE  
ANCHORS  
WITH CERTIFICATES  
1000 LBS.**



700 GPM @ 150 PSI

NEW — EX-USN

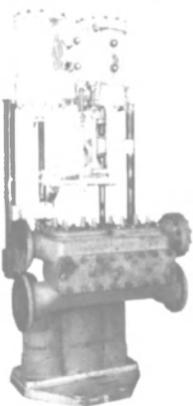
**DE LAVAL MOTOR DRIVEN ROTARY  
HORIZONTAL PUMPS  
WITH 4-SPEED 440/3/60 MOTOR  
WITH CONTROLLER**



Inlet 8" — outlet 6". Powered by 4-speed 440/3/60 motor — 100/75/50/37.5 HP — 1200/900/600 350 RPM — with Cutler-Hammer control. Weight 10,000 lbs. Inquire for complete details.

**ALLIS-CHALMERS BRONZE  
BALLAST OR CARGO OIL  
PUMP**

PUMP: 12" x 10" — 6000 GPM — 180' head — 340 HP — 1225 RPM. Impeller diameter 19.75". GE GEAR: Type S-233 — 5022/1225 RPM. GE TURBINE: GE Model 7TDPY125MR41 — 340 HP — 5022 RPM — inlet pressure 775 lbs. — 825 PSIG maximum — 600°TT.



**DEAN BROS.  
ALL BRONZE  
STRIPPING PUMP —  
BILGE & BALLAST  
12 x 10 x 18**

Max. pressure 730 GPM @ 200 lbs — steam end 250 lbs. Serial 67735 — OA Dimensions: 43" wide — 39" deep — 104" high. Complete with spare unused bronze valve deck & spare liquid lines piston, steam end spares, rods, etc. This pump ready for immediate use — equal to new — little if any use.

**NEW STEEL HATCHES AND  
(SEE OUR CLASSIFIED AD)**



**24" I.D. MAN-WAY  
3-DOG HATCHES**

18" Coaming. Available with T socket wrench or removable handwheel (can be welded in place) for top opening. Spring-loaded lid w/inside handwheel. Coaming 12mm thick, top 11mm. Bosmet drawing #67/56



**20" ROUND  
HATCH**

18" Coaming — 3 brass dog drop bolts. Coaming 12mm thick — top 11mm. Bosmet #68



**QUICK-ACTING  
4-DOG HATCHES**

Heavily constructed. Handwheel operated. Handwheels top & bottom. Size A: 27" x 21" w/12mm coaming & 11mm top. Size B: 31" x 31" w/12" coaming. For ocean-going barges, tugs, etc.

**GENERAL PURPOSE  
HATCH**



15" X 23" X 5"  
WITH  
4 STEEL DOGS



**TANK  
EXPANSION**

36" Diameter — 26" drop-bolts. Drawing #3



**CARGO H**

69" x 75" x 12"  
72" x 74" x 12"



**QUICK-OPENING**

Handwheel top & bottom  
24" with 5" coaming.

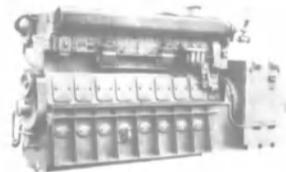


FRONT



BACK

**500 KW AC GE DIESEL GENERATOR**



G.E. ATI — 985Y — 500KW — 625 KVA — 480 volts — 800 amps—3-phase 60-cycle—720 RPM. Self-ventilated — totally enclosed — water-cooled — directly connected to Cooper-Bessemer model G.S.B. 8-cylinder diesel engine — 10½" X 13½" — four cycle — 720 RPM. Air starting — 300 PSI — with Ross water and oil coolers. Total weight 48,700 lbs.



**THE BOSTON**

313 E. BALTIMORE

Main Office: (301) 531  
CABLE: BOSIRON—BALTIMORE,

**ID DOORS IN STOCK**  
(FOR MORE DOORS)

**TRUNK**  
Coaming - 7-Dog  
6/26



**21" I.D. MAN-WAY  
3-DOG HATCHES**

10" Coaming. Available with T socket wrench or removable handwheel (can be welded in place) for top opening. Coaming 12mm thick, top 11mm. Bosmet #64/55



**HATCHES**

48" x 48" x 9"  
36" x 30" x 8"



**FLUSH HATCHES**

24" x 30" 30" x 30"  
4 Dogs bottom - T-key top opener. 4" Maximum coaming. Coaming 8mm thick - top 7mm.



**ROUND HATCH**

16" diam. 4 Dogs. 16" diam.  
Drawing #60-40



**25" ROUND HATCH**

25" Diameter with 18" coaming. 4-Dog handwheel top and bottom. Quick-acting dogs. 11 mm x 12 mm steel.

**STORES  
LOADING  
PORT**

Large side port double door and frame. Clear opening: 7'6" high X 5'0" wide. 24 Dog - fitted with bar strongback. Made of 3/8" steel. Carefully removed from Alcoa "Sea-probe."

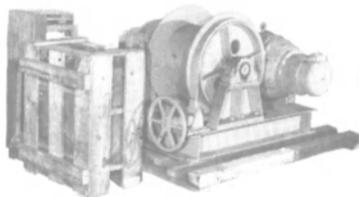


**NEW 18" & 24"  
HATCH COVERS**

Flush mounting watertight hatch with machined steel mounting ring. T-Handle is recessed and hand tightens against a strongback across mounting ring. Approx. weights, including mounting ring: 18" 60 lbs - 24" 100 lbs.

**GENERAL PURPOSE WINCH  
3500 LBS AT 200 FPM**

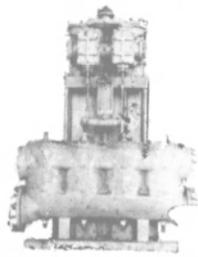
NEW  
UNUSED



EX  
U.S.N.

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.

**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 1/2" steam - 4" exhaust. Overall width 6'8" - overall height 9'1 1/2" - depth 3'9 1/2". Wt. approx. 10,000 lbs.

RECONDITIONED 1980  
ABS - READY TO GO

**NEW U.S. MARAD-TYPE  
AXIAL FLOW FANS**



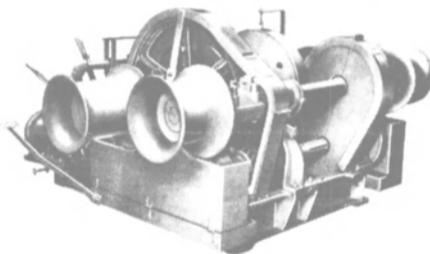
(3) 10,500 CFM Model AF-100, "Balder" 5 HP motor - 440/3/60 - 40° - 1750 RPM - 7 amps.

(2) 40,665 CFM - size 43AF - 60 HP Baldor Motor - 440/3/60 - 1760 RPM - 75 amps - 50° rise - Frame 364TZ Ins. F

**NEW NAVY 12,000 CFM  
EXPLOSION PROOF  
AXIAL FLOW FANS**

Model A12A4X6 with 10/3 HP 2 speed motor.

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



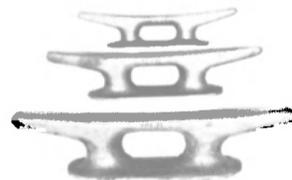
2-Speed - single drum - reverse throttle operation. LINE PULL: low gear 10,000 lbs - high gear 5,000. LINE SPEED: low gear 125 FPM based on 1st layer of 7/8" diam. rope - high gear 250 FPM based on 1st layer of 5/8" diam. rope. DRUM: 26" diam. - 20" long - 26" flange diam. Rope capacity of drum: 7/8"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

**NEW CHOCKS - CLEATS - BITTS  
CAST STEEL**

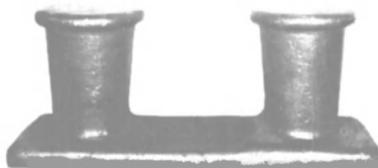


**OPEN CHOCKS**

Overall length 2' 3/4" - top opening 6" - width 9"



**36" - 42" - 48" KEVEL CHOCKS**

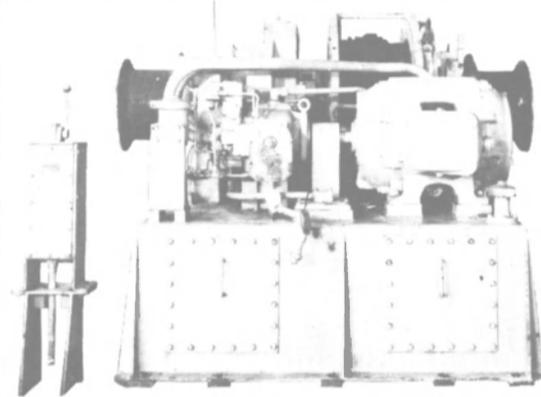


**10" DOUBLE POLE BITTS**

**50 HP VARIABLE SPEED  
ELECTRO-HYDRAULIC  
SINGLE DRUM  
CARGO WINCH**

with deck controls

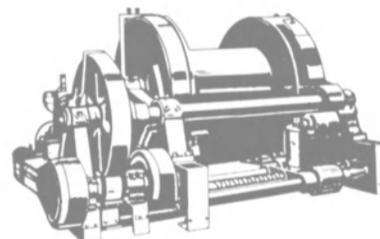
SELF-CONTAINED WITH PUMP  
MOTOR & RESERVOIR IN BASE



Made by Lakeshore. DUTY: 7400 lbs SLP - 220 FPM - drum size 24" diameter - 15" wide. Complete with ratchet & pawl. CAPACITY: 600 ft. of 3/4" wire. MOTOR: 50 HP - 440 volts - 66.3 amps - 3-phase 60 cycle - squirrel cage - 1200 RPM constant - Frame CC-445-N - 1 hour duty. Motor drives Waterbury size 5 "A" end - size 5K heavy duty remote servo control 1150 RPM - WP 1900# - test 3000#. "B" End motor - type 5K heavy duty - size 5 1150 RPM. Originally built for U.S. Navy refueling at sea. AVAILABILITY: Some with double gypsys; some with single gypsys; some with no gypsys. Ex-U.S.N.

PLANS ON REQUEST

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



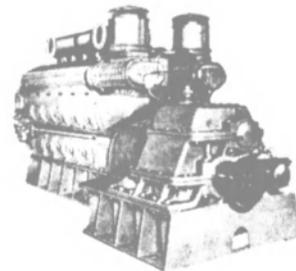
Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800' of 2" wire rope. Normal line pull 40,000 lbs @ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM.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

**ALSO AVAILABLE**

Large towing ring - 36" I.D.

**900HP GM 12-567A  
PORT DIESEL ENGINE**

WITH FALK  
REVERSE  
AND  
REDUCTION  
GEAR



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

**n METALS CO.**

ST. • BALTIMORE, MD. 21202

2-1900 Marine Dept.: (301) 752-1077

MD. U.S.A.

TWX 710-234-1637

# PROOF...MARITIME REPORTER GET MORE AND BETT

Maritime Reporter has a circulation to thousands more buying influence readers than any other marine magazine in the entire world.

## HERE'S PROOF MARITIME REPORTER PRODUCES THE MOST SALES LEADS

Each figure listed below represents the number of inquiries produced for an individual advertiser by Maritime Reporter in a period of one year or less. These numbers are typical samples. Maritime Reporter, in the past year, carried the advertising of 780 different companies.

<b>Paints/Coatings/Corrosion Control</b>	<b>Diesel Engines</b>
756	737
655	734
472	730
390	620
330	596
<b>Shipbuilding/Boatbuilding/Repair</b>	<b>Navigation &amp; Communications Equipment</b>
1,258	568
613	453
466	346
432	341
389	322
<b>Deck Machinery/Cranes/Cargo Handling</b>	<b>Rope/Chains/Mooring Systems</b>
405	502
296	233
288	220
247	159
231	115
<b>Controls/Monitoring/Steering</b>	<b>Oily Water Separators</b>
398	367
271	335
260	309
246	242
233	225
<b>Propellers/Thrusters</b>	<b>Valves/Fittings/Bearings (Shaft Couplings)</b>
362	300
353	278
285	232
257	224
250	223

# Your advertising belongs in the proves it produces

# ADVERTISERS GET SALES LEADS

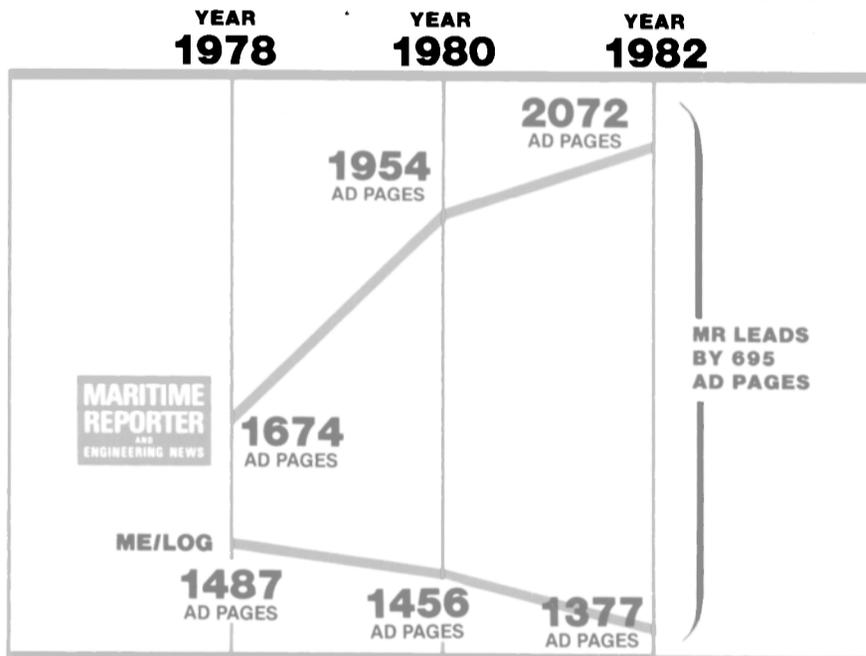
As a result, Maritime Reporter produces far more sales leads and better quality sales leads than other marine magazines.



## HERE'S WHAT LEADING MARINE ADVERTISERS ARE DOING ABOUT IT.

Year After Year...More Advertisers Get Better Results in Maritime Reporter

CHECK FOUR YEARS OF ADVERTISING GAINS BY MARITIME REPORTER



Send for a special report on the number of inquiries produced by Maritime Reporter for other advertisers in your particular product or service category.

# only magazine that the most sales leads...

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

107 East 31st Street  
New York, New York 10016  
(212) 689-3266



## in the engineering of new-generation container ships, Hitachi Zosen brings efficiency, safety and economy to the forefront.

Hitachi Zosen's world famous, proven shipbuilding technology is now being applied to build a new generation of container ships that not only offers a greater load-carrying capacity, but improved labour efficiency, safety and economy as well.

Recently completed and delivered to the owners in Japan, the ultra-efficient 36,375 gross ton container ship "SHIN-BEISHU MARU" (1,680 TEU, about 14 tons/container) typifies how Hitachi Zosen is always working to meet the growing demand for efficient shipping.

The "SHIN-BEISHU MARU" features a hull, engine and auxiliary equipment specifically designed to carry containers economically

and efficiently.

The hull is designed for economical navigation at high speed — a bulbous bow enables greater speed with a minimum increase in main engine horsepower, and a bulged stern reduces hull vibration.

The machinery section is equipped to enable unattended operation of the engine room around the clock. Only 18 crew members are needed to run the ship efficiently.

And, for super-rationalized operation at the bridge, the control section is equipped with satellite navigation equipment, automatic steering equipment and a maritime satellite communications system.

"SHIN-BEISHU MARU" is a prime example

of how Hitachi Zosen's innovative technology carries the efficiency of new-generation container ships ever higher. Our technology can also build a new-generation container ship having the high performance you require.

Now more than ever, it's Hitachi Zosen for container ships that will meet your shipping needs at present, and far into the future.

For more information, contact Hitachi Zosen or the overseas representative nearest you.

**Hitachi Zosen will be participating in the SNAME (2nd International Maritime Exposition). Our booth numbers will be 227 and 229.**

*The name of Hitachi Shipbuilding & Engineering Co., Ltd. was changed to Hitachi Zosen Corporation on July 1st, 1982.*

*We build industries*  
**Hitachi Zosen**  
 HITACHI ZOSEN CORPORATION

HITACHI ZOSEN INTERNATIONAL, S.A.: London: Winchester House, 77 London Wall, London, EC2N 1BQ, England Phone: 01-628-3891/8 Telex: 887873/884009 Greece: 98-B Filonos Street, Piraeus, Greece Phone: 452-7548/9 Telex: 212943  
 HITACHI ZOSEN U.S.A. LTD.: New York: 345 Park Avenue, New York, N.Y. 10154 U.S.A. Phone: 212-355-5650 Telex: 232036A, 232036B, 12 6582, 710 581 6099 Houston: Suite 3080, Two Allen Center, 1200 Smith Street, Houston, Texas 77002 U.S.A. Phone: 713-658-0136/8 Telex: 6868224, 203134, 775038  
 HITACHI ZOSEN CORPORATION: 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo, Japan Phone: 213-6611 Telex: J22363, J24490 OVERSEAS OFFICES & SUBSIDIARIES: Oslo: Raadhusgaten 4, Oslo 1, Norway Phone: 2-41 12 75 Telex: 76934 Düsseldorf: Graf Adolf Strasse 24, Düsseldorf, West Germany Phone: 0211 (DUES)-133011-4 Telex: 8587231 Beijing: Rm. No. 6046, Beijing Hotel, Dong Chang An Jie, Beijing, China Phone: 55-8331, 55-2231 EXT 6046 Telex: 22519 Hitachi Zosen Engineering Singapore (Pte.) Ltd.: UOB Building, 325 Boon Lay Place, Jurong, Singapore 2262 Phone: 264 1344 Telex: RS21999 Hitachi Zosen Company (HK) Limited: Rm. 1007-1009, Tak Shing House, 20 Des Voeux Road, Central, Hong Kong Phone: 5-223350, 5-220597 or 5-246237 Telex: 73648 Hitachi Zosen Industria Pesada Limitada: Rua Mexico 90, Grupo 510, Rio de Janeiro RJ, Brasil Phone: 240-9098, 240-9047 Telex: 2122904

# U.S. Navy — Major Buying Offices



(continued from page 64)

**Commanding Officer**  
**Naval Supply Center**  
**San Diego, California 92132**  
**Tel: 714/235-3322**

Procurement for activities ashore and afloat in the Southern California area of the 11th Naval District. General procurements with unlimited contracting authority without restrictions to type of contracts or dollar value for approximately 70 activities in the greater San Diego, California area which exceed buying authority of certain local activities. Procurements include general operating supplies, such as automotive, plumbing and electrical supplies; services including repair and maintenance of equipment, tank and bilge cleaning, mess attendance, mortuary, test and evaluation, packing-crating-transporting household goods, ship habitability stevedoring, printing and laundry services. Requirement contracts include research and development support and studies.

**Commanding Officer (Code 200)**  
**Naval Supply Center, Box 97**  
**Jacksonville, Florida 32212**  
**Tel: 904/772-2453**

General procurement for Naval activities in the State of Florida east of the Apalachicola River and ships located at Mayport, Florida, including aircraft and engine parts and accessories; aircraft ground handling component parts; ship and marine equipment and parts; electrical and electronic components; laboratory and test equipment; chemicals, paints and removers; general supply items; some research, development, test and evaluation; pipe, tubing, hose, and fittings; cable, wire rope, rope and fittings; valves; diesel engines and accessories; subsistence items; nonpersonal services including laundry, dry cleaning, linen rental, dust control items rental, clean room clothing rental, mortuary; mess attendant; tug and towing; pilotage; packing and crating of household goods; clinical preceptor services, key-punch services; Flight Deck Resurfacing; and repair of aircraft engine blades and vanes.

**Commanding Officer**  
**Naval Supply Center, Puget Sound**  
**Bremerton, Washington 98314**  
**Tel: 206/476-7265**

General procurement for ashore and afloat Naval activities in Washington, Oregon, Idaho, Montana, Alaska, and Fleet Ballistic Missile site including all supplies and services; industrial requirements to support Puget Sound Naval Shipyard; and materials and services for the Naval Submarine Base, Bangor, Bremerton, Washington, and its tenant activities.

**Commanding Officer**  
**U.S. Naval Supply Center**  
**Box 300**  
**Pearl Harbor, Hawaii 96860**  
**Tel: 808/471-0705**

General procurement for Naval activities in the Hawaiian Islands, and other Pacific Ocean area activities and operating forces as required, including miscellaneous ship and marine equipment; operating supplies and equipment; ADP equipment; electronic, test equipment; updating and modification of electronic and communication equipment; research, development, test and evaluation; general supply items. Services purchased include laundry and dry cleaning; rental, repair and maintenance of equipment; mess attendant; packing, crating, storage and transportation of household goods; stevedoring, disposal of radioactive waste material; marine engineering; computer programming; security guard services; and keypunching services.

**Commanding Officer**  
**U.S. Naval Supply Depot**  
**Guam, Mariana Islands**  
**Tel: 339-4111**  
**(Mail Address: FPO San Francisco 96630)**

General procurement for activities ashore and afloat in the Mariana Islands, including subsistence items, miscellaneous ships and marine equipment and parts; automotive parts; building and construction materials; electrical and electronic components and parts; communication equipment and parts; and general supply items. Services purchased include overhaul and repair of office machines, appliances and equipment; lease/rental of equipment; packing and crating of household goods; laundry; stevedoring; and tug and towing.

## SHIPYARDS AND REPAIR FACILITIES

**Commander**  
**Mare Island Naval Shipyard**  
**Vallejo, California 94592**  
**Tel: 708/646-3265**

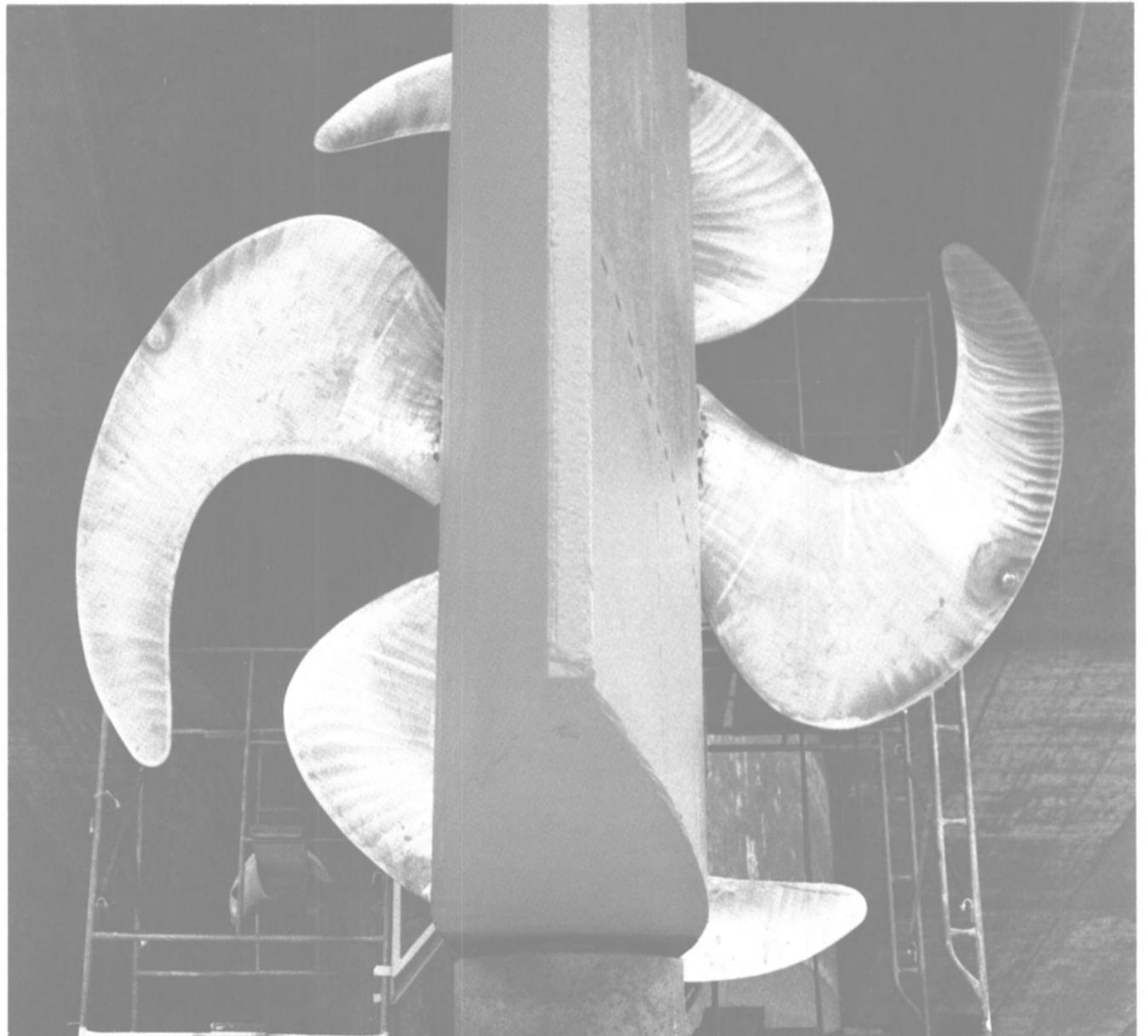
General procurement for the operation and maintenance of Mare Island Naval Shipyard, and for the overhaul, repair, and conversion of nuclear and non-nuclear surface ships and submarines, including associated equipment and materials and production

shop support materials; valves and fittings; wire and cable; electrical and electronic components and sub-assemblies; anti-contamination clothing; metals, castings; pumps and motors; general hardware; chemicals and gases; pipe fittings in support of Navy-wide applications; refurbishment of major submarine systems; components, and equipment; services for laundry of contaminated wearing apparel; and services for removal and disposal of radioactive waste.

**Commander**  
**Pearl Harbor Naval Shipyard**  
**Box 400**  
**Pearl Harbor, Hawaii 96860**  
**Tel: 808/474-9186**

General procurement of materials and nonpersonal services required to support the industrial effort of

(continued on page 74)



## Success Story

When American Steamship Company selected B-JCo highly skewed propeller blades for their MV CHARLES E. WILSON, they expected a solution to vibration problems. Measurements were recorded before and after the 1980 blade retrofit. Results have been documented: Reduced cavitation and reduced vibration—in ballast and full load conditions . . . in shallow and deep waters . . . at every power level. Greatly improved crew comfort—with low noise and vibration in ship's accommodations. Peak propulsive efficiency and superior maneuverability—because skewed propeller technology is uniquely suited to CP propellers.

Photograph courtesy of American Steamship Company

For over a decade, 75 US Navy warships have been demonstrating success at sea with B-JCo skewed CP propellers. We've applied that naval propeller manufacturing technology and experience to commercial ships. Highly skewed propellers can minimize vibration on large ships designed to maximize cargo capacity. They provide the low noise and vibration levels essential to research and fishing vessels.

Why accept a compromise solution when the B-JCo highly skewed CP propeller can work for your ship (retrofit or new construction), the way it worked for the WILSON? Contact our Marine Sales Department.

**BIRD-JOHNSON**  
**COMPANY** MARINE DIVISION  
110 Norfolk Street, Walpole, MA 02081, (617) 668-9610

## U.S. Navy — Major Buying Offices



(continued from page 73)

the shipyard and the Naval Shore electronics Engineering Activity, Pacific, including major shipboard component equipment and supplies for surface vessels and submarines; electronic communication installation; tools; test equipment; safety equipment; and production shop materials.

Commander  
Portsmouth Naval Shipyard

Portsmouth, New Hampshire 03801  
Tel: 207/439-1000, Ext. 2233

Procurement of materials/supplies (nuclear and non-nuclear) and non-personal services required in the overhaul and repair of submarines, and operation and maintenance of the Portsmouth Naval Shipyard. Procurements include pipe and tubing; valves and fittings; castings; pumps and motors; antenna system parts; electrical and electronic materials/equipment; alarm and signal systems; compressors; gauges;

accumulators; fasteners; test equipment; chemicals; hardware; and equipment and materials associated with production shop support; major components and software in support of PERA(SS) and NAVSEA Navy-wide applications. Plant operation and maintenance items for Naval activities in the Northern New England area. Contracting for services include marine engineering; piping fabrication; refurbishment of major submarine systems; components and equipment; removal and disposal of radioactive waste; office machine repair and maintenance; laundry/dry

cleaning services; and storage and shipment of household goods.

Supervisor of Shipbuilding,  
Conversion and Repair, USN  
San Francisco, CA 94135  
Tel: 415/641-2295

Repairs/Services for Navy Ships. Note: This activity is authorized to purchase only under Master Ship Repair contracts from the contractors holding those contracts. All of their other requirements are sent to NSC Oakland, CA for purchase.

Supervision of Shipbuilding  
Conversion and Repair, USN  
Pascagoula, Mississippi 39567  
Tel: 601/769-6495

General procurement of office supplies and equipment, ship construction material, and repair parts for equipment.

Supervisor of Shipbuilding  
Conversion and Repair, USN  
574 Washington Street  
Bath, Maine 04530  
Tel: 207/443-6611, Ext. 3115

Electrical and electronic equipment and parts, pump parts, hard hats, safety goggles, office equipment, rubber stamps, computer supplies and recreational equipment.

Commanding Officer  
Naval Submarine Base New London  
Groton, Connecticut 06349  
Tel: 203/449-3622

Submarine equipment and supplies; hardware; electrical hardware; automotive repair parts; sandblasting supplies; shop maintenance and repair equipment; stone and gravel; plumbing supplies; lumber; prescription safety glasses.

Commander  
Philadelphia Naval Shipyard  
U.S. Naval Base  
Philadelphia, PA 19112  
Tel: 215/755-3510/3175

General procurement of materials and non-personal services, non-nuclear, required in the overhaul and repair of surface vessels, including pipe and tubing; hoists; wire and cable; paint; tools; test equipment, valves and fittings; electronic and electrical components; pumps and motors; materials for shipyard industrial support, outfitting requirements; Shop Stores, and stock replenishment.

### ORDNANCE ACTIVITIES

Commanding Officer  
Naval Weapons Support Center  
Crane, Indiana 47522  
Tel: 812/854-1542

Materials and services required in providing support for ships and crafts equipments; shipboard weapons systems; and assigned expendable and non-expendable ordnance items.

Commander  
Naval Weapons Center  
China Lake, California 93555  
Tel: 714/939-2712/3801

RDT&E relating to air warfare and missile systems including technology-base effort in missile propulsion, warheads, fuzes, avionics and fire control, missile guidance; national range/facility for parachute test and evaluation; and participation as lead laboratory or DPM on various total-weapons system developments.

Commanding Officer  
Naval Ordnance Station  
Louisville, Kentucky 40214  
Tel: 502/367-5849

Wood and metal containers; production jigs and fixtures; ferrous and nonferrous castings and forgings; bomb fins; guided missile warheads; boosters and sustainers; mine parts; solenoid and control valves; plastics; electrical and electronic equipment and supplies; dollies and handlift trucks, machine shop items; manufactured ordnance parts; research and development; technical manuals, and engineering services.

Commanding Officer  
Naval Ordnance Station  
Indian Head, Maryland 20640  
Tel: 301/743-4410

Metal fabrications; nonmetallic fabrications; electrical equipment; igniters, services and repairs; organic

## When reliability cannot be compromised ...



Transamerica Delaval twin "Enterprise" DMR 46 engines (each 3500 hp), mounted on Chockfast Orange™, power the rugged workboats of Biehl, Inc. Kuyper gears with cast-in-place Chockfast alignment also help to assure powerplant dependability

# count on the Chockfast® organization

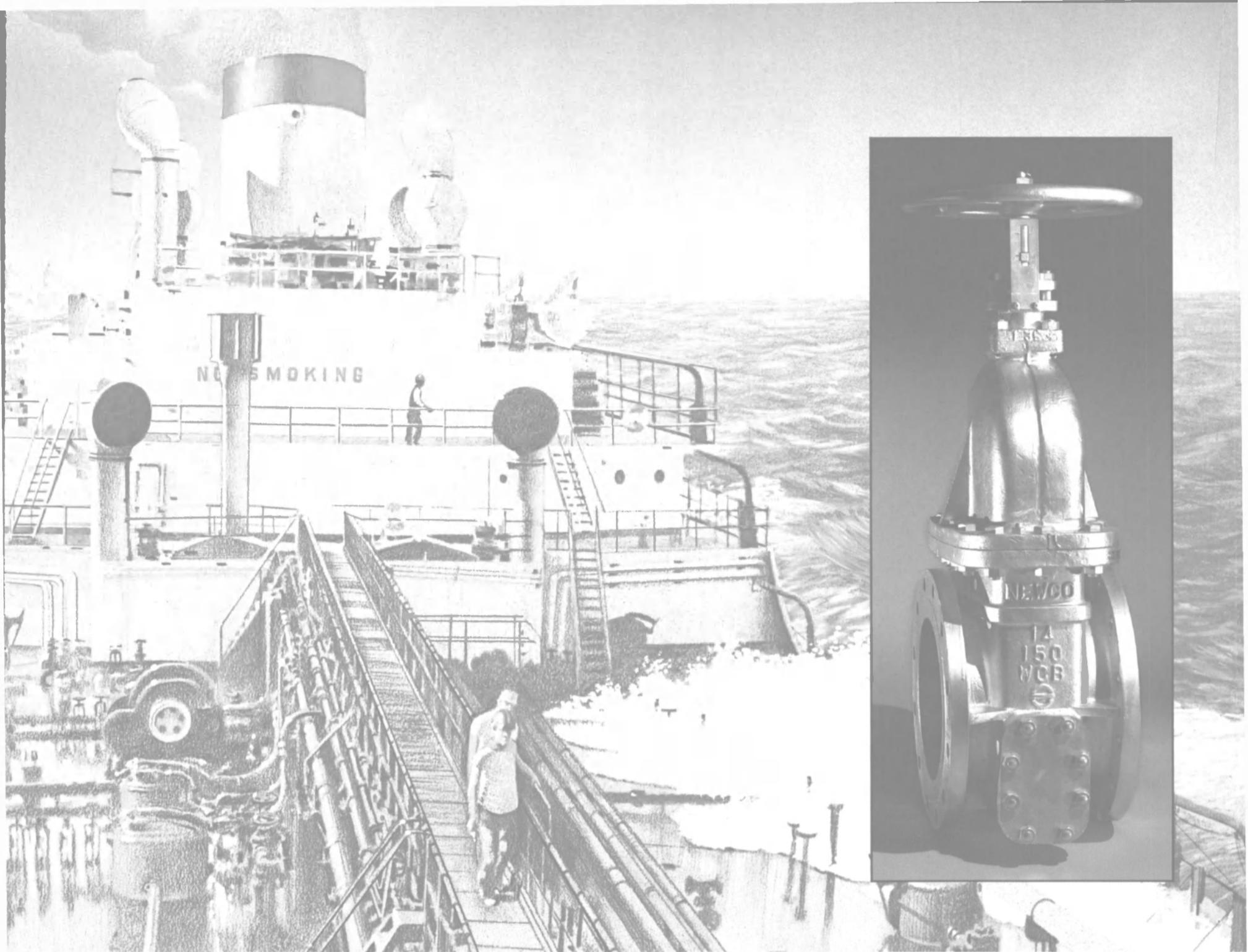
High-performance products and worldwide service from factory-trained and certified chocking specialists. Chockfast® has earned a reputation for reliability ■ more than 15,000 main propulsion systems, plus ■ generators and auxiliary equipment ■ sterntube, strut, pintle, rudder and pedestal bearings ■ steering gears ■ engine-room and cargo pumps ■ anchor windlasses ■ bow thrusters ■ cable penetrations ■ stern winches.

*Philadelphia Resins Corporation*

P.O. Box 454 • 20 Commerce Drive, Montgomeryville, PA 18936  
Telephone: (215) 855-8450 Telex 84-6342 Cable: Philres MMLL

Call/write for detailed information to find out why knowledgeable shipowners and operators consider CHOCKFAST "the greatest single investment in engine security and maintenance economy."

(continued on page 77)



# Dependability.

It's just the beginning of Newco performance.

Newco marine valve dependability covers a lot more than consistent excellence in engineering and manufacturing. You can also depend on a broad range of inventory, responsive field service, and years of marine applications experience. Every Newco marine valve is ABS inspected and USCG affidavited, and our exclusive SAFE-O-SEAL design for critical pressure and temperature situations is on the military Qualified Products List. You also get the benefits of a nationwide warehouse network that includes portside distributors who can fill your

needs quickly at competitive prices.

Whether it's new construction, retrofit, or routine replacement on everything from barges to the largest tankers, you can depend on Newmans and Newco marine valves to meet your total shipboard needs. And that includes modifications and hard-to-get speciality items. In fact, what's special to many may be standard for us and our distributors.

Fit a Newco valve into your plans today. To place an order or get more information about dependable Newco international valves, just contact your local distributor or the nearest Newmans office.

## Newco VALVES



## Newmans Inc

**When it comes to service, come to Newmans.**

Write 246 on Reader Service Card

**Oklahoma Division.** Box 1856, 7500 E. Reading Pl., Tulsa, OK 74101 / **Texas Division.** 1300 Gazin St., Houston, TX 77020 / **New Jersey Division.** 9 Joanna Ct., East Brunswick, NJ 08816 / **Oregon Division.** 3850 Southeast International Way, Milwaukie, OR 97222 / **Illinois Division.** 2200 West Devon Ave., Suite #114, Des Plaines, IL 60018 / **Canada.** 92 Davidson St., Barrie, Ontario, Canada L4M 3S3 / 8400-18 St. Edmonton, Alberta, Canada T6P 1K5 / **Europe.** 21 Rue Jean Mermoz, 75008 (Paris) France / **Far East.** 14-12 Minami-Kibogaoka Kawachinagano Shi, Osaka, 586-Japan

# Design your shipyard around these major SYNCROLIFT® advantages



Syncrolift shiplift systems have proven their safety, dependability and cost effectiveness in more than a quarter million liftings and launchings worldwide. They have been selected by 158 shipyards, both military and commercial, in 58 countries. Efficient and simple to operate, Syncrolift systems are adaptable to most sites. They are also used for caisson lifts, ferry ramps, barge loaders and in other lifting applications.

Pearlson, by far the world's most experienced shiplift designer, offers planning and engineering assistance internationally, without obligation. We invite your inquiry.

- Rugged, proven electromechanical components
- Dependable performance in extremes of environment
- Pushbutton control operation
- End and side transfer configurations
- Capacities from pleasure craft to ocean-going vessels
- Full engineering consultation without cost or obligation.

World Leaders in Shiplift Technology



**PEARLSON ENGINEERING COMPANY, INC.**

8970 S.W. 87th Court, Miami, FL 33176 • U.S.A. • (305) 271-5721  
Mailino Address: P.O. Box 560008, Miami, FL 33256 • U.S.A. • Telex: 051-9340 SYNCROLIFT MIA

## U.S. Navy — Major Buying Offices



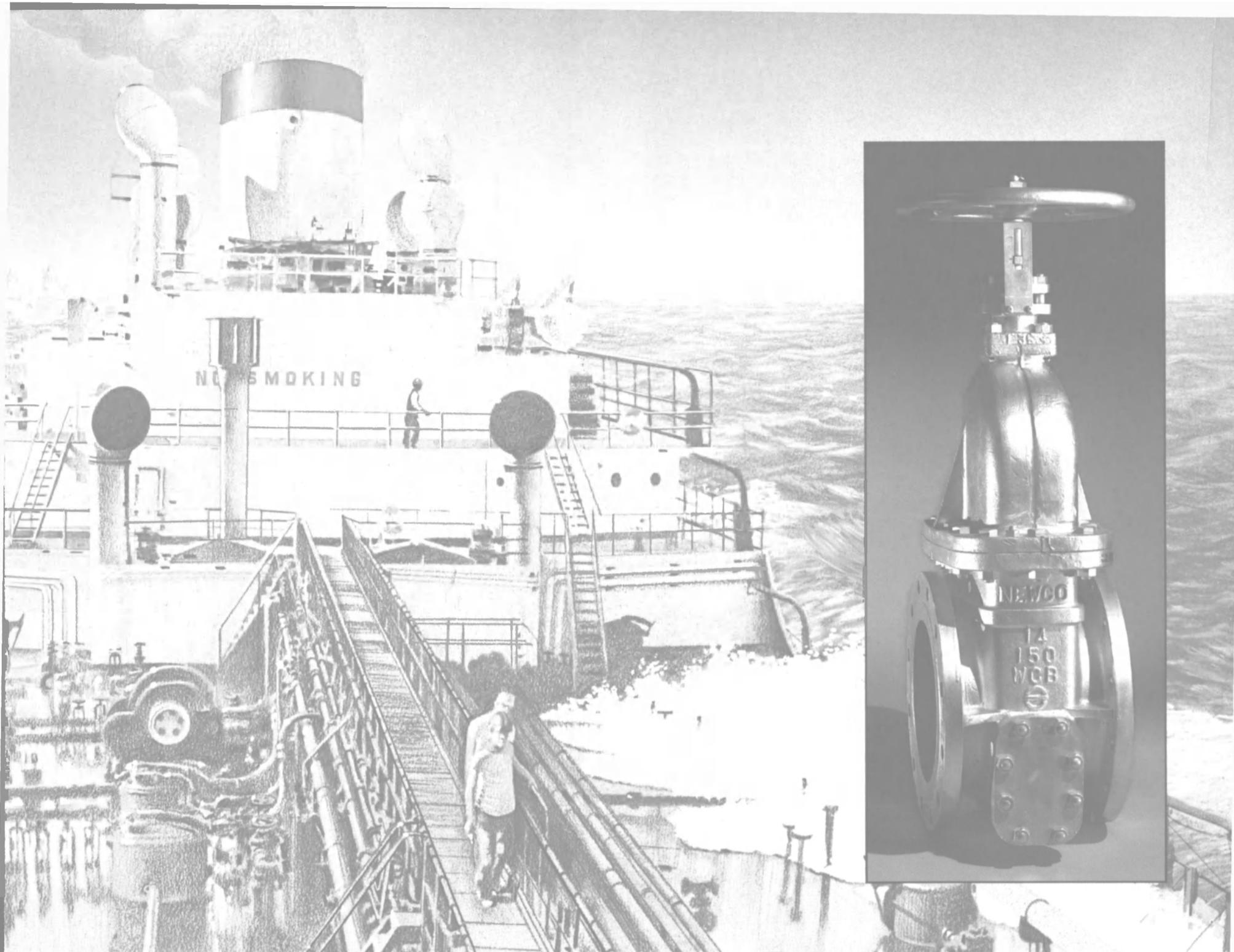
(continued from page 79)

lands, Jamaica, Panama Canal Zone, other Caribbean Sea areas, eastern Atlantic, and Mediterranean

Naval Facilities Engineering Command  
P.O. Box 10068  
Charlestown, South Carolina 29411  
Tel: 803/743-3995  
North Carolina—except counties under Atlantic Divi-

Commanding Officer  
Western Division  
Naval Facilities Engineering Command  
P.O. Box 727  
San Bruno, California 94066

Officer in Charge of Construction  
NFEC Contracts, Mediterranean  
Mail Address:  
Officer in Charge of Construction  
Naval Facilities Engineering



# Dependability.

It's just the beginning of Newco performance.

Newco marine valve dependability covers a lot more than consistent excellence in engineering and manufacturing. You can also depend on a broad range of inventory, responsive field service, and years of marine applications experience. Every Newco marine valve is ABS inspected and USCG affidavited, and our exclusive SAFE-O-SEAL design for critical pressure and temperature situations is on the military Qualified Products List. You also get the benefits of a nationwide warehouse network that includes portside distributors who can fill your

needs quickly at competitive prices.

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Engineering Station  
Keyport, Washington 98345  
Tel: 206/396-2324

Procurements (material and services) for research, development, test, evaluation, production and overhaul/repair programs in support of underwater weapons, weapons systems, acoustics, tracking ranges, and associated range equipment, and other designated undersea warfare programs not in the excess of \$25,000. Material includes torpedo, fire control, sonar, target, electronic, electrical, mechanical, shop equipment and service craft (boats) parts and components; associated test equipment, ADP supplies and services; office supplies and equipment, photographic supplies and equipment, industrial supplies, chemicals, ground fuels and packaged oil and lubricants, packaging and preservation supplies.

**Commanding Officer**  
Naval Coastal Systems Center  
Panama City, Florida 32407  
Tel: 904/234-4309

Provides research and development services in support of warfare analysis, research, design, development, test and evaluation, systems integration and fleet support of mine and torpedo countermeasures systems, swimmer life support systems, underwater tools, underwater vehicles, special warfare equipment, amphibious support systems and related technical research in areas of sensors, controls, towing, diving and underwater salvage. General procurement of both technical and common use items in such categories as hardware, rope and cable, electrical wire, electrical and electronic components, instruments and laboratory equipment, batteries, transducers, semiconductors, ferrous and non-ferrous metal stock, photographic supplies, compressed gases, rigging and materials handling equipment, miscellaneous construction equipment and machine tools.

**Commanding Officer**  
Naval Weapons Station  
Yorktown, Virginia 23691  
Tel: 804/887-4645

General base procurement includes support of an ophthalmic laboratory and the Naval Mine Engineering Facility. Principal interests include explosive loading and process development for Naval ordnance, design, development, testing and evaluation of underwater sound systems.

**Commander**  
Naval Surface Weapons Center  
Dahlgren, Virginia 22448  
(Dahlgren Laboratory)  
Tel: 703/663-8391  
(White Oak Laboratory)  
Tel: 202/394-1339

Procurement of Scientific Engineering, and Technical Services and Hardware in support of Research and Advanced Technology Development Programs in Radar, Communications, Electronics, Optics, Chemistry, Materials, Plasma Physics, Space Systems and Countermeasures. Examples are concept studies and analyses; software development and maintenance; test support and data analysis; materials studies; military specification and hardware implementation planning documentation; state of the art componentry and equipments development, and fabrication for experimental design concepts; optical coatings; computer maintenance; instrumentation; and the services, equipments and supplies necessary to support these programs.

**Commanding Officer**  
Naval Weapons Station  
Concord, California 94520  
Tel: 415/671-5226

General procurement in the following categories: electrical and electronic equipment/supplies; hardware and plumbing supplies, paints and adhesives; chemicals; instruments and laboratory equipment; railroad, automotive, material handling equipment repair parts; paper products, general office equipment and supplies; miscellaneous non-personal services.

**Commanding Officer**  
Naval Weapons Station  
Charleston, South Carolina 29408  
Tel: 803/743-7695/7009

General procurement in categories such as electrical supplies; electronic supplies; parts for materials

handling equipment; automotive; paints and adhesives; plumbing; and general office supplies.

**Commanding Officer**  
Naval Weapons Station Earle  
Colts Neck, N.J. 07722  
Tel: 201/462-9500 Ext. 200/238

Electrical supplies; electronic supplies, hardware supplies, plumbing supplies; office supplies, automotive supplies; heating supplies; refrigeration supplies; welding supplies; paint supplies, carpentry supplies; drafting supplies; chemical supplies; wire and cable; fire equipment; furniture; carpeting and drapes; sports equipment; books and magazines; tires and wheels; cabinets and shelving equipment;

generator and compressors; fuel, gas and diesel; shoes and boots; industrial equipment; steel; aluminum; radios and TV's. Services and Repairs for laundry service; organ service; typewriter service; washer and dryer service; carpet installation; motor repairs; lawn mower repairs; computer repairs; TV repairs, copier and calculator repairs.

**Commanding Officer**  
Naval Weapons Station  
Seal Beach, California 90740  
Tel: 213/594-7319

Responsible for acquisition of supplies and services in support of the Station and tenant activities.

(continued on page 78)

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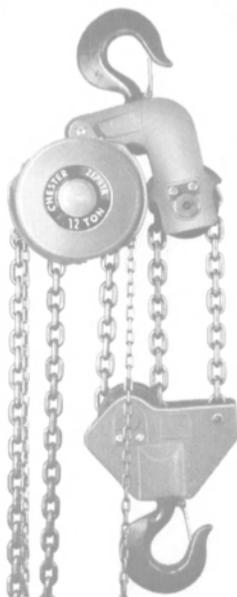
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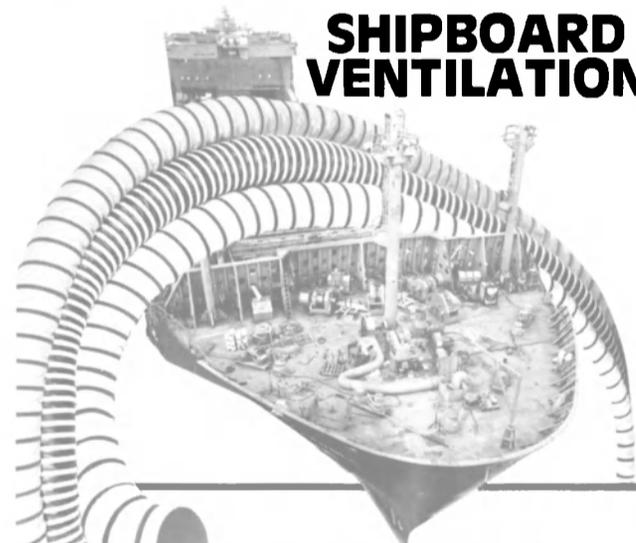
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# U.S. Navy — Major Buying Offices

(continued from page 77)

## OTHER ACTIVITIES

Commander, Navy Resale and Services Support Office

Fort Wadsworth  
Staten Island, New York 10305  
Tel: 212/390-3934

Supplies for Navy exchanges, commissary stores, lodges, ships stores, and military sealift exchanges including retail merchandise of various types; food; vending machines items; service station supplies; air

conditioners; vehicles; hotel furnishings; store fixtures; and other supplies and equipment.

Commanding Officer  
Naval Training Equipment Center  
(Code N-005)  
Orlando, Florida 32813  
Tel: 305/646-5121/5515

Procurement of training aids, devices, equipment and material for the Navy, Marine Corps, and other DoD activities, including hardware; research and de-

velopment for training devices designed to simulate actual conditions in shiphandling, communications, gunnery, fire control, operational flight training, weapons systems trainers, and human engineering; engineering services for various devices.

Commanding Officer  
Naval Research Laboratory  
Washington, D.C. 20375  
Tel: 202/767-2914

Procurement of Scientific, Engineering, and Technical Services and Hardware in support of Research and Advanced Technology Development Programs in Radar, Communications, Electronics, Optics, Chemistry, Materials, Plasma Physics, Space Systems and Countermeasures. Examples are concept studies and

analyses; software development and maintenance; test support and data analysis; materials studies; military specification and hardware implementation planning documentation; state of the art componentry and equipments development, and fabrication for experimental design concepts; optical coatings; computer maintenance; instrumentation; and the services, equipments and supplies necessary to support these programs.

Superintendent  
U.S. Naval Academy  
Annapolis, Maryland 21402  
Tel: 301/267-3498

Instruments and laboratory equipment; electronic equipment; underwater television equipment; optical equipment; small craft; repair parts for trucks, automobiles, and small craft; plumbing and heating fixtures and accessories; drafting supplies; diploma cases; janitor supplies; sails for small craft; awning material; general equipment and supplies.

Commander  
David Taylor Naval Ship Research & Development Center  
Bethesda, Maryland 20884  
Tel: 202/227-1220

Procurement of research, development, test and evaluation services for Naval vehicle and logistics systems, subsystems, and components. Services support advanced concepts and development; military effectiveness; hydromechanics research; aerodynamic and hydrodynamic technology application; structure analysis; underwater acoustics and ship vibration; propulsion and auxiliary systems; materials science; pollution abatement; energy conservation; instrumentation development; computer science and information systems; logistics and operations research. Materials and components required include anti-fouling, anti-corrosion coatings; cables; chemicals; communication and detection equipment; electronic equipment and components; instruments; laboratory equipment; lubricants; metals; photographic equipment; power distribution equipment; sonobuoys; submarine and ship seals.

Commanding Officer  
Naval Underwater Systems Center  
Newport, Rhode Island 02840  
Tel: 401/841-3310

Research development, test and analytical services, materials, hardware, and instrumentation for oceanography, hydrodynamics, sonar, acoustics, mechanics, hydraulics, high-frequency communications, propulsion and battery development.

Commanding Officer  
Naval Oceanographic Office  
NSTL Station, Code 4411  
Bay St. Louis, Mississippi 39522  
Tel: 601/688-4162

Oceanography, hydrography, geodetic, and magnetic survey equipment, studies and services; electronic and physical properties test equipment; laboratory sound recording and reproduction equipment; buoys and floats; rope, cable, chain and fittings; underwater sound equipment; radio and satellite navigation equipment; gravity and magnetic measuring devices; meteorological instruments and apparatus; mapping and survey equipment; miscellaneous ship and marine equipment; general office equipment and supplies.

Commander  
Naval Ocean Systems Center  
San Diego, California 92152  
Tel: 714/225-2707

Research, development, test and evaluation supplies and services relating to command control and communications, electronic warfare, ocean surveillance, antisubmarine warfare weapon systems, submarine arctic warfare, ocean science, ocean engineering, biosystems research, and related technologies. Purchases include computer software and systems engineering services, computer equipment, electronic test instruments and miscellaneous support equipment and services.

Commanding Officer  
U.S. Naval Station  
FPO New York 09593  
Tel: Overseas Operator-International Routing 160 and 531. Naval Station Ext. 8114

General procurement of material and nonpersonal services in support of commands located at the Naval Base, Guantanamo Bay, Cuba, including the Naval Air Station, Guantanamo Bay and fleet units as assigned.

Contracting Officer  
Supply Department  
Naval District Washington  
Washington, D.C. 20374  
Tel: 202/433-3568

Local purchase for Naval District Washington, departments and tenant commands, and general pro-

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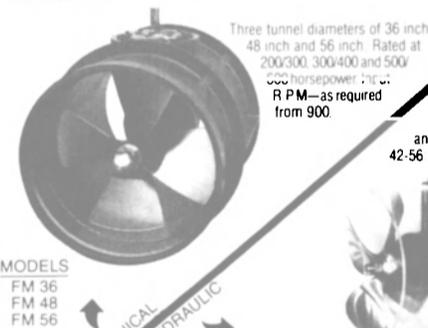
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urements under \$10,000 for certain Navy activities in the Washington area, including hardware, hand tools, mill supplies, plumbing, heating and air conditioning parts, electrical and electronic components, chemicals, paints, lumber and building supplies, hose and fittings, rope and cable, shipboard repair parts, office supplies, and other standard commercial articles.

**Commanding Officer**  
**Naval Construction Battalion Center (Code 554)**  
**Gulfport, Mississippi 39501**  
**Tel: 601/865-2312**

General procurement of both technical and common use items in such categories as hardware, plumbing, heating and air conditioning; electrical; electronics; lumber and mill supplies, chemicals and chemical products; firefighting, rescue, and safety equipment; heavy construction equipment; weight handling equipment and other equipment to support the Navy Construction Forces (active and reserve).

**Commanding Officer**  
**Naval Construction Battalion Center**  
**Davisville, Rhode Island 02854**

General procurement of both technical and common use items in such categories as hardware, plumbing, heating and air conditioning; electrical; electronics; lumber and mill supplies; chemicals and chemical products; firefighting, rescue, and safety equipment, heavy construction equipment; weight handling equipment and other equipment to support the Navy Construction Forces (SEABEES) and the Navy's Antarctic mission.

**Commanding Officer**  
**Naval Construction Battalion Center**  
**Port Hueneme, California 93043**  
**Tel: 805/982-5206**

Acquisition of construction materials, construction equipment, electrical generators, repair parts, supplies and services to support Naval Construction Forces and a number of tenant commands such as: Naval Support Forces Antarctica (OPERATION DEEP FREEZE), Civil Engineering Laboratory, Naval Nuclear Power Unit, Naval Ship Weapon Systems Engineering Station, and Naval Hospital.

**Commanding Officer**  
**Naval Administrative Command**  
**Naval Training Center (43/200)**  
**Great Lakes, Illinois 60088**  
**Tel: 312/688-6942**

General procurement for Naval activities in the Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas, Colorado, and Wyoming areas, including general supply items, subsistence items, and electrical and plumbing supplies, services such as catering of meals, mortuary, repair and overhaul of training equipment, and repair of office machines.

**Commanding Officer**  
**Naval Support Activity**  
**New Orleans, Louisiana 70142**  
**Tel: 504/361-2514**

General procurement for Naval activities in the New Orleans area. Categories of supplies are hardware; plumbing; heating and air conditioning; electrical, lumber and building; automotive repair parts; printing; office equipment and supplies; and computer supplies. Services include rental, maintenance and repair of office machines, appliances and equipment.

**Commanding Officer**  
**U.S. Naval Station**  
**Box 3002**  
**FPO Miami, Florida 34051**  
**(Roosevelt Roads, PR)**  
**Tel: 809/863-2000**  
**Ext. 4349/3086/5638**

General procurement to support operations of aviation activities and units of the operating forces of the Navy and other Naval activities in the Commonwealth of Puerto Rico to include construction materials; air conditioners; household furniture; major appliances; diesel engines and components; and plumbing supplies.

**Commanding Officer**  
**Naval Research Laboratory**  
**Underwater Sound Reference Detachment**  
**Orlando, Florida 32806**  
**Tel: 305/859-5120**

General procurement of electrical, electronic, calibrating/test and measurement equipment.

#### NAVY CONSTRUCTION

Contracts for architect-engineer services, construction projects, and major station maintenance

and repair are awarded by the following activities for the areas indicated:

**Commanding Officer**  
**Northern Division**  
**Naval Facilities Engineering Command, Bldg. 77L**  
**Philadelphia, Pennsylvania 19112**  
**Tel: 215/755-4841**

Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas, Colorado, and Wyoming.

**Commanding Officer**  
**Chesapeake Division**  
**Naval Facilities Engineering Command, Bldg. 212**  
**Washington Navy Yard**  
**Washington, D.C. 20390**  
**Tel: 202/433-4151**

District of Columbia, Maryland—Anne Arundel, Prince Georges, Montgomery, St. Marys, Calvert, and Charles counties; Virginia—Arlington, Fairfax, Stafford, King George, Prince William, Westmoreland counties and the city of Alexandria.

**Commander**  
**Atlantic Division**

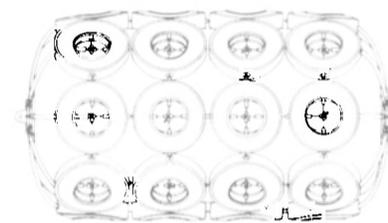
**Naval Facilities Engineering Command**  
**U.S. Naval Base**  
**Norfolk, Virginia 23511**  
**Tel: 804/444-7621**

Maryland—excluding Severn River Naval Command and Potomac River Naval Command; Virginia excluding Arlington, Fairfax, Stafford, King George, Prince William, Westmoreland counties and the city of Alexandria; West Virginia, Kentucky, North Carolina—Gates, Chowan, Washington, Beaufort, Craven, Jones, Onslow, and all counties east thereof. Cuba, Dominican Republic, Puerto Rico, West Indies, Virgin Is-

(continued on page 80)

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able even if punctured. It's abrasion-resistant and extremely durable, because of its rugged elastomer skin. So if you have the need for some tough protection with a soft touch, SEA CUSHION is it. Sizes available for fishing vessels to ULCC's.

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## U.S. Navy — Major Buying Offices



(continued from page 79)

lands, Jamaica, Panama Canal Zone, other Caribbean Sea areas, eastern Atlantic, and Mediterranean area.

Commanding Officer  
Southern Division

Naval Facilities Engineering Command  
P.O. Box 10068  
Charlestown, South Carolina 29411  
Tel: 803/743-3995

North Carolina—except counties under Atlantic Division; South Carolina, Georgia, Florida, Tennessee, Mississippi, Alabama, Louisiana, Arkansas, Oklahoma, Texas, and New Mexico.

Commanding Officer  
Western Division  
Naval Facilities Engineering Command  
P.O. Box 727

San Bruno, California 94066  
Tel: 415/877-7479  
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NFEC Contracts, Mediterranean  
Mail Address:

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Naval Facilities Engineering  
Command  
APO New York 09285

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Commander  
Pacific Division

Naval Facilities Engineering Command  
Pearl Harbor, Hawaii 96860  
Tel: 808/471-3957  
Pacific area

Commanding Officer  
U.S. Navy Public Works Center  
Yokosuka, Japan

Mail Address:  
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U.S. Navy Public Works Center  
NFEC Contracts, Far East  
FPO Seattle 98762

Japan area

Officer in Charge of Construction  
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NFEC Contracts, Southwest Pacific  
FPO San Francisco 96528

Philippine Islands

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Kings Bay, Georgia 31547

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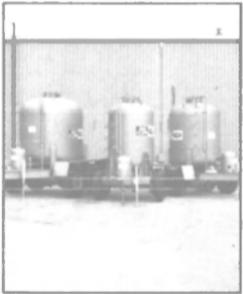
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Burbank, CA 91520

#### Long Beach

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Long Beach Naval Shipyard  
(Code 1400B)  
Bldg. 300-2  
Long Beach, CA 90822

#### Pasadena

Meade R. Larson  
(213) 577-7112, Ext 62  
Office of Naval Research  
1030 East Green St.  
Pasadena, CA 91160

#### Pomona

Joseph Stehlik  
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(continued on page 82)

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# U.S. Navy — Major Buying Offices



(continued from page 80)

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**Louie H. Mar**  
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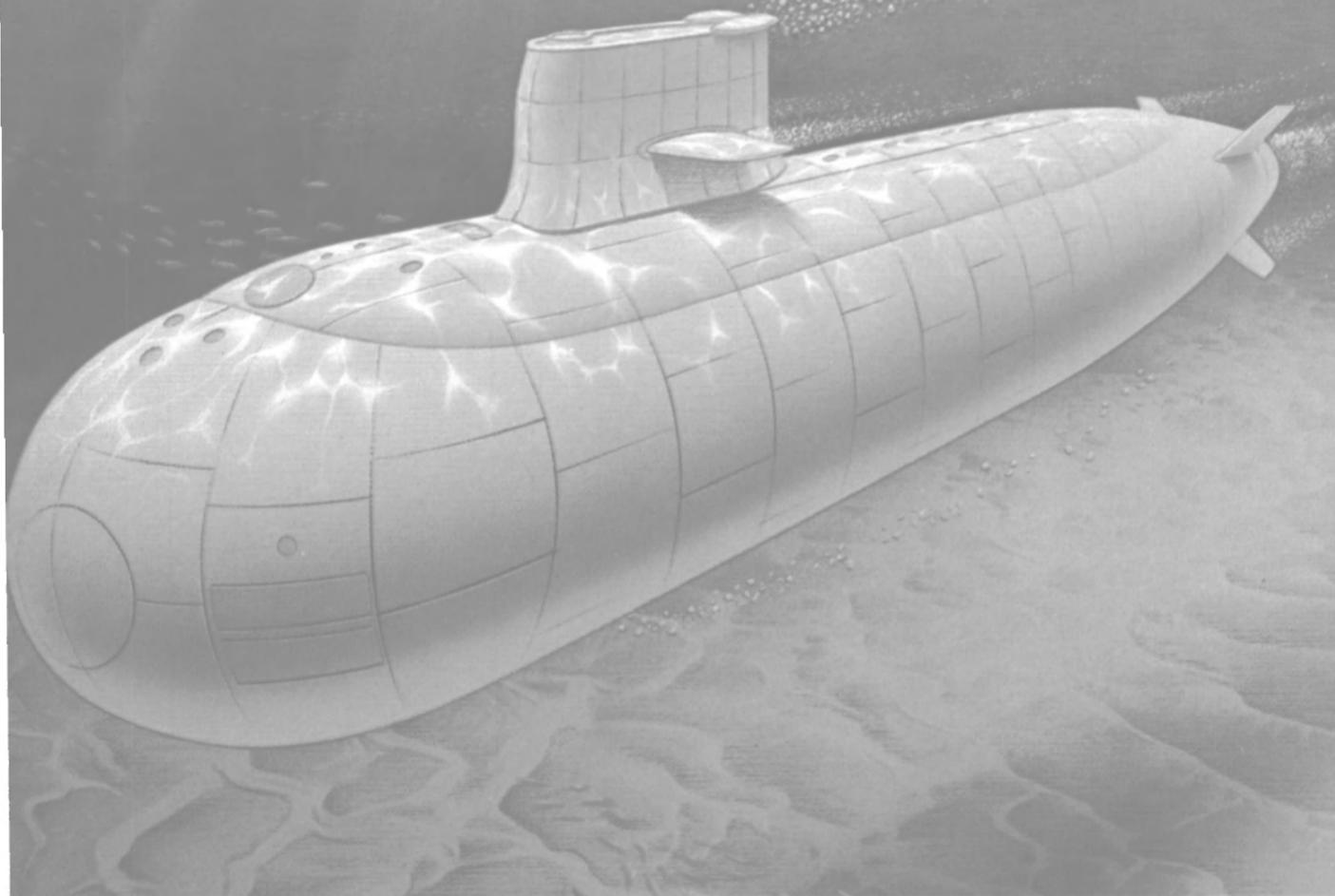
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(continued on page 84)

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Magnavox leadership in satnav rests on a strong foundation of technology. For example, our MX 1157 SN is the state-of-the-art system for the most demanding application possible—submarines. Features include highest accuracy dual channel operation, limited exposure satnav, underwater Omega, and computer-to-computer interface.

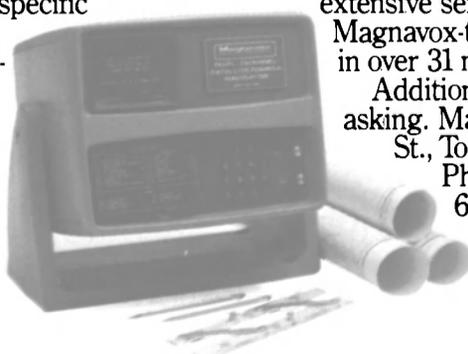
Our flagship MX 1100 satnav series includes 11 additional models, each optimized for its specific application from yachts to aircraft carriers. Each unit is built with high-quality industrial components that also meet tough military specifications. And all draw on satnav experience that no one else can equal.

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(continued from page 82)

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Walter Kidde has successfully developed marine fire protection since 1918. We're the world's leading manufacturer of fire protection equipment, continually striving to develop the technology needed to meet the ever-changing needs of the marine industry.

Through the years Kidde's fire protection experts have met the challenge of total marine fire protection by designing systems to protect thousands of merchant ships, tankers, icebreakers, aircraft carriers, LNG tankers, container ships, roll-on/roll-offs and other marine applications... utilizing a variety of extinguishants and the most advanced fire protection technology available.

Walter Kidde recognizes that each vessel or marine facility presents a unique fire protection challenge. Kidde, the marine fire protection experts, has the experience and full-line capability to meet the challenge of total fire protection for every marine requirement. Whether the challenge is protecting a tug boat engine room, auxiliary spaces on a container ship, or effective fire protection of an LNG tanker. Kidde can custom-design the ideal system to meet every marine fire protection need. Kidde has the domestic and international network of qualified, experienced distributors to install and service these systems. For further information on our marine fire protection systems, contact our Marine Division.

Think fire protection. Think Walter Kidde. Prepared to meet your challenge.

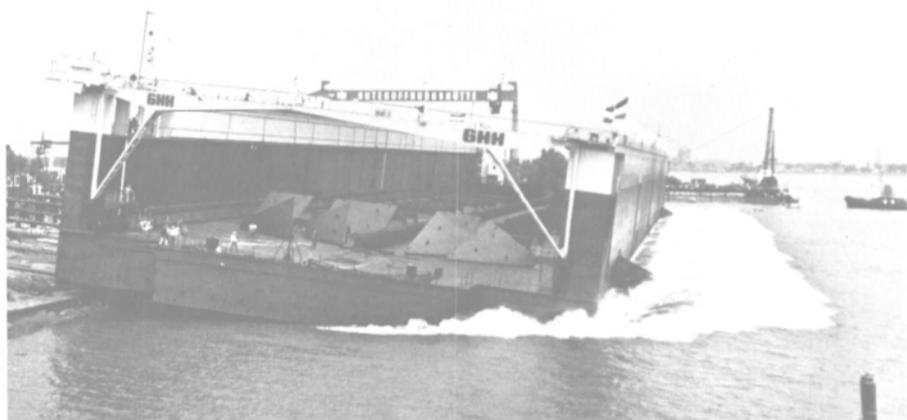
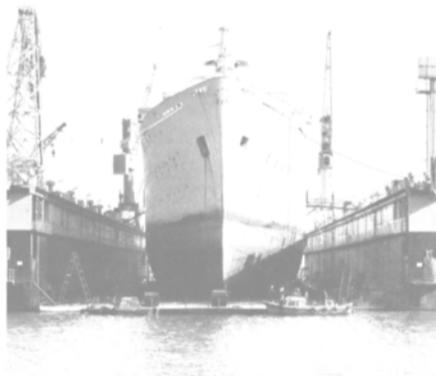
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## Power Factor Savings With Energy Efficient Motors

A new generation of premium quality energy-efficient motors with power factor correction to 95 percent has been announced by Reliance Electric Co., Euclid, Ohio.

Highly efficient and compact capacitor technology provided by Reliance Electric Company's affiliate Cornell-Dubilier Electric Corpora-

tion, offers the capability to include power factor correction capacitors as an inherent part of the motor circuitry on the Reliance Electric Duty Master™ XE energy efficient A-C motor product line. Designed to provide a full load power factor of approximately 95 percent, these motors will deliver both kw and kva energy savings.

Capacitors are mounted inside the motor conduit box and exter-

nal indicating lights provide positive indication of functioning capacitors. A terminal connection block is provided in order to simplify motor installation and provide ease of capacitor replacement. The XE/IPF A-C motors are engineered for rugged marine, mill and chemical plant environments and are suitable for both indoor and outdoor service.

Available in ratings 15 horse-

power through 350 horsepower, the IPF (Inherent Power Factor) feature is offered as a standard option on production, as well as stocked XE motors.

For more information on the XE/IPF energy-saving A-C motors,

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## Anderson Moves To AAPA Chairmanship



Lloyd Anderson

Lloyd E. Anderson, executive director of the Port of Portland, became chairman of the American Association of Port Authorities (AAPA) at its 72nd Annual Convention in Seattle, Wash., September 11 to 16.

AAPA represents the interests of some 176 seaports in the Western Hemisphere before various governmental bodies, including the U.S. Congress.

Mr. Anderson has served as president of the Institute for Transportation of the American Public Works Association and was named by that organization as one of the top 10 public works leaders in the country last May during National Public Works Week.

## Burrard Yarrows To Build Two Icebreakers For Can. \$108.5-Million

Burrard Yarrows Corporation of Vancouver has received an order from the Canadian Government to build two Type 1100 Navaid/Light icebreaking vessels at a total cost of Can. \$108.5 million. Construction will begin early next year.

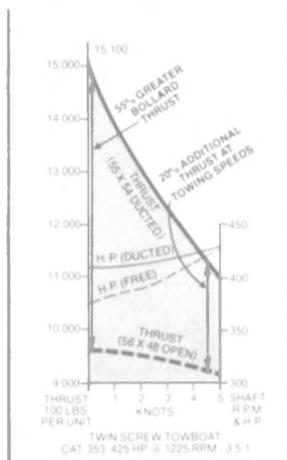
The icebreakers are to be constructed at the Burrard Yarrows yards in either Esquimalt or North Vancouver, commencing in March 1984. Each vessel will create 400 person-years of work, with delivery of the first vessel to take place on October 1, 1985 and the second on January 15, 1986.

The principal characteristics for this new Coast Guard icebreaker are: Length 83.00 meters; Breadth 16.20 meters; Depth 7.75 meters; Displacement 4,662 tons; Horsepower 8,445; Speed 15.3 knots; Range 6,500 Nautical Miles at 15 knots; Crew 52.

The ships are to be equipped with twin-screw diesel electric propulsion and the hulls will be suitable for icebreaking purposes as Arctic Class II vessels.

# Michigan Wheel nozzle: The state of the art.

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Open vs Ducted System comparison

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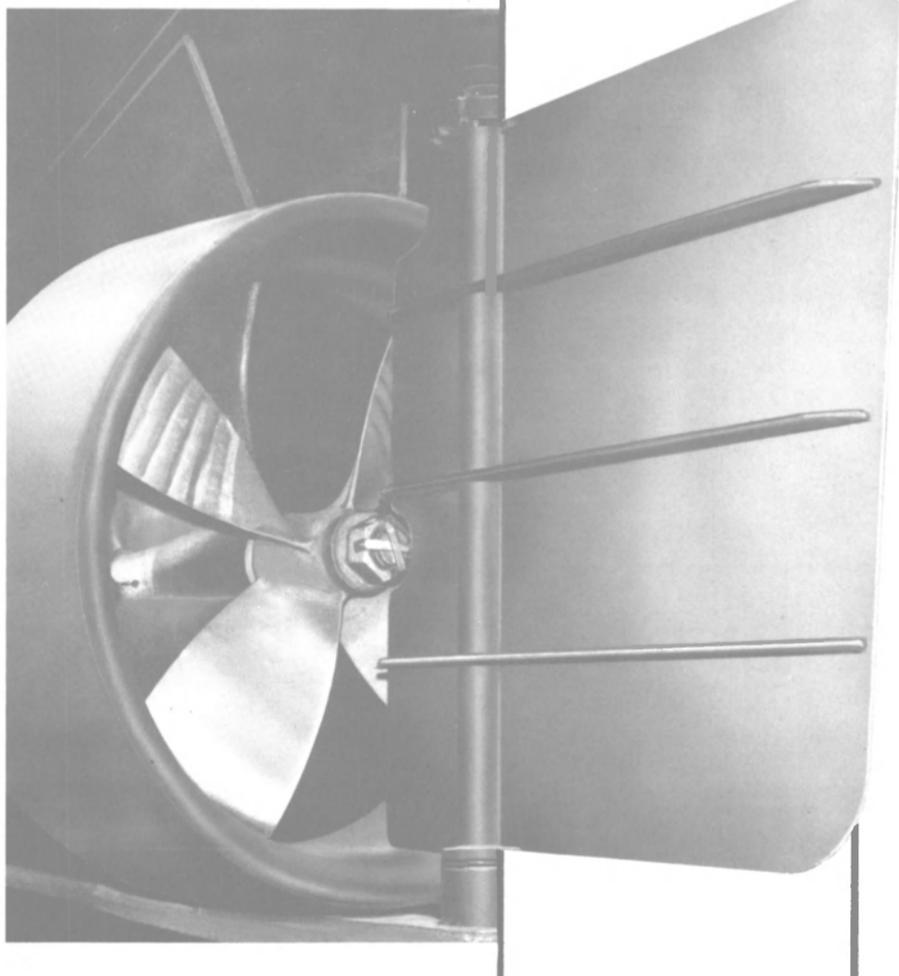


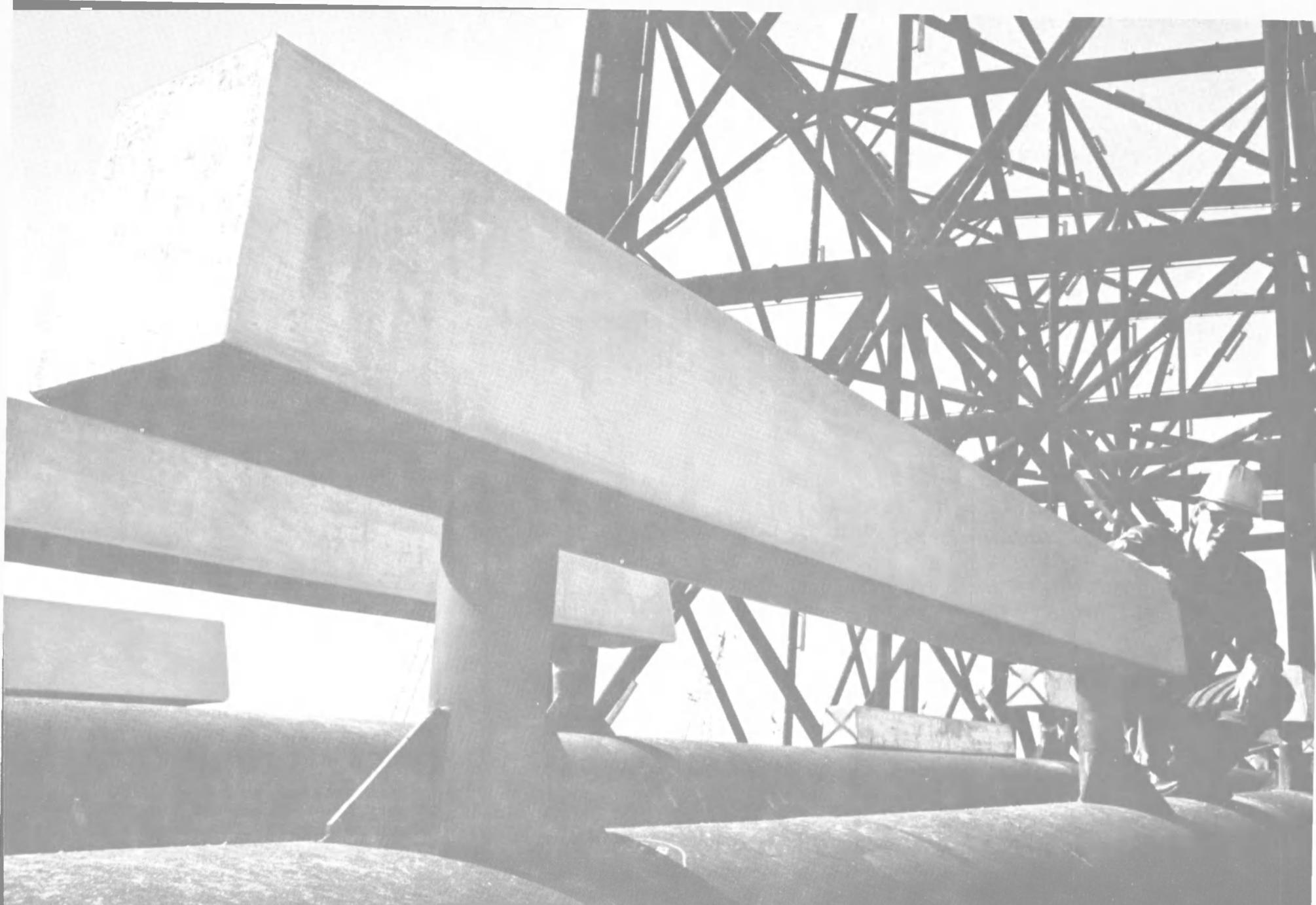
**MICHIGAN NOZZLE SYSTEMS.** When Michigan Nozzle Systems—which feature Kaplan-style blades—are compared to open props, they deliver more thrust with equal power, or comparable thrust with less power. Fuel savings have been reported up to 25%. Bollard thrust increases from 40% to 50% are also common. Thus, the logic for retrofitting with a Michigan Nozzle System becomes obvious: When operational costs go down, profits go up.

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**Mormac Ship Saves  
Fuel With Westinghouse  
Control System  
—Literature Available**

The S.S. Mormacsun, a tanker owned by Moore MacCormack Lines, Bulk Transport Inc., is

burning \$168 in fuel less per day utilizing combustion trim control systems manufactured by Westinghouse Electric Corporation, Combustion Control Division, headquartered in Orrville, Ohio, according to a Westinghouse report. Each system consists of a Westinghouse Hagan Model 218 Heavy Duty Oxygen Analyzer and

a Model 1400 Microprocessor-Based Oxygen Trim Controller. The systems were installed on the Mormacsun boilers in June 1981.

The S.S. Mormacsun is 39,000 tons, operates at an average speed of 15 knots and burns approximately 16,600 gallons of fuel oil per day. Prior to installation of the combustion control systems, the

air-to-fuel ratio in the boilers' combustion processes were manually adjusted based on visual observation of flue gas and the use of a hand held flue gas sample extraction analyzer. Excess oxygen in flue gas is an excellent indicator of combustion efficiency since it is directly proportional to excess air. Some excess air is necessary for safe smoke free operation. Too much excess air results in large dollar losses because extra fuel is burned needlessly to heat this excess. Too little excess air, increases costs because expensive unburned fuel goes up the stack.

Moore MacCormack engineers estimate the air-to-fuel ratios in the two Mormacsun boilers were being operated at 4% excess oxygen. "We knew that existing automation just wasn't accomplishing maximum efficiency. So we began to seek methods of automatically adjusting the air-to-fuel ratios," said **Erny Otterspoor**, manager of Energy Conservation for Moore MacCormack Lines, Inc. "The Westinghouse system is operating quite well after its initial start-up period."

The first step in upgrading the boiler combustion control systems involved the installation of the in situ oxygen analyzers. The Westinghouse oxygen analyzers utilize a zirconium oxide sensor inserted directly within the flue stack. They provide quick, continuous readings of the excess oxygen content in the flue gas. The oxygen analyzer data is fed into the Westinghouse microprocessor-based oxygen trim controller. The unit automatically trims the combustion air flow, regulating the air-to-fuel ratio. The combustion trim control systems have consistently controlled the excess oxygen at levels ranging from 2.5 to 3%. These figures represent at least a 1% reduction in excess oxygen. Moore MacCormack engineers believe a 1% reduction in excess oxygen produces a fuel savings of at least three barrels of oil per day in each boiler.

Based on these calculations Moore MacCormack received a payback on the equipment alone in about eight months and, including the cost of installation, a payback on the total package in about fifteen months.

"The chief engineer on the S.S. Mormacsun is quite pleased with the Westinghouse control system," Mr. **Otterspoor** said. "In fact, he has allowed the boilers to remain on the automatic Westinghouse control system even during maneuvers which certainly shows confidence in the equipment."

In addition to the fuel savings, Moore MacCormack engineers believe the Westinghouse combustion trim control system will assist them in complying with the new international Maritime Organization (IMO) regulations that require inert gas systems. These new regulations stipulate that boilers produce flue gas with 5% or less oxygen. This inert flue gas is

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## Maritime Satellites

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The Sedco 602, an offshore drilling rig, now in Singapore, has become the 2,000th user equipped for maritime satellite communications. With its newly installed ship earth station, the rig has access to the international maritime satellite system operated by INMARSAT, which provides the satellite capacity for telephone, telex, facsimile and data communications to the worldwide shipping and offshore industries.

The Sedco 602 is a new rig, built in Singapore, which is owned by a joint partnership between Sedco, Inc. and Occidental Petroleum. The rig will be going to the Philippines and later to China for offshore exploration work. The satellite terminal is to be used for telephone and data communications.

With 39 member countries, the International Maritime Satellite Organization (INMARSAT) has a wide range of users including oil tankers, offshore drilling rigs, passenger liners, cargo and container vessels, yachts and fishing boats, as well as research bases in Antarctica and production platforms in the North Sea.

### C. E. Laborde Jr.

C.E. Laborde Jr., one of the early founders, organizers and a director emeritus of New Orleans-based Tidewater Inc., died recently in Lafayette, La. He was 70 years old.

A native of Marksville, La., Mr. Laborde was instrumental in the 1954 organization of Tidewater and drafted the formal articles of incorporation of Tidewater Marine Service Corporation of Louisiana, the predecessor of Tidewater Inc. The company is, today, one of the world's largest suppliers of marine support services to the offshore oil and gas industry.

### Electro-Nav Brochure Describes Microprocessor Controlled Marine Receiver

Electro-Nav president Robert E. Negron announced recently the introduction of an inexpensive high-quality point-to-point microprocessor-controlled receiver with important advantages for seagoing vessels and coast stations. A brochure is offered describing the receiver.

Microprocessor control permits user pre-programming of more than 100 frequencies and their retrieval at the touch of a button, in any

four operating modes: AM, CW, SSB, and F1B (SITOR). Narrow-band direct-entry offset allows immediate SITOR tuning without the need for tedious mental calculations.

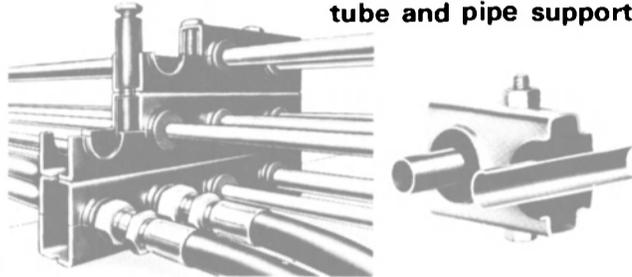
Other integral EN-R2 circuits also speed up traffic handling and

increase reliability of reception. The EN-R2 is non-volatile and will not lose its memory even if ship's power fails. It comes equipped with an AC and DC power supply, and automatically reverts to battery in the event of a power failure. It is the ideal re-

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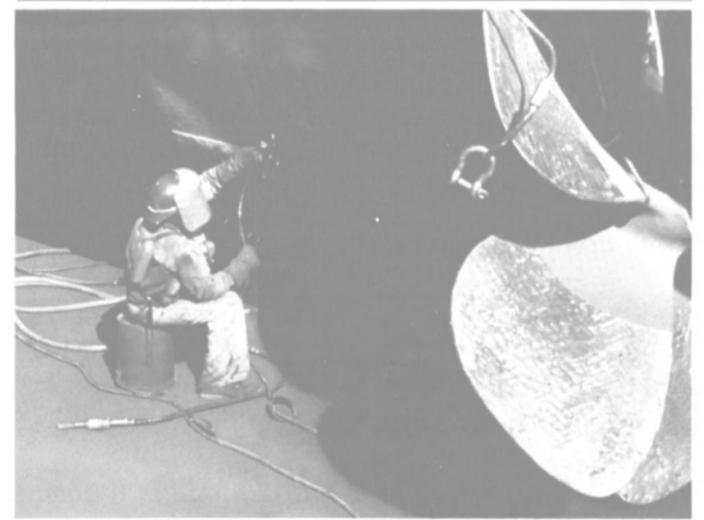
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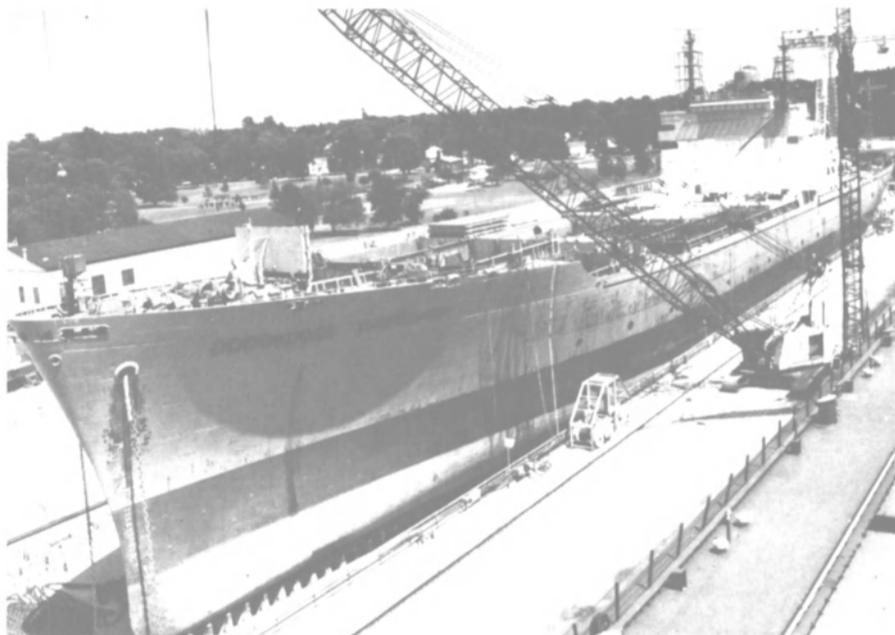
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## Bay Shipbuilding Converts Ex-President Harrison



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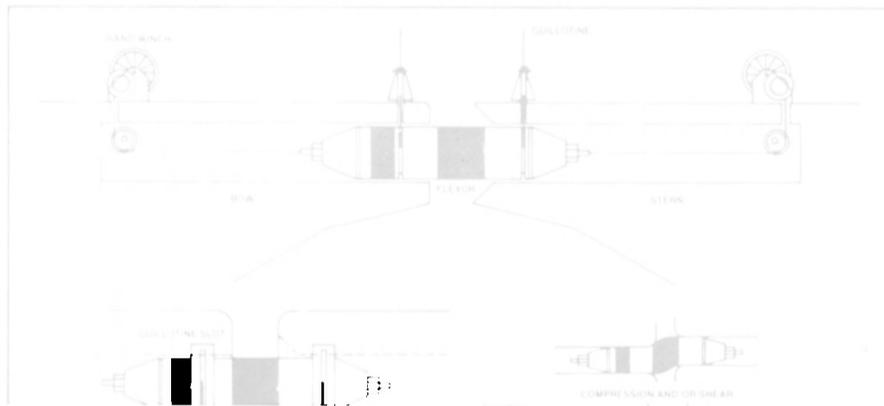
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#### WORLD-WIDE LOCATIONS



### Caterpillar Offers Free Literature On New Lift Truck For Containers

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used to blanket the ullage space in cargo oil tanks.

For free literature fully describing the Westinghouse combustion control trim system,

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## Maritime Satellites

### Now Reach 2,000 Users

The Sedco 602, an offshore drilling rig, now in Singapore, has become the 2,000th user equipped for maritime satellite communications. With its newly installed ship earth station, the rig has access to the international maritime satellite system operated by INMARSAT, which provides the satellite capacity for telephone, telex, facsimile and data communications to the worldwide shipping and offshore industries.

The Sedco 602 is a new rig, built in Singapore, which is owned by a joint partnership between Sedco, Inc. and Occidental Petroleum. The rig will be going to the Philippines and later to China for offshore exploration work. The satellite terminal is to be used for telephone and data communications.

With 39 member countries, the International Maritime Satellite Organization (INMARSAT) has a wide range of users including oil tankers, offshore drilling rigs, passenger liners, cargo and container vessels, yachts and fishing boats, as well as research bases in Antarctica and production platforms in the North Sea.

### C. E. Laborde Jr.

C.E. Laborde Jr., one of the early founders, organizers and a director emeritus of New Orleans-based Tidewater Inc., died recently in Lafayette, La. He was 70 years old.

A native of Marksville, La., Mr. Laborde was instrumental in the 1954 organization of Tidewater and drafted the formal articles of incorporation of Tidewater Marine Service Corporation of Louisiana, the predecessor of Tidewater Inc. The company is, today, one of the world's largest suppliers of marine support services to the offshore oil and gas industry.

### Electro-Nav Brochure Describes Microprocessor Controlled Marine Receiver

Electro-Nav president Robert E. Negron announced recently the introduction of an inexpensive high-quality point-to-point microprocessor-controlled receiver with important advantages for seagoing vessels and coast stations. A brochure is offered describing the receiver.

Microprocessor control permits user pre-programming of more than 100 frequencies and their retrieval at the touch of a button, in any

four operating modes: AM, CW, SSB, and F1B (SITOR). Narrow-band direct-entry offset allows immediate SITOR tuning without the need for tedious mental calculations.

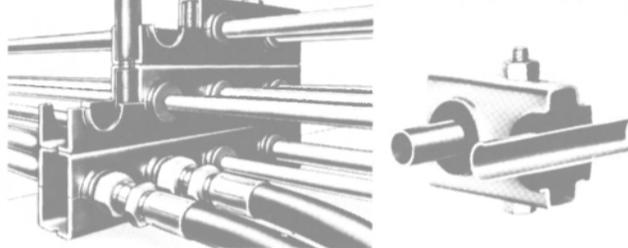
Other integral EN-R2 circuits also speed up traffic handling and

increase reliability of reception. The EN-R2 is non-volatile and will not lose its memory even if ship's power fails. It comes equipped with an AC and DC power supply, and automatically reverts to battery in the event of a power failure. It is the ideal re-

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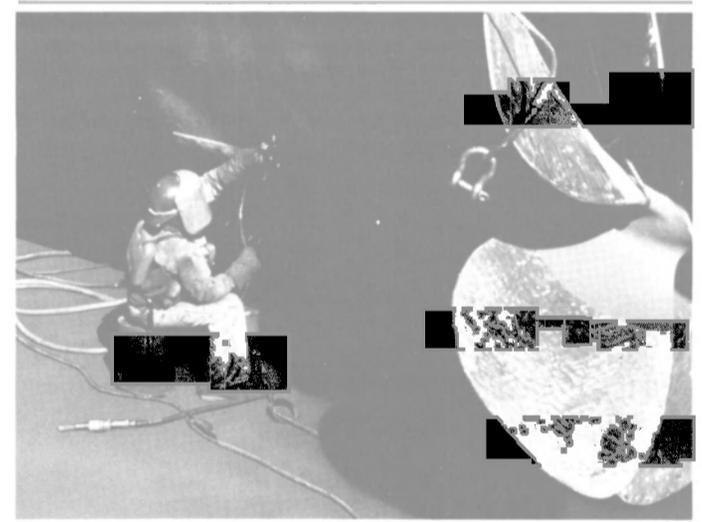
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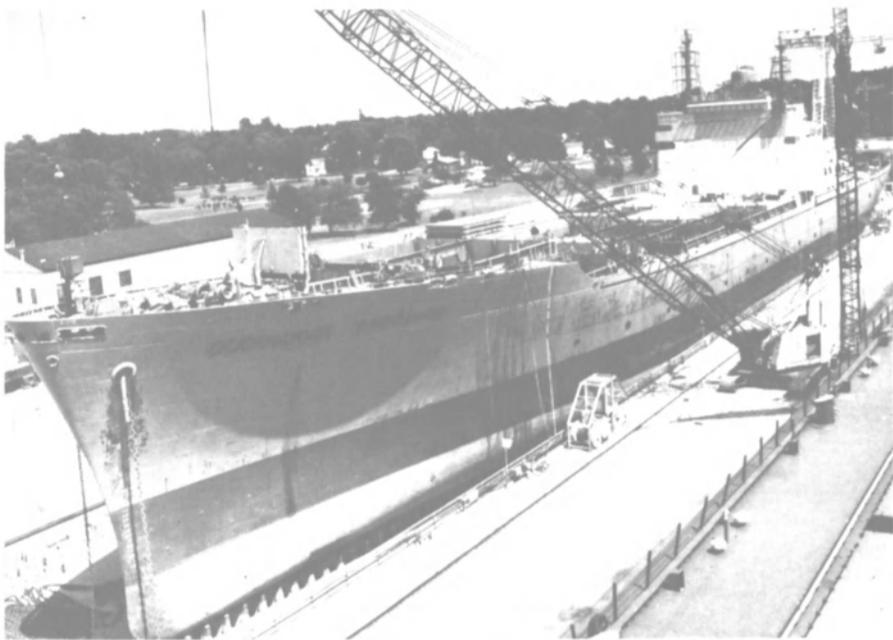
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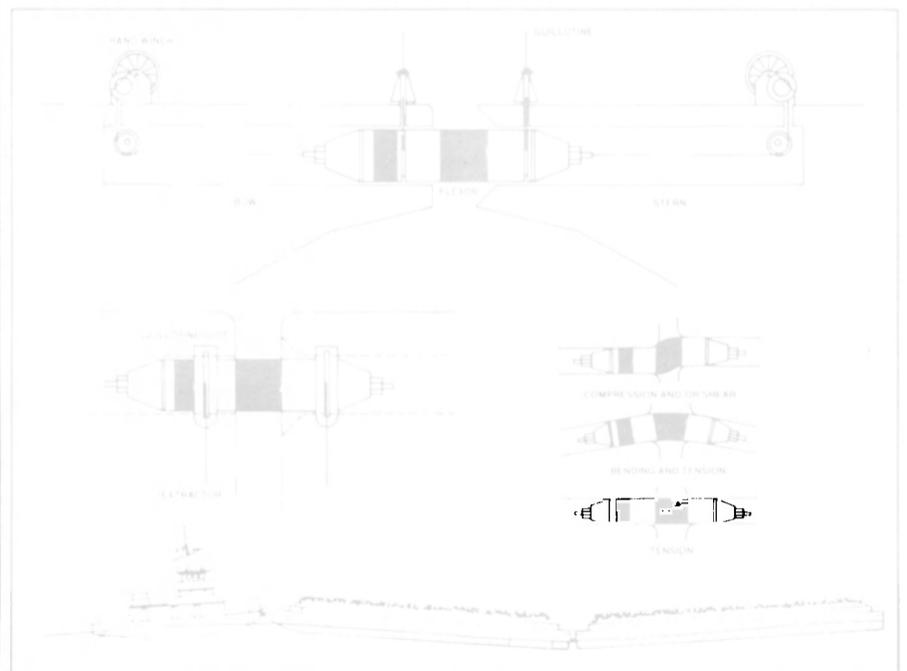
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#### WORLD-WIDE LOCATIONS



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Mr. Ducommun noted that the Flexor has been extensively proven in the United States Navy, which has more than 200 in use and 140 more on order.

Mr. Ducommun said that the commercial version of the Flexor will enable four to six 150- to 200-foot-long barges to be connected and either pulled or pushed by a tug. Compared to the Navy's Flexor, the commercial version will be approximately twice as long and eight times as heavy.

Important advantages offered to commercial barge owners by the Flexor and the Barge Train concept include: (1) Additional revenue opportunities from expanded areas of operation; (2) Additional revenue from more efficient operation; (3) Relatively low initial cost; (4) Simple and inexpensive installation; (5) Quick and easy coupling even in open water; (6) Enables barge sections to ride waves while absorbing the sea forces; (7) Enough rigidity to enable pushing four to six barges by tug—pushing is more efficient than pulling; (8) Almost continuous tug operation—picking up, moving, and dropping off barges—minimum time wasted, maximizing efficiency; (9) Flexibility—barges of 2,000 to 8,000-ton displacement can be used as temporary warehouses; (10) Fast uncoupling in emergencies; (11) Barge Trains move faster—close-coupling safely permits increased speeds; (12) Larger payloads and faster speeds reduce costs and increase profits.

The commercial Flexor is approximately 14 feet long, 30 inches in diameter and weighs 8,000 pounds. Each end consists of a hollow tapered steel casting with a circumferential groove that accepts a guillotine latch which falls into locked position when the Flexor assumes its position in a barge receptacle.

A thick steel cable, running through the center of the Flexor, is tightened so the unit is in compression.

The Flexor receptacle is a reinforced steel tube welded into position. Both ends of a barge have two or four receptacles. Hand winches at the inboard ends of each receptacle pull hawsers attached to each end of the Flexor bringing the two vessels together and guiding the tapered tip of the Flexor into the receptacle.

The units also can be set up for remote uncoupling in emergencies. When the barges are connected, they are approximately 30 inches apart. When disconnected, Flexor units retract and store in the receptacles.

Since 1970, American Metal Bearing has been a major supplier of bearings to the U.S. Navy and to more than a dozen shipbuilding firms.

For free literature containing full details on the Flexor and the Barge Train concept,

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## RTCM Hears Review Of Future Distress System By U.S. Coast Guard

The Radio Technical Commission for Maritime Services at its regularly scheduled October meeting had Capt. M.E. Gilbert as a guest speaker. Captain Gilbert reviewed the Future Global Marine

Distress and Safety System in general and the highlights of IMO's COM September 26 meeting in particular. Captain Gilbert heads the United States delegation to IMO's Subcommittee on Radio-communications.

The discussion highlighted the differences between the present and the soon-to-be-distress systems, the actions that have been

taken to implement the system and the actions yet to be taken to meet the targeted implementation date. The United States preparatory actions in FCC Docket 83-431 and the Coast Guard's recent trial broadcasts of NAVTEX (Navigational and Meteorological Warning Broadcast Service) out of Boston were also described.



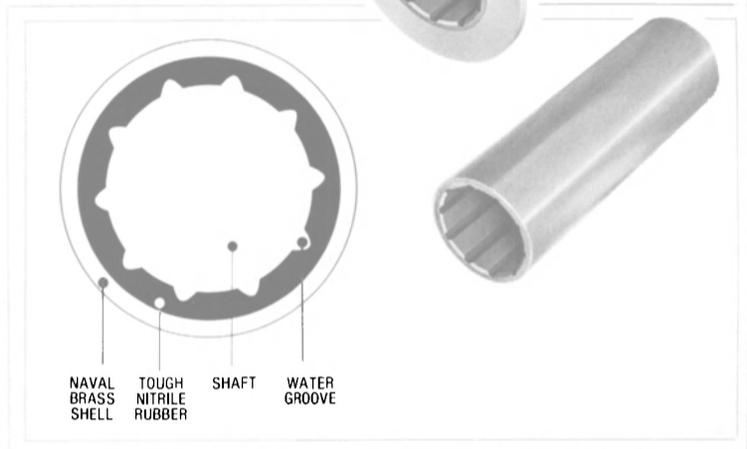
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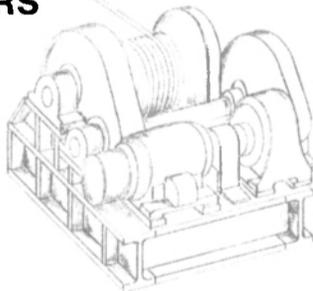
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The vessels, built by Marine Power and Equipment Co., Inc., Seattle, Wash., are for use in the Alaskan oil trade.

The vessels include oil and deck cargo barges and tugs rated from 2,400 to 10,000 brake horsepower.

The Title XI guarantee covers \$58,252,000 or 75 percent of the estimated actual cost of \$78,998,138.

The MarAd guarantee is designed to assist the company in obtaining favorable commercial financing for the project.

**American Systems Names Tiedemann As A Principal**

Carl M. Albero, president of American Systems Engineering Corporation (AmSEC), announced the appointment of Hollie J. Tiedemann to principal of the firm. Mr. Tiedemann is a senior program manager for the management services division of the Virginia Beach office which provides services to COMNAVSURFLANT and American Management Systems, Inc.

**Squire-Cogswell Offers Literature On Oil-Free Marine Air Compressors**

Squire-Cogswell Company, air and vacuum specialists since 1916, has been providing 100 percent oil-free air for industrial and marine shipboard applications with their Pur-Pax single and two-stage oil-free air compressors. The Two Stage Air Compressor features a unique Dyna-Balance system which incorporates a synchronized counterweight design that eliminates the need for special base foundations normally required for reciprocating type air compressors.

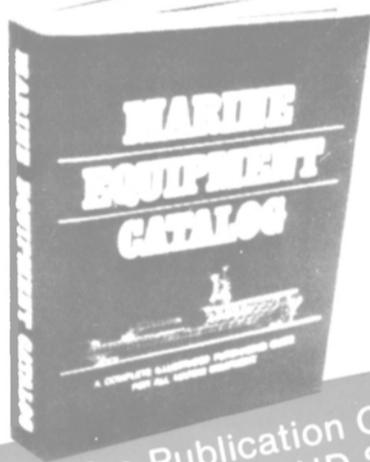
The key to smooth performance is a pair of gear driven counterweights that move at the same speed as the pistons but in an opposite direction. This feature dampers out most vibration under both load and unloaded conditions. Available in motor ratings from 5 to 30 hp, standard unit capacities range from 20 cfm to 104 and pressures to 125 psig.

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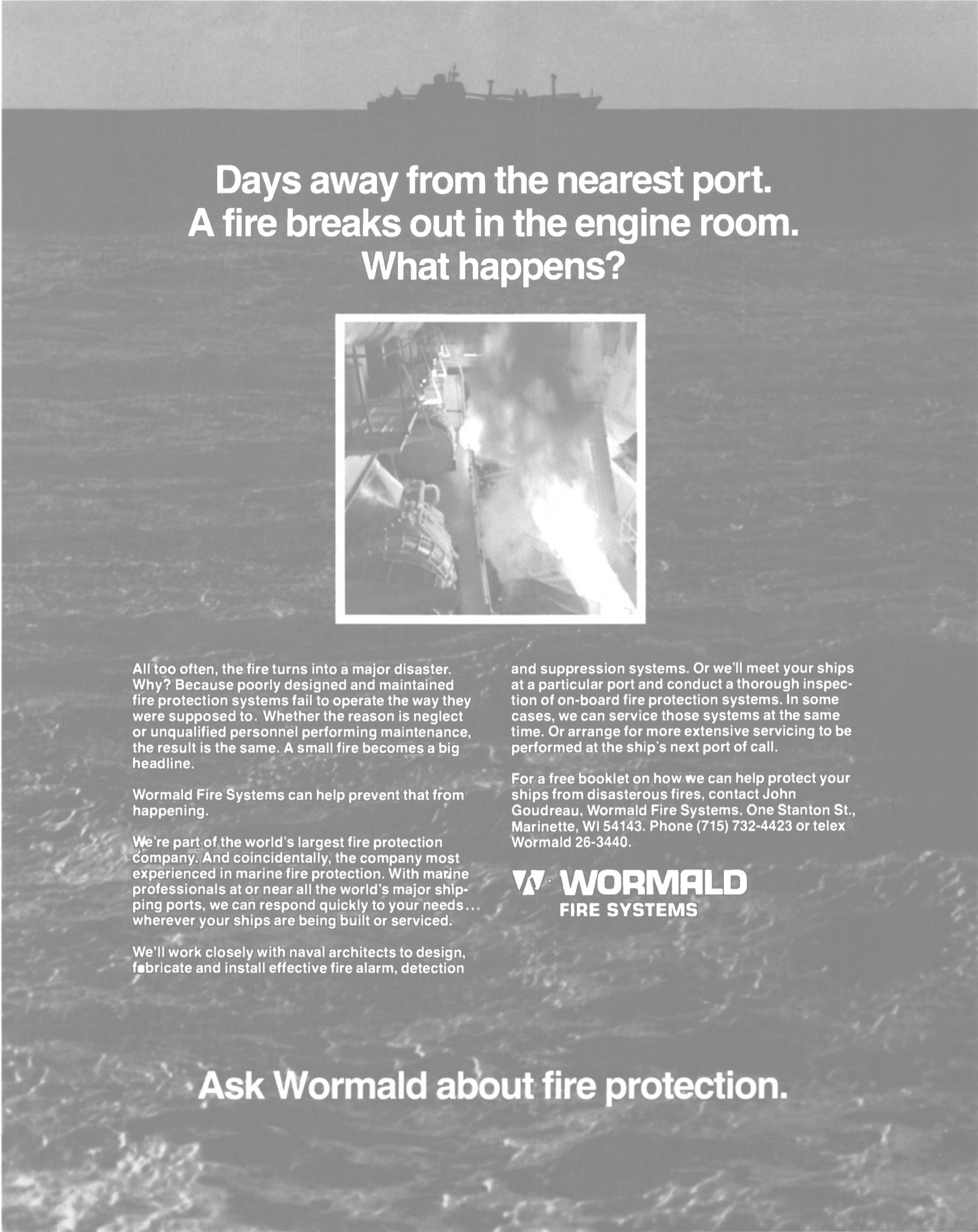


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**Detector Electronics Offers Literature On Dual-Mode Flame And Smoke Detector**

An unusual dual-mode explosion-proof fire detector that reacts to both smoke and flame has been

introduced by Detector Electronics of Minneapolis, Minn. Literature is available describing the system.

It's the industry's only combination fire/smoke detector using a single sensing element making it ideal for high-hazard applications, the company said. Because of its

fast flame response—measured in milliseconds—and its ability to sense smoke buildup, the instrument, which can handle up to 64 detectors, is especially well-suited for protecting hazardous installations such as gas and chemical storage tanks, refineries, pipe-

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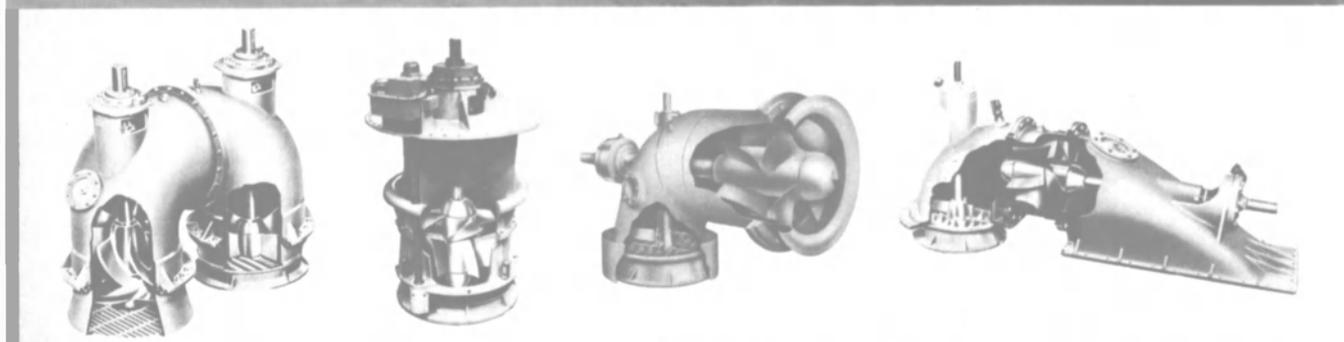
Hundreds of these easy to install units—original equipment and retrofits—are saving time and money on tankers, tugs, oil rig service vessels, barges, research ships, salvage vessels, cable ships, ferries and other vessels throughout the world.

For full information on White Gill thrusters in four basic models and a wide range of sizes, call or write for a copy of our Bulletin Q-57A. Elliott Company, P.O. Box 239, Springfield, Ohio 45501. Phone (513) 324-4191. TWX 810-452-2865. Or Elliott Turbomachinery Ltd., Zeta House, Daish Way, Dodnor Lane, Newport, Isle of Wight, England PO30 5XJ. Phone Newport, I.O.W. (0983) 521333. Telex No. 86216 ELLIOT G.

**White Gill.**  
It's like taking your tugs with you.



**UNITED TECHNOLOGIES ELLIOTT**



**Putnam Named Manager Power Cable Products At Anixter Bros.**

Carl Putnam has been promoted to manager—Power Cable Products for Anixter Bros. Wire and Cable division, of Skokie, Ill., it was announced by Robert J. Wilson, group vice president.

Mr. Putnam joined Anixter in 1975. He most recently directed Anixter's Cleveland wire and cable sales and distribution facility.

In his new position, Mr. Putnam will join Anixter's Power Cable Group, and be responsible for special sales programs and new markets.

**Hempel's Names Borsboom Executive Vice President And General Manager**

Corporate management has announced the appointment of Theo Borsboom to executive vice president and general manager of Hempel's Marine Paints, Inc., Wallington, N.J.

Mr. Borsboom was previously general manager in Hempel's Saudi Arabia branch for seven and one-half years.

As chief operating officer, he will be responsible for Hempel's Marine Paints' activities in the marine and industrial areas.

**Vredestein Dredge Hose Described In Literature From TCS Industrial**

Free literature describing the complete line of Vredestein Dredge Hoses is now available from TCS Industrial Company of St. Paul, Minn.

TCS has been appointed exclusive sales representative for the United States by Vredestein Industrial Products b.v. of the Netherlands.

Vredestein is a leader in the manufacture and supply of suction and discharge sleeves, combined suction and discharge sleeves and floating hose in the dredging industry. The valuable experience Vredestein has accumulated in this specialized field over the past 40 years is reflected in the quality of

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their products. For years, Vredestein has been a leading supplier of sleeves and hoses to the world's leading dredgers.

For complete literature describing the Vredestein hoses,

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### Collins Named Oil/Water Separator Coordinator At Butterworth



Rod Collins

**Rod Collins** has been appointed Oil/Water Separator Coordinator for Butterworth Systems (U.K.) Ltd., based in Croydon, England. He will be responsible for production and distribution worldwide of Butterworth Systems oil/water separators.

Mr. Collins joined Butterworth Systems (U.K.) Ltd., in 1980 as sales engineer, oil/water separation. He has over 20 years of engineering and technical experience in the marine field.

Butterworth Systems provides Separator-Filter-Coalescer Oil/Water Separators for control of oily discharge of ship bilge-water and for industrial applications. Four sizes are available with capacities of 1/2, 2, 5, and 10 cubic meters per hour, in manual and automatic models.

For free literature on Butterworth's oil/water separators

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### \$250,000 Order For Atlas Fishing Systems —Literature Available

Krupp Atlas-Elektronik Division of Krupp International Inc., N. J. announced the delivery of Atlas microprocessor-controlled fish-finding systems worth \$250,000, for installation on the Arcturus, a new trawler/crabber vessel built for Jeff Hendricks and Associates of Anacortes, Wash. Constructed by Dakota Creek Industries Inc., the 40-meter-long vessel has already successfully completed her first operational

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venture in the Bering Sea, catching Alaskan pollack.

Among the Atlas systems fitted is an advanced 950 sonar with an operating range of 4km and its high-definition 90° sector illumination, and a series of vertical fish-finding systems, the 611, 781

and 871, interfaced with newly developed Atlas 312 color echoscope.

The Atlas Dolog-12D doppler log allows precision monitoring and control of the vessel's rate of turn and longitudinal and transverse speed. Speed measurement is derived with an accuracy of 0.2 per-

cent and used to calculate sea current speed and direction, allowing the skipper to align 'Arcturus' and its gear with the current.

For more information on Krupp Atlas products,

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## VISIT OUR BOOTH NO. 915, INTERNATIONAL MARITIME EXPOSITION



## PROVEN QUALITY & RELIABILITY ...OPTIMUM PRICING & DELIVERY!

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- GREAT LAKES SHIPS to 1,100'.
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- BUILDING SHIPS SINCE 1902...an established company, in a new location with modern facilities, including computer lofting and burning.

Bay Shipbuilding Corp. has built more modern self-unloading ships than any other shipyard in the United States... 15 within the past 7 years. In addition, 16 vessels have been converted to self-unloaders.

Our Company's 80 years of expertise is the primary reason we routinely deliver on schedule.

Our personnel have experience in coal or oil-fired steam propulsion and diesel ships. Our experience also includes the construction of commercial ocean tankers/barges and chemical carriers, dump barges, derrick ships, passenger ships, tug/barge units including self-unloading barges, stern trawlers, and industrial products.

WE'RE READY TO SERVE YOU...

### BAY SHIPBUILDING CORP.

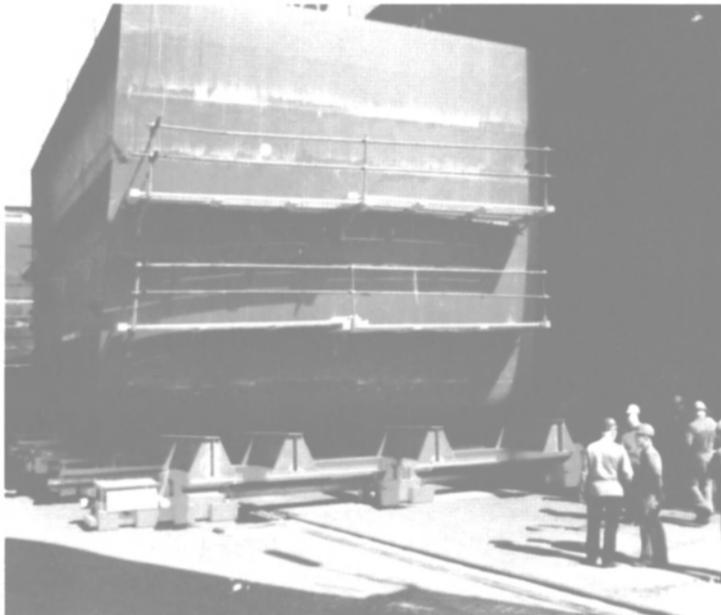
Subsidiary of The Manitowoc Company, Inc.  
605 North 3rd Avenue, Sturgeon Bay, WI 54235  
Phone: 414-743-5524/Telex:263448 MTWC ENG MATC  
Twx:910-260-3500 MTWOC ENGR

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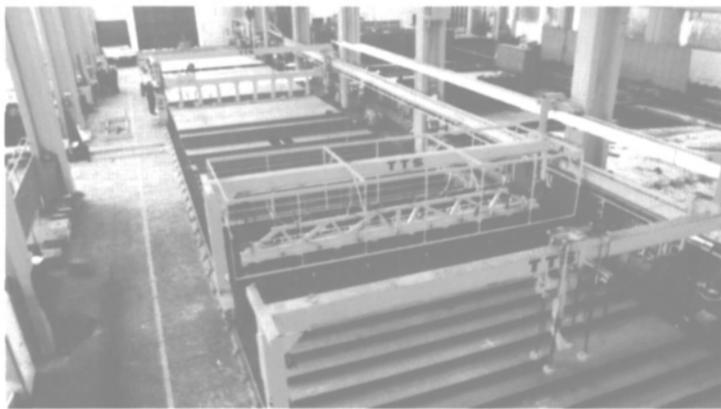
**Production systems for ships, barges and offshore structures.**



Shape fabrication line.



Section assembly line with heavy lift transport.



Panel line.

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TTS systems are both practical and economical, offering immediate increases in productivity.

Our panel and section assembly lines can be used to build any kind of ship, barge or offshore structure, regardless of your yard size. Two to ten man-hours per ton can be realistic production figures.

Our shape fabrication lines dramatically reduce material handling costs. And our shot blast and paint processing systems clean and prime steel efficiently.

By using TTS systems, you'll realize improved

material handling, production flexibility and improved working conditions, without cumbersome and costly equipment. And we build to your requirements and suit your existing shop floor.

TTS can assist you in reducing costs in the 80's; we have done so for others the world over, again and again.

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**TOTAL**  
**TRANSPORTATION**  
**SYSTEMS INC.**

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**SNAME Booth 209**

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## **\$12-Million Submarine Propulsion Contract Awarded To G.E.**

General Electric Company, Washington, D.C., is being awarded a \$12,000,000 firm-fixed-price letter contract for one shipset of main propulsion machinery for an SSN-688 class submarine, including main steam turbines, reduction gear, flexible coupling and emergency propulsion system. The Naval Sea Systems Command, Washington, D.C. is the contracting activity (N00024-83-C-4673).

## **Portugal's Viana Shipyard Appoints Keppel Marine As U.S. and Canadian Agents**

Viana Shipyard of Viana Do Castelo, Portugal, has announced the appointment of Keppel Marine Agencies Inc., of New York City and Houston, Texas as its exclusive agents in the U.S. and Canada.

Viana, situated 45 miles north of Oporto on the River Lima, is equipped with three drydocks able to accommodate vessels of up to 25,000 dwt. The yard also has extensive new building experience and has constructed many vessels of all types including product and LPG tankers, trawlers, cargo vessels, barges, ferries and warships.

For additional information, on the services offered by Viana Shipyard,

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## **John J. Flanagan Named To Lykes Post**

John J. Flanagan has been named general manager, sales, Eastern division, for Lykes Bros. Steamship Co., Inc. He will be located at the company's New York City Offices.

Mr. Flanagan most recently served as vice president—sales, Dart Orient Services, Inc. Prior to that he held positions as general sales manager—New York office and regional sales manager (Midwest), Atlantic Container Line; vice president, Great Lakes Motorships, Inc.; and regional freight manager in Cleveland and New York, Cunard Line.

## **Fire-Tested Valves And Actuators Described In Free Jamesbury Brochure**

A new full-color brochure from Jamesbury Corp. of Worcester, Mass., describes its broad line of

"Fire-Tite" ball and high-performance butterfly valves and its fire-tested actuators.

The products are well-suited for handling flammable liquids, gases, and other hazardous materials where leakage in the event of a fire would either fuel the fire or present a dangerous environment.

The brochure describes with diagrams the secondary metal-to-metal sealing that takes place if the primary TFE seats are destroyed in a fire. Actuators available with these valves can be either units which in the case of fire immediately return the valve to its spring-driven position (closed or open), or actua-

tors that are shielded and protected to allow continuing operation of the valve through the fire.

For a free brochure,

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# **Isolamin panels keep your accommodations light tight bright quiet nice and safe, too**

More than 600 ships and 100 platforms are fitted with Isolamin-paneled accommodations because they work perfectly as a totally engineered system.

Light — Single-wall construction: 4.5 lbs./sq. ft. to save tons and increase payload.

Tight — Self-supporting walls, ceilings and floors support one another for stability, vibration reduction. Standardization keeps assembly costs 30 per cent below other panels. Mounting mechanisms lock quickly in place. No framing required. One supplier — Isolamin — saves time and money.

Quiet — Sound reduction is incredible: 33 dB cabin-to-corridor; 45 dB between units. Plus superior thermal insulation: 66 BTU/hr. at 2°F.

Bright — Available in a wide range of fresh, attractive colors and finishes to provide a warm, pleasant environment.

Safe — U.S.C.G.-approved all-steel panels conforming to B-15/A-60 SOLAS 74 requirements.



For further details contact

**CONSAFE INC.**

Authorized U.S. Representative

P.O. Box 40339 Houston, Texas 77040 Phone: 713/446-6720 Telex: 794453

**Port Allen Marine Offers  
Four-Color Brochure On  
Full Shipyard Services**

Port Allen Marine Service (PAMS), of Cincinnati, Ohio, is currently offering a 14-page color

brochure highlighting its many marine capabilities.

PAMS, with modern and efficient facilities on the Gulf Intra-coastal Waterway and in the Port of Baton Rouge, is among the most diverse shipyards on the lower Mississippi.

The booklet, complete with four-color photographs describes the many services offered by PAMS including marine construction, barge cleaning and painting, mid-stream and dockside repairs, quarters houses, drilling structures, and machine shop work.

PAMS is backed by the capabilities and resources of America's leading water transportation system, Midland Affiliated. For a free booklet and more information on Port Allen Marine Service,

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**Krupp Atlas Receives  
Contracts Worth \$800,000  
For Atlas ARPAs**

Krupp Atlas-Elektronik recently received contract awards totaling \$800,000 for their Atlas ARPA 8500 A/CAS radar systems from Karageorgis and Maymar Marine Enterprises. The systems were installed to upgrade their fleets' primary radar facilities in accordance with the latest IMO and United States Coast Guard requirements.

For free literature on the ARPA 8500 A/CAS and other Krupp Atlas equipment,

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**Marine Transport Lines  
Appoints Whitehorne  
Marketing Manager**



Eugene F. Whitehorne

Eugene F. Whitehorne has been named manager of marketing at Marine Transport Lines, headquartered in New York, it was announced by **Sundar K. Sundaresan**, vice president of marketing and corporate planning for MTL.

In his new position, Mr. Whitehorne will be responsible for bulk shipping charters, especially in the chemical processing industry. His primary responsibility will be the management of Union Marine Transport Company, a shipping firm formed jointly by MTL and Union Carbide Co.

Formerly president of his own marine transportation consulting firm, Mr. Whitehorne has had 17 years' experience in marine chartering and marine transportation management.



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**Man overboard  
strobes with  
50-hour  
performance**



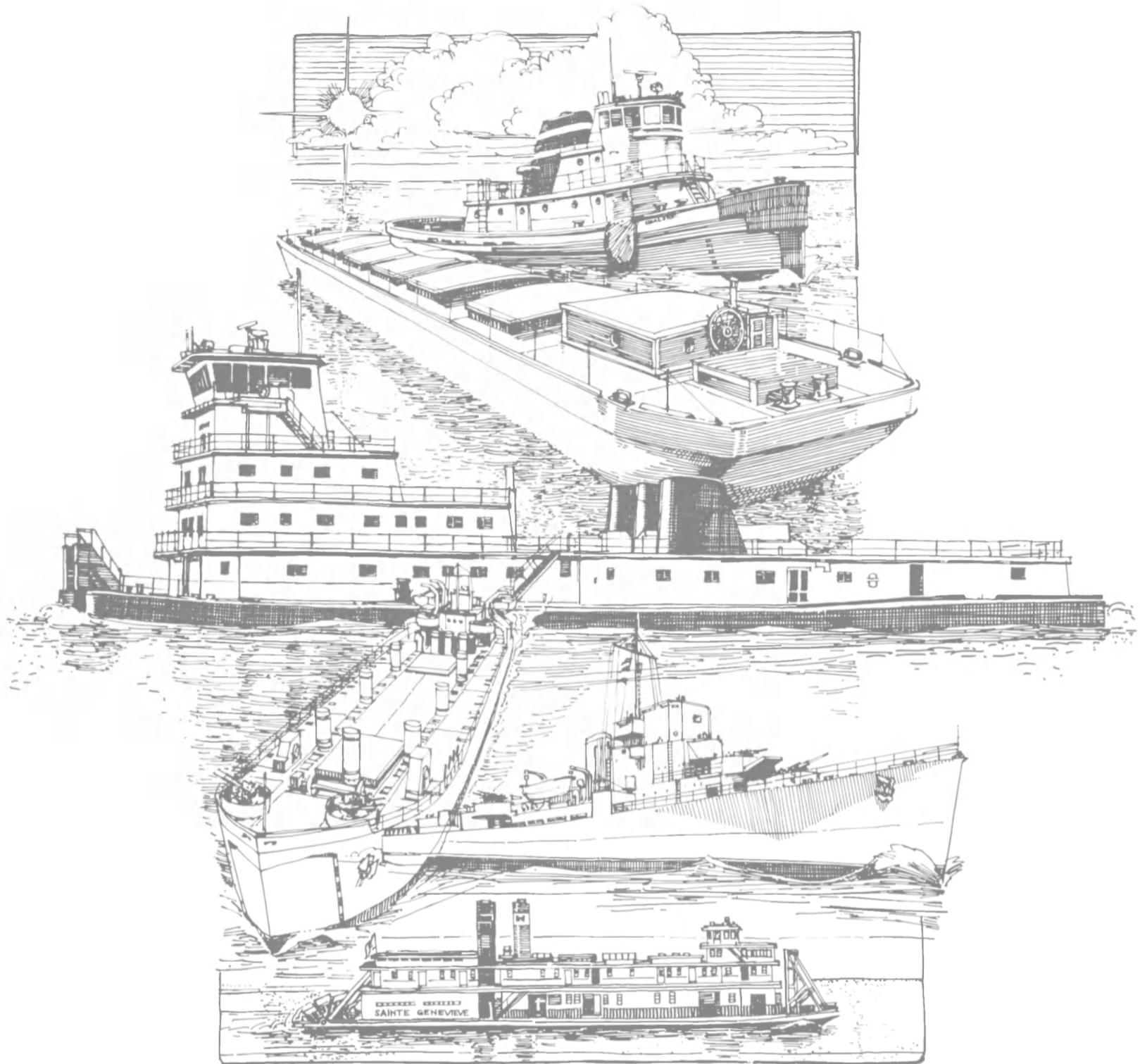
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Take confidence aboard with ACR's Distress Marker Light (Model 566) and Illumination Marker (Model SM-2). High intensity strobes penetrate rain, fog, haze. Automatically activated when turned upright. Water-proof, shock resistant, non-corrosive. Both are USCG approved. **Send for full-line ACR catalog.**

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Our strength comes from over 65 years of marine equipment **experience**. We have designed, engineered and constructed more than 8300 hulls for the inland rivers and **other** ports of call. Floating cranes. River and sea-going dredges. Tugboats. Landing ships for tanks (LST). Subchasers, mine sweepers and destroyer escorts. And, our mainstay, barges and towboats.

We have the capacity, the staff and the know-how to deliver most marine equipment requirements...and on time.

Our strength is our **experience**. We welcome the opportunity to prove it.

### **Dravo Marine Equipment Company**

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For complete Marine Repair and Fleeting Services, call: Day - (412) 777-5122 Night - (412) 777-5300.

### Free 4-Color Howe Baker Brochure Shows How New Burner Cuts Fuel Costs

A new four-color brochure, describing the substantial fuel-saving potential that cuts fuel costs

when retrofitting the modern, highly efficient patented Econoflex Burner System into existing boilers, is now available from Howe-Baker Engineers, Inc., Tyler, Texas. Power, marine and mechanical engineers, and virtually anyone con-

cerned with shipboard steam generation will find important information in the six-page full-color literature. Photos of typical radiant flames, improved turn-down ratios, fine atomization, multi-fuel versatility, control

packages and typical operating data are all included. Typical pay-backs are less than one year.

Econoflex Burner Systems most often include all piping and controls. The entire package is delivered to dockside as a unit, ready to be installed on a short turnaround basis with minimum downtime and disruption to operations.

For additional information and a free copy of the Econoflex Burner Retrofit brochure,

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## WORK BOATS BY BENDER. ORDERED ON PRICE, DELIVERED ON TIME.



Solid and dependable.

Every Bender work boat is outfitted for the most rigorous duty under the cruelest conditions.

Crew/supply vessels. Towboats and pushboats. Standby utility boats. Any special designs. And USCG 'T' or 'I' boats with ABS classification. PERFORMANCE BONDS, if required.

Sturdy, steel hulls to 300 feet.

Our customers order them on price. And we deliver them on time.

We also repair. Everything from Gulf shrimpers to ocean liners.

With a machine shop approved by ABS for shaft build-ups; 60 to 125-ton floating, mobile and stationary cranes; 2,000, 4,000 and 7,000-ton floating docks with a 20,000-ton dock under construction; and 5,200 feet of waterfront, 42 feet deep, a clear shot up Mobile Bay, not 30 miles from the Gulf.

So, when it's time to order the services of a boat yard, call on Bender. We deliver.

# BENDER

**Bender Shipbuilding & Repair Co. Inc.**

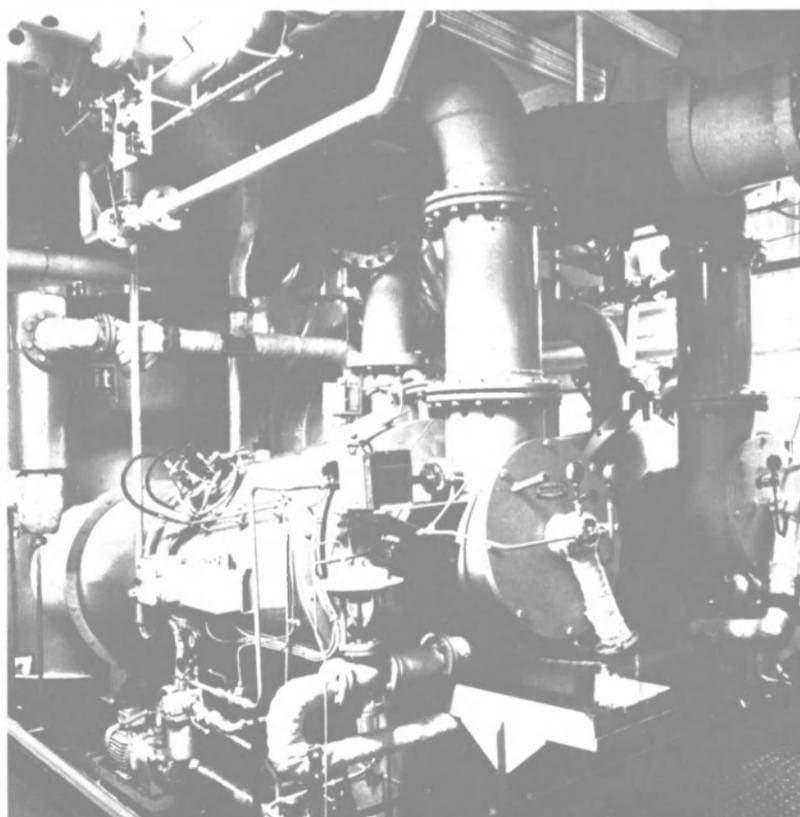
P.O. Box 42, Mobile, Alabama 36601  
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12000 Nm<sup>3</sup>/h inert-gas generator on board LNG tanker El Paso Paul Kayser.

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1511 K Street, N.W., Washington, D.C. 20005  
Phone (202) 347-2796, Telex 89-2396

QA 130-E

### TeleSystems Names

**John J. Imperial**

**Senior Vice President**

COMSAT TeleSystems, Inc., Fairfax, Va., announced today the promotion of **John J. Imperial** to the position of senior vice president. Since 1982, Mr. Imperial has served as TeleSystems' vice president of engineering, responsible for all engineering functions relating to echo canceller development, time-division multiple access systems (TDMA) development, and MARISAT programs. With this promotion he will continue with engineering responsibilities while taking on additional duties relating to the day-to-day operations of the company.

Before coming to TeleSystems, Mr. Imperial was the vice president of Hardware Engineering at Digital Switch Corp. of Reston, Va.

COMSAT TeleSystems, Inc. designs, manufactures, and markets advanced telecommunications equipment.

### Carrington Slipways Offers Free 4-Color Brochure On Shipbuilding Capabilities

Carrington Slipways Pty. Ltd., Tomago, N.S.W., Australia, has released a detailed brochure describing the shipyard's excellent facilities and capabilities with both text and color photographs. The attractive ring-bound brochure also describes the wide variety of ships constructed at Carrington and includes photos and profile drawings of the vessels. Carrington recently launched and fitted the largest naval vessel built in an Australian commercial shipyard in the past 17 years, the HMAS Tobruk, a \$36-million amphibious heavy-lift ship.

For a free copy of this brochure,

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**National Marine Names  
Dotson Regional Manager**



William B. Dotson

**William B. (Bill) Dotson** has been named regional manager for National Marine Service Incorporated Shipyard Division's East Coast sales and operations. He will be headquartered at National Marine's new diesel engine repair and parts facility in Norfolk, Va.

In his new position, Mr. **Dotson** will have complete responsibility for Norfolk Engine Service and Parts Warehouse operation, which serves the entire East Coast from Maine to Florida. He continues servicing his East Coast customers, representing the shipyard's total line (including rebuilt engines), the shipyard services offered at Hartford, Ill., and Harvey, La.; as well as the engine repair and parts service offered from Norfolk.

For further information,

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**Magnus Maritec Completes  
\$2 Million Expansion Of  
Fuel Oil Testing Service  
—Literature Available**

Magnus Maritec International, Palisades Park, N.J., has announced the availability of its most advanced Fuel Oil Testing Services to all shipowners on a worldwide basis. Free literature is available describing the full range of services offered.

A leader in manufacturing and marketing fuel oil additives for marine power plants, the firm has just completed a two-million-dollar expansion of its fuel oil laboratory facility. Magnus reports it is now one of the best equipped in the world. This facility includes the latest state-of-the-art analytical equipment such as hot stage microscopes, atomic absorption and scanning electron microscope.

Over the past several years, the quality of marine fuel has deteriorated. Therefore, it is now more important than ever that shipowners be aware of the physical characteristics and the contaminants of the bunker they purchase. Magnus Maritec also has available on-board equipment permitting a ship's engineer to test for Vana-

dium, A.P.I. Gravity, Viscosity, Conradson Carbon, water, compatibility and pour point.

The Magnus Maritec Full Service Lab capabilities include:

**Oil Analysis**—Ash, BTU, Conradson Carbon, Carbon-Hydrogen-Nitrogen, Chlorides and Sulfates, Cloud Point, Compatibility, Flash Point, Fire Point, Gravity, Pour Point, BS&W, Sulfur, Thermal Stability, Saybolt Viscosity, Water by Distillation, Ash Friability,

Metals: Aluminum, Calcium, Iron, Magnesium, Sodium, Nickel, Silicon, Vanadium, Asphaltenes, Cetane Number, Distillation, Sediment by Extraction.

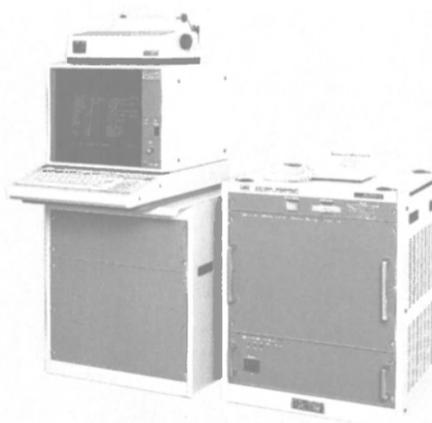
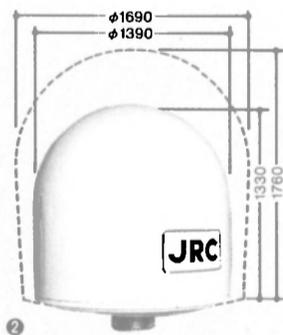
**Water Analysis**—Conductivity, P Alkalinity, M Alkalinity, Orthophosphate, Polyphosphate, Hardness, Dissolved Solids, Chloride, Sulfate, Sulfite, Hydrazine, Chromate, Nitrite, pH, Silica, Iron, Copper, Zinc, Manganese, Calcium, Magnesium, Sodium, Nickel.

**Deposit Analysis**—Water soluble Components, Acid Soluble Components, Loss on Ignition, Oil, Silica, Calcium, Magnesium, Zinc, Copper, Iron, Vanadium, Nickel, Sodium, Aluminum, Phosphate, Chloride, Sulfate, Fusion and Melting Temperatures.

For free literature on Magnus Maritec Fuel Oil Testing Services,

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**JRC'S NEWEST INMARSAT SHIP EARTH STATION, JUE-35A**



- ① Main terminal, VDU and RO printer on stand and telephone set.
- ② The radome is half the volume of the JUE-15A radome.
- ③ The antenna weighs less than 150 kg, 35% lighter than the JUE-15A antenna.
- ④ Telephone set for flexible mounting.

JRC's Newest INMARSAT Ship Earth Station, JUE-35A, featuring a small antenna, 89 cm in diameter, specially-designed electronics and a versatile video display unit with an RO printer ensures excellent satcom performance and field-proven reliability when installed not only on large merchant ships but also on smaller fishing and pleasure boats. The JUE-35A was type-approved by INMARSAT in April 1983 in accordance with INMARSAT's latest technical requirements.

**JRC Japan Radio Co., Ltd.**

**REMOVAL NOTICE**

We are pleased to announce that our main office was moved to the following address on 6 May, 1983:  
**MAIN OFFICE** Akasaka Twin Tower (Main), 17-22, Akasaka 2-chome, Minato-ku, Tokyo 107, Japan  
 New Telephone: (03)584-2411 New Telex: 242-5420 JRC TOK J  
 Cable Address: "JAPANRADIO TOKYO" (unchanged)  
**UK BRANCH OFFICE** N. Shiokawa, Ground Floor, Temple Chambers, Temple Avenue, London E.C. 4  
 Telephone: 01-353-7960 Telex: 885629 JAPRAD G  
**U.S.A. BRANCH OFFICE** T. Hayashi  
 120 East 56th Street, New York, New York 10022  
 Telephone: 212-355-1180 Telex: 230-645636 JAPANRADIO NYK

**New York SNAME Issues  
Call For Papers For  
September '84 Symposium**

The New York Metropolitan Section of SNAME is planning its third international symposium for September 27-28, 1984, at the Waldorf Astoria Hotel in New York City. The theme will be: "Maritime Innovation—Practical Approaches."

Prospective authors are invited to submit abstracts for consideration. Suggested topics are: Ship Operations, Marine Equipment, Professional Development, Shipbuilding, and Engineering and Research. Abstracts are solicited by October 31, 1983. For full information on SNAME '84 write: **David Rodgers**, SNAME, 1 World Trade Center, Suite 1369, New York, N.Y. 10048.

**Anne Aylward Named  
New Maritime Director  
At Massport**

The Board of the Massachusetts Port Authority, Boston, Mass., today voted unanimously to approve the appointment of **Anne D. Aylward** as Massport's maritime director. She has served as acting maritime director since May 1983.

As head of the Port Authority's Maritime Division, **Ms. Aylward** will oversee the planning, development, operation, marketing, and administration of Massport's commercial seaport properties in the Port of Boston, including Moran Terminal in Charlestown, Conley Terminal, and the Massport Marine Terminal, both in South Boston.

Former Assistant Port Director for Planning and Analysis, **Ms. Aylward** has held management positions in state and local government over the past 12 years, including seven years as a Maritime planner and manager of Massport.

**Navy Lets \$8.3-Million  
Contract To Tracor**

Tracor Inc., Austin, Texas, has received a contract to provide production, fabrication, and testing services to the Naval Ordnance Station, Indian Head, Md. This contract includes two option years with a total ceiling price of \$8,340,000.

**Dr. William C. Moyer**, group vice president of Tracor Applied Sciences, said the work will be performed by the Systems Technology Division of Tracor Applied Sciences from its headquarters in Rockville, Md., under the general management of **William M. Pugh**, division vice president. **Mr. Pugh** announced that **John A. Buck** will serve as program manager. He and his staff will be headquartered in Indian Head, Md. With the establishment of this new program, Tracor will have more than 100,000 square feet of office and laboratory space in Southern Maryland, as well as more than 450 engineers, technicians, and support personnel devoted to the support of U.S. Navy programs.

Tracor, Inc., is an international technological products and services company with headquarters in Austin, Texas.

**Free Technical Brochure  
Available On Lift-Dock®  
By Schiess-Defries**

North American Hydrolics Ltd., Brampton, Ontario, announces its representation of the new Schiess-Defries lift-dock® system.

The lift-dock system uses a "float-on and lift" principle utilizing a network of hydraulically driven winches. The ship cradle and lift-dock are fitted with longitudinal and transverse rails allowing the ship to be moved and flexibly positioned onto dry land. The lift-dock is then free for continued use.

For free technical literature on this system,

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**Determine oil  
viscosity  
on site . . .**

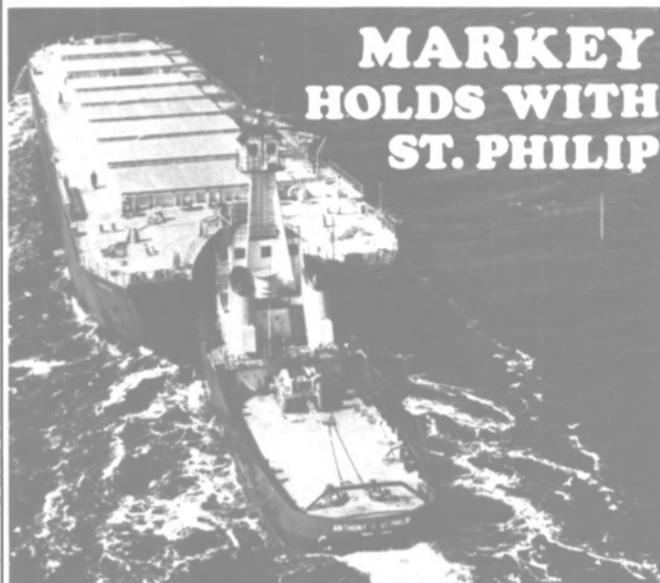
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it's too  
late!!

**Quickly  
Conveniently**

Now you can quickly check the viscosity of any oil . . . on site. The Visgage is simple to operate. No stopwatches or thermometers are required. Has been used for over 3 decades in thousands of industrial plants and maintenance shops. Checks engine oils, industrial lubricants, and hydraulic fluids, even water-glycol fire-resistant types. Call or write for a quotation today.

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our unique "we'll come to you" and our "ride along" services, meaning we can perform most of our yard services at your sight or we can work on ship while at sea. Our experienced and dedicated team has solved every conceivable repair problem and has designed and delivered thousands of unusual modernization projects. So whatever unique or normal situations you may have, the Southwest team has probably done it before.

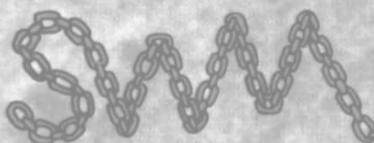
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## Moss Point Building Five Other Vessels For Joint Venture

Construction has begun on the first of five new offshore oil-field service vessels for Argosy Offshore Ltd., a joint venture consisting of Tenneco Oil Co., Philadelphia Life Insurance Co. and Wilhelmsen of Norway. The vessels will be constructed by Moss Point Marine Inc., Escatawpa, Miss.

Included in the five-vessel package are a trio of 181-foot offshore rig supply vessels and a pair of 140-foot utility vessels. Delivery of the final workboat in the package is set for early summer 1984.

"We're very proud and happy to have this new construction order by Argosy," commented Moss Point Marine president **John Dane III**. "We look upon this as an indication that things in our industry may begin to perk up again soon and that brighter days lie ahead."

The three aft-stacks 181 by 40 by 14 supply vessels will each be

powered by a set of GM 16-149-NA main engines and Twin Disc Model 540 reduction gears. Each vessel will register under 300 gross tons.

A set of GM 16-V92 main engines will power the smaller utility vessels, which will measure 140 by 32 by 11. Twin Disc Model 527 reduction gears are also included aboard the aft-stacks vessels. Gross tonnage will measure under 100.

"Moss Point is pleased and proud to be a part of Argosy's future as it related to offshore oil exploration, research and production," Mr. **Dane** said . . . we've come a long way in a relatively short time, and we look forward to a solid, progressive 1984 and beyond."

A long way quickly is the best way to describe accurately the relatively brief three-year record attained by Moss Point Marine. Since construction began in August 1980



Moss Point Marine's modular construction system enables a vessel to be constructed in different sections simultaneously on their 21-acre site on the East Pascagoula River.

on a 180-foot offshore deck barge, a total of 36 vessels have been constructed and delivered—vessels of all sizes and shapes. This is an enviable one-per-month average delivery record.

The complete MPM delivery record reflects the diversity and flexibility of the shipyard and its ability to construct a wide variety of offshore work vessels: 10 offshore deck barges in sizes from 140 feet

to 250 feet; two 114-foot utility vessels; two 65-foot standby vessels; and 22 offshore supply and supply/towing vessels ranging in size from 173 feet to 254 feet.

Assisting Mr. **Dane** in the top administration of the shipyard are vice presidents **Burnice Havard**, **Chalin O. Perez Jr.** and **Jack Dane**. All four men bring a considerable amount of shipbuilding, financial, legal and overall administrative experience and skill to their key positions. Staff duties are the responsibility of **Dan Strahan** and **Steve Snowdon**, also seasoned shipyard veterans.

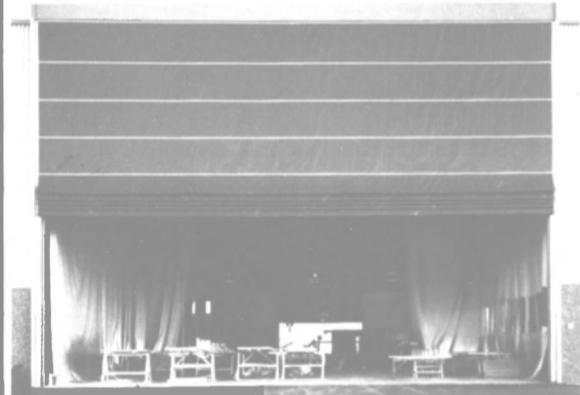
MPM uses a modular construction process that allows for the building of several vessels simultaneously. This system optimizes the yard's construction capacity. The work force currently numbers 225.

The shipyard's tilt beam launch system will accommodate vessels up to 300 feet in length. In the late spring of 1983, MPM launched a 254-foot supply/towing/container deck vessel (Nicor Clipper—owned by Nicor Marine, Inc.). Three 250-foot offshore deck barges have also been launched at the yard utilizing its tilt beam system.

For complete literature on all services offered by MPM,

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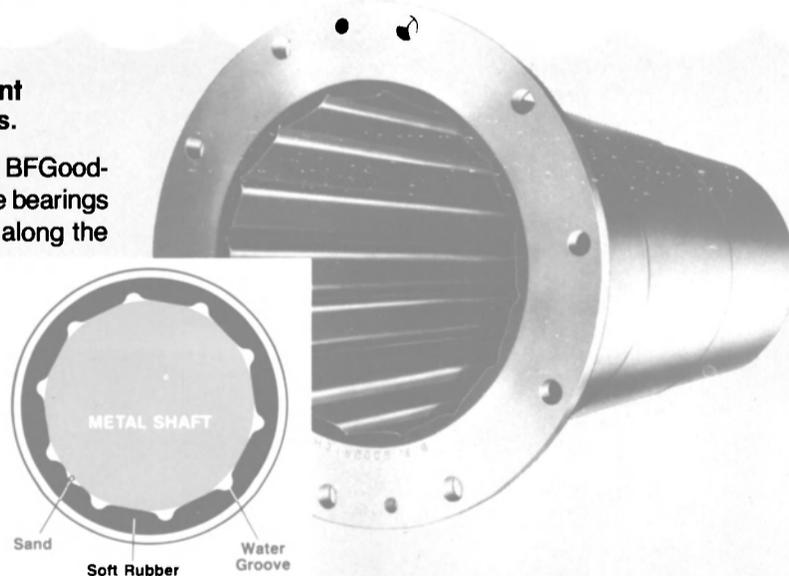
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## Intertanko Releases Report Titled 'VLCC's Present And Future'

The International Association of Independent Tanker Owners headquartered in Oslo, Norway, has released its latest report covering the present and future status of the VLCC market conditions. The 17-page report reviews the supply and demand aspects of VLCCs, along with other political and competitive factors to be considered by owners. Intertanko makes recommendations to VLCC owners in preparation for an economic upswing along with pointing out potential disruptive forces.

For more information on "VLCC's Present And Future," write Intertanko Oslo 1, Norway, P.O. Box 1452-Vika. Radhusgaten 25. tel:

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substantial experience in the Latin American trades having been most recently director of South Ameri-

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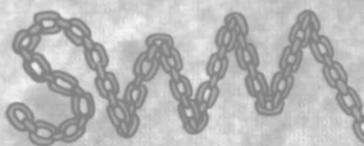
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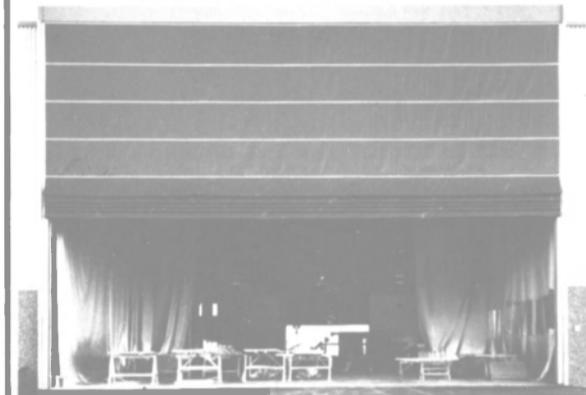
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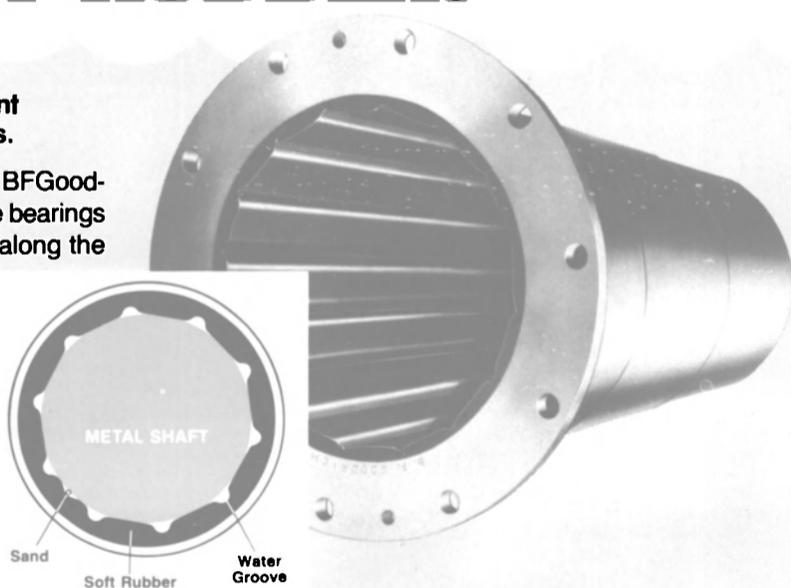
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### Norton Lilly Appoints Kelly Line Manager For Lloyd Brasileiro Service

Norton Lilly, New York City, has announced the appointment of **Owen D. Kelly** as line manager for the Lloyd Brasileiro service. Mr. Kelly brings to Norton Lilly

substantial experience in the Latin American trades having been most recently director of South American Services with Moore McCormack/U.S. Lines; prior to his U.S. Lines service, Mr. Kelly served more than five years with Netumar Lines in various traffic and pricing capacities.

### Boston Shipyard Corp. Wins MarAd Contract

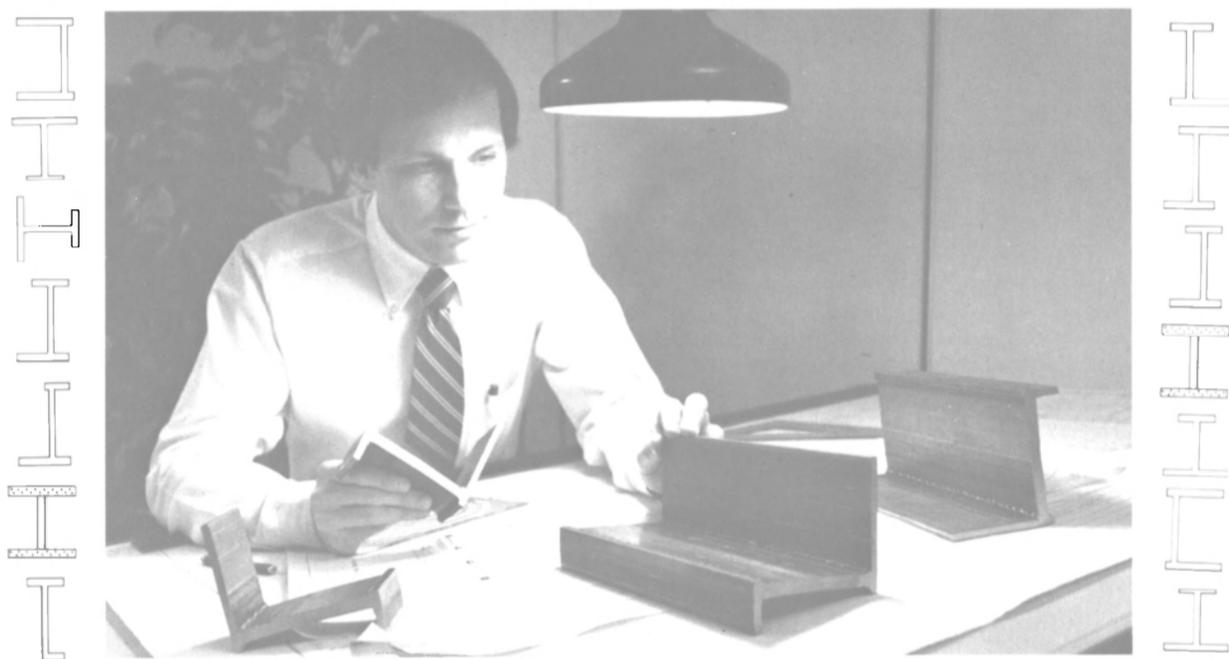
The Maritime Administration has awarded a \$724,925 contract to Boston Shipyards Corp., 256 Marginal Street, East Boston, Mass., for drydocking and topside repairs on the T/S Empire State, a

training ship for the New York State Maritime College.

The work involved includes cleaning and painting the bottom, drawing the tailshaft, renewing shell plating rivets, repairing the wood deck and installing flash-type evaporators.

The vessel, like others provided to state maritime academies for cadet training, is owned by MarAd.

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### Hoffman Maritime Names Finn C. Michelsen Technical Director



Finn C. Michelsen

Hoffman Maritime Consultants Inc. are pleased to announce the appointment of **Finn C. Michelsen** as Technical Director. Dr. Michelsen will be responsible for all products, including the Helm family of guidance systems currently being marketed to the offshore industry, new products under development as well as quality assurance of analytical studies carried out on behalf of oil companies, offshore operators, regulatory agencies and admiralty law firms.

Dr. Michelsen brings to his new position extensive practical and research experience in the offshore industry. He was the construction manager of the Viking Piper (now LB200) during its final year of completion and played a central role in research and development with the Heerema Group. He is a former professor of the Department of Naval Architecture and Marine Engineering at the University of Michigan and was Professor and Head of the Institute of Ship Hydrodynamics at the Technical University of Norway.

### \$4.9-Million Contract For Phased-Array Radar Awarded To Sperry

Sperry Corporation, Electronics Division, Great Neck, N.Y., is being awarded \$4,900,000 for the first phase of a fixed-price-incentive contract involving 98,086 man-hours of engineering design on a cost-plus-fixed-fee basis to develop a phased array radar for the MK 92 fire-control system. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-7000).

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## Economic Benefit Of FY 84 Navy Construction Program Outlined By Shipbuilders Council

In a recent edition of its Shipyard Weekly publication, the Shipbuilders Council of America underscored the far-reaching ben-

efits for the entire nation which will result from FY 84 Navy shipbuilding and conversion projects.

"As U.S. economy moves toward

recovery, contributory effect of FY '84 Navy shipbuilding and conversion (SCN) projects, valued in excess of \$12 billion is not insignifi-

cant. Jobs will be generated not only at shipyards but at thousands of subcontractor plants scattered nationwide.

"Analysis of potential prime shipyard contract awards and potential prime subcontractor awards for contractor-furnished equipment (CFE) as well as government-furnished equipment (GFE) leads to evidence that FY 84 SCN program requested by the Reagan Administration would stimulate:

- support for about 54,000 shipyard jobs plus another 177,000 jobs in prime supporting industries;
- purchase of more than 152,000 tons of steel;
- prime subcontracts totaling nearly \$4 billion in 36 States and District of Columbia;
- employment for disadvantaged workers: of 54,000 shipyard jobs, 18% would be filled by ethnic and racial minorities and 9% by women.

"Conclusions are based on data covering 80% of FY 84 budget request: Trident Submarine (SSBN), Attack Submarines (SSN-688), Aegis Cruisers (CG-47), Fleet Oilers (T-AO), Fast Logistics Ships (T-AKR), Amphibious Assault Ship (LHD), Mine Countermeasures Ships (MCM) and Hospital Ship (T-AH).

"Spread of subcontracts by States would be as follows:

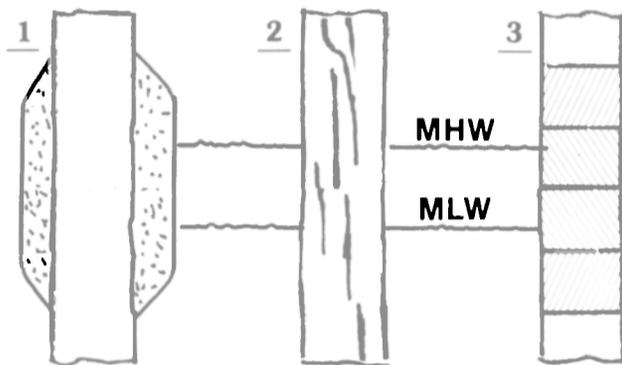
	\$Millions
Alabama	27.5
Arizona	3.8
California	694.5
Connecticut	48.6
Florida	210.9
Georgia	5.3
Illinois	22.0
Indiana	5.1
Iowa	2.1
Kentucky	3.9
Louisiana	69.8
Maryland	160.1
Massachusetts	197.1
Michigan	30.8
Minnesota	142.1
Mississippi	99.7
Missouri	80.3
New Hampshire	1.1
New Jersey	760.8
New York	430.5
North Carolina	12.1
Ohio	139.7
Oregon	15.9
Oklahoma	21.5
Pennsylvania	263.9
Rhode Island	10.3
Tennessee	1.5
Texas	119.2
Virginia	261.7
Washington	64.0
Wisconsin	66.7
Six other States	1.3

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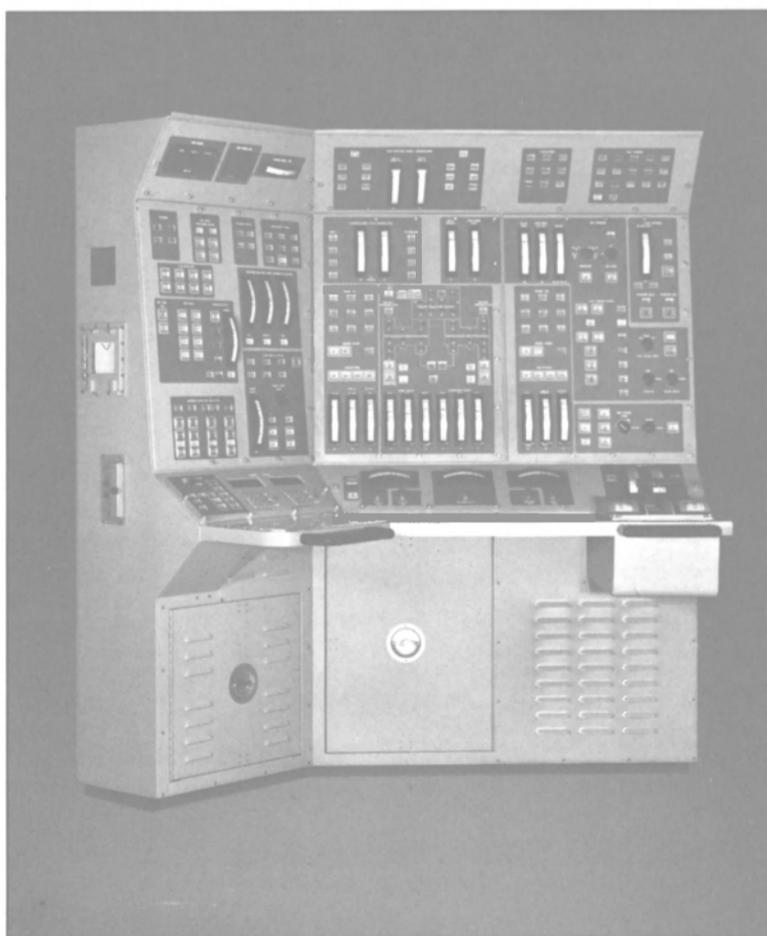
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## \$45.6-Million Contract Add-on Awarded To FMC

FMC Corporation, Ordnance Division, San Jose, Calif., is being awarded a \$45,620,000 face-value-increase to a previously awarded fixed-price-incentive contract for long lead time material funding to support the FY-84 Landing Vehicle Track (LVT) 7A1 production/conversion program. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-82-C-2185).

## John Meghrian Forms Consulting Firm



John Meghrian

**John Meghrian**, has announced formation of John Meghrian Maritime Consultants Inc., New Orleans, La., a firm that will serve maritime interests worldwide.

Mr. **Meghrian**, a former president of the Board of Commissioners of the Port of New Orleans and a former group vice president of Todd Shipyards Corporation, will serve as president of the new consulting firm.

The firm will provide technical services in litigation involving marine casualties, vessel and equipment appraisals, representation services for principals, surveys, assessments, arbitration, investigations, construction supervision, underwriters and claims representation, and marine management services.

## Northern New England ASNE Announces 83-84 Program

The 1983-84 season of activities has begun for the Northern New England Section of the American Society of Naval Engineers (ASNE), Portsmouth, N.H. A new slate of officers has been elected and a tentative program has been developed. The Northern New England Section has been awarded an ASNE Section Award for the 1982-83 season.

The officers for 1983-84 are: Chairman—Capt. **John A. Culver**, USNR; Vice Chairman—Comdr. **John Cavender**, USN; Secretary—**Terry K. Hardy**; Treasurer—**Gerald Gouveia**; Publicity Chairman—**Scott N. Gessis**; Program Chairman—Capt. **Charles J. Chwalek**, USN (ret.); Membership Chairman—**Richard**

**Carlin**; Councilor—**Philip V. Johnson**; Councilor—Comdr. **Norman Berge**, USN (ret.); Councilor—Capt. **Gerald Sedor**, USN (ret).

Advance program for 1983-84: September—Subject, "CAD/CAM Developments at Portsmouth Naval Shipyard"; location, Officer's Club, Portsmouth Naval Shipyard. October—Subject, "U-Boat Operations during WWII"; location, Officer's Club, NAS, Brunswick,

Maine. November—Subject, "Sea Trial Description based upon Bath Iron Works' Deliveries"; location, Officer's Club, Portsmouth Naval Shipyard. December—No meeting scheduled. January—Subject, "Maritime Accidents"; location, Officer's Club, Portsmouth Naval Shipyard. February—Subject, "The USS Albacore Project" (Description of the proposed park landmark/museum and the process of retrieving the ship from the water

and setting it at its site); location, Yoken's Restaurant, Portsmouth, N.H. March—Subject, "Arctic Submarine Operations"; location, Officer's Club, Portsmouth Naval Shipyard. April—Subject, Field trip to BIW Ship Repair Facility, Portland; location, Portland, Maine. May—Subject, Field trip to Seabrook Nuclear Plant; location, Seabrook, N.H. June—Navy Night at the Pops—special night at Symphony Hall, Boston, Mass.

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## GM Increases Diesel Power Ratings And Offers New Applications Manual

General Motors is offering a free applications manual which provides full information on new power ratings for both GM diesel-electric power units and marine propulsion engines.

GM has raised the rating of several of its diesel-electric power units and increased the horsepower and fuel efficiency of its line of diesel engines for drilling power and marine propulsion. GM said it has also made available an "F" series crankcase of increased strength to coincide with the higher horsepower ratings.

**T.J. Lehman**, manager of ma-

rine and industrial sales for General Motors Electro-Motive Division (EMD), said the power unit ratings for the 16-cylinder "F" series engines has been raised from 2,400 kw to 2,685 kw, and the 20-cylinder engine ratings have been raised from 2,859 kw to 3,150 kw. Both models are rated at 900 rpm, 60 Hz. Ratings for 50 Hz, 750 rpm continuous output are 2,040 kw

for the 16-cylinder engine and 2,580 kw for the 20-cylinder engine.

The GM 16-cylinder marine engine with heavy-duty crankcase is now rated at 3,400 hp at 900 rpm, up from 3,070 hp. The 20-cylinder marine propulsion engine is now rated at 4,000 hp at 900 rpm. For more fuel-efficient operation and improved blended fuel capability, these engines can be run at 800 rpm, with 3,070 hp and 3,600 hp respectively.

Technical developments including a new, more efficient turbocharger have led to an increase in fuel efficiency of up to 3 percent.

For more information and a free copy of the new applications manual,

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General Dynamics Photo



## Cybernet's Marine Stereo Entertainment Center Described In Pamphlet

The Cybernet CMS-3000, an ultramodern all-digital AM-FM stereo radio and high-fidelity cassette player designed especially for marine service, is described and given complete technical specifications on this quality sound system for use on recreational boats and work vessels. The technical pamphlet is offered by Cybernet Marine Products Division of Kyocera International, Inc., Warren, N.J.

The CMS-3000 includes a PLL quartz-synthesized AM-FM stereo receiver with electronic digital tuning, pushbutton memory for 12 stations, automatic signal scanning, and electronic up-down pushbutton tuning. It also contains an auto-reverse cassette deck with flywheel drive, Dolby noise reduction, normal-metal tape equalization, and automatic program selection.

For copies of the free pamphlet,

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## Papers Given At '83 RTCM Meeting Now Available

The Radio Technical Commission for Maritime Services (RTCM), of Washington, D.C. recently announced the availability of the bound volume of the papers presented at the 1983 RTCM Annual Assembly Meeting held in April in Savannah, Ga. The 1983 RTCM papers may be ordered from RTCM, P.O. Box 19087, Washington, D.C. 20036. Prepaid single copy prices, U.S. book rate mail and overseas surface mail: \$30 for RTCM members and \$45 for non-members.

For U.S. priority mail add \$4.00 per copy; for airmail outside U.S. add \$10.00 per copy. Purchase orders are accepted only from RTCM members and established businesses ordering on letterhead purchase order forms. Shipping and handling charges are added on purchase orders.

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## TeleSystems Names Hoch Assistant Vice President

COMSAT TeleSystems, Inc., Fairfax, Va., announced the promotion of **Kenneth H. Hoch** to the position of assistant vice president, contracts. In his newly created position, Mr. Hoch will play a key role in the development of TeleSystems' expanded international market presence and in the implementation of the company's overall business strategy. He will also continue to have responsibilities for negotiating and administering contractual arrangements with TeleSystems' domestic clients and business associates.

Since joining TeleSystems in 1981, Mr. Hoch has held the position of director of contracts.

COMSAT TeleSystems, Inc., located in northern Virginia, designs, manufactures, and markets advanced telecommunications equipment and provides a worldwide service and support network for its complete line of advanced digital signal processing equipment and systems.

## Ships Supply Announces Three Appointments

**Frank Castelvechi**, corporate purchasing agent for Ships Supply, Inc. of Jacksonville, Fla., has also assumed the duties of manager of the company's Tampa offices and warehouse.

The announcement was made by **Michael C. Kenney**, president of Ships Supply, Jacksonville, Fla., a leading supplier of provisions, deck and engine equipment for vessels and industrial firms.

At the same time, Mr. Kenney announced the appointment of **John Durant** to the Tampa office as a sales specialist.

He also announced that **Charles Shermer**, inside salesman for Ships Supply, Inc., has been promoted to technical product specialist at the Jacksonville headquarters.

## New Literature Describes Thordon Shaft Bearings For Dirty Water Operation

Thomson-Gordon Limited, Burlington, Ontario, Canada, a leading manufacturer of marine propeller shaft and rudder bearings, has developed an experimental bearing designed for extremely abrasive service conditions.

Probably the most severe test for a marine propeller shaft bearing in abrasive service, is on the cutter shaft of a suction cutter dredge. Experimental bearings were produced and supplied to sev-

eral of the world's largest new dredges. Based on three years of testing, the company developed a full range of cylindrical and stave Composite bearings. The cylindrical products are available for shaft sizes to 12 inches and the stave bearings can accommodate an unlimited shaft diameter range.

Used with hard steel shaft

sleeves or liners, which are common with conventional rubber bearings in abrasive service, the Thordon Composite bearing can deliver wear life approximately twice that of the next best competitive product tested, according to company representatives.

The Thordon Composite bearing is currently approved by LRS, BV,

and others are expected to be received shortly.

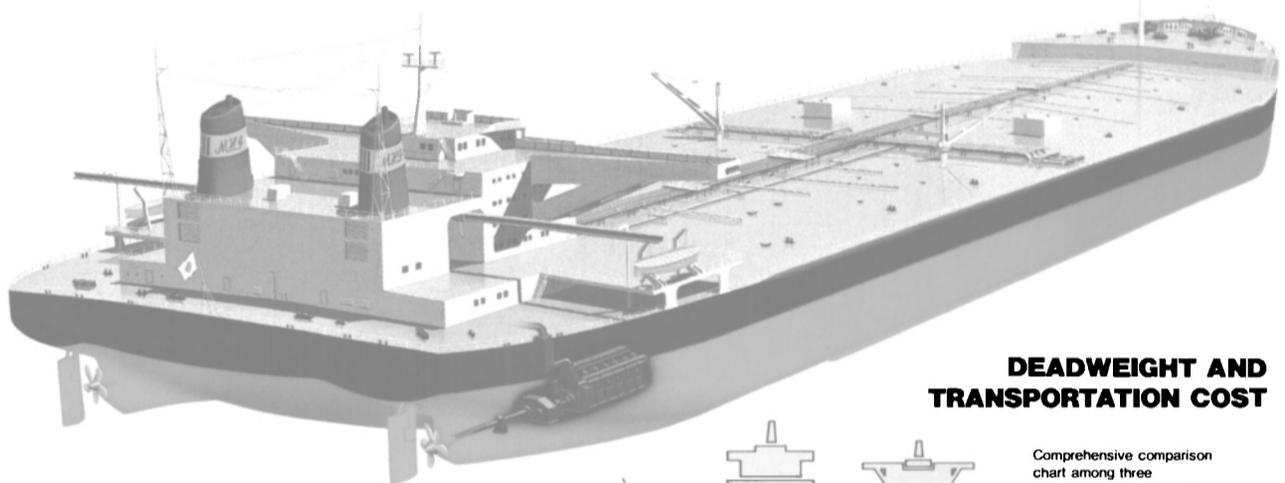
In the United States Waukesha Bearings act as Thomson-Gordon's master distributor.

For more information on the new Thordon Composite bearings,

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# Greater Efficiency on Shallow Water Routes

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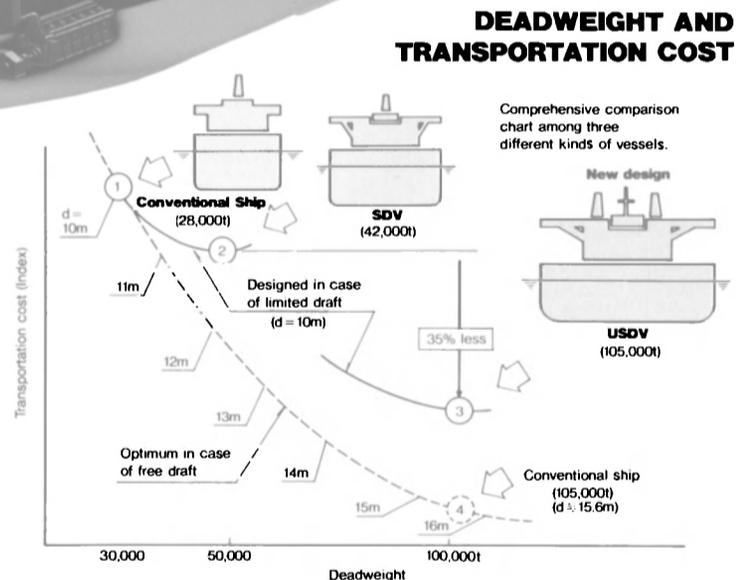


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Mitsubishi can provide USDVs in any dimensions up to a max. B/d ratio of 6.5 and a min. L/B ratio of 3.5.

USDVs are applicable for all types of vessels intended for service between shallow ports. Plant transport ships, tankers, bulk carriers, chemical carriers, RO/RO ships, container vessels, and liquefied gas carriers, are just some of the possibilities.



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**Maritime Prepositioning  
Conversions Begin At  
Bethlehem's Beaumont Yard**

The first midbody section built in Beaumont, Texas, for the Navy's Military Sealift Command's Maritime Prepositioning Ship program (MPS) was recently launched.

Thirteen Maritime Prepositioning Ships will be built from the

keel up or converted from existing ships to join the Military Sealift Command fleet. All 13 ships will be named for Marine Corps Medal of Honor winners.

Bethlehem Steel Corp. shipyards in Beaumont, Texas, and Sparrows Point, Md., will convert five existing ships belonging to Maersk Lines Ltd. of New York. The value for the contracts for Bethlehem is more than \$600 million. Five new ships will be built

by General Dynamics. Waterman Steamship Corp. of New York will convert three ships at National Steel and Shipbuilding Co. in San Diego, Calif.

The 13 ships will be used for mobile, long-term storage of equipment and supplies to meet the needs of three Marine Amphibious Brigades. The ships will be stationed at strategic locations around the world to provide a rapid deployment capability.

**Sherman C. Perry**, general manager of the Beaumont Yard, said that the TAKX reconstruction work has had a positive impact on employment. He noted that during peak construction periods some 1,000 additional employees will be working.

The 157-foot-long midbody will be joined to the bow and stern sections of the Eleo Maersk, the first of two ships to be reconstructed at the Beaumont facility. The second ship, the Emilie Maersk, will be lengthened early next year.

The Eleo Maersk will be separated at its midship and the new midbody added so that the ship's overall length will be extended from 592 feet to 775 feet. The external appearance of the Eleo Maersk will be changed by a nearly 16-foot increase in its depth resulting from the addition of an upper deck.

Other statistics of the ship include a 90-foot-wide beam, a 32-foot ten-and-a-half-inch full load draft, 28,249 long-tons light ship displacement and 46,552 long-tons full-load displacement. The ship will be equipped with a diesel engine which will provide a trial speed of 17.2 knots at 80 per cent horsepower. Its range will be 19,800 nautical miles.

Among the ship's facilities will be a 122,380-square-foot storage area; provisions for 340 containers for ammunition and refrigerated cargo; 1.3 million gallons of drummed and bulk petroleum products; 595,087 gallons of fuel oil and 133,246 gallons of potable water.

The Maritime Prepositioning Ship program is an integral element of the Rapid Deployment Force concept of operations. This concept forms the backbone of the U.S. immediate response capability throughout the world by providing for the rapid deployment of a large combat force with equipment and supplies for 30 days of sustained operations.

The concept calls for the transport by air of a Marine brigade of 12,000 men, an Army brigade of 5,000 men and a full Air Force wing to a friendly rendezvous point near the intended area of operations. There, prepositioned supplies, staged in advance on U.S. merchant ships near the rendezvous point, would be "married-up" with the personnel.

The MPS program makes the Rapid Deployment Force a workable concept. The 13 ships will support three separate brigades in action in three different military theaters. Each ship will carry equipment and supplies, including water and fuel, for one-fourth or one-fifth of a Marine Corps amphibious brigade. This load includes tanks, artillery, personnel carriers, ammunition, rations and medical supplies—anything which a combat unit would need.

The ships will have the internal capacity to load and unload at primitive ports and on isolated

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beaches. MPS ships will be manned by civilian crews.

MSC is responsible for providing the necessary sealift to deploy and sustain military forces overseas, as rapidly and for as long as operational requirements dictate. MSC also operates auxiliary ships that deliver supplies to Navy combatant ships while under way, oceanographic and survey ships, tankers and dry cargo ships that deliver Defense Department cargo worldwide.

### **\$19.5-Million Contract Addition Awarded To Raytheon Division**

Raytheon Company, Submarine Signal Division, Portsmouth, R.I., is being awarded a \$19,505,738 face-value-increase to a previously awarded cost-plus-award-fee contract for full scale development of one 17Y and three 17X high frequency transmitters for the submarine active detection sonar-transmit group. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-80-C-6066).

### **T.A.S.T. Named U.S. Northeast Coast Representative For AMT**

AMT recently named **Alfred E. Stanford**, president of the T.A.S.T. Corporation, exclusive sales representative on the Northeast coast of the United States.

AMT is a factory authorized marine repair organization providing trouble-shooting and complete overhaul of diesel engines and their components. The company offers repair and equipment manufactured by MAN/B&W Diesel Service; MAK; SWD; Volvo-Penta; Doxford Engines; Allen Engines; Cummins Diesel; Crossley Pielstick; Crossley Engines; Grandi Motori Trieste; and Renault Marine Diesel USA, Inc.

T.A.S.T., Transportation and Storage Technology Corporation, provides representation in the United States for international shipyards and repair facilities. For further information and free brochure on AMT services,

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### **New High-Performance Air Horns Described In Clark-Cooper Brochure**

A new line of high-efficiency air horns for marine, industrial and municipal applications has been introduced by Clark-Cooper Corporation of Cinnaminson, N.J.

Literature is offered describing the Monarch series diaphragm-type air horns, which are designed to achieve the highest possible sound level per cubic foot of air con-

sumed. The series features two on-horn trim adjustments which precisely match the horn to air supply conditions. A lockable detent tuning backplate adjusts applied pressure between the Monarch's multi-leaf diaphragm and cast projector to trim the horn to deliver the maximum decibel output for the exact air pressure supplied.

For complete information,

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### **Free Literature Offered On Dynalube's Kinetic Guns To Free Clogged Piping**

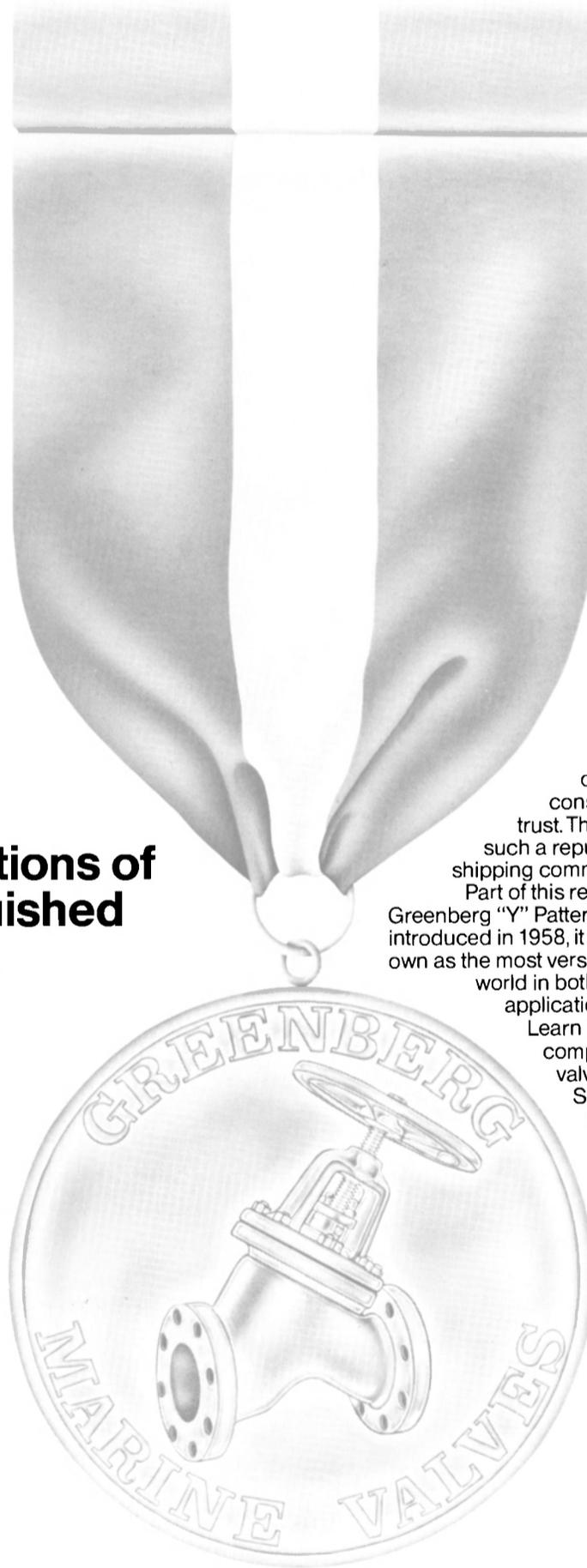
Dynalube of North America Inc., of Los Angeles, Calif., is offering free product literature describing the operation and capabilities of the heavy duty Dynajet/Portajet kinetic guns for clearing stoppages in pipes and drains in industry.

The portable guns release air/CO<sub>2</sub> against a solid column of water which cannot be compressed. The resulting kinetic energy, traveling over 4,000 fps, clears the obstruction. About 15 psi or less is actually applied to the point of blockage.

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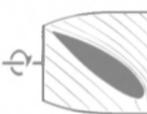
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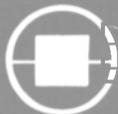
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## Split-Hull Hopper Dredge Delivered By Nichols



Unfolding, the split-hull self-propelled hopper barge Newport dumps its load.

The Nichols Brothers, Whidbey Island, Wash., facility completed the second of the two hulls comprising the 265-foot by 54-foot by 22-foot split hull, self-propelled hopper dredge for Manson Construction Company in Seattle, in May of this year. Each of these massive sections was towed from Whidbey Island to Manson's Seattle facility. The 24-foot by 44-foot by 16-foot superstructure with 16-foot by 20-foot wheelhouse was barged down to the Manson dock. The 18-man crew will be

comfortably housed in these centrally heated and air-conditioned crew's quarters.

This unusual split-hull concept was conceived before 1900, but has been used primarily in dump barges. Manson's new dredge Newport, being self-propelled, will be a new departure from their traditionally tug-assisted barges. Through this design, **Robert W. Long**, Seattle naval architect, has provided Manson with a vessel capable of dredging mud and sand to a depth of 65 feet. Hopper capacity is 4,000 cubic yards.

The propulsion system featuring two "Z" drive steerable propellers and a bow thruster from Maritime Industries, Vancouver, B.C., makes this huge vessel more maneuverable and provides the ability to work in confined waters.

## EMMI Offers Literature On Pusnes Mooring Systems For Semisubmersible Rigs

The EMMI Corporation of Flemington, N.J., is offering free copies of product literature on the Pusnes combined chair-wire mooring system for semisubmersible offshore drilling units. Along with a description of the system and its operation, the literature includes a detailed cutaway drawing of a typical arrangement on a rig.

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## MarAd Funding Test Of Coke-In-Oil Slurry Fuel

The Maritime Administration will provide \$480,000 for the shipboard testing of a petroleum coke-in-oil slurry fuel under a cooperative cost-shared contract with Cities Services Research and Development Co. of Tulsa, Okla.

The six-month project seeks to determine the practicality and ef-

fectiveness of a low-cost slurry fuel as an alternative to marine residual, Bunker "C" fuel. Known as PETCOM, the fuel to be tested is a 50/50 mixture of pulverized petroleum coke in residual oil. It is estimated to have a commercial market price 17-22 percent lower per BTU than that of Bunker "C".

Cities Service will be responsible for the design, installation and shipboard modifications required for the project.

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## SNAME Metropolitan Section Reviews T-AKX Ship Conversion

"Conversion of Maersk Lines E Class Ships to Maritime Prepositioning Ships (T-AKX)" was the topic of a technical paper presented at a recent dinner meeting of the New York Metropolitan Section of The Society of Naval Architects and Marine Engineers. The paper was prepared by **Alan R. Reid**, Military Sealift Command; **John C. Henry**, Military Sealift Command; **Birger Jurgensen**, Maersk Lines; **Wieboe Nielsen**, Maersk Lines; **Robert A. Fiorelli**, Bethlehem Steel Corp.; **Robert S. Behr**, Bethlehem Steel Corp.; and **Raymond J. Armstrong**, Bethlehem Steel Corp.

The authors outlined the concept of using prepositioned vessels containing military equipment as

located in strategic areas throughout the world awaiting rapid troop development when necessary. The required operational capabilities of the vessels to perform this function were presented.

The authors described the vessels prior to conversion, the vessel modification and the final layout of the ships. Reflagging and reclassification efforts were also discussed. Methods used by the shipyard to complete all conversion works as quickly and efficiently as possible were examined in detail.

In addition, 15 past chairmen who were present were honored on the occasion of the 40th anniversary of the New York Metropolitan Section.



Guest speakers for the New York Chapter of SNAME speaking on the subject of conversion of the Maritime Prepositioning Ships are, from left to right: **Birger Jurgensen**, **H. Wieboe Nielsen**, **Alan Reid**, **Edwin Wiggins**, paper chairman, **Joseph Connors**, section chairman, **John Henry**, **Robert Fiorelli** and **Robert Behr**.

## Halter Marine Completes Four-Boat Contract For Zapata Marine

Halter Marine Inc., New Orleans, La., has completed a four-boat contract with Zapata Marine Service, Inc., with the delivery of the Trafalgar Service.

The new boat, like her sister ships, Falcon Service, Sable Service, and Palmar Service, is 185 feet in length, with a 40-foot beam, and 14-foot depth. She is powered by two EMD-16-645C diesel engines developing 3,900 hp at 900 rpm. They drive two Columbian Bronze 90-inch by 65-inch stainless-steel propellers through Reintjes WGV 481 reverse/reduc-

tion gears with a ratio of 3.0:1. Engine controls are by Wabco.

She can carry 650 long tons of cargo on her 3,400-square-foot aft deck and 4,000 cubic feet of bulk mud in her Smatco tanks.

Some other capacities are: 100,000 gallons fuel oil; 1,800 gallons lube oil, 40,800 gallons fresh water; and 152,600 gallons ballast water.

The Sperry-Vickers hydraulic steering system was supplied by SSI and maneuverability is enhanced by a Schottel bow thruster (continued on page 120)



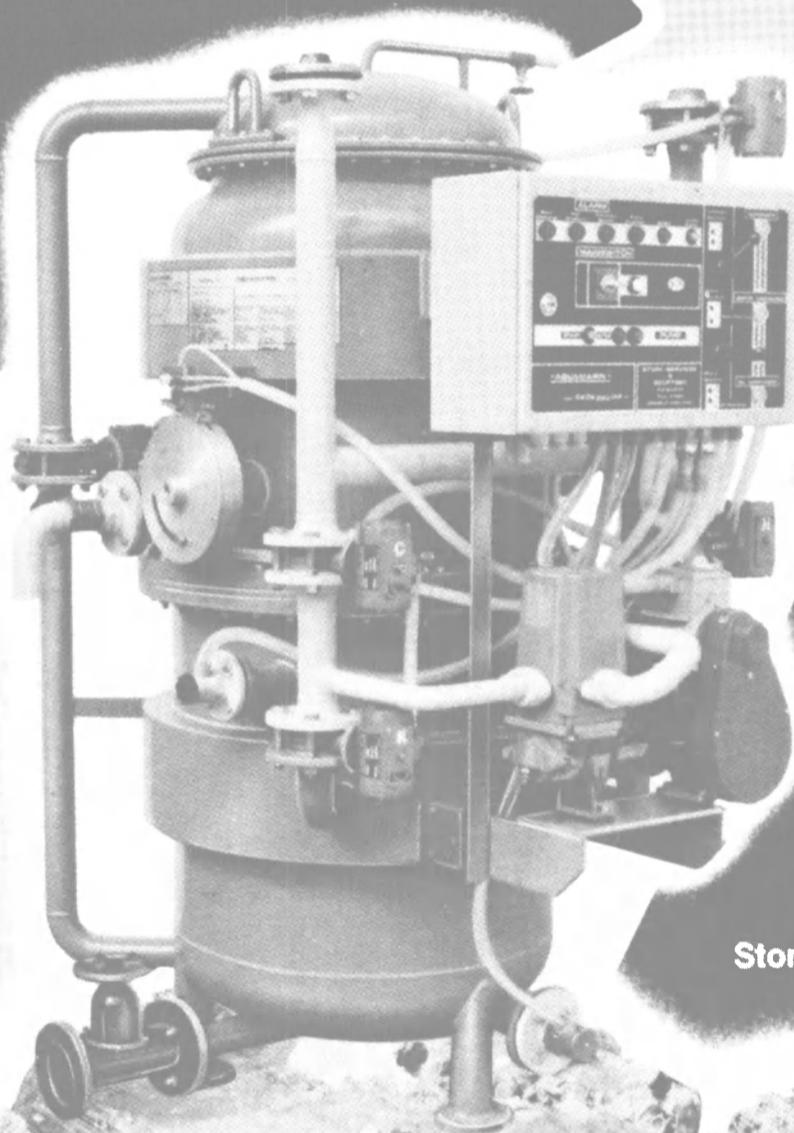
The Trafalgar Square enters Zapata fleet.

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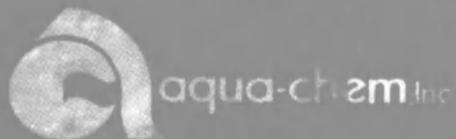


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## Halter Delivers Trafalgar Service

(continued from page 118)

driven by a Detroit Diesel 8V71 diesel engine.

Auxiliary power is supplied by two Detroit Diesel 8V71 diesel engines and two GM generators generating 150 kw. The generator control panel was supplied by Continental Electric Company. Two

Quincy D325 air compressors provide compressed air for diesel engine starting, pneumatic control systems, air whistle, and general ship service.

Goulds pumps service bilge, ballast, and the on-ship fire-fighting system. The sanitary system was supplied by Meyers.

Some of the deck machinery includes a Smatco 66DAW towing winch, a McElroy MDW125B an-

chor windlass, two 2,000-pound Danforth type anchors, and 1,980 feet of 1¼-inch anchor chain.

Communications and navigation equipment includes: two Decca RM9143 radar sets; a Sailor H1200 and Stephens single sideband; two Sailor RT144AC VHF's; a Si-Tex Kodon ADF; Simrad depth sounder; Sperry 8T autopilot and gyro-compass; and a Ritchie 6-inch magnetic compass.

The Trafalgar Service is American Bureau of Shipping classed A1, Maltese Cross, full ocean towing, AMS, USCG NVC 1-78, and carries Suez Canal and Panama Canal admeasurement certificates.

She was built at Halter's Moss Point, Miss., division, one of six shipyards owned and operated by Halter Marine, Inc.

## Captain Grabb Appointed ASNE Technical Director



Capt. James E. Grabb

Capt. James E. Grabb, USCG (ret.) has assumed the position of technical director on the staff of the American Society of Naval Engineers, in Alexandria, Va. This new position was created to provide the leadership necessary to implement the technical portion of the goals and objectives recently established by the Society.

Captain Grabb retired from the U.S. Coast Guard July 1, 1983, following 30 years of service. He graduated from the U.S. Coast Guard Academy in 1953 and Massachusetts Institute of Technology in 1960, where he received his professional degree of Naval Engineer and his M.S. degree in Naval Architecture and Marine Engineering.

Captain Grabb's Coast Guard career included all phases of ship acquisition and support. He served as an engineering officer in Coast Guard Cutters Mackinaw and Klamath. He was responsible for repair, maintenance and overhaul of Coast Guard Cutters in the First and Fifth Coast Guard Districts, and was resident inspector for the detail design, construction, outfitting and acceptance of seven 210-foot medium-endurance cutters.

His assignments at Coast Guard headquarters included assistant chief, design branch chief, Ocean Engineering Division, and chief, procurement division. During his last assignment he was chief, major systems acquisitions staff with responsibility for acquisition of 270-foot medium endurance cutters, the midlife rearmament and modernization of 370 foot high endurance cutters and a new class of Great Lakes/Arctic Icebreakers.

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## Free Literature Available On Marconi's New ARPA

The Marconi International Marine Co. Ltd., Chelmsford, England, has launched a new marine automatic radar plotting aid, the Marconi ARPA.

According to free literature offered by the company, the unit was designed and developed entirely by Marconi Marine's research and development team. The ARPA's key feature is the significantly reduced number of controls and readouts. This was achieved

by the use of a dynamic visual display unit and softkey control system—while basic radar controls are retained in conventional form. Just two push buttons, a joystick, and eight softkeys are used to control all primary ARPA functions.

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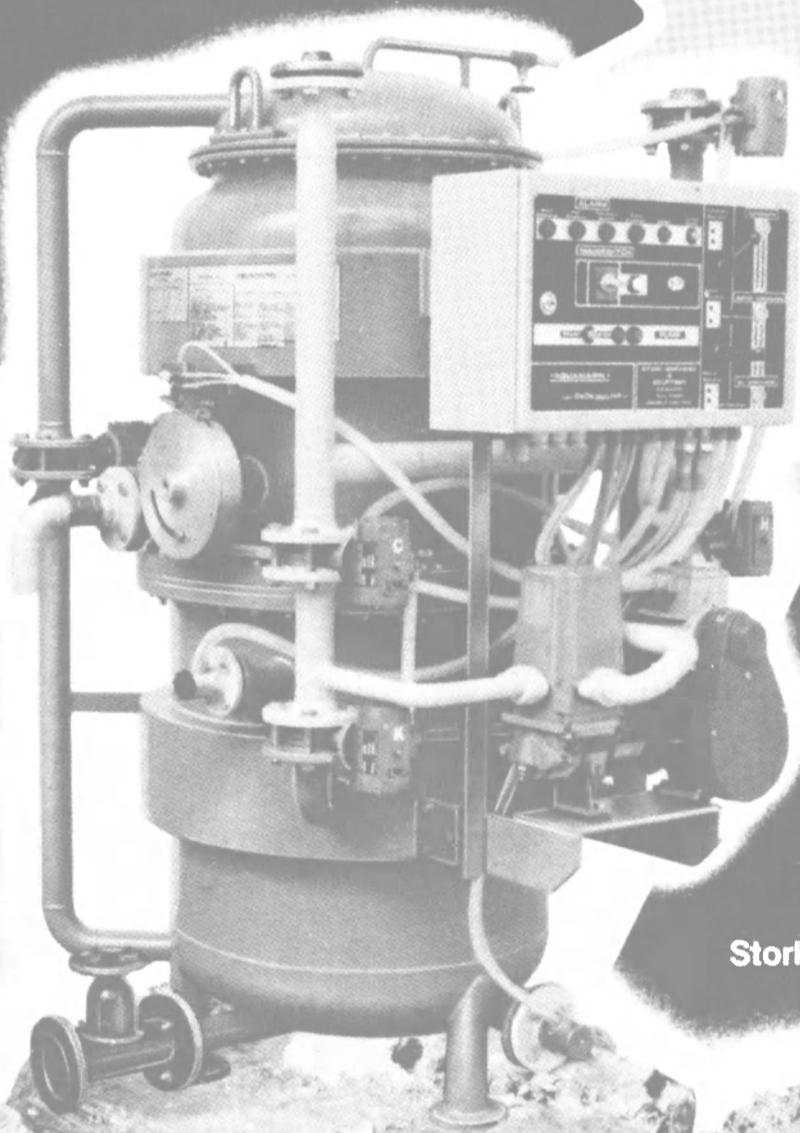
acquisition, the Marconi ARPA can track up to 25 targets to a distance of 24 nautical miles. In addition to all ARPA functions and data required by IMO, the Marconi ARPA also offers true motion, ground stabilization from a reference target, and a video map

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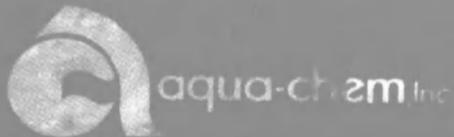


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## Halter Delivers Trafalgar Service

(continued from page 118)

driven by a Detroit Diesel 8V71 diesel engine.

Auxiliary power is supplied by two Detroit Diesel 8V71 diesel engines and two GM generators generating 150 kw. The generator control panel was supplied by Continental Electric Company. Two

Quincy D325 air compressors provide compressed air for diesel engine starting, pneumatic control systems, air whistle, and general ship service.

Goulds pumps service bilge, ballast, and the on-ship fire-fighting system. The sanitary system was supplied by Meyers.

Some of the deck machinery includes a Smatco 66DAW towing winch, a McElroy MDW125B an-

chor windlass, two 2,000-pound Danforth type anchors, and 1,980 feet of 1¼-inch anchor chain.

Communications and navigation equipment includes: two Decca RM9143 radar sets; a Sailor H1200 and Stephens single sideband; two Sailor RT144AC VHF's; a Si-Tex Kodon ADF; Simrad depth sounder; Sperry 8T autopilot and gyrocompass; and a Ritchie 6-inch magnetic compass.

The Trafalgar Service is American Bureau of Shipping classed A1, Maltese Cross, full ocean towing, AMS, USCG NVC 1-78, and carries Suez Canal and Panama Canal admeasurement certificates.

She was built at Halter's Moss Point, Miss., division, one of six shipyards owned and operated by Halter Marine, Inc.

## Captain Grabb Appointed ASNE Technical Director



Capt. James E. Grabb

Capt. James E. Grabb, USCG (ret.) has assumed the position of technical director on the staff of the American Society of Naval Engineers, in Alexandria, Va. This new position was created to provide the leadership necessary to implement the technical portion of the goals and objectives recently established by the Society.

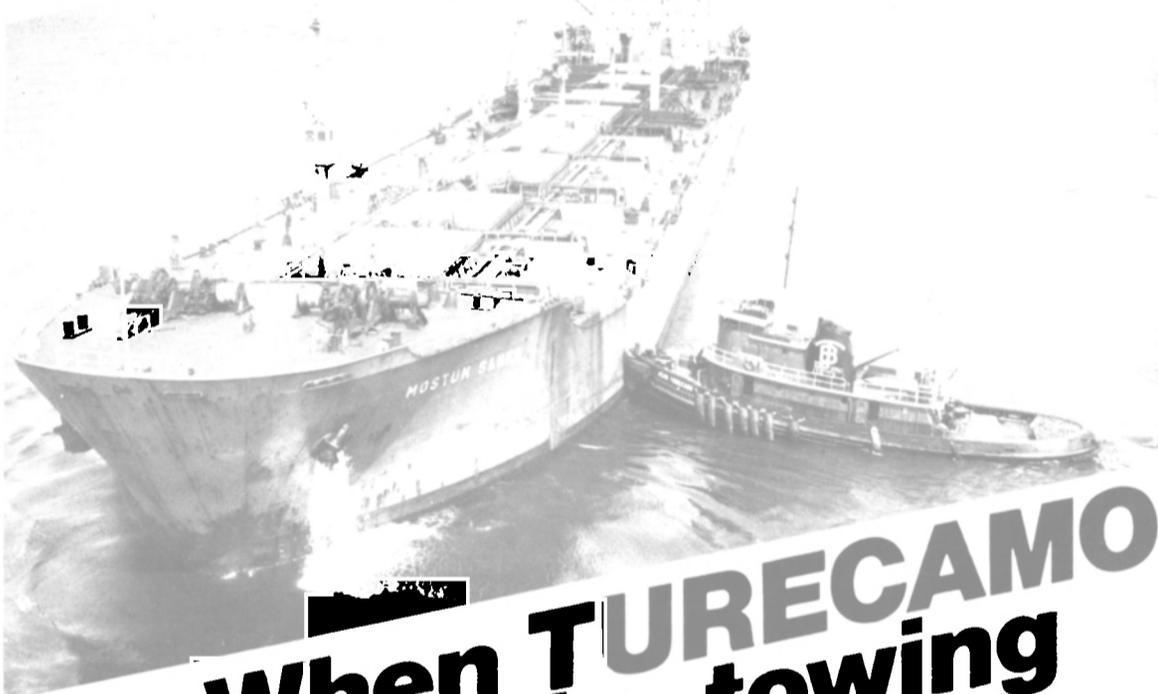
Captain Grabb retired from the U.S. Coast Guard July 1, 1983, following 30 years of service. He graduated from the U.S. Coast Guard Academy in 1953 and Massachusetts Institute of Technology in 1960, where he received his professional degree of Naval Engineer and his M.S. degree in Naval Architecture and Marine Engineering.

Captain Grabb's Coast Guard career included all phases of ship acquisition and support. He served as an engineering officer in Coast Guard Cutters Mackinaw and Klamath. He was responsible for repair, maintenance and overhaul of Coast Guard Cutters in the First and Fifth Coast Guard Districts, and was resident inspector for the detail design, construction, outfitting and acceptance of seven 210-foot medium-endurance cutters.

His assignments at Coast Guard headquarters included assistant chief, design branch chief, Ocean Engineering Division, and chief, procurement division. During his last assignment he was chief, major systems acquisitions staff with responsibility for acquisition of 270-foot medium endurance cutters, the midlife rearmament and modernization of 370 foot high endurance cutters and a new class of Great Lakes/Arctic Icebreakers.

Captain Grabb has been a member of ASNE for 26 years. He has served a term on both the national and flagship section councils and he has been a member of the Naval Engineers Journal Committee for over eight years.

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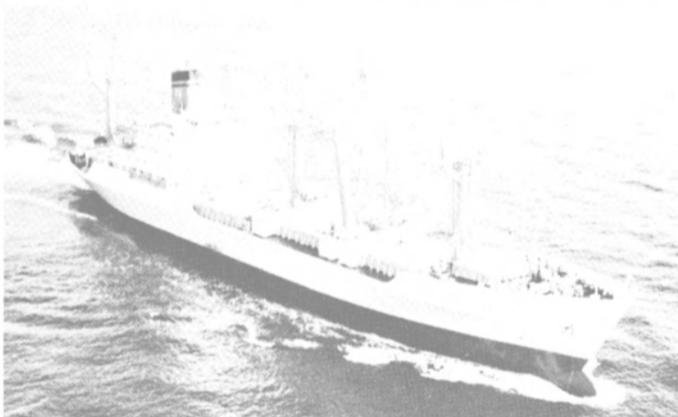
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November 1, 1983

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121

**Free Literature Available On Marconi's New ARPA**

The Marconi International Marine Co. Ltd., Chelmsford, England, has launched a new marine automatic radar plotting aid, the Marconi ARPA.

According to free literature offered by the company, the unit was designed and developed entirely by Marconi Marine's research and development team. The ARPA's key feature is the significantly reduced number of controls and readouts. This was achieved

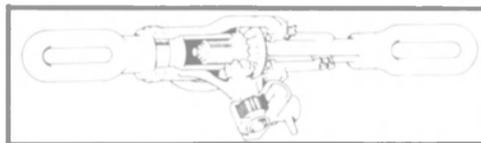
by the use of a dynamic visual display unit and softkey control system—while basic radar controls are retained in conventional form. Just two push buttons, a joystick, and eight softkeys are used to control all primary ARPA functions. Using automatic and/or manual

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### Hayes Joins Delaware River Port Authority World Trade Division

The Delaware River Port Authority announced today that **E. Allan Hayes**, formerly with Barber Steamship Line, has joined the Authority's World Trade Division as trade development representative.

Mr. Hayes, who has been associated with the maritime industry for more than 25 years, began his career as traffic manager with M.M. Soares Co., New York-based purchasing agent.

In joining the Authority's New York office, Mr. Hayes will be associated with **William Brawley**, the authority's manager at One Penn Plaza in New York City.

### New Protective Coating Brochure Available From Carboline

Carboline Company, St. Louis, has just released a new, four-page brochure describing the firm's Carboline 133 HB coating—a High Build polyurethane topcoat applied in a single coat over high performance new construction and maintenance primers.

The coating is excellent for use on marine and offshore structures, bridges, in chemical processing plants, pulp and paper mills and petrochemical facilities. It also has many applications in the heavy marine and waste treatment markets... or in any market where a highly resistant and attractive coating is required.

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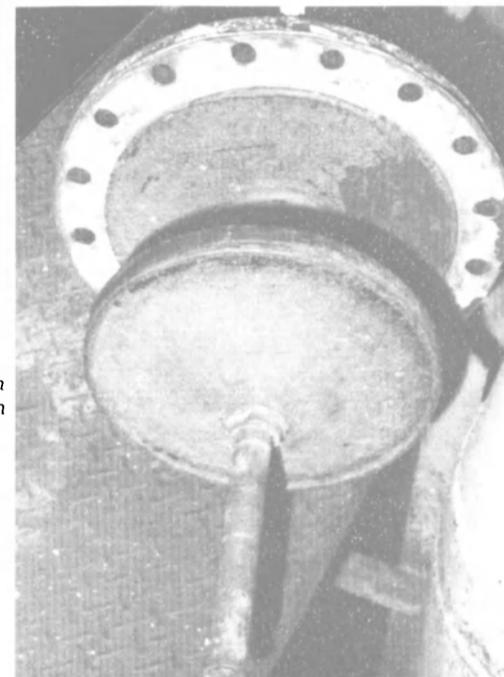
Here's Why 8 Navies Worldwide and Major Oil, Cargo and Cruise Fleets Have Installed C-2000 Systems:

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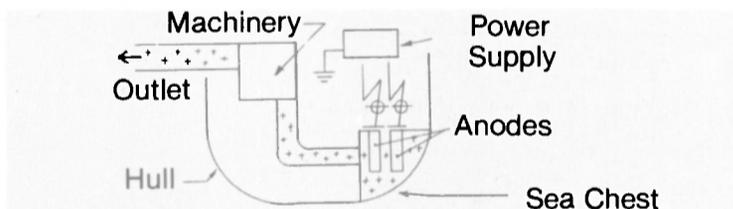
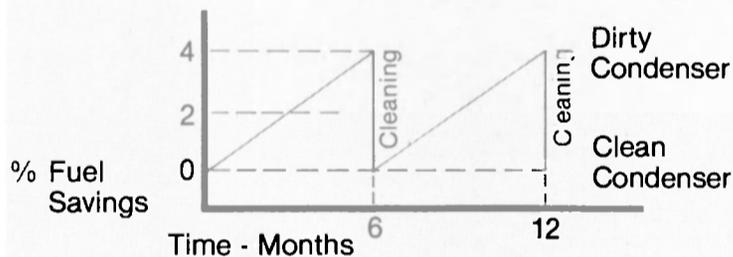


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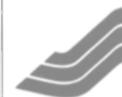
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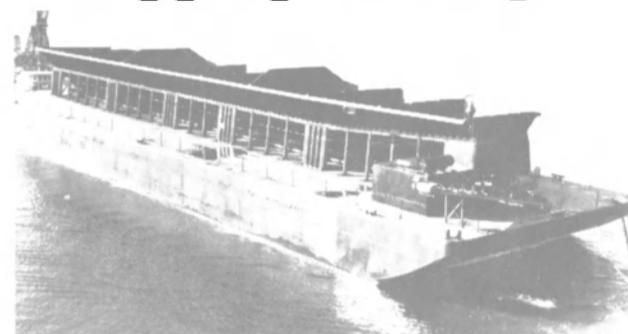
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DWT ..... 4000 S.T.  
Diesel Electric Set ..... 100 KV  
Hopper Volume ..... 2667 cu. yd

**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. 9/16"

## Split Type Self Dumping Scows

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### SPECIFICATIONS

ABS loadlined for USCG-approved  
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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 ..... 1615 L.T.  
Rake Lengths F. & A ..... 26' - 0"  
Twin Skegs  
Stern & Fwd. Rake Decks Stepped up 2' - 0"  
Engine GM 671  
Hydraulic Pumps (2) 12 GPM & 75 GPM  
Time To Open (Fully Closed to Fully Open)  
..... 6 Min. 5 Sec  
Time To Close ..... 4 Min. 34 Sec.  
Hopper Angle Fully Open ..... 53.78  
Fuel Tank Capacity ..... 445 Gal.  
Hydraulic Cylinders (2 Fwd. & 2 Aft)  
..... 18" Diam. 120" Stroke

**Plating**  
Side ..... 9/16"  
Bottom ..... 5/8"  
Hopper ..... 5/8"

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

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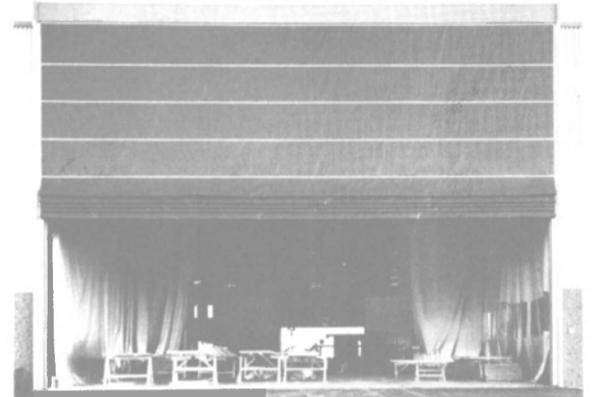
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## Newport News Shipbuilding To Install Eight Megadoors —Literature Available



Megadoor protects blast and paint facility.

Door Engineering of Norfolk, Va., has been awarded a contract to install eight Megadoors. The doors will be installed in new Newport News Shipbuilding submarine construction facilities. They are 50 feet wide by 70 feet high, and 50 feet wide by 50 feet high.

The Megadoor is a polyester and aluminum door providing protection for very large openings. For over 10 years now, the Megadoor has contributed to quality and production improvements in blast and paint facilities. Factors such as tightness, low maintenance, easy repairs and the extreme durability of the fabric make the door especially suitable for tough environments. The Megadoor has almost no limitations in size. The highest Megadoor to date is 100 feet high and is to be installed at Sterkader Mek. Verk., Norway, a facility for fabricating offshore drilling rigs. Newport News Shipbuilding chose these doors after a careful study of Megadoors installed in Scandinavian shipyards.

The door is marketed by Megadoor, Inc., New York, through its network of distributors.

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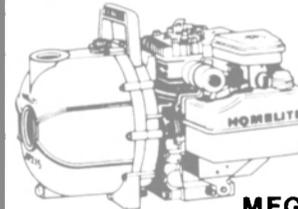
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**Cousteau Begins River Documentary; Biehl And Company Named Agent**



Jean-Michel Cousteau right, son of famed explorer Jacques Cousteau, checks schedules with Daryl Ricard, operations supervisor in Biehl and Company's full cargo department. The Calypso is shown in the background.

Biehl and Company has been selected by the Cousteau Society as ship's agent for the Calypso in its two-month voyage down the Mississippi River for the making of a film documentary on the "Father of Waters."

The Calypso, a 137-foot converted minesweeper used by ocean explorer Jacques Cousteau in his worldwide travels, will make its way slowly downriver from Minneapolis as the Cousteau group films the story of the river and its people. Land crews and seaplanes will help track the river to its source in Minnesota and its tributaries, according to Jean-Michel Cousteau, the explorer's son and associate.

Biehl and Company is arranging for all deliveries, crew transfers, fuel and other provisions as well as documentation for customs, agriculture officials and other agencies along the way.

The documentary will be telecast in some 100 countries next spring shortly before the 1984 Louisiana World Exposition opens in New Orleans May 12. Theme of the exposition is "Rivers of the World—Fresh Water as a Source of Life."

**Prefab Modular Cabin Design Licensed To British Shipbuilders**

British Shipbuilders and Oy Wartsila Ab, Turku Shipyards, have signed a licensing agreement giving British Shipbuilders the right to manufacture and install prefabricated accommodation modules of Wartsila design.

For many years the Finnish company prefabricated shower room units to be installed aboard ships. They then extended the idea to the prefabrication of modular assembly cabins, offering a considerable cost savings by transferring most of the work into the workshop. Consistent quality and ease of inspection make the new prefabricated cabin concept particularly attractive to shipowners. The licensing agreement fits well with a British Shipbuilders major drive to increase productivity.

The modular system helps to increase shipyard productivity levels and in addition allows: joinery work to be overlapped with other work, minimize wastage, more consistent quality and there is a significant improvement in soundproofing.

For further information,

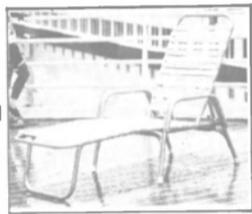
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Phillippi Equipment Company, 875 Colorado Ave. So., Golden Valley, MN 55416

Superior-Lidgerwood-Mundy Corp., 1101 John Ave., Superior, WI 54880

Washington Crane, Div. of Ederer, Inc., P.O. Box 24708, Seattle, WA 98124

## DECK MACHINERY—Cargo Handling Equipment

General Hydraulics Corp., A Marotta Subsidiary, P.O. Box 3302, Huntsville, AL 35810

Marine Technical Associates, 195 Patterson Avenue, Little Falls, NJ 07424

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

## DIESEL ACCESSORIES—CYLINDER LINERS

B & W Marine Service, 50 Broadway, New York, NY 10004

General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360

Haynes Corporation, P.O. Box 179, Jackson, MI 49204

Van der Horst Corp. of America, 314 Penn Ave., Olean, NY 14760

## ELECTRICAL EQUIPMENT

Argo Marine, 140 Franklin St., New York, NY 10013

Marine Electric RPD, Inc., 666 Pacific St., Brooklyn, NY 11217

Valad Electric Heating Corporation, 162 Wildey St., Tarrytown, NY 10591

Ward Leonard Electric Co., 31 South St., Mt. Vernon, NY 10550

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

## EMULSIFICATION SYSTEMS

Cleanodan A/S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906

Fire-Brite, Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32201

## EQUIPMENT—Marine

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080

Argo Marine, 140 Franklin St., New York, NY 10013

ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523

Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Thomas Coudan Associates, 6655 Amberton Dr., Baltimore, MD 21227

b.v. Holmair Industrial Equipment, P.O. Box 33, 4940 aa Raamsdonsveer, Holland

Juniper Industries Inc., 72-15 Metropolitan Ave., Middle Village, NY 11379

Kearfoot Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

John P. Nissen, Jr. Company, Glenside, PA 19038

Softech, 460 Totten Pond Road, Waltham, MA 02154

Sirachon—Mackoe Corporation, P.O. Box M850, Hoboken, NJ 07030

## EVAPORATORS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

## FANS—VENTILATORS—BLOWERS

American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

Hartzell Fan, Division of Castle Hills Corp., 901 S. Downing St., P.O. Box 919, Piqua, OH 45356

Marlo Coil/Nuclear Cooling, Inc., P.O. Box 171, High Ridge, MO 63049

Tranter Inc., 6700 Finch Ave. West, Rexdale, Ontario, Canada M9W 5P5

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

## FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

## FILTERS

Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307

Wm. W. Nugent & Co., P.O. Box 948, Skokie, IL 60076

## FINANCING—Leasing

A.G. Becker Paribus Inc., 2 First National Plaza, Chicago, IL 60670

Yegen Marine, P.O. Box 25504, Ft. Lauderdale, FL 33320

## FIRE PROTECTION, DETECTION, & ALARM SYSTEMS

Walter Kidde, Walter Kidde Dr., Wake Forest, NC 27586

Wormald Fire Systems, One Stanton St., Marinette, WI 54143

## FUEL OIL/ADDITIVES—Analysis & Combustion Testing

Ferrous Corporation, 910 108th N.E., P.O. Box 1764, Bellevue, WA 98009

Fuji Trading (America) Ltd., 17 Battery Place, New York, NY 10004

New York Mercantile Exchange, Four World Trade Center, New York, NY 10048

Rolfite Products Inc., 300 Broad Street, Stamford, CT 06901

## FURNITURE

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

Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

## GALLEY EQUIPMENT

Insinger Machine Company, 6245 State Rd., Philadelphia, PA 19135

Kiefer Corporation, W227 N546 Westmond Dr., Waukesha, WI 53186

## GANGWAYS

Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32960

## HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207

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

MacGregor-Navire International, Box 8991, S-402 74 Goteborg, Sweden

MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016

Julius Mock & Sons, Inc., 20 Vesey Street, New York, NY 10007

J.E. Steigerwald Co., Inc., 5515 Belair Rd., Baltimore, MD 21206

## HEAT EXCHANGERS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

American Standard Inc., Heat Transfer Div., Buffalo, NY 14240

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

## HULL CLEANING

Butterworth Inc. (USA), 3721 Lopas Dr., P.O. Box 18312, Houston, TX 77223-9989

Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England

Performance Hull Cleaning Services, Inc., P.O. Box 655, New Orleans, LA 70059-0655

Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France

Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044

Stork Services B.V., P.O. Box 2013, 7750 CA Hengelo, Holland

## HYDRAULICS

Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202

HRS, Inc., 3334 Victor Court, Santa Clara, CA 95050

Hydraulics, 6338 Lindmar Drive, Goleta, CA 93017

## INERT GAS—Generators—Systems

Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039

Maritime Protection A/S, N. American Agents, American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

Salwico Inc., 5 Marine View Plaza, Hoboken, NJ 07030

## INSULATION—Cloth, Fiberglass

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

Superior Energies, Inc., P.O. Drawer 386, Groves, TX 77619

## INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027

Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048

Assurance Foreningen Skuld, P.O. Box 1376 Vika, Stortingagaten 18, N-OSLO 1, Norway

R.A. Fullon & Company Insurance Services, 100 California St., San Fran-

cisco, CA 94111

Midland Insurance Co., 160 Water St., New York, N.Y. 10038

United States P&I Agency, Inc., 80 Maiden Lane, New York, NY 10038

## JOINER—Watertight Doors—Paneling

Isolamin Panels, c/o Consafe, Inc., P.O. Box 40339, Houston, TX 77040

Masonite Commercial Division, Dover, OH 44622

Megadoor Inc., 441 Lexington Ave., Suite 903, New York, NY 10017

Pioneer Industries, Division of CORE Industries Inc., 401 Washington Avenue, Carlstadt, NJ 07072

Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

## KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

## LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., P.O. Box 2148, Hollywood, FL 33022

Browning Marine Inc., (Aqua Signal) 33W 480 Fabyan Parkway, Ste 105, West Chicago, IL 60185

Keuffel & Esser/Kratos, 20 Whippary Rd., Morristown, NJ 07960

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Oceanic Electrical Mfg. Co., 157 Perry St., New York, NY 10014

Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123

NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202  
 Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169  
 James O. Nelson, 225 Argyle Rd., West Palm Beach, FL 33405  
 Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121  
 Northern Marine, P.O. Box 1169, Traverse City, MI 49685  
 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. Petchul, Inc., 1380 S.W. 57th Avenue, Fort Lauderdale, FL 33317  
 M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667  
 Mission St., San Francisco, CA 94105  
 Rothfuss Engineering Corp., P.O. Box 97, Columbia, MD 21045  
 Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida  
 33316  
 SEACOR Systems Engineering Associates Corp., 19 Perina Blvd., Cherry  
 Hill, NJ 08003 (Publications Division at Cherry Hill location)  
 STV/Sanders & Thomas, Inc., 1745 Jefferson Davis Hwy., Arlington, VA  
 22202  
 Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426  
 Seaworthy Engine Systems, 17 Battery Place, New York, NY 10004  
 George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007  
 Simmons Associates, P.O. Box 760, Sarasota, FL 33578  
 R.A. Slearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
 Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963  
 Timco, 622 Azalea Road, Mobile, AL 36609  
 Tracor Hydronautics, Inc., 7210 Pindell School Rd., Laurel, MD 20707  
 Uhlig & Associates, Inc., 8295 SW 188th St., Miami, FL 33157  
 VeVeY Engineering Works Ltd. U.S. Rep.: Carl G. Brimmekamp & Co., Inc.,  
 102 Hamilton Ave., Stamford, CT 06902  
 Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA  
 90744  
 Yacht Design Institute, 9 Main St., Blue Hill, ME 04614

**NAVIGATION & COMMUNICATIONS EQUIPMENT**  
 Alden Electronics, 1145 Washington St., Westborough, MA 01581  
 American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526  
 Anschutz & Co. GmbH, Postfach 6040, D-2300 Kiel 14, West Germany  
 Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco,  
 CA 94080  
 Cybernet International, Inc., 7 Powder Horn Dr., Warren, NJ 07060  
 Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142  
 A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway  
 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., 271 Harbor Way, S. San Francisco, CA 94080  
 Harris Communications (RF Communications), 1680 University Avenue,  
 Rochester, NY 14610  
 Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ  
 07631  
 ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611  
 Japan Radio Co., Ltd., Akasaka Twin Tower (Main), 17-22 Akasaka 2-  
 chome, Minoto-ku, Tokyo 107, Japan  
 King Radio Corporation, 400 North Rodgers Rd., Olathe, KS 66062  
 Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605  
 Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191,  
 Norway  
 Krupp Ailas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065  
 Lorain Electronics Corp., 2307 Leavitt Rd., Lorain, OH 44052  
 Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503  
 Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729  
 Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606  
 Radal-Decca Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199  
 Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577  
 Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033  
 Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103  
 Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East  
 Providence, RI 02914  
 Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061  
 Rivertronics, P.O. Box 247, Godfrey, IL 62035  
 Robertson Auto Pilot, 135 Fort Lee Road, Leonia, NJ 07605  
 Selesmar S.p.A., Casella Postale 9, 50020 Montagnana Val Di Pesa,  
 Firenze, Italy  
 Servo Corporation of America, 111 New South Road, Hicksville, NY 11802  
 Simrad, Inc., 2215 NW Market St., Seattle, WA 98107  
 Sperry Corporation, Great Neck, NY 11020  
 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009  
 Texas Instruments, Inc., P.O. Box 405, 3438, Lewisville, TX 75067

**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 Ave-  
 nue, Hackensack, NJ 07601  
 Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019  
 Mobil Oil Corp., 150 East 42 Street, New York, N.Y. 10017  
 Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002  
 Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

**OIL/WATER SEPARATORS**  
 Biospherics Incorporated, 5001 Forbes Blvd., Lanham, MD 20801  
 Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX  
 77223-9989  
 Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX,  
 England  
 Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ  
 07647  
 Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307  
 From Industrial, P.O. Box 33210, Tulsa, OK 74135  
 National Fluid Separators, Inc., 1239 Hanley Industrial Court, St. Louis, MO  
 63144  
 Phoenix Oil Refiner Co., Inc., 330 Hill Ave., Nashville, TN 37210

**PAINTS—COATINGS—CORROSION CONTROL**  
 American Abrasive Metals, 460 Col Street, Irvington, NJ 07111  
 Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754  
 Bareco, 6910 East 14th St., Tulsa, OK 74112  
 Bywater Coatings, 1610 Engineers Road, Belle Chasse, LA 70037  
 CLEMCO, P.O. Box 7680, San Francisco, CA 94120  
 "CONSOL" manufactured by Contact Paint & Chemical Co. Inc., 200 S.  
 Franklinton Rd., Baltimore, MD 21223  
 Devae Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207  
 E.I. Dupont de Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2,  
 Wilmington, DE 19898  
 Esgard, Box 2698, Lafayette, LA 70502  
 Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA  
 94080  
 Farboil, 8200 Fischer Road, Baltimore, MD 21222  
 Grow Group, Inc., 200 Park Ave., New York, NY 10017  
 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 Maritac International Inc., 150 Roosevelt Pl., P.O. Box 150, Palis-  
 ades Park, NJ 07650  
 Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250,  
 Edison, N.J. 08817  
 Palmer Products Inc., P.O. Box 8, Worcester, PA 19490  
 Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale,  
 CA 91203  
 Salwick Glassflake, Inc., 5 Marine View Plaza, Hoboken, NJ 07030  
 Seaguard, 4030 Seaguard Ave., Portsmouth, VA 23705  
 Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143  
 SermeTel, Inc., 4401 SermeTel Dr., Moss Point, MS 39563  
 Teledyne Metal Finishers, 1725 East 27th St., Cleveland, OH 44114

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

**PIER REPAIRS**  
 Aquatic Marine Systems, Inc., P.O. Box 326, Williamsville, NY 14221

**PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings**  
 Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696  
 Hydro-Craft, Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063  
 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  
 Selkirk Metalbestos, Box 19000, Greensboro, NC 27419  
 Stauff Corporation, 21-31 Industrial Park, Woldwick, NJ 07463

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

**PLASTICS—Marine Applications**  
 Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

**PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines**  
 American Lohmann Corp., 1415 Chestnut Ave., Hillside, NJ 07205  
 Armco 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  
 Bombardier, 1051 Dickson, Montreal, Quebec, Canada H1N 2H7  
 Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
 Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629  
 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  
 Daihatsu Diesel (USA) Inc., 1211 Ave. of the Americas, New York, NY  
 10036  
 Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340  
 Diesel Marine International, Ltd., c/o NORSHIPCO, P.O. Box 2100, Nor-  
 folk, 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  
 Gollen Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231  
 Harbormaster, 36 Hancock St., Quincy, MA 02171  
 Krupp Mak Diesels, Inc., 4329-33 Di Paolo Center, Glenview, IL 60025  
 Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323  
 M.A.N.-B&W Diesel, 2, Ostervej, DK-4960 Høleby, Denmark  
 MTU of North America, One E. Putnam Ave., Greenwich, CT 06830; 10450  
 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City,  
 LA 70203; 180 Nickerson St., Seattle, WA 98109; 1730 Lynn St., Arlington,  
 VA 22209  
 MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046  
 Mapeco Products, Inc., 20 Vesey St., New York, NY 10007  
 Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3  
 Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507  
 National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA  
 70037  
 Omithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670  
 Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054  
 Propulsion Systems, Inc., 21213 76 Ave. So., Kent, WA 98032  
 SACM (Societe Alsacienne De Constructions Mechaniques De Mulhouse) 1,  
 Rue De La Fonderie, Boite Postale 1210, 68054 Mulhouse Cedex, France  
 Schottel of America, Inc., 8375 N.W. 56 St., Miami, FL 33166  
 Karl Senner, Inc., P.O. Box 10055, New Orleans, LA 70181  
 Skinner Engine Company, P.O. Box 1149, Erie, PA 16512  
 Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland  
 Transamerica DeLoval Inc., Engine & Compressor Div., 550 85th Ave.,  
 Oakland, CA 94621  
 Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788,  
 Trenton, N.J. 08650  
 Turbine Specialties, Inc., P.O. Box 207, West State Street Road, Salina, KS  
 67401  
 Turbine Specialties/Gulf Coast, Inc., 1900 Industrial Blvd., Harvey, LA  
 70058  
 Voith Schneider America, 159 Great Neck Rd., Ste 200, Great Neck, NY  
 11021  
 WABCO Fluid Power, an American-Standard Company, 1953 Mercer Rd.,  
 Lexington, KY 40505  
 Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072  
 Waukesha Engine Division, Waukesha, WI 53187  
 Welco Industries, Inc., 9027 Shell Rd., Cincinnati, OH 45236  
 ZF of North America, Inc., 3225 Commercial Avenue, Northbrook, IL 60062  
 ZF of North America, Inc. (Motive Power Corporation, P.O. Box 365,  
 Mineola, NY 11501)

**PUMPS—Repairs—Drives**  
 FMC Corporation, Pump Division, 326 S. Dean Street, Englewood, NJ  
 07631  
 Industrial Products & Engineering Co., Inc., 1 Sawyer Dr., Coventry, RI  
 02816  
 Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101  
 Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238  
 Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002  
 Sims Pump Valve Co., Inc., 1314 Park Ave., Hoboken, NJ 07030  
 Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC  
 28110  
 Vita Motivator Company, 200 West 20th St., New York, NY 10011  
 Warren Pumps Division, Bridges Avenue, Warren, MA 01083  
 Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Col-  
 on, CA 92324

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

**ROLLING SYSTEMS**  
 Hilman, Inc., 2604 Atlantic Ave., Wall (Belmar), NJ 07719

**ROPE—Manila—Nylon—Hawsers—Fibers**  
 American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431  
 Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008  
 DuPont Co., KEVLAR Aramid Fiber, Room G-15465, Wilmington, DE 19898  
 Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470  
 Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110  
 Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666  
 Wall Industries, Inc., P.O. Box 560, Elkin, NC 28621

**RUDDER ANGLE INDICATORS—STEERING**  
 Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142  
 Hy-Drive America Corp., 3629 Vernon Blvd., Long Island City, NY 11106  
 Marine Drive Systems, 519 Raritan Center, Edison, NJ 08817  
 Robertson, 135 Fort Lee Rd., Leonia, NJ 07605

**SAFETY EQUIPMENT**  
 Datrex, 3795 N.W. 25th Street, Miami, FL 33142  
 Elkhart Brass Manufacturing Co., Inc., P.O. Box 1127, Elkhart, IN 46515  
 Wormald Fire Systems, One Stanton St., Marinette, WI 54143

**SANITATION DEVICES—Pollution Control**  
 Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401  
 Envirovac Inc., 1260 Turret Dr., 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

**SCAFFOLDING EQUIPMENT—Work Platforms**  
 McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238  
 Patent Scaffolding Co., One Bridge Plaza, Fort Lee, NJ 07024  
 Swiss Fabricating Inc., Camp Horne Rd., Emsworth, Pittsburgh, PA 15237  
 Trus-Joist Corp., P.O. Box 60 Boice, ID 83704

**SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT**  
 Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081  
 Crane Packing Company, 435 Regina Dr., Clarksburg, MD 20734  
 EG&G Sealol, Engineered Products Div., Marine Products Group, Warwick,

RI 02888  
 Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142  
 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  
 Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland,  
 OR 97217  
 Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

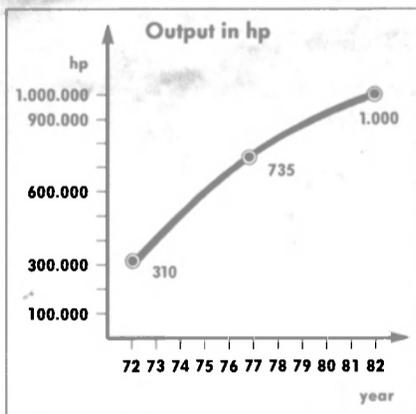
**SHIPBUILDING EQUIPMENT**  
 Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156  
 Total Transportation System Inc., 813 Forest Dr., Newport News, VA 32606  
 Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box  
 28, N5201, Oslo, Norway

**SHIPBUILDING STEEL**  
 Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042  
 Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004  
 Tiline, P.O. Box 729, Albany OR 97321  
 Welded Beam Company, P.O. Box 280, Perry OH 44081

**SHIPBUILDING—Repairs, Maintenance, Drydocking**  
 Alabama Maritime Corp., P.O. Box 3026, Mobile, AL 36652  
 Amsterdam Drydock Company, Post Box 3006, 1003 AA, Amsterdam,  
 Holland  
 Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso  
 14, Casilla 150-V, Valpariso, Chile, S.A.  
 Astilleros Balboa, S.A., c/o Jackson Marine Corp., 17 Battery Place, New  
 York, NY 10004  
 Ateliers et Chantiers de Bretagne—ACB, 44040 Nantes Cedex, France  
 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  
 Bath Iron Works Corp., 700 Washington St., Bath, ME 04530  
 Bay Shipbuilding Corp., 605 North 3rd Ave., Sturgeon Bay, WI 54235  
 BFC Marine Services, Inc., 25 Fifth St., Brooklyn, NY 11231  
 Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601  
 Bethlehem Steel Corp., Bethlehem, PA 18016  
 Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081  
 Burmeister & Wain Skibsværft A/S, P.O. Box 2122, Refshaleen-1015 Co-  
 penhagen K-Denmark  
 Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C.,  
 Canada  
 Caneco Shipyard, Rua Carlos Seidl, 714, Caju, 20.931, Rio de Janeiro, RJ,  
 Brazil  
 Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy  
 Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia  
 2322  
 China Shipbuilding Corp., 3 Chung Kang Rd., Hsia Kang, Kaohsiung, Tai-  
 wan, Republic of China  
 Conrad Industries, P.O. Box 790, Morgan City, La. 70380  
 Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY  
 10004  
 Daewoo International (America) Corp., 437 Madison Ave., New York, NY  
 10022  
 Daewoo Shipbuilding & Heavy Machinery Ltd., Ayangri, Changsung-PO,  
 Kaje-Kun, Kyungnam, Korea  
 Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London,  
 Republic of South Africa  
 Dravo Marine Equipment Company, Neville Island, Pittsburgh, PA 15225  
 Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401  
 FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland,  
 Oregon 97208  
 Far East Livingston Shipbuilding Ltd., 31 Shipyard Rd., Jurong Town, Singa-  
 pore 2262  
 Genstar Marine, 10 Pemberton Ave., No. Vancouver, B.C., Canada V7P  
 2R1  
 Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, MA 02725  
 HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219  
 Halter Marine, Inc., P.O. Box 29266, New Orleans, LA 70189  
 Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post  
 Office, Kowloon, Hong Kong  
 Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, Korea  
 I.N.M.A. S.p.A., 19100 La Spezia, v. le S. Bartolomeo 362, Italy  
 Jakobson Shipyard Inc., P.O. Box 329, Oyster Bay, NY 11771  
 Jeffboat, Inc., Jeffersonville, Ind. 47130  
 Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singa-  
 pore 0409  
 Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094  
 Kone Corp., P.O. Box 6, SF-05801, Hyvinkaa, Finland  
 Leevac Corporation, P.O. Box 2607, Morgan City, LA 70381  
 Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Se-  
 attle, Wash. 98134  
 M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West  
 Germany  
 McDermott, Incorporated, 1010 Common Street, New Orleans, LA 77227  
 Main Iron Works, Inc. P.O. Box 1918, Houma, LA 70361  
 John Manly Shipyards, 2050 East Kent Ave., Vancouver, B.C. V5P 2T2,  
 Canada  
 Marystown Shipyard Limited, P.O. Box 262, Marystown, Newfoundland,  
 Canada A0E 2M0  
 Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla.  
 33681  
 Mitsubishi Heavy Industries, Ltd., 5-1, Marunochi 2-chome, Chiyoda-ku, To-  
 kyoo, 100 Japan  
 Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655  
 Moran Shipping Agencies, 10 Jefferson Blvd., Warwick, RI 02888  
 Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552  
 Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202  
 National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL  
 62048  
 National Steel & Shipbuilding Corp., San Diego, Calif. 92112  
 Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., New-  
 port News, Va. 23607  
 North Florida Shipyards, P.O. Box 3863, Jacksonville, FL 32206  
 O.A.R.N. (Officine Allestimento-Riparazioni Navi), P.O. Box 1395, Genoa,  
 Italy 16100  
 Overseas Shipyards, Inc., 21 West St., New York, NY 10006  
 Patti Industries Inc., South B St., Pensacola, FL 32573  
 Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA  
 70361  
 Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22  
 Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02906  
 Puerto Rico Drydock & Marine Terminals, Inc., P.O. Box 2209, San Juan,  
 Puerto Rico 00903  
 Rauma-Repola, 26100 Rauma 10, Finland  
 Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg.  
 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea  
 Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402  
 Schiess Defries, Postfach 111146, Schiess-Str. 61, D-4000 Dusseldorf 11,  
 West Germany  
 Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70381  
 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  
 Thomas Marine, 37 Bransford St., Patchogue, NY 11772  
 Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004  
 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  
 Verolme Estaleiros Reunidos Do Brasil S.A., Rua Buenos Aires, 68, Rio de  
 Janeiro—RJ—Brazil  
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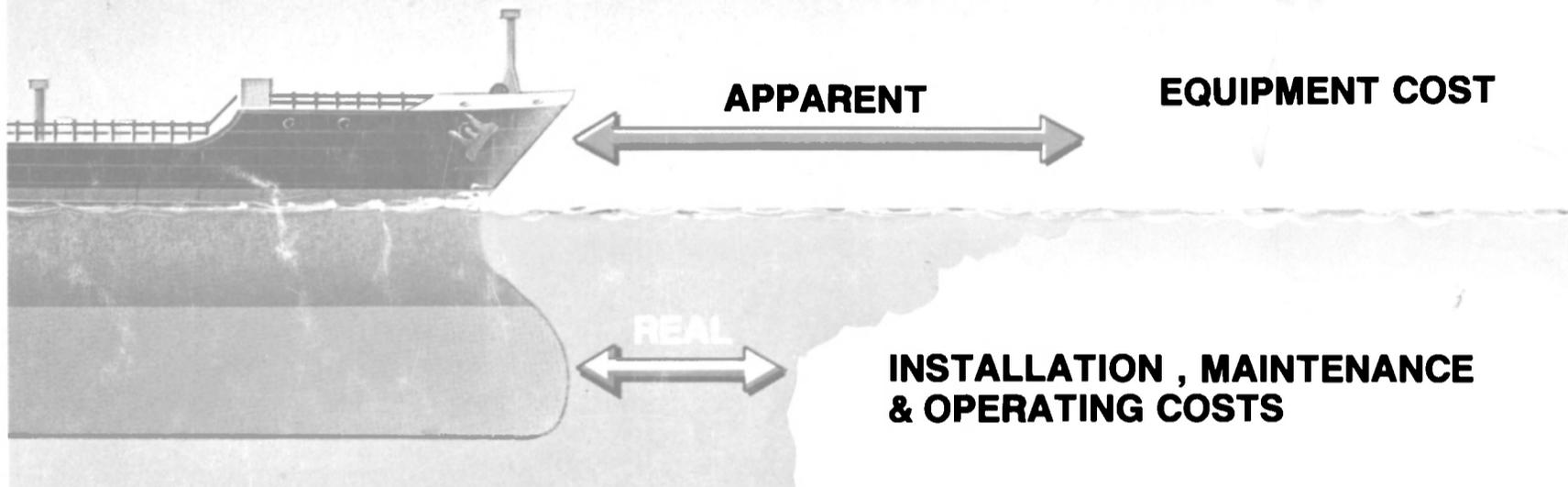


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# PROBLEM:



# SOLUTION:

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