

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

**EXPOSHIP '85**  
**BRITISH MARINE INDUSTRY**

**MARCH 1, 1985**



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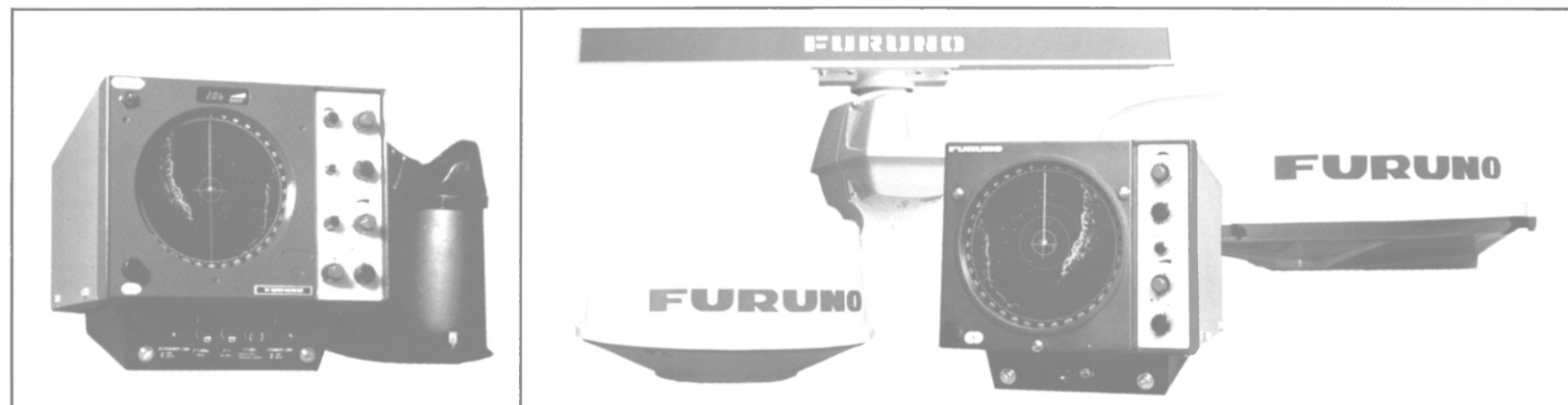
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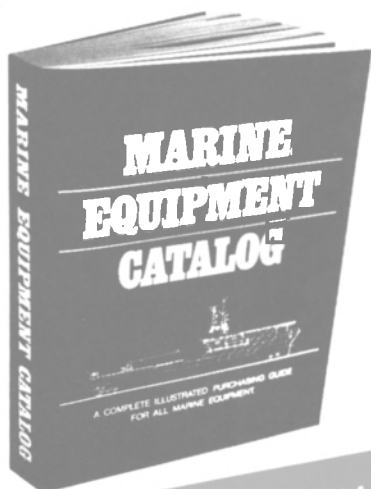
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**ON THE  
COVER**

— A Preview —  
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Britain  
— A Marine Industry  
Review  
PAGE 20

**Metro Machine Awarded  
\$8.6-Million Navy Contract  
For Overhaul Of Frigate**

Metro Machine Corporation of Norfolk has been awarded an \$8,629,153 firm-fixed-price Navy contract for the overhaul of the frigate USS Truett (FF-1095). Work will be performed in Norfolk and is expected to be completed by January 15, 1986. Contract funds would not have expired at the end of the current fiscal year. Ten bids were solicited and seven offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N62678-70-C-0016).

**Hiab Cranes Relocates  
Its U.S. Headquarters**

Hakan Danielsson, president of Hiab Cranes & Loaders, Inc., has announced the relocation of the company's national sales, service, and parts headquarters to New Castle, Del. Formerly based in York, Pa., the Swedish-American firm is a pioneer in time- and labor-saving hydraulically operated folding knuckle-boom cranes and loaders.

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Hiab cranes and loaders are marketed through a nationwide network of master distributors.

For more information on Hiab cranes,

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Maritime Reporter/Engineering News



## IMODCO Awarded Contract To Convert Egyptian Tanker

IMODCO, a unit of AMCA International Corporation's Marine Division, has been selected by CONOCO, Inc. of Houston, on behalf of Geisum Oil Company of Cairo, to provide engineering and construction management services for the conversion of a VLCC into a floating production storage and offloading vessel. The dollar value of the project was not disclosed.

The converted tanker will be moored permanently at the Geisum Field in the Gulf of Suez, Egypt. It will be designed to process, store, and transfer crude oil to shuttle tankers using a side-by-side offloading method.

IMODCO, a pioneer in the development of offshore marine terminal systems, will be responsible for the design and engineering services for the modification and for the design of the vessel's mooring system. Alterations will include a new helideck, foundations and utilities for a new production facility and metering station, conversion to a barge, extensive corrosion protection, and upgraded safety and fire-protection systems.

IMODCO will assist with supervision of the installation and tanker hook-up at the site, which is scheduled for the last quarter of 1985. Engineering for the process system on the tanker will be performed by Paragon Engineering of Houston.

## American Management Gets \$4-Million Award For Engineered Programs

American Management Systems Inc. of Arlington, Va., has been awarded a \$4,223,248 cost-plus-fixed-fee Navy contract modification for 74,152 man-hours of auxiliary ship and amphibious ship engineered operating cycle phased maintenance and other engineered operating cycle programs. Work will be performed in Arlington, and is expected to be completed in July 1986. Contract funds would not have expired at the end of the current fiscal year. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-84-C-4049).

## MarAd Approves Sale Of Delta Steamship To United States Lines

The Maritime Administration and Maritime Subsidy Board have approved the purchase by United States Lines, Inc. (USL) and United States Lines S.A. (USL/SA) of 11 ships, 549 LASH barges, and other assets of Delta Steamship Lines, Inc.

Under the MarAd action, USL will also:

- Subcharter from Delta three new

Sea Wolf Class RO/RO-container-hips, one of which has been delivered and two of which are under construction at Odense Steel Shipyard in Denmark;

- Assume Delta's interest at the time of delivery of a fourth container-ship to be built foreign by Delta under Section 615 of the Merchant Marine Act of 1936; and

- Assume Delta's operating differential subsidy (ODS) agreements with the government, under which

Delta has been providing subsidized service to Latin America, the Caribbean, and West Africa.

USL/SA (formerly Moore McCormack Lines) has been serving separate routes in the same general area under an ODS contract. It proposes now to serve a combined trade area as authorized by the Board.

MarAd determined that the total purchase price of Delta's 11 owned vessels of \$36.6 million and USL's assumption of outstanding Title XI

debt on the vessels is fair and reasonable. The agency also approved the acquisition by USL from McLean Industries, Inc. and by Delta from USL of 366,000 shares of McLean preferred stock with a redemption value of \$100 per share.

Ships in the present Delta fleet involved in the sale are the Del Campo, Del Mundo, Del Oro, Del Rio, Del Sol, Delta Caribe, Delta Mar, Delta Norte, Delta Sud, Santa Paula, and Santa Rosa.

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## Moran And Watt Elected Vice Presidents At Moran Towing & Transportation

**Thomas E. Moran**, chairman and president of Moran Towing & Transportation Company, has announced that the board of directors has elected two new vice presidents, **Edmond J. Moran Jr.** and **W. Anthony Watt**.



Edmond J. Moran Jr.

W. Anthony Watt

**Edmond Moran** came to the company from States Marine Lines in 1971 to work in the sales department at the New York office. A graduate of Georgetown University, he was appointed vice president of Florida Towing Company in

Jacksonville when that firm was acquired by Moran in 1976. He returned to New York in 1983 to become manager of Moran's Barge Division, including the subsidiary Seaboard Shipping Company.

**Mr. Watt** came to the New York Office in 1978 as assistant manager of Seaboard Shipping, after having been an executive with Florida Towing. Having a background in shipyard management, he became assistant manager of the Construction and Repair Department in 1980, and manager of that department in 1984.

## Suehrstedt Appointed President Of Marine Consultants & Designers—Plude Named Vice President

**Carlton E. Tripp**, chairman of Marine Consultants & Designers, Inc., has announced the election of **Richard H. Suehrstedt** as president, and **George H. Plude** as vice president of the firm.

**Mr. Suehrstedt** has been employed by the company since 1951. He became vice president in 1972 after serving as chief naval architect since 1959. **Mr. Tripp** had been president of the firm for the past 25 years.

**Mr. Plude** joined MC&D in 1958 as naval

architect, and has been director of engineering since 1978.

Marine Consultants & Designers is an international firm of naval architects and marine engineers, having served the marine industry for the past 35 years. It maintains headquarters in Cleveland, and has offices in St. Catharines, Ontario, and Jakarta, Indonesia.

## Third Aegis Cruiser 'Vincennes' Completes Initial Sea Trials

CG-49 Vincennes third of 12 Aegis guided-missile cruisers ordered by the U.S. Navy for construction at Ingalls Shipbuilding in Pascagoula, Miss., has completed her initial at-sea testing in preparation for commissioning on July 6.

The new ship is equipped with the Aegis weapons system, the most advanced combat system afloat in the world today. This system will be further tested in the Gulf of Mexico during April.

Ingalls delivered the first two ships of the new class, USS Ticonderoga (CG-47) and USS Yorktown (CH-48) in December 1982 and May 1984, respectively. Both ships are now operating with the U.S. Atlantic Fleet. Vincennes will be homeported in San Diego.

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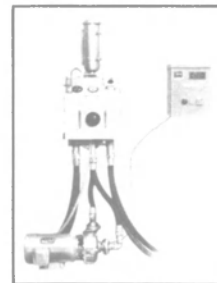
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Maritime Reporter/Engineering News

## MSC Awards \$41.7-Million Contract To Sea Mobility To Operate T-AGOS Ships

The Navy's Military Sealift Command has awarded a \$41.7-million contract to Sea Mobility, Inc. of Houston for the operation and maintenance of 12 T-AGOS-1 Class ocean surveillance ships. The contract took effect February 1 this year and will continue through September 30, 1989.

T-AGOS ships are the platform and transportation for SURTASS, a passive undersea surveillance system. The 12 ships will operate worldwide, alternating their missions at sea with calls at overseas ports. Six of the vessels will be homeported in Pearl Harbor and six in Little Creek, Va.

All 12 ships are being built for the Navy by Tacoma Boat Building Company in Washington. Three have been delivered to MSC, the remaining nine will be completed over the next two and one-half years.

An MSC-employed Civil Service crew will man each ship for the first 11 months following delivery, after which it will be turned over to Sea Mobility for operation by its employees. In addition to the operating crew of about 18, each ship will carry seven SURTASS technicians.

## Whitey Co. Offers Compact Ball Valves Rated To 2,200 PSI —Literature Available

Full flow, 1/2-inch ball valves with swing-out bodies for fast, easy maintenance are now available from Whitey Co., Highland Heights, Ohio. The valve, designated the "62" Series, features high flow capacity and is rated to 2,200 psi (ANSI 1500-lb Class) and 450°F.

This quarter-turn valve's standard features include a trip-proof oval handle and a blow-out proof stem for added safety. The unique stem packing is spring loaded to self adjust for wear as well as changes in pressure and temperature, thereby preventing stem leakage. A patented three piece seat design compensates for wear and prevents leakage past the ball.

Brass and 316 stainless steel materials are standard. Modified versions are available to handle chlorine, sour gas and temperatures as low as -65°F. Air actuated models are also available.

Whitey offers a complete line of swing-out ball valves in sizes ranging from 1/4-inch to 2-inch with SWAGELOK tube fitting, female NPT pipe fitting and weld end connections.

For information on Whitey's ball valves,

Circle 20 on Reader Service Card

## Two Vice Presidents And An Assistant Vice President Named AT J.J. Henry Co.



Robert McFadden

John Klose

T. K. Lawrence

James D. Palmer, executive vice president of J.J. Henry Company, has announced the elections of Robert B. McFadden to vice president-production, John H. Klose to vice president-project management, and T.K. Lawrence

to assistant vice president-Hampton Roads Operation. Mr. McFadden and Mr. Klose are both associated with the company's Moorestown, N.J., facility; Mr. Lawrence is responsible for operations in the Hampton Roads, Va., area.

With the firm since 1965, Mr. McFadden has served as chief of the Machinery Department, as chief engineer and director-Design Division, and since 1980 as assistant vice president.

Mr. Klose also joined the company in 1965, after experience at Gibbs & Cox and Avondale Shipyards. Beginning with Henry as a naval architect, he advanced through various positions to chief of the Hull Design Division and later to chief of the Scientific Department. In 1980 he was named assistant vice president in charge of the Program and Contract Division.

Mr. Lawrence joined the Henry firm in 1981 as manager of the Hampton Roads Division, which includes the Portsmouth and Newport News offices. He acquired general management experience at Newport News Shipbuilding, where he rose from the Apprentice Program to program manager, and at Sun Ship where he was general manager of the Industrial Products Division.



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## Southwest Marine Will Operate Ship Repair Facility In Samoa

The American Samoa Government (ASG) recently announced that Southwest Marine, Inc., a leading U.S. ship repair company that operates three full-service shipyards in California, has been chosen to lease and operate the ASG Marine Railway and Ship Repair Facility in Pago Pago, American Samoa.

For several months prior to the selection, the ASG had actively solicited U.S. ship repair companies to participate in the bidding for the lease and operation of the newly upgraded facility, which boasts a new 3,000-ton marine railway capable of drydocking the increasing number of modern tuna purse seiners now using Pago Pago as a home port.

American Samoa Governor **Peter Tali Coleman** commented, "Southwest Marine brings a much-needed, full-service ship repair capability to the South Pacific." He added that "Southwest Marine is committed to building that capabili-

ty by the retraining and employment of American Samoan workers."

The Source Selection Board involved in the review and evaluation of the contract decision included Adm. **Thomas B. Hayward**, USN (Ret.), former Chief of Naval Operations; **Eugene Reid**, a prominent businessman from American Samoa; and **Lyle Richmond**, executive assistant to the Governor of American Samoa. The agreement between ASG and SMI calls for a 15-year lease of the Pago Pago facility.

Governor-elect **A.P. Lutali** of ASG expressed his support for this decision and noted that the presence of a company with Southwest Marine's reputation will help establish American Samoa as a leading commercial shipping center in the South Pacific.

For full details on Southwest Marine's facilities and services,

Circle 16 on Reader Service Card

## Horner, Cass And Tullai Appointed Managers For Seaworthy Systems

Seaworthy Systems, Inc., headquartered in Essex, Conn., has announced promotions associated with its recent restructuring. These realignments are aimed at maintaining quality control as the company grows, as well as to recognize the capabilities of the individuals concerned, according to **Thomas J. Pakula**, vice president and secretary.

**Jack E. Horner** has been promoted to manager, engine and component analysis; **Reed W. Cass** has been named manager, evaluation and test engineering; and **John P. Tullai** has been appointed manager, naval architecture and product software.

Mr. **Horner** has been with Seaworthy since 1975 and has more than 20 years of experience working with engines, components, and auxiliary systems. He is a mechanical engineering graduate of the University of Bridgeport, and has previously been employed by United Technology's Turbo Power and Marine Systems, and at General Dynamics' Electric Boat and Quincy divisions.

Mr. **Cass** has been involved with power plant surveys and design, and energy audits for Seaworthy for the past five years. He formerly worked for TRC Consultants and the Terry Steam Turbine Company. He is an engineering graduate of Maine Maritime Academy, and earned an MS degree at the University of Massachusetts.

Mr. **Tullai** has been largely responsible for the development of Seaworthy's COMET plant performance systems and the Fuel Acquisition software, and has participated in propeller design, lines

work, and hull resistance work at the company's main office in Essex. He is a graduate of Webb Institute of Naval Architecture.

Seaworthy Systems is a marine engineering firm specializing in the power plant, hull, and propeller areas, and operates out of offices in Essex, New York City, Solomons, Md., and Washington, D.C.

## Foss Shipyard Appointed Authorized Workshop For Stork-Werkspoor Diesels

Foss Shipyard in Seattle has been named an "Authorized and Recommended Workshop" for Stork-Werkspoor marine diesel engines, and will provide service and spare parts throughout the Pacific Northwest. The agreement between Foss Launch & Tug Company, a Dillingham company of which Foss Shipyard is a division, and Stork-Werkspoor of the Netherlands, was announced recently by **Chuck Garman**, Pacific Northwest sales manager for Stork.

Operating from the shipyard located on the Lake Washington Ship Canal, Foss personnel will be able to install, maintain, and repair Stork-Werkspoor engines for commercial vessels operating in the Northwest and Alaska. Foss Shipyard engine repair specialists are factory-trained to handle all types of repairs including extensive overhauls. Foss will stock most frequently used Stork spare parts, which will be available through the firm's existing distribution system.

In addition to Stork-Werkspoor, Foss Shipyard is an authorized repair station for Cummins, Caterpillar, GM, EMD, and Wartsila marine diesels.

For further information on Foss Shipyard,

Circle 24 on Reader Service Card

## Marinette Gets \$7-Million Navy Contract To Build Two Weapons Retrievers

Marinette Marine Corporation of Marinette, Wisc., has been awarded a \$7,123,194 firm-fixed-price Navy contract for the construction of two 120-foot Torpedo Weapons Retrievers (TWR). Work will be performed in Marinette and is expected to be completed in June 1986. Contract funds would not have expired at the end of the current fiscal year. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-2108).

## Brinlee Named General Manager-Venezuela For Loffland Brothers



Wayne Brinlee

**Wayne Brinlee** formerly division manager in Malaysia for Loffland Brothers Company, has been appointed general manager of the company's operations in Venezuela, and will be stationed at the Maracaibo office.

He joined Loffland as a rig superintendent in Libya in 1968, and was promoted to senior rig superintendent in 1970. He transferred to Nigeria later that year and was promoted to Nigeria operations manager in 1975. He was named Saudi Arabia division manager in 1978, and was assigned to Malaysia in 1983.

Loffland Brothers, a Kendavis Industries company, is the world's largest and oldest drilling contractor, and is headquartered in Tulsa, Okla.

## Clancy And Sawyer Join Jaegle As Area Managers

Jaegle Paint Company, Inc. of Havertown, Pa., has announced the appointment of **Chester E. Clancy** as area manager in Mobile, and **Marsha Sawyer** as area manager for Tampa. They will be responsible for marketing and warehouse management in their respective locations, and both bring years of marine experience to the company.

Jaegle has been a manufacturer of marine and industrial coatings since 1935; it also distributes Ameron protective coatings to the marine industry.

Circle 25 on Reader Service Card

## Continental Maritime Gets \$10.6-Million Contract To Overhaul Transport Ship

Continental Maritime of National City, Calif., has been awarded a \$10,608,365 firm-fixed-price Navy contract for the drydocking and overhaul of the amphibious transport dock USS Denver (LPD-9). Work will be performed in National City and is expected to be completed by October 30, 1985. Contract funds would have expired at the end of the current fiscal year. Seven bids were solicited and four offers were received. The Supervisor of Shipbuilding, Conversion and Repair, San Diego, is the contracting activity (N62791-82-C-0002).

## Cloughton Elected President of NAPVO

At the recent annual meeting of the National Association of Passenger Vessel Owners (NAPVO) in Palm Beach, Fla., outgoing president **John Lozier** of Memphis Queen Line announced the new officers elected by the membership. They include: president, Dr. **Hugh D. Cloughton** of Belle Carol of the Cumberland, Nashville; vice president, **Zack D'Alesandro** of Gateway Clipper Fleet, Pittsburgh; secretary/treasurer, **James Cross** of Island Queen Excursions, Rivera Beach, Fla.

NAPVO, which experienced a 50-percent growth in membership during 1984, will hold its 1986 convention at Lake Tahoe, Calif. For information about the association, contact Capt. **Phil Danahy**, executive director, P.O. Box 55186, Fort Washington, Md. 20744; (202) 292-0990.

## Unitor Named Distributor Of K.E.W. Cleaning Machines —Literature Available

K.E.W. has named Unitor its worldwide distributor to the marine and offshore markets for the company's line of hot and cold water, high-pressure cleaning machines and wet/dry vacuum cleaners that are enjoying impressive sales around the world. Their cleaning effect and technical quality are said to impress shipowners, who see the increased productivity resulting from a clean ship.

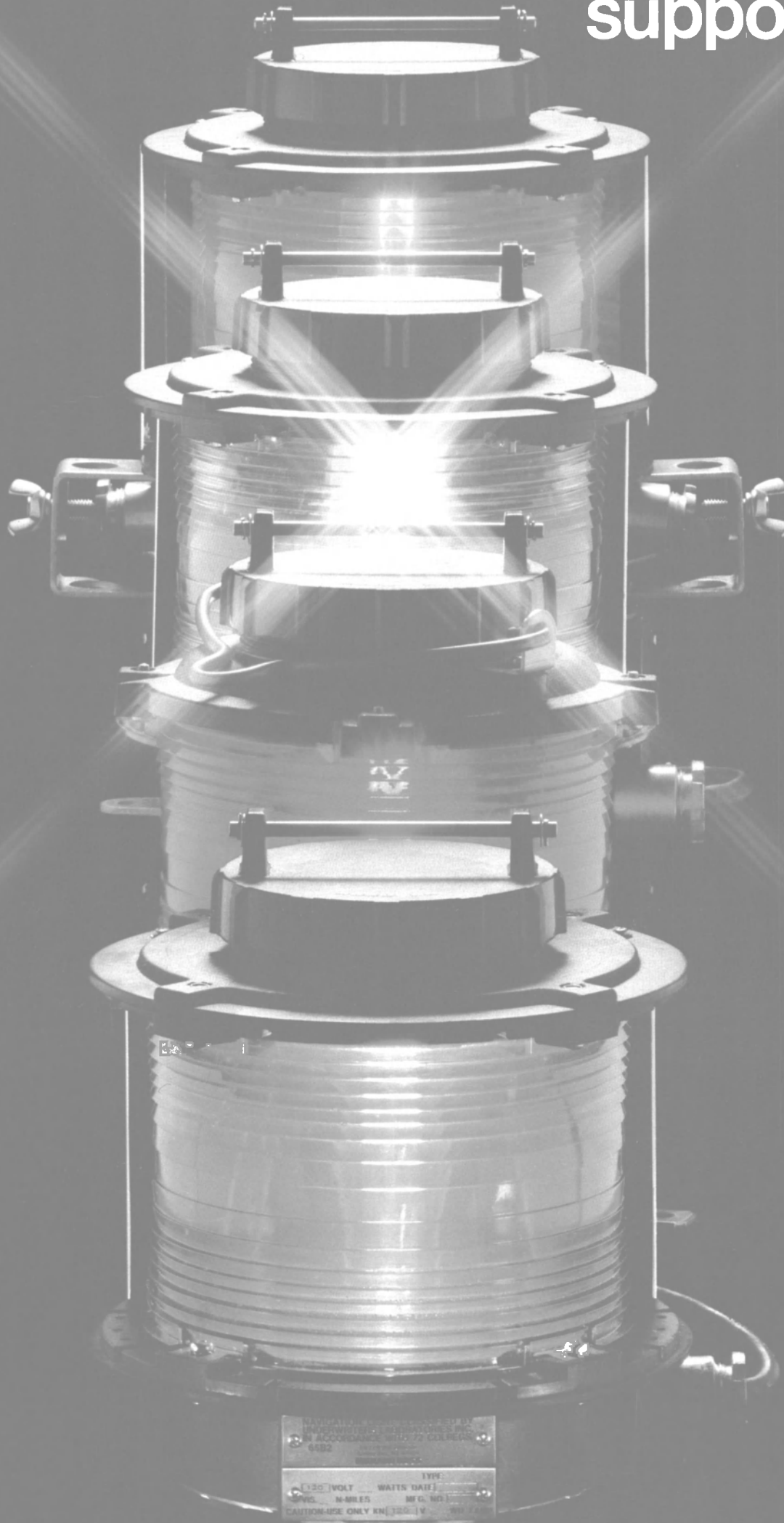
Henceforth, ships in world trade can enjoy the service of Unitor's network for these K.E.W. products. Technical service, accessories, and spares will also be provided by Unitor, insuring continuous use of the machines and a clean and safe ship at all times.

Unitor sees the new agreement as a natural strengthening of its range of maintenance products, and K.E.W. is pleased to be able to offer even better service to this important customer group.

For further information and free literature,

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# The Long Life Lite<sup>TM</sup> from Russellstoll. Because we don't think lamps are supposed to break.



Maybe you expect navigation lamps to fail. After all, seaworthy vessels rock, shake and vibrate—and how much punishment can a lamp be expected to take? Chances are you just allow for the expense of breakage and a reduced safety factor while the lamps are out.

At Russellstoll, we don't think you should make such allowances—or waste your money. That's why we developed the new Long Life Lite. It's actually a complete new family of navigation lights with a shock- and vibration-proof lamp holder that extends lamp life dramatically because it reduces the chance of failure due to external vibration or shock. *No competitive navigation light offers this protection.*

**An unbroken list of benefits.**

The lamp holder features a tight rubber gasket that lets the lamp reach its rated life, saving you time and money. What's more, the Long Life Lite is dust-tight and waterproof so it resists the direct spray of seawater under pressure.

From the lightweight polyester housing that resists temperature extremes to a virtually unbreakable polycarbonate lens that fights off saltwater, the Long Life Lite is a study in smart design. Even down to the smaller details, such as our brass fittings and mounting plates.

**U.L. listed in accordance with 72 COLREGS.**

The Long Life Lite has been thoroughly tested and meets all international regulations. It's U.S. Coast Guard approved. Previously, only one other navigation light was rated acceptable by 72 COLREGS.

**See the light.**

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## MIDLAND ROSS

Circle 116 on Reader Service Card

## Currence Named President Of Tidewater Marine

Tidewater Inc. has announced the election of **Richard M. Currence** as president and chief executive officer of its subsidiary Tidewater Marine Service, Inc., and the promotion of three members of its staff—**William C. Hightower**,

**Paul J. Angelle**, and **Wayne D. DeLeo**—to vice presidents of the parent company. Mr. Currence was also elected a senior vice president of Tidewater Inc. The announcement was made by **John P. Laborde**, chairman and chief executive officer of Tidewater Inc.

Mr. Currence formerly served as president of Zapata Gulf Marine Corporation of Houston, and earlier as president of Gulf Fleet Marine Corporation of New Orleans. Prior

to joining Gulf Fleet, he spent seven years with Tidewater Inc. as an administrative manager.

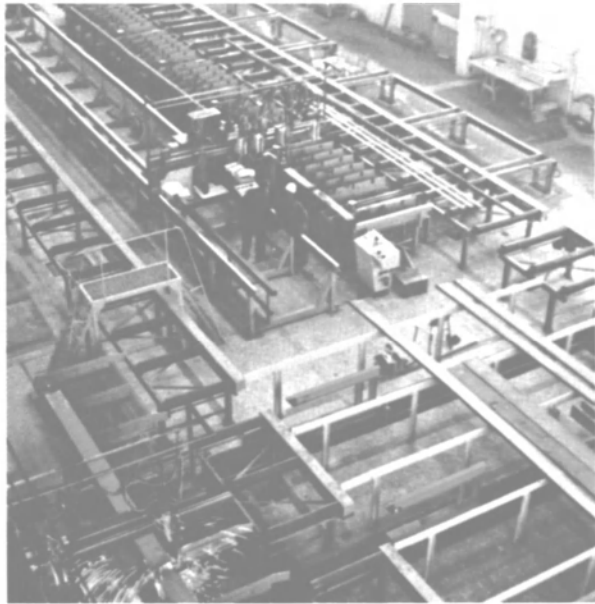
Mr. Hightower is a regional vice president of Tidewater Marine with responsibility for operations in Southeast Asia, Australia, Brazil, and Trinidad. He joined the company in 1975 as a sales representative, and served the marine group as vice president of sales before going into operations.

Mr. Angelle joined Tidewater in

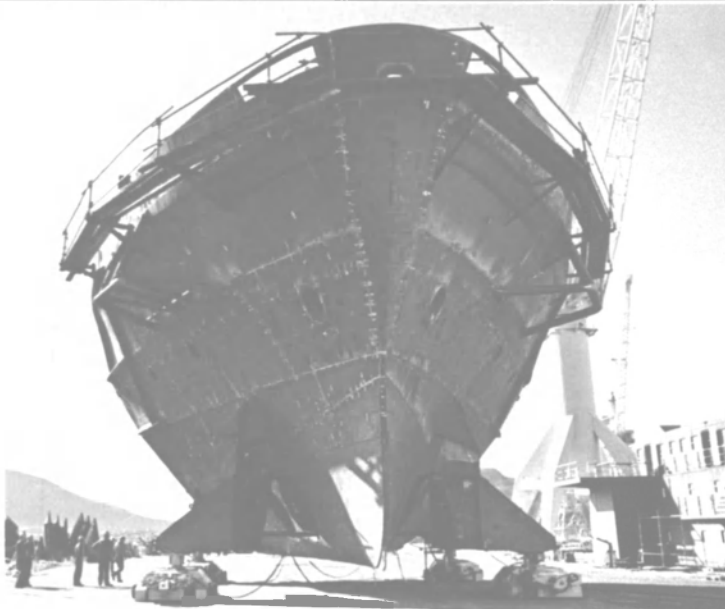
1965 as an accountant, and was promoted to area manager in Iran and later to area manager for Mediterranean and Egyptian operations. He was later promoted to area manager-Singapore, and presently serves as regional vice president for the North Sea, West Africa, Egypt, and Italy.

Mr. DeLeo joined the company in 1978 as controller-foreign accounting, and formerly served as a manager at Peat, Marwick, Mitchell & Company in New Orleans, New York, and Australia.

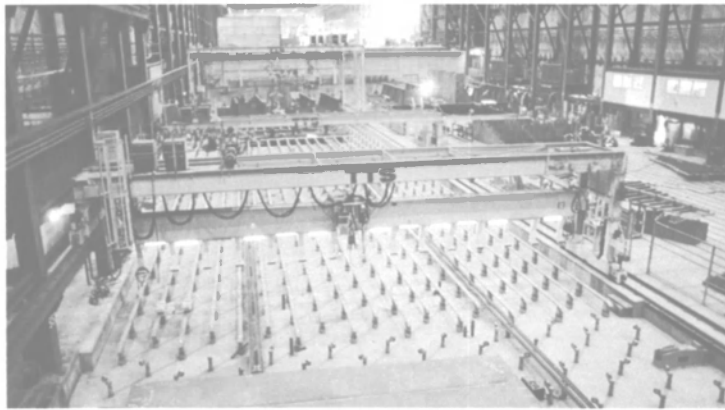
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## Hyundai-Built ODECO Rigs Will Be Classed By ABS

American Bureau of Shipping (ABS) has received a request from Ocean Drilling & Exploration Company (ODECO) of New Orleans for classification of four new column stabilized drilling units that will be constructed at the Hyundai Heavy Industries shipyard in Ulsan, Korea. Design of these rigs is based on ODECO's Ocean Odyssey Class, semisubmersible units and built in 1983 to ABS classification. The new units will be capable of operating in water depths of up to 3,000 feet.

All aspects of classification relating to plan review, structural analysis, topside facilities and machinery review, and coordination of all surveys of the new ODECO rigs will be handled by the Offshore Engineering Division of ABS.

As of January 1, 1985, ABS had a total of 574 mobile offshore drilling units in class—more than any other international classification society. The request for classification from ODECO raises to 41 the number of mobile drilling rigs now building or on order to ABS class.

## Stewart & Stevenson Opens New West Coast Office In San Francisco

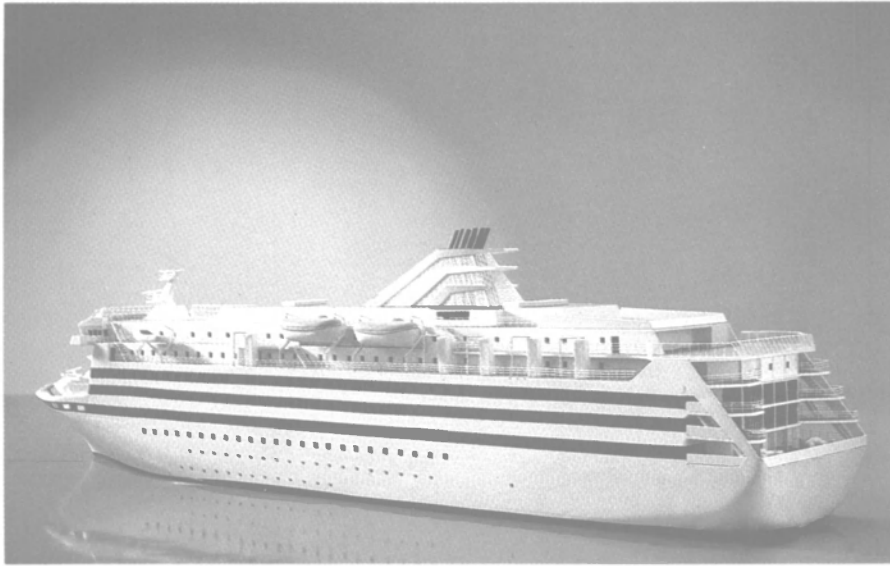
Stewart & Stevenson Services, Inc. of Houston has announced the opening of a San Francisco office to serve as headquarters for its West Coast operations. **Ronald Svendsgaard** has been named manager-West Coast operations. The new office was established to better serve the company's expanded cogeneration and major marine markets in the area, according to vice president **Carsey Manning**.

Stewart & Stevenson designs and manufactures cogeneration units, both diesel- and gas turbine-powered, and marine propulsion systems, as well as a wide variety of other diesel- and gas turbine-powered products, working in close cooperation with engineering and architectural firms.

Mr. Svendsgaard had more than 20 years of experience with Bailey Controls Company and Honeywell Corporation before joining Stewart & Stevenson.

The new West Coast office is located at 465 California Street, San Francisco, Calif. 94104.





Model of the passenger vessel being built by Valmet for Birka Line.

## Valmet Shipyard Begins Construction Of Birka Line Passenger Vessel

The design work for the sophisticated passenger vessel for Birka Line Ab/Alandslinjen has now been completed at Valmet's Helsinki Shipyard, including details of the general arrangement and accommodations. Construction work began recently in a festive atmosphere when Finland's Minister of Finance **Ahti Pekkala**, together with **Matti Kankaanpaa**, the president of Valmet Corporation, and Birka board chairman **Bjorn Erikson** inspected the first keel block before hull assembly was started. The vessel will be launched in the fall of this year and delivered in the spring of 1986.

The 1,500-passenger ferry will maintain regular service between Stockholm and the city of Mariehamn in the Aland Sea's Finnish archipelago. Despite the short route, passenger facilities will be truly luxurious compared with the numerous car ferries competing for the same customers in the Baltic.

The ship will have the traditional lines of passenger ferries, even though her appeal will be very modern. She will have an overall length of 462.6 feet, beam of 82 feet, depth to 12th deck of 108.3 feet, and draft of 19.7 feet. Propulsion diesels will have a total output of 24,000 bhp, providing a service speed of more

than 20 knots. Her "garage" will have a capacity of 50 cars and six buses.

Among the prominent features of the vessel are the five spacious restaurants of various types, and the largest shipboard conference rooms in the Baltic, with auditoriums and numerous rooms for group work.

Special attention has been paid to interior and cabin design and passenger comfort, with an aim to offer the best standard in the Baltic well into the 1990s. This has been achieved partly by new technical solutions, and by combining the expertise of the shipyard and the best subcontractors in the field.

For the first time in the history of Finnish shipbuilding, the interior decoration of the ship's 600 cabins has been contracted outside the shipbuilding industry, to Rakennusvalmiste Oy, a firm better known in the field of housing construction.

Essential to the shipowner is, naturally, to operate at the expected profit level. Valmet has paid special attention to operational safety, energy-saving and economical operation of the propulsion machinery, easy maintenance, and a high level of automation. An efficient means to achieve these goals is Valmet's DAMATIC Marine System, said to be the first computer-controlled ship automation system. The Valmet Automation Group has been invited to join the "Ship of the Future" project of the Norwegian shipowners.

The Birka Line vessel will also provide work for some of Valmet's other companies; steering gears will be supplied by the Rautpohja Works, and Valmet's Tampere Works will supply passenger elevators of the latest design.

## Bennett Named Manager-International Sales For Curtis Bay Towing

**Patricia A. Bennett** has been appointed manager-international sales for Curtis Bay Towing Company, according to an announcement by **Malcolm W. MacLeod**, president. She will continue to work at the corporate headquarters in Baltimore, where she has been employed since 1981 in the sales department.

Prior to joining Curtis Bay, Mrs. **Bennett** worked for 16 years in the banking industry, where she acquired an extensive background in sales and customer service.

Curtis Bay Towing operates harbor and coastwise towage services at the ports of Baltimore, Philadelphia, and Hampton Roads, specializing in ship docking and barge transportation.

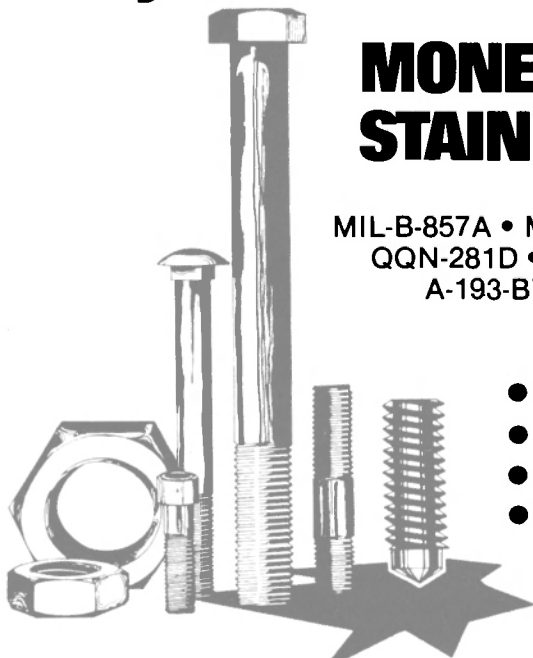
## AT&T Awarded \$12 Million Additional By Navy For Oceanographic Research

AT&T Technologies Inc. of Whippany, N.J., has been awarded a \$12,086,271 modification to a previously awarded cost-plus-fixed-fee Navy contract for oceanographic research. Work will be performed in Whippany and is expected to be completed by June 30 this year. Contract funds would not have expired at the end of the current fiscal year. The Naval Electronic Systems Command, Washington, D.C., is the contracting activity (N00039-84-C-0198).

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## EXPOSHIP LONDON 85 International Exhibition

## MONEY & SHIPS IN THE CITY International Conference

City of London, March 18-22

The City of London will be the focus of attention for the world's shipping industry when the second Expoship London is held March 18-22 this year at the Barbican Centre. This international exhibition, first staged in 1983, is sponsored by The British Marine Equipment Council, The British Shipbuilders, British Shippers' Council, General Council of British Shipping, Institute of Marine Engineers, and Lloyd's Register of Shipping, and is organized by Seatrade Conferences & Exhibitions Ltd.

Held in conjunction with the well-established Seatrade Money & Ships conference, Expoship London is attracting an international attendance of shipowners, charterers, oil company executives, bankers, and shipbuilders.

More than 180 companies providing equipment and services to the shipping industry, ranging from electronics manufacturers to marine insurance brokers, from the U.K. and 22 other countries, will be displaying their products and services. More than 10,000 people are ex-

pected to visit the exhibition during the week, and some 500 of these will take part in the conference that will take place on the mornings of March 20-22.

At this writing, eight American companies had made firm bookings for space at the exhibition. They are: Bayley Suit, Inc. of Fortuna, Calif.; Magnavox Overseas, Ltd. of Torrance, Calif.; Maritime Data Network Ltd. of Stamford, Conn.; Panama Canal Commission of Miami, Fla.; Survival International of Seattle; Todd Marine Systems of Stamford, Conn.; Transax Data Corporation of Falls Church, Va.; and Veson Inc. of New York City.

Expoship London underscores the City of London's premier position as an international shipping center. It will be opened on the morning of March 18 by The Lord Mayor of London, The Right Honorable Sir Alan Traill.

The official Seatrade reception will be held in the Guildhall on the evening of March 18; many other receptions are being planned for the week.

### CONFERENCE PROGRAM

#### Wednesday, March 20

Theme: Is there a future for the European shipowner?

Chairman: **Brian P. Shaw**, chairman, Furness Withy Group, and vice president, General Council of British Shipping; Introductory speaker: **David Mitchell**, MP, Parliamentary Undersecretary of State for Transport

Speakers:

**J. Groenendijk**, chairman-elect, Royal Nedlloyd Group

**Wilhelm Wilhelmsen**, partner, Wilh. Wilhelmsen

#### Thursday, March 21

Theme: The complex relationship between Europe and the Far East in terms of both shipbuilding and shipping

Chairman: **Ove Hoegh**, senior partner, Hoegh Group, and vice chairman, Intertanko

Introductory speaker: **Norman Lamont**, MP, Minister of State for

Industry, U.K. Department of Trade and Industry

Speakers:

**Choi Hoon**, director, Bureau of Maritime Transport, Korea Maritime & Port Administration

**J. Graham Day**, chairman, British Shipbuilders

**M.H. Liang**, chairman, Hong Kong Shipowners Association

Luncheon speaker: Rt. Hon. **Edward du Cann**, MP, chairman, All Party Maritime Group

#### Friday, March 22

Theme: Safety, efficiency, and the new technology

Chairman: **C.P. Srivastava**, Secretary General, International Maritime Organization; Speakers:

**Leslie Beckwith**, senior principal surveyor, International Conventions Department, Lloyd's Register of Shipping

**Richard Hunt**, vice chairman, Baltic Exchange, and joint chairman, Biffex Formation Committee

(continued on page 14)



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## Expoship London 85


(continued from page 13)

**Sylvie Maier**, head of the Secretariat—Memorandum of Understanding on Port State Control  
**Marshall Meek**, managing director, N.M.I. Ltd.

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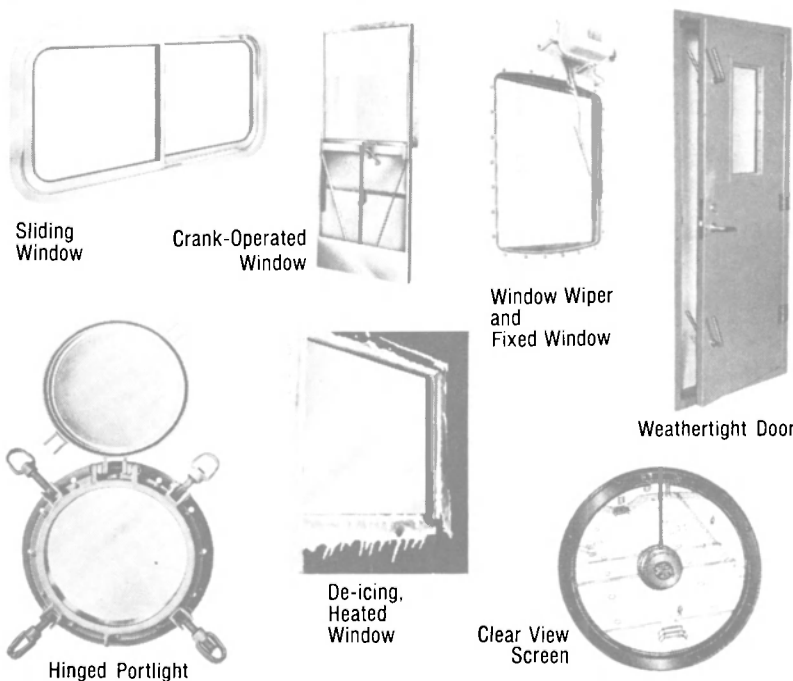


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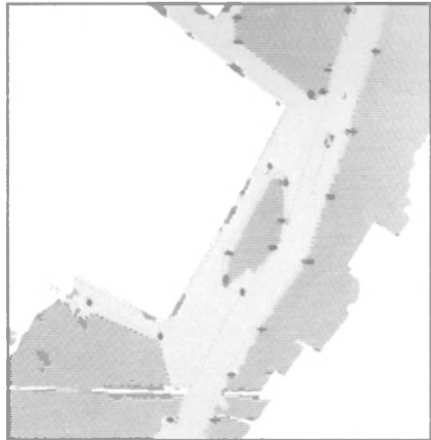
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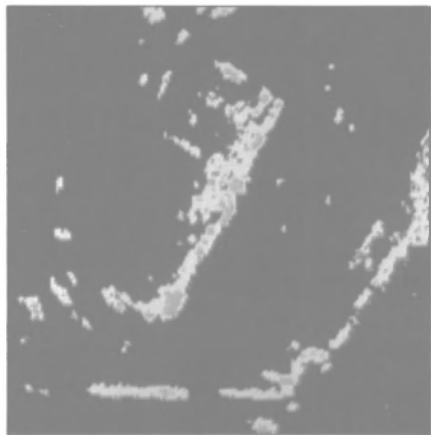
(continued on page 16)

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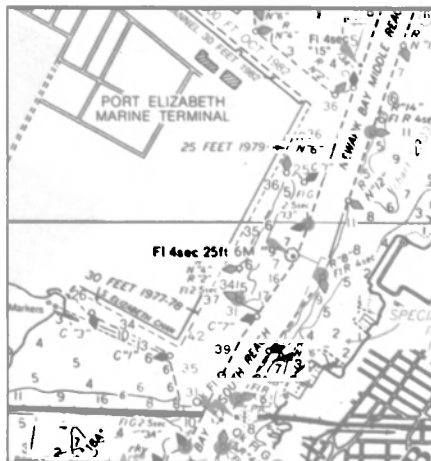
Until now, ice, bad weather and poor visibility made navigation dangerous, and at times, impossible. A remarkable new breakthrough called the VIEWNAV™ Sys-



The VIEWNAV System combines micro-processor technology with a detailed Electronic Chart, radar images and Differential Loran-C positioning. Its razor-sharp navigational window accurately displays all the information needed to keep the ship safe and on course, even in ice, bad weather and visibility.



Radar display of the same location shows how land images clutter the screen. Identification of useful information is much more difficult without chart information superimposed.



Compare the VIEWNAV System (top) to this NOS chart of the area. Notice how the VIEWNAV System shows all the details of the waterway, fixed navigation points and eliminates the land confusion.

Circle 335 on Reader Service Card →

tem makes navigation easier, safer and more efficient everyday, even in the worst weather with zero visibility, even when ice causes the removal of buoys.

This advanced computer-based system combines a detailed, regularly updated electronic NOS-quality chart, radar images, Differential Loran-C positioning, and a large video monitor to accurately

display all important navigation information. In addition, SATNAV, DECCA, GPS and DR inputs can be integrated.

Easy-to-use, the VIEWNAV System warns of and identifies hazards, even in the densest fog; cuts operating costs; and increases revenue. Users report it also vastly bolsters public confidence and crew morale while reducing the naviga-

tional stress and fatigue on crew and pilot.

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Although the VIEWNAV System warns of impending danger even in zero visibility, it pays big dividends during routine trips. You'll buy it for safety, but it earns its keep by improving operations every day. Not only because it helps protect your valuable property from collisions and groundings. It also increases productivity by allowing your ships to operate more days per year. Now, even the poorest visibility or missing buoys won't lower earnings by forcing you to drop anchor or take a longer route.

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The VIEWNAV System is not like any other navigational tool available today. It is a unique, easy-to-use interactive computer system which does far more than any previous navigational instrument could. Imagine having a precise Electronic Chart system at your disposal. It provides regularly updated NOS chart information for each harbor and uses differential Loran-C\* to obtain repeatable position accuracy of own

vessel to 15 feet. Radar is displayed on the full color Electronic Chart to furnish additional vital information. Analyzing the results in microseconds, the VIEWNAV System immediately shows in words, numbers and pictures what you need to know to help you stay safe and on course. The large, full color video display constantly updates the waterway and traffic conditions. It's a window to the world that provides greater detail than NOS Charts, radar or loran. The VIEWNAV System is so precise it helps the pilot guide your ship through the most grueling harbor conditions.

### EASIER. MORE ACCURATE NAVIGATION

A single glance at the screen clearly shows own ship location in relation to other vessels, hazards, land navigation points, water depth and the position of on and off-station buoys in their actual colors. Bearing, distance, speed, and arrival time to waypoints and cross-track deviation from channel center line are indicated alphanumerically on the display. A movable cursor

provides bearing and range to any other point. Depth contours, Mercator grids, location names and landmarks can be incorporated.

### RADAR AND LORAN ARE NOT ENOUGH

The VIEWNAV System integrates these vital tools into a more valuable and sophisticated system which has greater accuracy, is easier to read, and is less likely to be misinterpreted, even in a crisis situation. The VIEWNAV System superimposes radar images to verify position accuracy and shows own vessel location in the shape of a ship.

Although standard loran positioning can deviate by up to 30 yards in a day and 100 yards during a year, the VIEWNAV System's enhanced loran gives repeatable results accurate to 5 yards.

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\*In areas where Loran-C is not available, SATNAV or DECCA inputs can be used.

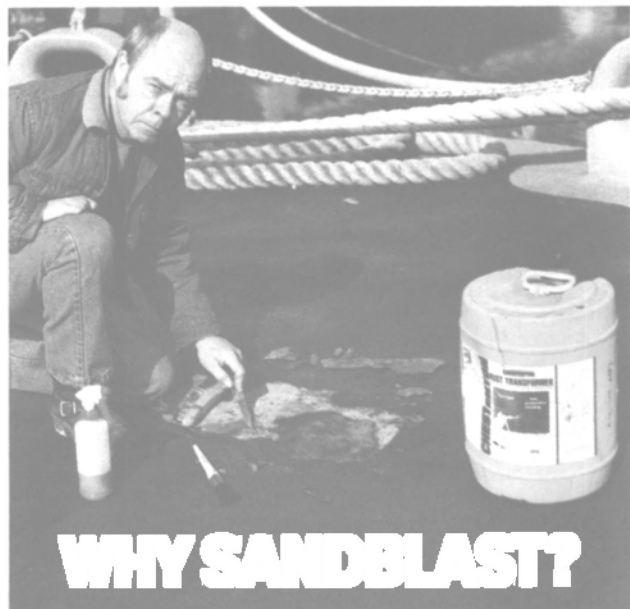
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—Exhibitors**

(continued from page 14)

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**“We saved \$79,400 by using CHESTERTON RUST TRANSFORMER”**

The U.S.S. Laffey had been decommissioned and permanently docked at Patriots Point Naval and Maritime Museum, Charleston, South Carolina.

Sea water and salt air were taking their toll on the deck and superstructure.

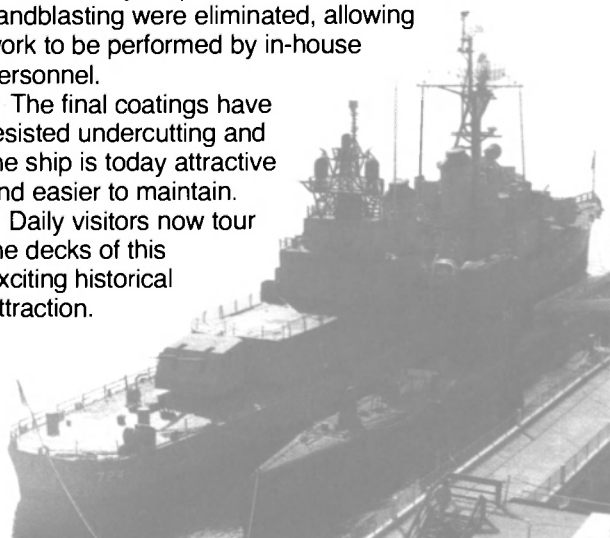
It was the job of Maintenance Supervisor George R. Maynard to restore and then maintain the ship.

To remove the rust and prepare the surface for priming, he received sandblasting estimates ranging from \$80,000 to \$125,000.

Using \$600 worth of CHESTERTON RUST TRANSFORMER he was able to prepare a rust-free surface ready for primer coat. The problems of sandblasting were eliminated, allowing work to be performed by in-house personnel.

The final coatings have resisted undercutting and the ship is today attractive and easier to maintain.

Daily visitors now tour the decks of this exciting historical attraction.



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**Raytheon Introduces New Remote Display For Speed Log And Depth Sounder —Literature Available**

Raytheon Ocean Systems Company of East Providence, R.I., has introduced an inexpensive, micro-processor-based remote display designed for maximum compatibility with the company's established Fathometer® depth sounder and speed log product lines.

The rugged display is lightweight and compact for transportability. It features a corrosion-resistant case and has an ac/dc option. It will enhance the performance capabilities of Raytheon's DSF-6000 digital survey Fathometer and navigational speed log, and perform well in conjunction with other commercially available marine products featuring a compatible interface.

The new instrument has a large liquid crystal display clearly viewable in surroundings ranging from bright sunlight to complete darkness. Software customization is available, and a "daisy chain" capability for multiple display requirements is built in. A complete internal self-test is accomplished automatically each time it is turned on.

Remote installation can, under certain conditions, be as far away as 1,000 feet, with mounting on a bulkhead, tabletop, panel, or overhead. The unit is engineered to military specifications for vibration, and can function in 100-percent humidity and in temperatures ranging from 0 to 70 C (32-248 F).

For further information and free product literature,

Circle 19 on Reader Service Card

**Bethlehem Yard Gets \$25-Million Contract To Refit Barber Line Ships**

Bethlehem Steel Corporation's Sparrows Point shipyard near Baltimore has entered into a contract with Barber Steamship Lines to refit five of its foreign-flag vessels for use in the U.S. Navy's Ready Re-



serve Fleet (RRF). The upgrading work will have a value to Bethlehem of approximately \$25 million and, according to yard general manager **David Watson**, "it is very, very welcome here. The Barber contract will mean work for about 350 people, and will help sustain employment at the yard for about seven months."

Bethlehem's contract follows closely Barber's \$52-million contract with the Navy to refit the five ships for reflagging and supply them for the RRF. Reflagging involves bringing the ships up to U.S. standards in safety and other requirements as specified by the U.S. Coast Guard, American Bureau of Shipping, and other regulatory bodies.

The five diesel-powered RO/RO ships are the *Barranduna*, registered in Sweden; the *Lalandia*, registered in Denmark; and the *Tarago*, *Tombarra*, and *Tricolor*, all registered in Norway. The ships were built in 1972-73 and have cargo-carrying capacities ranging from 21,550 to 23,725 dwt.

When the Barber ships have been refitted at Sparrows Point, they will be placed in the Navy's mothballed Ready Reserve Fleet, able to be readied for service within five days in the event of an emergency.

### Hamworthy Engineering Opens New Orleans Office

Hamworthy Engineering of the U.K., a long-established company specializing in the manufacture of centrifugal and screw pumps, air compressors, pollution control waste treatment systems, oily water separators, and fuel oil blending units, announces the recent opening of a new office in New Orleans.

The office of Hamworthy U.S.A. Inc. at 10555 Lake Forest Boulevard, Suite 5F, New Orleans, LA 70127 will greatly strengthen its customer support facilities in the U.S., and will provide on-the-spot sales and technical advice and assistance to customers.

Hamworthy executive **Tom Alders** is in charge of the New Orleans office.

### Holec Gas Generators, Holec Furnaces Merge To Form Smit Ovens

A new group called Smit Ovens Holding B.V. was recently formed in the Netherlands as a result of merging Holec Gas Generators B.V. and its sister company Holec Furnace B.V. All the shares of the latter two companies were taken over by Smith Ovens Holding B.V.

Under the new setup, the company plans to intensify its activities in the field of inert gas and other gas treatment systems for several applications aboard tankers and in the petro and petrochemical industry.

Circle 30 on Reader Service Card

### Promar Appointed U.S. Southeast Representative For Anritsu Radar Line

Promar (Professional Marketing Company) of Tampa, Fla., has been named exclusive representative for Anritsu America's line of marine radar in the Southeast region of the

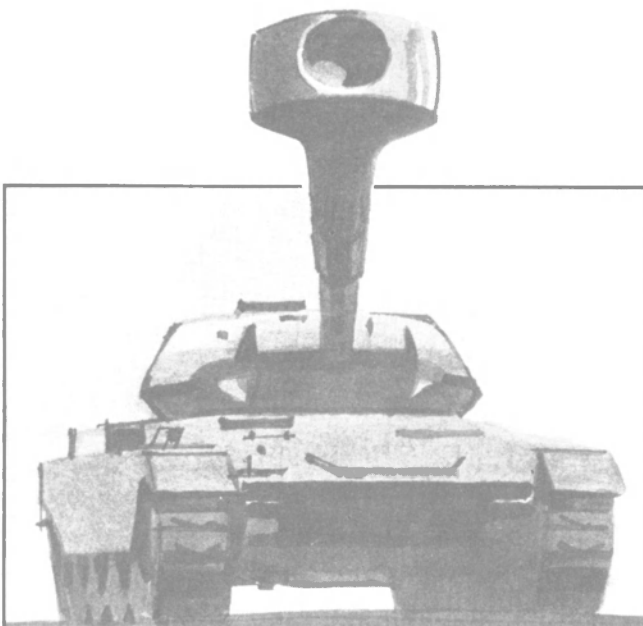
U.S. The Anritsu radar was formerly marketed under the EPSCO name. The line includes 5- and 10-kw models with ranges from 60 to 120 nautical miles, and will feature the company's first color model, to be available in 1985.

Promar's territory encompasses the Southeast Atlantic states and those bordering the Gulf of Mexico and the inland rivers. As the largest

marine sales and service operation in the Southeast, Promar has its own service center for Anritsu and EPSCO equipment. Company president **Raymond Shirvis** has more than 20 years of experience in the maritime industry.

For further information on Promar and Anritsu radar,

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## How to shoot up tank production ...with one little ol' stud gun

It was high noon and tank production was down — lagging for want of a faster system of stud welding.

Then along comes a tall, lanky rep from KSM who says, "I've got a little ol' Micromark gun that can zap in one-inch arc-welded studs faster than you can say 'load and lock!'"

Being from Wyoming, the production manager asked for proof. So the KSM rep arranged for a test, on location, of the Micromark 2000.

As it turned out, the solid-state system, using the highly maneuverable KSM Safeguard gun, proved just the right answer. Tank production shot up and costs went down. Welding time was cut to less than half-a-second per stud — with perfect welds everytime!

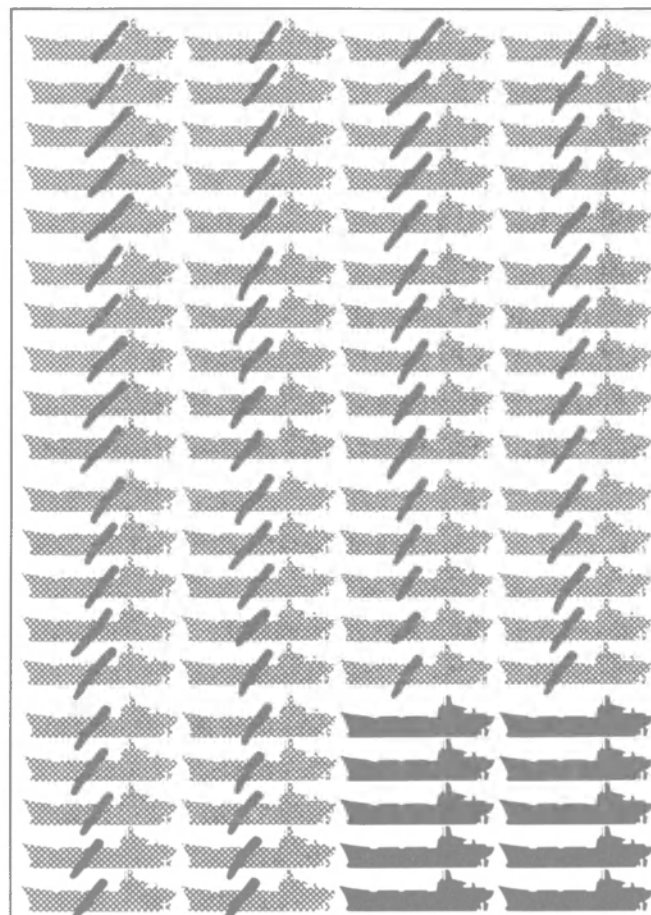
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Attendees at recent Port Engineers meeting included (L to R): **Jack Nichols**, 1st vice president of the Society; **Michael Stepanovich**, author; and **John Antonetz**, chairman of the Papers & Technical Committee.

## Port Engineers' Society Meeting Hears Paper On Fuel Oil Separators

At a recent meeting of The Society of Marine Port Engineers of New York, a paper entitled "ALCAP—A Separation System for High-Density Fuel Oils" was presented by **Michael Stepanovich**, marketing manager for Alfa-Laval, Inc. The following paragraphs are excerpts from his paper.

The quality of heavy fuel oil burned in diesel engines on-board ships and in power stations is changing worldwide due mainly to increased demand, increased severity of refining techniques, and heavier crude oils. One consequence of this change in quality has been an increased requirement for efficient cleaning in order to achieve reliable and economical operation of diesel engines burning low-grade, heavy fuel oils. Another consequence, and by far the most important from a

cleaning standpoint, has been the increase in fuel density.

In anticipation of these developments, Alfa-Laval has been engaged in research and development activities aimed towards producing a cleaning system that would not only be capable of handling heavy fuel oils with densities above the currently accepted limits, but would also be simple, reliable, and essentially maintenance-free.

Alfa-Laval's goal was to develop a separator system based on a conventional partial discharge clarifier design, thereby doing away with the need for gravity discs. In addition, the system had to have the capability to monitor the water content in the bowl and to drain away this accumulated water without necessarily initiating a sludge discharge.

In response to this need, in May 1983 Alfa-Laval introduced its ALCAP separation system, which is said to represent an entirely new approach to the treatment of heavy fuel oil. The system features a new line of FOPX separators that have no gravity discs. Fuel oils with densities up to 1,010 kilograms per cubic meter at 15 C can be cleaned efficiently. Operation is simple, as no adjustments of the cleaning plant are required despite fluctuations in density, viscosity, flow rate, or other factors.

"In conclusion," said Mr. **Stepanovich**, "after extensive testing, the ALCAP separation system has proven to be more efficient than traditional purifiers or clarifiers, especially in cases where the oil is heavily contaminated with water. As the ALCAP system does not utilize gravity discs, no adjustments to the cleaning plant are necessary. . . . Finally, due to its retrofit capability, ALCAP offers a solution to the problem of efficiently cleaning high-density fuels both now and in the future."

For a copy of the paper,

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## New Travelift Boat Hoist Shown In New Literature

Marine Travelift's new 25-ton, BFM design mobile boat hoist is illustrated and described in a recently published full-color catalog sheet. Extensive specifications in both U.S. and metric measures are also included, along with descriptions of features.

For a free copy of the new literature, No. 4884,

Circle 28 on Reader Service Card

## Valmet And Foster Wheeler Petroleum To Cooperate On Offshore Projects

Valmet Corporation in Finland and the engineering and consulting firm Foster Wheeler Petroleum Development Limited in the U.K. have signed an agreement calling for technical cooperation with respect to offshore projects.

The pact is part of Valmet's arctic offshore strategy, and a big step to prepare itself for the expected changes in the Soviet demand. With this agreement, the Finnish company will have access to the latest technology, as Foster Wheeler Petroleum Development is one of the leaders in this field.

Cooperation between the two companies, as well as the development program in the Valmet Helsinki Shipyard, will enable Valmet Corporation to participate in the construction of platforms, topside structures, and modules.

Foster Wheeler Petroleum Development, with headquarters in London, employs more than 500 permanent offshore personnel who have extensive experience in the design, engineering, and construction of large modules, for both the U.K. and Norwegian sectors of the North Sea.

Last year Valmet formed a new affiliate, Intec Engineering Inc., in Houston, whose principal business is the design and engineering of pipelines, pipelaying projects, deep-water technology, and floating production. This company is currently participating in the first arctic pipelaying project in North America.

## Platt To Market Its Own Zinc Ribbon Anodes

Platt Bros. & Company of Waterbury, Conn., has announced that it will soon assume complete responsibility for marketing, sales, and manufacturing of steel-cored, zinc ribbon anodes identical to those formerly marketed by Federated Metals Corporation under the trade name Diamond Line®, which are used in the cathodic protection of underwater and underground metals.

For more than 20 years Platt Bros. has manufactured the zinc ribbon anodes that were marketed worldwide by Federated Metals under its Diamond Line registered trademark, pursuant to an agreement with Platt. Now, Platt president **Milt Grele** states: "In line with our plans for expanded applications of zinc ribbon anodes, the agreement with Federated Metals will be terminated. Platt Bros. will market steel-cored, zinc ribbon anodes directly to authorized distributors and end users."

Mr. **Grele** also announced that the company will market these anodes under the name Plattline™. This joins the trademarks Platt and Plattzinc, which have been Platt Bros. lines of zinc strip, rod, and wire for more than 150 years.

For further information on Platt zinc anodes,

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## BRITAIN

### A Marine Industry Review

Merchant shipbuilding in Britain is going through a period of radical change and innovation aimed at overcoming the effects of falling demand for tonnage worldwide. Current strategy is concentrated on reducing head-on competition with the "price-leaders" of the Far East, and capitalizing on computer technology to refine specialized designs and products.

The nationalized British Shipbuilders Corporation's 20 or so yards account for 85 percent of Britain's merchant shipbuilding tonnage, the other major shipyard being Harland & Wolff of Belfast,

**Photo-Atlantic Conveyor, a sophisticated Ro/Ro container vessel built for Cunard by Swan Hunter Shipbuilder.**

which, although nationalized, is under the direct control of the Northern Ireland Office. British Shipbuilders also accounts for more than 90 percent of warship construction in the U.K. at present, although the warship building yards have been offered for sale under current Government policy, and some are already subject to negotiation with private consortiums. The remaining independent shipbuilders comprise a number of small yards engaged in building coastal ships, tugs, offshore craft, and patrol boats.

Over the past year or so the five divisions of British Shipbuilders have been reduced to two in the merchant and warship fields, while some offshore and general engineering companies have been sold off, including the Scott Lithgow yard on

the Clyde, which has been sold to Trafalgar House for offshore construction.

This leaner, fitter national shipbuilding corporation has benefitted from a reduced and restructured work force with the abolition of restrictive work practices that so hindered competitive ability in the past. At the same time there has been a massive investment in computer-aided design and management technology, with a noticeable improvement in productivity.

With the largest percent of the world market already claimed by production in the Far East, the Corporation's strategies are directed towards retaining a world market share of 1.25 percent, a modest enough share for a once great shipbuilding nation, but a realistic one.

A versatile range of vessels is now offered, from tugs and service craft through RO/RO ships and tankers, bulk carriers, and sophisticated containerships, while the offshore industry is supplying valuable contracts for a variety of support craft.

The current merchant shipbuilding orderbook has a good export content, with vessels being built for Canada, Ethiopia, Hong Kong, Iceland, Kenya, and Mexico.

Recent deliveries have included the sophisticated RO/RO-containership Atlantic Conveyor for Cunard Steamship Company, the 6,000-ton cable repair ship Pacific Guardian for Cable & Wireless, and three vessels for Norwegian interests—the 42,000-dwt bulk carrier Hoegh Duke, and the 45,000-dwt

Jebsen bulk carriers Loftnes and Lakenes.

As part of its reorganization, BS has recently merged two engine-building companies—John G. Kincaid on the River Clyde, and Clark Hawthorne on the River Tyne—into a single company, Clark Kincaid Limited, under one management to streamline engine-building operations. The company will build slow-speed Sulzer and M.A.N.-B&W engines on the Clyde, and medium-speed Sulzer and Stork-Werkspoor engines on the Tyne.

Most of the employment in the merchant shipbuilding division of BS is accounted for by four subsidiary companies in the Northeast of England—Sunderland Shipbuilders and Austin & Pickersgill on the Wear, Smith's Dock on the Tees, and Swan Hunter on the Tyne. With four yards, Swan Hunter is also heavily involved in warship construction.

Radical restructuring has been necessary to insure survival of these yards. Sunderland Shipbuilders comprises three yards and is equipped for building ships of up to Panamax size (72,000 dwt). However, with the intensive Korean competition for such large relatively simple ships, the group has found it expedient to offer more sophisticated vessels with a higher technical and work content. In its covered Pallion yard, the company claims to have one of the most modern shipbuilding facilities in Europe. All 13 ships built at Pallion since 1980 have been completed on time. The 10 IBM CAD/CAM work stations introduced in March 1984 have been enthusiastically adopted by the design staff; a further 38 work stations were due to be introduced at the beginning of 1985.

Two support vessels for the offshore oil industry, now being built in the Pallion yard for the Swedish company Stena, demonstrate the success of this new philosophy. Designed jointly by Stena and Sunderland Shipbuilders, the 4,500-ton dynamically positioned, diving support ships with diesel-electric propulsion systems, each have a helideck, diving bell facilities, twin 65-ton cranes, firefighting equipment, and accommodations for 147 personnel. The bow sections that house two thrusters are probably the most complex assemblies ever handled at the yard, but computer-aided design has been particularly useful, as have the benefits of under-cover work and new production methods including a twin tandem arc gantry seam welder and heat-line bending techniques.

A modular approach to shipbuilding is now being adopted throughout the BS yards. This involves the construction of ships from major sub-assemblies (about 100 per ship in the case of the Stena vessels), which are fitted out with all pipe-work, electrical systems, etc., before assembly on the building berth. A striking example was the lifting of a complete 550-ton accommodation unit onto the hull of another Sunderland-built ship, one of two 48,500-dwt container/bulk carriers

for Transportacion Maritima Mexicana at the Deptford yard. These vessels, with Kincaid-built M.A.N.-B&W engines, are due for delivery in February and August this year.

In February this year a 32 million pound order to build four cargo vessels for Cyprus-based companies was announced by Smith's Dock on Teesside. Construction of these 15,150-dwt ships will keep the yard's work force of 1,500 busy until the end of 1986.

Prospects for Scotland's merchant shipbuilders have improved dramatically in the past year, and they face the next 12 months with full orderbooks. This new streamlined sector includes Govan Shipbuilders at Glasgow and Ferguson-Ailsa at Port Glasgow and Troon.

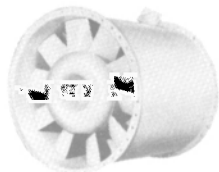
Govan, which last year faced empty slipways, is building three 19,000-dwt bulk coal carriers for the Central Electricity Generating Board, and the prospects for further orders

look good. And an expected bulk carrier contract from Turkey would secure work at the Upper Clyde yard for the next two years. Ferguson-Ailsa recently received a 5 million pound order from Seaforth Maritime for two offshore support vessels, and the group expects to secure further contracts for supply vessels.

Swan Hunter on the Tyne is a composite group of four yards build-  
(continued on page 22)

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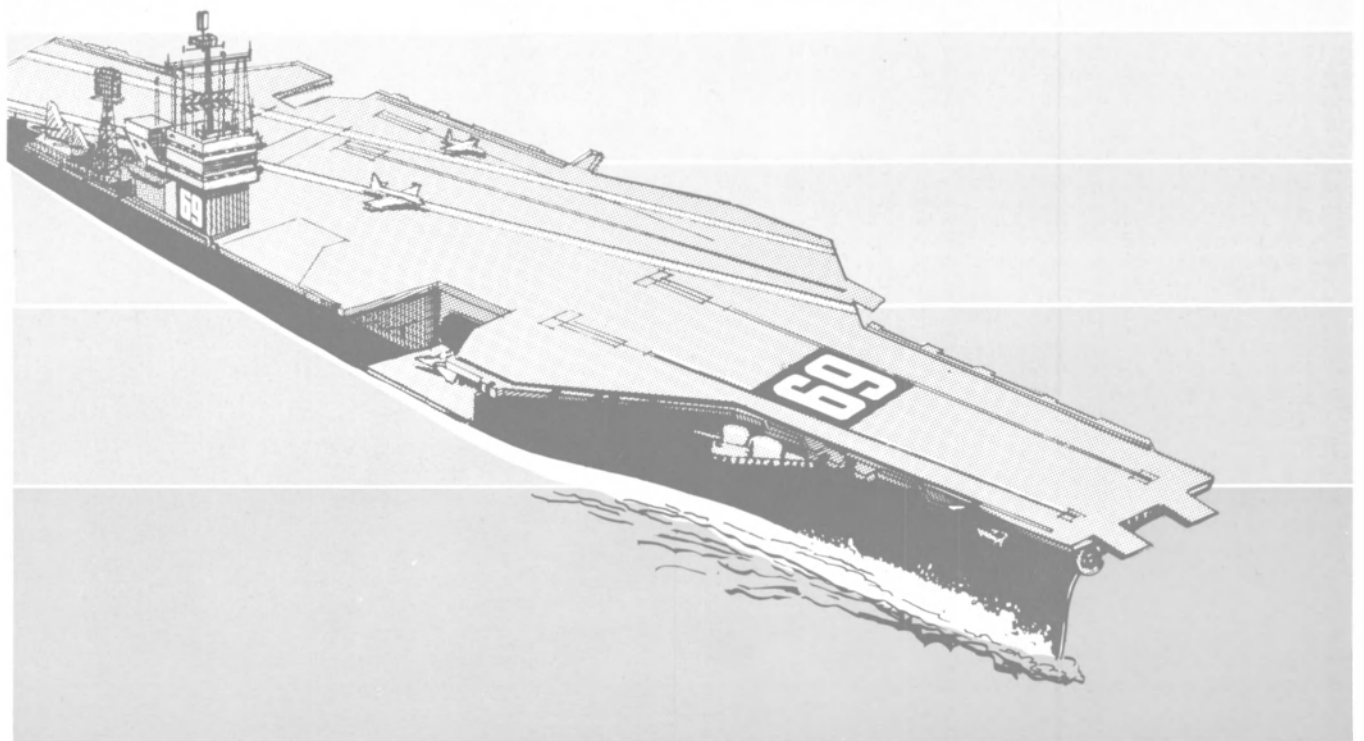
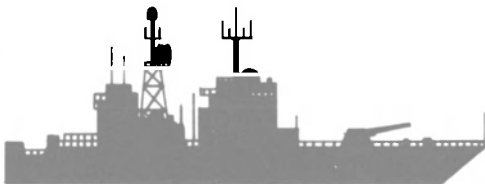


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The Mirlees Blackstone-powered Charles Darwin, constructed at Appledore, shows the MacGregor Navire 20-ton gantry.

## Britain-Marine Industry

(continued from page 21)

ing both merchant and naval ships, and is scheduled for privatization. Having used the concept of modular construction on the RO/RO-containership Atlantic Conveyor and the cable repair ship Pacific Guardian, the company is applying the same techniques to warships. The Swan Hunter yards are currently building two Type 22 frigates for the Royal Navy, and have recently completed sea trials with the aircraft carrier Ark Royal, which is shortly to be handed over to the Royal Navy. This ship will be used as an offshore base for vertical takeoff Sea Harrier fighter aircraft and Sea King anti-submarine helicopters. New orders for Type 22 frigates were placed in January this year with Swan Hunter and another BS yard, Cammell Laird of Birkenhead. Swan Hunter has also been awarded a 40 million pound contract to build a new 3,000-ton Sir Galahad to replace the landing ship lost in the Falklands.

The fortunes of Harland & Wolff in Belfast have also improved. This shipyard is building four 10,500-ton refrigerated cargo ships for Blue Star Line, all for delivery in 1985. These modern 19-knot reefers are each powered by a 15,200-bhp H&W-built M.A.N.-B&W engine. Work at the yard extends into 1986 with an order from British Steel for a 173,000-dwt bulk carrier.

Among the warship builders, as yet nationalized, is Vosper Thornycroft of Portsmouth and Southampton. This company is now fitting out the seventh in a series of nine Hunt Class mine countermeasures vessels, said to be the largest vessels ever built in glass reinforced plastic. The yard is completing the guided missile destroyer Gloucester for the Royal Navy, and is hoping to fill the gap in large warship construction that will follow delivery of

this ship with an order for frigates from Pakistan.

Vosper Thornycroft has recently diversified from the construction of fast patrol boats to seize a market opportunity to build two passenger craft for High Speed Ferries of Hong Kong. Handed over in January this year, these 170-foot ferries are designed to carry 700 passengers at 27 knots. Propulsion power is provided by four 3,000-bhp Paxman Valenta engines.

Vosper Thornycroft and Paxman Diesels of Colchester, a leading diesel engine manufacturer, have made a recent breakthrough into the U.S. market. Fifteen 110-foot patrol boats will be built by Bollinger Machine Shop & Shipyard, Inc. of Lockport, La., for the U.S. Coast Guard to a Vosper Thornycroft design. VT is providing stabilizers, steering gear, and propellers, while Paxman is supplying twin 2,800-bhp, 16-cylinder Valenta engines for these vessels.

Yarrow Shipbuilders at Scotstoun on the Clyde launched the London, fourth Royal Navy Boxer (Type 22) Class frigate in October 1984. The third of the class now fitting out at Yarrow, named Brave, is the first British warship to be fitted with Rolls-Royce Marine Spey SM1A gas turbines, which promise to be more economical than the Rolls-Royce Olympus turbines. Brave is also the first ship to receive the new lightweight Seawolf fire control system from British Aerospace. Yarrow has orders for further Type 22 frigates that will provide work until 1987, and has also been participating in the Hunt Class minehunter program. The Clyde yard will also build the lead ship of the new Royal Navy Type 23 light frigate.

British Shipbuilders' smaller yards include Hall Russell of Aberdeen and Appledore Shipbuilders in Devon. Appledore recently completed the specialized research ship Charles Darwin for the National

Environment Research Council at its covered facility. This oceangoing vessel is equipped for geophysical and geological investigations around the world, and has an endurance of 35 days at 12 knots. Propulsion is by a Mirlees-Blackstone diesel driving a Stone-Vickers controllable-pitch propeller designed for silent running. The Devon yard is also building a cargo vessel for Iceland.

Hall Russell has come to specialize in offshore patrol vessels of late, although the yard was a traditional trawler builder. A series of five Peacock Class, 200-foot armed offshore patrol vessels are now being delivered to the Royal Navy for operations in Hong Kong waters. The yard also has orders for three Ministry of Defence mooring and salvage vessels, and is hoping to secure an order to build a third generation offshore patrol vessel for home waters.

A traditional builder of small warships, patrol craft, and landing ships on the East Coast is Brooke Marine, another member of BS. The management has offered to buy out this yard, which has a strong export record and has recently designed and built sophisticated 300-foot landing ships for Algeria and Oman.

There has been considerable activity among the independent builders of para-military and small naval craft. Fairley Marine of Cowes has recently built three 108-foot Loadmaster landing craft for Kuwait and secured, early this year, an order for three 108-foot patrol craft for the Bahamas Defence Force in the face of strong competition from the U.S. The neighboring Souter yard on the Isle of Wight is building a 100-foot patrol boat for Bahrain, and has acquired a remarkable run of overseas orders for three luxury motor yachts, the latest a 123-foot vessel costing 3 million pounds.

Watercraft at Shoreham in Sussex delivered the first of a new design 65-foot patrol boat to the Oman Coastguard in December 1984, and has received orders for

another 14 of this type from the Royal Navy for use as training craft. Watercraft also has thriving divisions producing survival craft, particularly for the offshore industry, rescue boats, and fishing vessels for export through Cygnus Marine.

Notable among the independent builders of small ships are four yards on England's East Coast—Cochranes of Selby, Richards (Shipbuilders) of Lowestoft and Yarmouth, Richard Dunston of Hessel, and Yorkshire Dry Dock at Hull.

Cochranes is mixing offshore work with the construction of passenger/vehicle ferries. A 3,300-grt drive-through, RO/RO ferry with additional side-loading facilities is due for delivery to Caledonian MacBrayne, the West of Scotland ferry operator, to join a similar ship built by Ferguson-Ailsa in 1984.

Richards, a traditional builder for the fishing industry, recently acquired a contract to build a series of 12 steel-hulled, deep-water minesweepers for the Royal Navy Reserve, and is now constructing these vessels at Lowestoft and Great Yarmouth. They will be used for training, and will use deep-sweeping equipment provided by BAJ-Vickers.

Richard Dunston recently secured contracts to build five water tractor tugs propelled by Voith cycloidal propellers for the Royal Navy, identical to four already in service.

Yorkshire Dry Dock has been building small ships at Hull since 1918. The company's specialty over the past 10 years has been bulk carriers classed for deepsea service. Of under 800 gt and designed to carry 1,400 tons deadweight, no less than 22 of this type have been built or are in the course of construction; five are due for delivery to coastal shipping companies during 1985.

Tyne Shiprepair, Britain's largest ship repair company, has achieved a modest profit for its first full year of operations since being denational-

(continued on page 24)

HMS Harworth, 9th Hunt class minehunter constructed at Vosper Thornycroft





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## Britain-Marine Industry

(continued from page 22)

ized. Eight management staff bought the company from British Shipbuilders in February 1984. At the time the group had no work at either of its two yards on the Tyne, but in the past year 117 ships have been booked for repair from British, Danish, German, Iranian, Nigerian, and Far East owners. A significant

amount of Ministry of Defence work has also been started, including the rebuilding of the Falklands-damaged Royal Fleet Auxiliary Sir Tristram. The management now views the future with confidence.

For complete information on the facilities and services offered by British Shipbuilders,

Circle 40 on Reader Service Card

## British Marine Equipment Companies

With the lower level of newbuildings worldwide, marine equipment manufacturers exist in a highly competitive environment. New technology, particularly in electronics and control equipment, and more demanding standards for navigational, communications, and safety equipment have, however,

opened up new markets that several manufacturers have seized upon. The need for engineering economy and new specialized ship types, particularly in the offshore field, have also provided openings. Brief resumes of some of the British companies providing marine equipment and their activities, notably in the export field, are given below.

## ARPA Suppliers

Three leading U.K. marine electronics companies competing for worldwide markets with Automatic Radar Plotting Aids (ARPA) are Kelvin Hughes, Marconi International Marine, and Racal Marine Radar.

Kelvin Hughes provides a range of ARPAs and radars for ships from 500 grt to the largest afloat. The company supplies the standard navigational radar for the Royal Navy, and has recently fitted out the new P&O cruise liner Royal Princess with radars and ARPA. Radars are also supplied to the Egyptian Navy, and the company is selling in Korea and Japan.

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Marconi International Marine has also entered the marine satellite communications market with the new Oceanray ship earth station. This is said to be one of the smallest and least expensive satellite communications systems available.

Circle 42 on Reader Service Card  
Racal-Decca ARPAs are finding a large export market; more than 50 have been sold in the past three months.

Circle 43 on Reader Service Card

## Avon Industrial Polymers

Avon Industrial Polymers, part of the Avon Rubber Group, manufacturing at Chippenham in England, has been fabricating skirt components for Bell Halter's SES range of craft, and also supplying materials for the first group of Landing Craft, Air Cushion (LCAC) currently under construction at Bell Halter's New Orleans shipyard for the U.S. Navy.

Now, in a joint venture with Bell Aerospace Textron, a new company, Bell Avon Inc., has been formed to manufacture in the U.S. at Piquette, Miss.

Circle 44 on Reader Service Card

Another Group company, Avon Inflatables Ltd., manufactures the highly successful Avon Searider rigid inflatable, which is widely used in offshore, naval, and search and rescue roles. A series of 75 six-meter SR6M Seariders has recently been delivered to the U.S. Coast Guard.

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## Chadburn Engineering

There are three marine divisions within Chadburn Engineering, all (continued on page 27)

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Maritime Reporter/Engineering News

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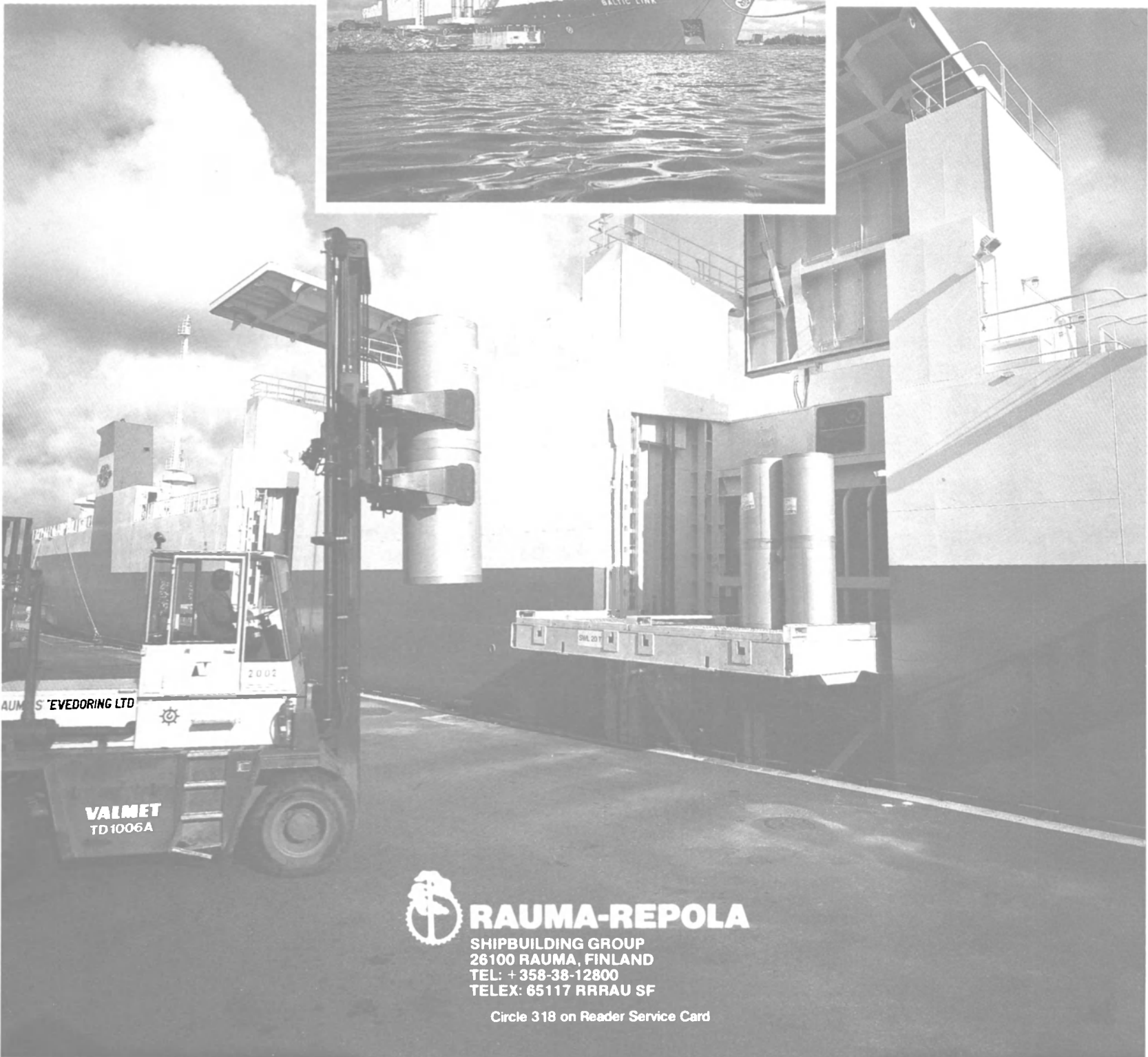
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## Britain-Marine Industry

(continued from page 24)

market leaders in the supply of ships' equipment. Chadburn Bloctube manufactures traditional ships' telegraphs and a modern range of push-button engine controls and event recorders. The Mark 2000 recorder, recently supplied to six icebreakers of the Canadian Coast Guard and the P&O cruise liner Royal Princess, is a microprocessor-controlled unit providing a printout record of ship's actions throughout a voyage, with an optional VDU facility.

Circle 46 on Reader Service Card

The A. Robinson (Engineering Services) division provides mechanical rotary controls and valve actuators for warships, and is currently supplying new frigates and MCMVs of the Royal Navy.

Circle 47 on Reader Service Card

Clayton Crane & Hoist Company manufactures ships' hoists and engine room cranes. These are now being installed in the Blue Star ships being built at Harland & Wolff.

Circle 48 on Reader Service Card

## Cummins Diesel

Cummins Diesel produces marine propulsion and auxiliary drive engines, together with generator sets. Engines are manufactured at Darlington and Daventry in the U.K. (Columbus, Ind. and Charleston, S.C. in the U.S.) ranging up to 1,600 bhp.

Twin Cummins KT19M engines of 365 bhp each, driving Aquamaster propulsion units, are currently being installed in the long series of 190-foot coasters being built by Yorkshire Dry Dock in Hull.

Circle 49 on Reader Service Card

## Hamworthy

Hamworthy Engineering Ltd. of Poole in Dorset is a leading supplier of pumps and air compressors worldwide, about 65 percent of its production being for export. Of particular significance is a contract to supply starting air compressors for the U.S. Navy fleet oilers (T-AO) being built at Avondale Shipyards. Air compressors are also being supplied for five T5 tankers being built at Tampa Shipyard.

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## International Paint

International Paint reports it has one of the largest world market shares for all marine coatings. The 10 years since its Intersmooth SPC was launched have seen dramatic changes in the marine coatings industry. The fuel-saving benefits associated with virtual elimination of hull fouling over extended periods with maintenance of hull smoothness have been well demonstrated.

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International Paint Marine Coatings manufactures worldwide and in the U.K. at Gateshead. The compa-

ny is now a wholly owned subsidiary of the British Courtols Group.

Circle 51 on Reader Service Card

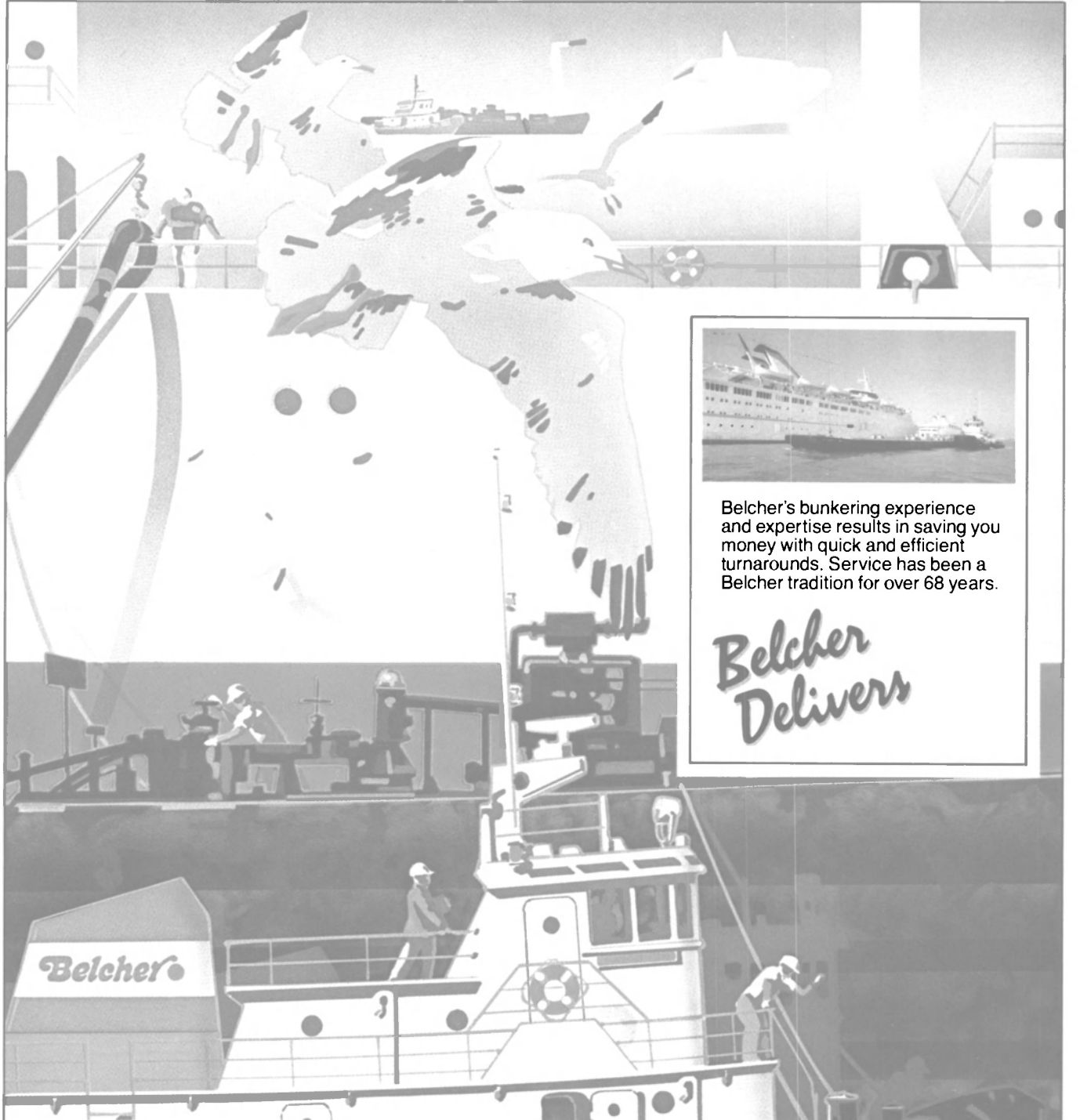
## MacGregor-Navire

An international company now part of the Kone Group, MacGregor-Navire provides some 60 to 70 percent of the cargo access equipment to ships building around the

world. MacGregor-Navire (UK) manufactures bow and stern doors, ramps, cargo lifts, and hatch covers at Whitley Bay in Yorkshire for ships built in the U.K. and some other countries.

Bow ramps, stern ramps, and side-loading facilities have been supplied for the MacBrayne ferries under construction at Cochran's of (continued on page 32)

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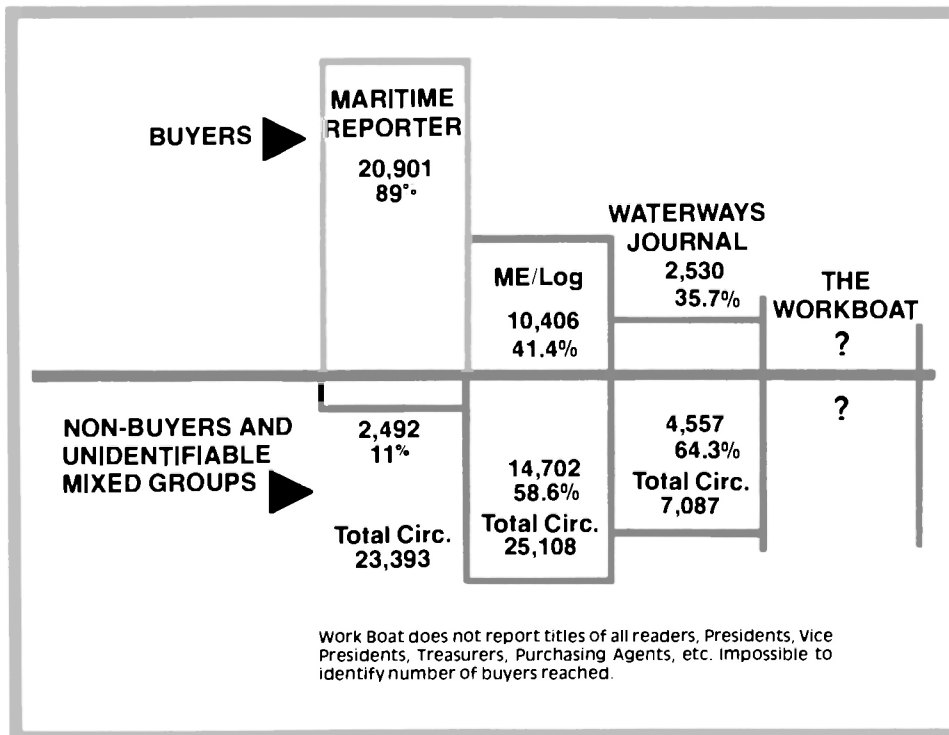
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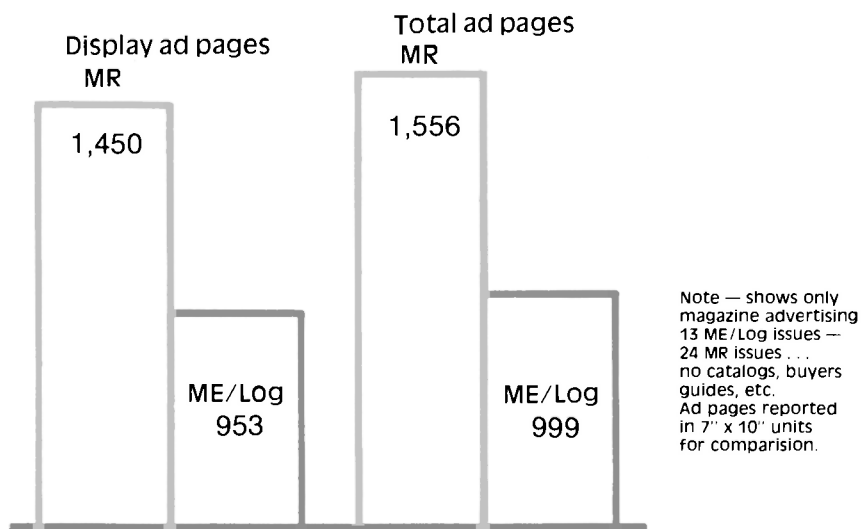
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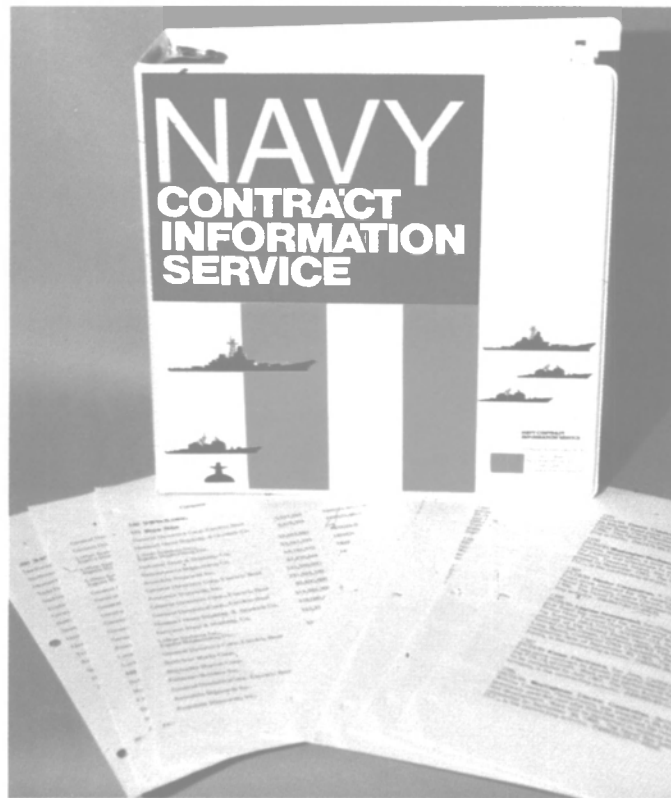
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## Britain-Marine Industry

(continued from page 27)

Selby. The Appledore-built research vessel Charles Darwin has a 20-ton gantry for lowering and raising survey equipment at the stern, and the Yorkshire Dry Dock cargo ships have MacGregor single-pull covers—to mention but a few of the latest installations in the U.K.

Circle 52 on Reader Service Card

### NEI Clarke Chapman

A part of Northern Engineering Industries, NEI Clarke Chapman is a long-time supplier of deck cranes, winches, and windlasses. Despite the general recession in shipping, the company has been expanding its production and work force, largely by taking advantage of opportunities in the offshore industry.

A joint venture company has been formed with the Australian Aquila Company to manufacture offshore cranes for the North Sea industry and mooring equipment. The com-

Right—The crane shop at Clarke Chapman's Victoria works. Shown are eight electric deck cranes (two ship sets) for Blue Star reefers building at Harland & Wolff and an offshore crane for the Heimdal platform in the North Sea

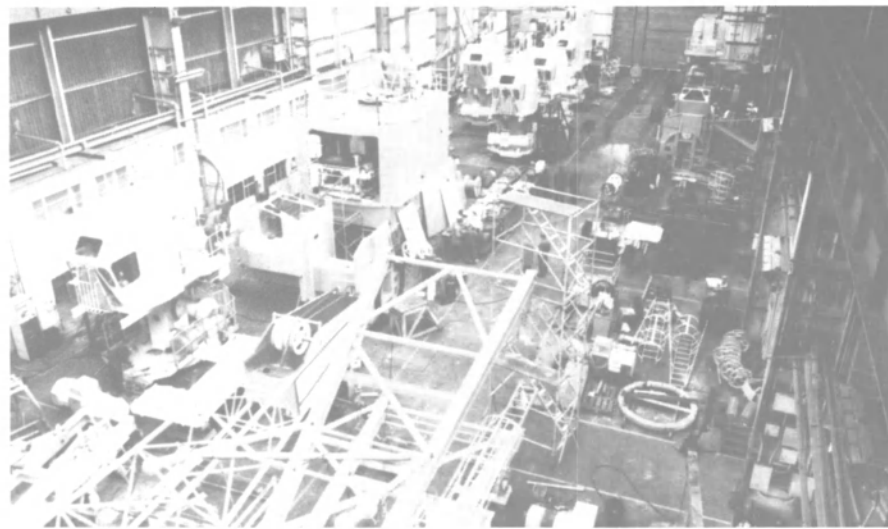
pany has acquired the assets of Donkin & Company, well known for the manufacture of steering gear, windlasses, and capstans. Among recent contracts are eight deck cranes for the four Blue Star reefers now under construction at Harland & Wolff, and an offshore crane for the Heimdal platform in the North Sea.

The holding company, NEI, acquired the Pearlson Engineering Company of Miami five years ago, and manufactures hoisting equipment for that company's Syncrolift® ship-lifting platforms installed around the world including the two largest, at Todd Pacific Shipyards Corporation's Los Angeles Division, and the Vickers submarine facility at Barrow in Furness, U.K., which is now under construction.

Circle 53 on Reader Service Card

### Perkins

Perkins Engines in Peterborough,



England, is a world leader in the design, manufacture, and marketing of diesel engines, including marine diesels in a range from 40 to 800 bhp, and outputs from 25 to 825 kva for generating duty.

In March 1984 Perkins acquired the diesel engine business of Rolls-Royce Diesels International based at Shrewsbury, which raised its top output for propulsion engines from 350 to 800 bhp. The Shrewsbury

engines are well suited for heavy-duty workboats, with conservative long-life ratings and appropriate options such as clutched power takeoffs. Also incorporated are service features allowing long periods of continuous operation.

The Shrewsbury engines also compete effectively in the light-duty commercial and pleasure sectors, where their efficient design, (continued on page 34)

## Raytheon Service Co.

MARINE DEPT.

### Sales

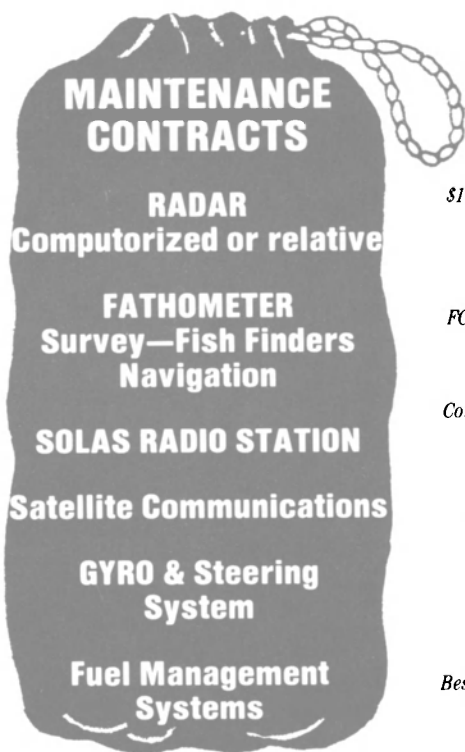
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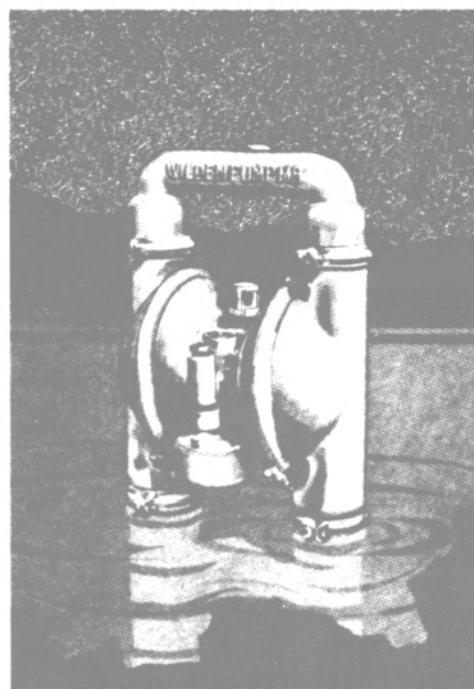
Head Office—100 Roester Rd Suite 103  
Glen Burnie, MD 21061

Local Facilities 301-761-4300

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Phillie	609-662-4322	Houston	713-941-2700
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Circle 285 on Reader Service Card



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It also stands up to  
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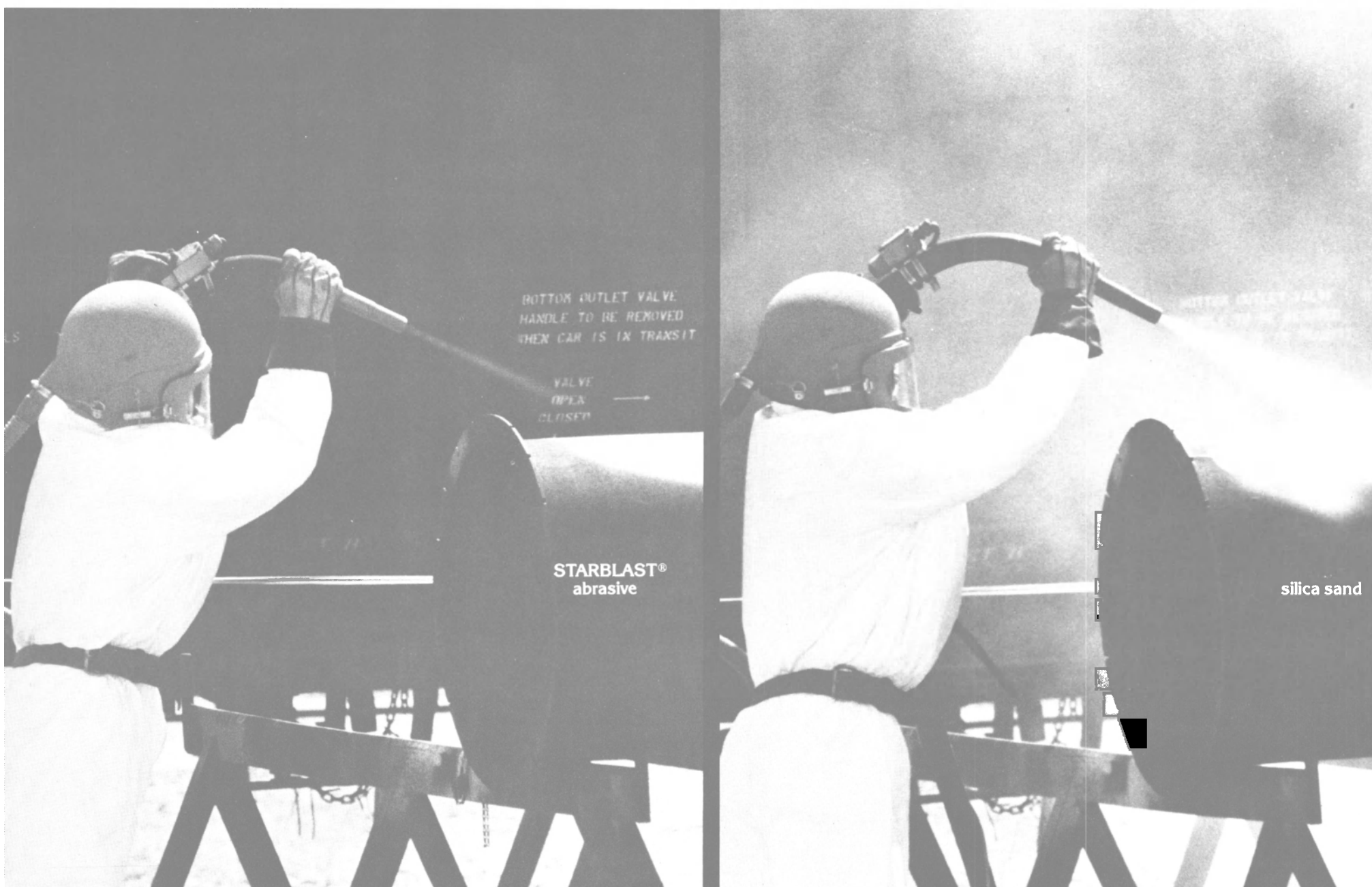
Wilden pumps are available with wetted parts in aluminum, cast iron, stainless steel, and Hastelloy C. Non-wetted parts in aluminum or cast iron. Elastomers in Neoprene, Buna N, Nordel, Viton®, and Teflon®.



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Circle 179 on Reader Service Card  
Maritime Reporter/Engineering News

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### APRIL 1

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• PLUS—A wealth of current marine business and technical information first—weeks before the slower monthlies.

### APRIL 15

Advertising  
Closing Date  
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- **RTCM '85**  
San Diego, California—April 29-May 1  
Special coverage of the 'Radio Technical Commission for Maritime Services' conference.
- **WORLDWIDE SHIP REPAIR**  
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### MAY 1

Advertising  
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April 9

- **SNAME SPRING MEETING/STAR SYMPOSIUM**  
Norfolk, Virginia—May 21-25  
Preview of the technical program of the Society of Naval Architects and Marine Engineers annual Spring Meeting and Symposium.
- **MARINE COATINGS AND CORROSION CONTROL**  
- Hull Coatings • Cleaning • Cathodic Protection - A review of the latest advance in coatings and corrosion control technology that can provide cost savings for vessel owners.  
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### MAY 15

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Closing Date  
April 23

- **NAVIGATION/COMMUNICATIONS EQUIPMENT REVIEW**  
  
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This June Yearbook volume will be a true reference tool. A source of vital information to be read, reread and referred to all year long by MARITIME REPORTER's unequalled readership of thousands more marine industry decision-makers than are reached by any other marine industry magazine in the entire world.

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## Britain-Marine Industry

(continued from page 32)

using traditional materials, achieves rugged, reliable, and weight-effective power.

Perkins will continue to offer the C8 and CV12 marine models designed by Rolls-Royce and produced by Perkins Engines (Shrewsbury), both of which are turbocharged units.

Circle 54 on Reader Service Card

## Racal Marine

Nearly all of the Racal Marine companies introduced new equipment during the past year, as follows: **Radar**—modular designed Master Series, ARPA, AC/TM, RM, Watchkeeper color monitor (working off any of them); RM 1070 and 770, 970 color display, for vessels up to 1,600 grt. **Navigation**—MNS 2000 multi-sensor positioning receiver, Mark 52 Navigator, color video plotter with light pen, Navtex 1 and 2 (pleasure craft) telex, weather, etc., receivers

Circle 55 on Reader Service Card

**Marine Controls**—80 Series (super-adaptive) and 60 Series (conventional) autopilots, modular with common components; ISIS 250 (and 250 V for VDU) machinery monitoring system for medium-sized ships; Mark 7 gyrocompass. **Survey**—Micro-Fix microwave line-of-sight precise positioning system.

Circle 56 on Reader Service Card

A \$5.6-million contract to provide the U.S. Navy with the Hyper-Fix close-range positioning system for mine countermeasure ships (MCM) was received recently by Racal-Decca Survey Inc. These systems have already been adopted by the Royal Navy for MCM work around the U.K., and some 36 MCM packages are now to be installed on MCM vessels in the U.S.

Circle 57 on Reader Service Card

Racal-SMS Ltd. has found a ready market as a world leader in navigational simulator equipment. The Type 9000 training simulator has been sold in 13 countries as far afield as China, Canada, and Saudi Arabia in just over a year.

Circle 58 on Reader Service Card

## RFD

RFD Marine, a leading manufacturer of inflatable liferafts and evacuation systems, is the first company to introduce a liferaft designed to meet the requirements of the revised Chapter III of SOLAS 74. This liferaft, the Surviva, combines a new material and advanced manufacturing techniques to create a highly durable product.

The latest version of the Surviva is the DL, davit-launched variant, that has now been granted U.S. Department of Transport approval, and is available in 12-, 16-, 20-, and 25-person capacities. This version is particularly important for vessels

(continued from page 37)





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the  
story.**

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# Yes, we can supply 7 different kinds of liquid gas carriers—2 for LPG and 5 for LNG.

The variety is an excellent reason to bring your requirements for a liquid gas carrier to Hitachi Zosen. But it isn't the only reason.

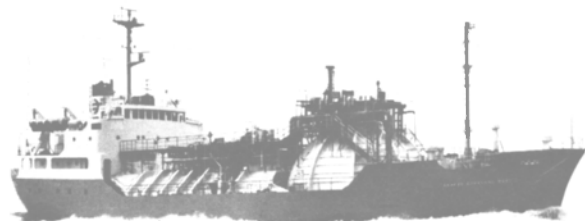
Consider experience. Hitachi Zosen has put 9 LPG carriers with independent

prismatic tanks into service since 1962. Two of them have a capacity of 100,000m<sup>3</sup>, ranking them among the world's largest LPG carriers. We have also finished work on an LPG carrier with semi-membrane tanks.

Hitachi Zosen and CBI developed the energy-saving HZ-CBI spherical tank system. In addition, a licensing agreement with Gaz-Transport SARL, McDonnell Douglas and Technigaz SA enables us to supply LNG carriers with GT/STD, GT/

MDC and Technigaz membrane tanks.

Finally, consider performance. It is proven through testing and evaluation using a 1,000m<sup>3</sup> experimental ship with a prismatic independent tank and a spherical tank. That's also an excellent reason for getting in touch with a Hitachi Zosen representative at one of the addresses below. He can tell you all about our 7 liquid gas carriers and all about the single source of supply.



1,000m<sup>3</sup> experimental LNG carrier

*We build industries*

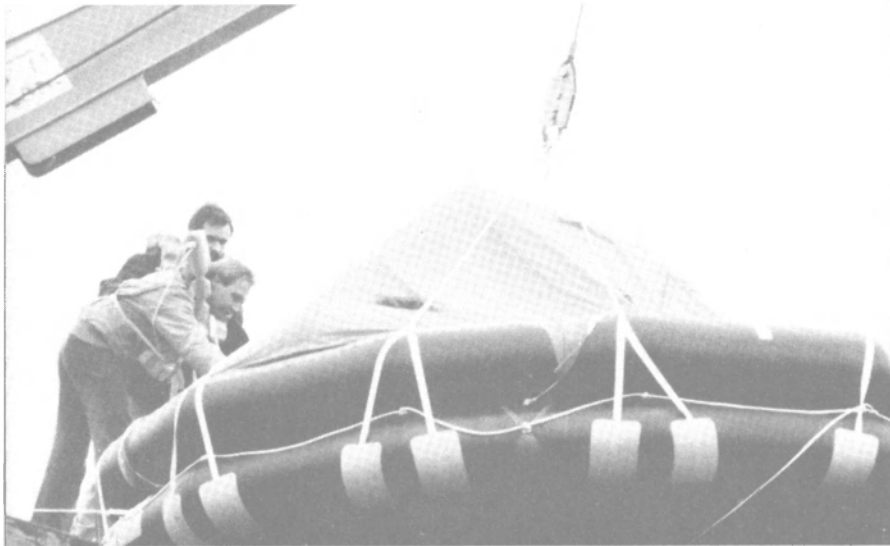
# Hitachi Zosen

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A boarding exercise underway on a davit-launched version of the RFD Survival liferaft.

## Britain-Marine Industry

(continued from page 34)

where the rafts are stowed at a height of 4.5 meters (almost 15 feet) or more above the waterline, as "dry-shod" evacuation is required for this situation under the new regulations.

In addition to inflatable liferafts, RFD has made a name for itself with the Marine Evacuation System (MES). This slide arrangement for the rapid and safe evacuation of substantial numbers of passengers aboard ferries and other vessels has been adopted by vessel operators in the U.K., Canada, and New Zealand.

Circle 59 on Reader Service Card

## Rolls-Royce

Rolls-Royce Ltd. in Coventry is the government-owned builder of marine and aero gas turbine engines. Since 1958 the company has manufactured more than 850 marine gas turbines, ranging from the 1,400-hp Gnome engine to the 5,300-hp Tyne, 18,800-hp Spey, and 28,000-hp Olympus.

The Olympus gas turbine has been widely installed in destroyers and frigates of the Royal Navy and many foreign navies, while the Spey engines, two per ship, are being installed in the latest Type 22 frigates.

To date, 57 Spey gas turbines have been delivered or are on order from clients that include the Japanese Marine Defense Force. A new 24,000-hp model Spey engine is being developed and will be available in 1989.

Circle 60 on Reader Service Card

## STC

STC International Marine, formerly known as the International Marine Radio Company, produces the Mascot 2000 satellite communications system, the first all-British satcom to gain INMARSAT approval. Notable installations include the P&O liners Royal Princess and Sea

Princess, and the Royal Yacht Britannia.

STC also manufactures, at Mitcham in Surrey, portable lifeboat radios to SOLAS requirements, and an automatic radio direction finder, the ADF 790.

Circle 61 on Reader Service Card

## Stone Manganese

Stone Manganese Marine Ltd. is said to be the oldest and the largest propeller company in the world. The original company, which was started by Josiah Stone, in 1845 made the propeller for the SS Great Britain, the first ship to be driven solely by a screw propeller. At its Birkenhead Works, SMM now has the capability for the simultaneous melting of sufficient metal to make propellers of up to 100 tons in finished weight.

The company is now owned by

John Langham, and is the principal company within Langham Industries Ltd. It has subsidiary and associated fixed-pitch propellers in the U.K., Canada, France, Brazil, South Africa, Singapore, Hong Kong, and, in the U.S., Ferguson Propeller Corporation of Hoboken, N.J.

SMM did most of the original research on economy propellers, and is still a world leader in this field. To date, it has designed and manufactured some 30 of these large screws for tankers/bulk carriers, container-ships, and passenger liners/cruise ships, and has others on order. It made the world's largest propellers for five 357,000-dwt tankers owned by Zenith Shipping. They each weighed 70 tons and were 11,000 millimeters (36 feet) in diameter.

As a result of the considerable fuel savings being made by its tankers that have been retrofitted with economy propellers, Shell Tankers UK and Deutsche Shell last year placed further orders with SMM for this type propeller.

The U.S. agent for SMM is Ampower Corporation of North Bergen, N.J.

Circle 62 on Reader Service Card

## Vickers

The Marine Engineering Division of Vickers Plc has total annual sales of more than 60 million pounds. The Division is one of the world's leading suppliers of motion-control equipment for the merchant shipping and offshore industries and for naval applications.

Formed in 1980, Vickers Marine consists of eight companies, all of which have strong international reputations in the marine field. Headquarters of the Division is in Edin-

burgh, Scotland, and the companies within it are: Brown Brothers & Company Ltd., Edinburgh; Jered Brown Brothers Inc., Troy, Mich.; John Hastie of Greenock Ltd., Scotland; Mitchell Bearings, Newcastle, England; SOFEC Inc., Houston; Stone Vickers Ltd., Greenwich, England; Vickers Japan KK, Tokyo; and Vickers Marine Controls, Edinburgh.

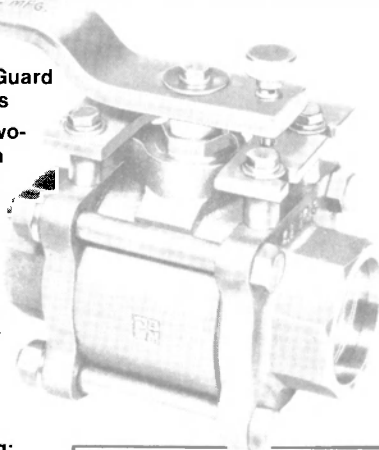
The major products of Brown Brothers are fin and tank stabilizers, steering gear, motion compensators, and riser tensioners (Circle 63 on RSC). Jered Brown Brothers manufactures steering gear, cargo and personnel elevators, deck-edge elevators, windlasses, winches, and capstans (Circle 64 on RSC). The specialties of John Hastie are steering gear, derrick cranes, and jib cranes (Circle 65 on RSC). Mitchell makes marine thrust bearings and blocks, marine tunnel and aftermost bearings, pedestal bearings, and vertical bearings (Circle 66 on RSC).

SOFEC specializes in single and catenary anchor leg moorings (Circle 67 on RSC). Stone Vickers produces controllable-pitch propellers, tunnel and rotatable thrusters, and watertight doors (Circle 68 on RSC). The product line of Vickers Marine Controls includes microprocessor-based control systems for stabilizers, steering, C-P propellers, thrusters, elevators, as well as a joystick positioning system (Circle 69 on RSC).

It is appropriate to mention at this point that the intent of this article is to deal primarily with U.K.-based organizations and, in addition, because of space and deadline limitations, the possible omission of some leading firms is purely unintentional.

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Circle 114 on Reader Service Card



## Rolls-Royce Renames Holding Company For Canadian Operations

Rolls-Royce Holdings Canada Limited, which controls the activities of the Rolls-Royce Group in that country, has been renamed Rolls-Royce Industries Canada Inc. According to company chairman **W.J. Mandry**, "This new name

offers a far more specific and descriptive identity for Rolls-Royce's diverse Canadian operations."

The three wholly owned companies forming Rolls-Royce Industries Canada have current annual sales of \$188 million and a work force of more than 2,000. They comprise: Rolls-Royce Industrial & Marine Limited based in Montreal, which provides field support for the R-R range of marine and industrial gas turbines in Canada; Rolls-Royce (Canada) Limited, also in Montreal, providing engine repair and overhaul services for aircraft; and Bristol Aerospace Limited based in Winnipeg, whose products include engine and airframe components.

### Johnson Appointed Director Of Marketing For Bulkfleet Marine

**Thomas J. Johnson** has been named director of marketing for Bulkfleet Marine Corporation, an operating unit of the Houston-based Signet Corporation. **J. Barry Snyder**, president and CEO of Signet, announced recently.

Mr. **Johnson** will supervise marketing activities and will be involved in new business development and acquisitions for Signet Marine Group, of which Bulkfleet is a part. He will also oversee marketing services for the parent corporation.

His previous experience includes technical engineering and marketing positions with the U.S. Army Corps of Engineers, Designers & Planners Inc., Delaval Turbine Company, Foster Wheeler Corporation, and Tacoma Boatbuilding Company. He is a graduate of Texas A&M University's Maritime Academy with a degree in marine engineering.

## Catton, Fleming And Rogaski Promoted At Drew Ameroid Marine



J. F. Catton

R. K. Fleming

R. E. Rogaski

**Thomas A. Cuomo**, group vice president of Drew Ameroid Marine, recently announced three executive appointments.

**Frank Catton** has been named staff vice president, responsible for the development of new business opportunities in the worldwide marine industry.

**Robert K. Fleming** has been appointed regional vice president, Northern European Region. Most recently vice president of marketing, he will now be responsible for the sales and administrative activi-

ties in the North Europe area.

**Robert E. Rogaski**, formerly marketing manager-chemicals, has been promoted to vice president of marketing, responsible for directing the marketing efforts of the division worldwide.

Drew Ameroid Marine, a division of Ashland Chemical Company, provides advanced product/application technology in chemicals, sealing and welding, and refrigerant products for the marine transportation and support services market.

### McCormick Joins Turecamo As Director of Sales

Turecamo Coastal & Harbor Towing Company, Staten Island, N.Y., has announced the appointment of **Jack McCormick** as director of sales. He comes to the firm with 29 years of experience in New

York Harbor's maritime community.

Prior to joining Turecamo, Mr. **McCormick** was senior vice president for McAllister Brothers, Inc., and earlier had been employed by Dalzell Towing.

### Free Actuator/Ball Valve Reference Book Offered By Pittsburgh Brass

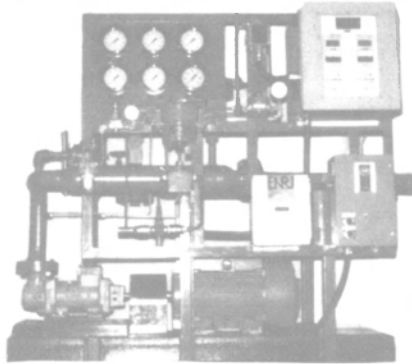
Designed to facilitate the optimum mating of actuators and ball valves to meet specific requirements, PBM has announced the publication of its unique Reference Book, Section VII, describing "Performance Packages," the company's power-driven actuators coupled to their Adjust-O-Seal Ball Valves.

By means of a novel split-page format, systems engineers and others specifying automated valves will be able to quickly and accurately mate valves and actuators in desired sizes. These include: Two-Way (standard and full port), Flush Tank, Diverting Port, and Multi-Port Valves to Pneumatic Piston, Pneumatic Spring, Pneumatic Vane and Electric Reversible Actuators. When mated, the drawings make possible extremely close estimates of combined dimensions. Also included is a wealth of sizing charts, sizing torques, optional accessories, how-to-order information and more.

For a free copy of this new Reference Book,

Circle 71 on Reader Service Card

## WATER-IN-OIL EMULSIFICATION



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This patented **ABS, USCG** and **ASME** approved unit was developed to improve combustion, reduce vanadium, **O<sub>2</sub>** & **SO<sub>2</sub>** in boilers and diesel engines, **any type fuel**.

**INSTALLATION:** May be accomplished in **36** hours.

**START-UP:** System will start **automatically**, adjust its emulsion pressure and % of water injection.

**EXCESS AIR:** May be reduced by 1/3, reducing **vanadium** deposits, **Sulphur Dioxide** upgrading to **Sulphur Trioxide** and **O<sub>2</sub>**.

**COMBUSTION:** The micro explosion of water droplets reduces fuel to **micro particles** producing a more complete combustion.

**VANADIUM:** Deposits are severely reduced without the use of **fuel additives**.

**SAVINGS:** **2%** to **3%** in fuel consumption plus **1%** to **2%** in maintenance.

**WARRANTY:** **One (1) year** on material and workmanship.

**PAYBACK:** A system consuming 100 tons of #6 fuel/day will pay for itself and installation in **90 days**.

Circle 319 on Reader Service Card

## NOW USE YOUR SATCOM TO SEND AND RECEIVE EXACT TELE-COPIES.

Alden's new FAX 340 III transceiver transmits and receives information that voice-link or telex cannot: engineering blueprints, financial and payroll information, diagrams, important documents and contracts, order forms, etc. Full pages sent in less than 30 seconds; perfect copies anywhere your satcom reaches.

For further information on our FAX 340 III group-3 high-speed digital transceiver, contact Alden Electronics, 125 Washington Street, Westborough, MA 01581, USA, or call (617) 366-8851.

**ALDENELECTRONICS**

Circle 172 on Reader Service Card

## Rosenblatt Gets \$4-Million Navy Award For Auxiliary Ship Design Support

M. Rosenblatt & Son, Inc., New York City, has been awarded a \$4,082,056 cost-plus-fixed-fee Navy contract modification for engineering and technical services for auxiliary ship design support. Work will be performed in Arlington, Va., and is expected to be completed in January 1986. Contract funds would not have expired at the end of the current fiscal year. One hundred twenty-six proposals were solicited and seven offers were received. The Naval Sea Systems Command is the contracting activity.

## Golf Appointed Vice President-Manufacturing At Radar Devices

**George P. Golf** has been named vice president-manufacturing operations for Radar Devices, Inc. (RDI) of San Leandro, Calif., according to an announcement by RDI president **Lawrence F. Anderson**.

Mr. **Golf** will be responsible for coordinating RDI's manufacturing operations. Prior to joining RDI, he had been vice president-manufacturing/operations for Quantex/Quantic Industries since 1982. In 1981-82 he was vice president of operations for Rodenstock Instruments. From 1976 to 1981 he was operations manager for Badger Meter's Electronics Division. Prior to that he served in similar capacities for seven years with Singer Business Machine, Textron-Dalmo Victor, and American Standard.

He holds a BS degree in industrial engineering from the University of California, and an MBA from the University of Santa Clara.

## Bostik Offers New Material On Marine Grade Sealants

Bostik Division, Emhard Chemical Group, Middleton, Mass., is offering new free literature on its marine grade sealants—Bostik 320 Polysulfide/Sealant, Bostik 620 Silicone Sealant/Adhesive, and Bostik 920 Urethane Sealant/Adhesive.

The explanatory text of the literature, which also contains color photos of the sealants along with drawings illustrating their use, describes Bostik 320 as a one component marine grade polysulfide sealant that chemically cures to form tough, low modulus, elastomeric seals. It is said to stay flexible even in joints subjected to considerable movement and to be particularly effective for applications below the waterline where disassembly may later be necessary. It should be considered for portholes, keel plates, keel seams, depth finders, instruments, and encapsulated nuts and bolts.

Bostik 620 is listed as a one part silicone sealant that cures to form extremely flexible seals to a wide variety of boatbuilding materials. It is specifically recommended for joints above the water line that may later need to be disassembled, and it should be considered for grip rails, lights, horns, portholes and mountings for antennas.

Bostik 920 is described as a one compound marine grade urethane sealant that is said to provide exceptional adhesion to most boatbuild-

ing materials. It is recommended for any marine application, above or below the waterline, where a permanent seal is desired and should be considered for deck to hull assembly, hull seams, keel joints and undermoldings.

In addition to product description, the literature gives the physical properties, product characteristics, and features and uses, as well as terms and conditions of sale.

A comparative data chart in the brochure lists such information as

product data, container sizes, colors, application method, extrudability, track free time, and shore hardness; a performance data chart lists the type of material each sealant is recommended for, as well as environmental resistance in water, salt water, oil, gasoline, and outdoor weathering.

For free copies of the literature on marine grade sealants from Bostik,

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Bardex Hydranautics provides prompt service with engineering and sales offices in Houston, London and Singapore, and with representatives around the world. For a comprehensive brochure, contact Bardex Hydranautics, 6338 Lindmar Drive, P.O. Box 1068, Goleta, California 93117, U.S.A. Phone 805/964-7747; Telex 658445 HYDRA GOLETA.

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Circle 325 on Reader Service Card



## ELECTRONICS UPDATE

### Texas Instruments Introduces New Satplan<sup>®</sup> Software For Global Positioning System

Texas Instruments has announced a new addition to its TI 4100 NAVSTAR navigator product line, an enhancement that makes the Global Positioning System (GPS) constellation more productive as a navigation/positioning tool.

Called SATPLAN, the new software product provides specific satellite visibility times and position dilution of precision (PDOP) information, according to **John Applegate**, marketing manager for TI's Global Positioning System. PDOP helps the user select the best time at which the satellites are in a geometry that will produce a more accurate position.

SATPLAN selects the four best satellites available to the user and provides information on precise GPS satellite rise and set times, satellite azimuth and elevation, satellite visibility profile, and the recommended navigation mode.

"The benefit to the user," Mr. **Applegate** stated, "is that SATPLAN displays and prints the information in tabular and graphic form so that a detailed schedule of satellite availability can be quickly prepared, including an analysis of the most efficient times for GPS use in each location and on each date desired."

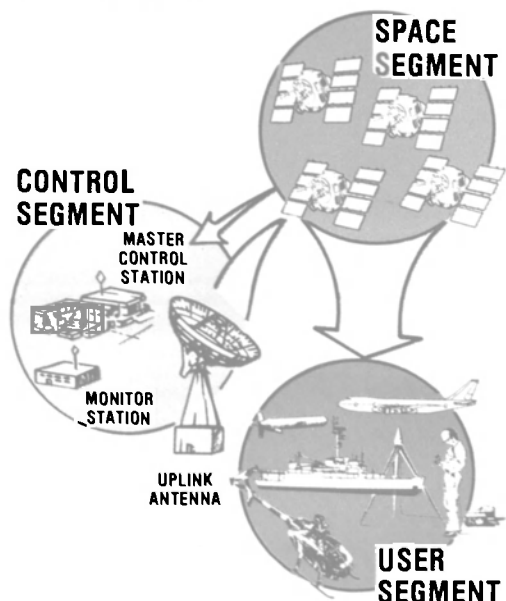
Using the TI Color Professional or Portable Professional Computer, with 256K RAM and 8087 numerical co-processor, the easy-to-use SATPLAN complements the TI 4100 GPS receiver. SATPLAN almanac data can be taken directly from the TI 4100 receiver's display or can be updated from government or user sources. Almanac nomenclature is the same as that used by the TI 4100.

For free literature fully describing the new TI 4100 NAVSTAR navigator product line,

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  - ABSOLUTE TIME DISTRIBUTION



### Field Appointed Vice President-Manufacturing For Fairbanks Morse



Marshall L. Field

**M.D. Maddox**, president of Colt Industries' Fairbanks Morse Engine Division in Beloit, Wisc., has announced the appointment of **Marshall L. Field Jr.** as vice president, manufacturing. He will be responsible for all facets of the manufacturing functions including materials, manufacturing engineering, and all production departments.

Mr. **Field** comes to Fairbanks Morse from FMC Corporation, where he was employed for the past nine years. During that time, he held positions of business planner, materials manager, and manufacturing manager. His most recent assignment at FMC was as a member of a new venture group in Houston. Prior to joining FMC he spent four years with Westinghouse Electric Company's Systems Development Division.

He has a BS degree in electrical engineering from Georgia Institute of Technology, an MS in electrical engineering from Johns Hopkins, and an MBA from Harvard Business School.

### Massport Building New \$4-Million Passenger Cruise Ship Terminal

Massport's Board recently awarded a \$4-million contract to Trust Construction Corporation of Chelmsford, Mass., for construction of a new cruise ship terminal. The facility, to be called Harbor Gateway Terminal, will be located at the Boston Army Base in South Boston.

Massport executive director **David W. Davis** called the new terminal an important piece of the overall development plan for the Boston waterfront. He pointed out that Massport is making efforts to attract additional cruise lines to Boston, and that negotiations are continuing with cruise operators who will use the facility. Last year 13 vacation cruises departed from the Port of Boston, compared with 10 in 1983. Approximately 20,000 passengers take Boston-based cruises each year.

Designed by the engineering and architectural firm of Post, Buckley, Schuh, and Jernigan, Harbor Gateway Terminal will accommodate a 1,200-passenger cruise ship and a smaller 600-passenger vessel. Construction is expected to be complete in 10 months, though operations at the terminal will begin June 1 this year.

### Marinette Marine Awarded \$7-Million Navy Contract For Two Additional TWRs

Marinette Marine Corporation of Marinette, Wisc., has been awarded a contract by the Naval Sea Systems Command for the construction of two Torpedo Weapons Retriever (TWR) boats. The Wisconsin shipyard had previously been awarded in 1983 a Navy contract for eight vessels of this class.

The TWR class vessel is a totally new design developed by Marinette Marine to replace the Navy's aging existing TWR vessels. These craft are utilized by the Navy for recovering spent torpedoes, missiles, small drones, and mobile targets fired during weapons systems tests of all submarines and other combatant ships. The newly designed TWR is capable of staying on station for a week in support of these tests, thus avoiding the long delay times for ships caused in the past by smaller boats that had to return to base at night and then return to the test site the next day.

The TWR vessel is 120 feet in length with a beam of 25 feet, depth of 12 feet, an approximate displacement of 213 tons. The craft is entirely steel construction with a total propulsion power of 2,000 bhp driving twin fixed-pitch propellers. Design speed is 16 knots and range is 1,700 nautical miles.

Delivery of the first two TWRs ordered in 1983 is scheduled for spring this year; the two vessels in the new award are expected to be delivered in June 1986.

### Marketec Expanding With Additional Product Lines —Literature Available



Jack Ellsworth

**Jack Ellsworth**, formerly president of Salwico, Inc., has decided to devote full time to his new and growing company, Marketec, Inc. The rapidly expanding firm currently distributes Polarmarine tank cleaning equipment (Polarjet), Enraf Nonius liquid level gauging and high-level alarm systems, Heishin oily water separators, and Jensen and Rhoden ship automation equipment.

Mr. **Ellsworth** stated: "It is gratifying to be able to supply the marine industry with such fine products and services at competitive prices. It is just what is needed at this time to properly support our many marine customers."

For information and free literature on any of these product lines and services,

Circle 21 on Reader Service Card

Maritime Reporter/Engineering News



## New Tug Company Formed To Serve Great Lakes Port And Harbor Areas

A new towing company featuring the coordinated efforts of four independent tug operators serving the Great Lakes has been formed, according to an announcement by **Warren A. Jackman**, a director of the Michigan-based Lakeswide Towing Group, Inc.

The Group is said to be the only tug company on the Great Lakes to provide local on-site dispatching, on-site management, and on-site harbor conditions monitoring. Mr. **Jackman** said that the Group's tug operators are among the most experienced in the trades, and will continue to service those areas in which they have specialized for many years.

The Group—consisting of Gaelic Tugboat Company, North American Towing Company, Seaway Towing, Inc., and JMS Towing Service, Inc.—will provide towing in the following areas: Detroit, Toledo, and other Lake Erie ports (Gaelic); Duluth, Superior, Chicago, Gary/Indiana Harbor, and Burns Harbor (North American); the Sault Ste. Marie locks and St. Mary's River (Seaway); and Kenosha, Milwaukee, Green Bay, Sturgeon Bay, and eastern Lake Michigan ports (JMS Towing). Mr. **Jackman** emphasized that carriers and vessel agents requiring towing services in several ports and harbors can place all of their orders by contacting any one of the Group's member companies. "By offering these coordinated services, the Group guarantees personal attention by the individual towing companies involved in the ship's transit," he said.

## Bertel Named President of New Orleans Dock Board

**C. Alvin Bertel Jr.** was elected president of the Board of Commissioners of the Port of New Orleans at the Dock Board's first regular meeting of 1985. He succeeds **Joseph C. Domino**, who resigned from the Board at the end of 1984.

Also elected to the Dock Board were **Lucien J. Gunter**, who was named vice president, and **Charles C. Teamer Sr.**, who will serve as secretary-treasurer.

## Moffitt Names Marine Marketing As Agent For Cutless Brand Bearings

**Lucian Q. Moffitt, Inc.** of Akron, a subsidiary of BFGoodrich, has appointed Marine Marketing Company as its manufacturer's representative in the northeast U.S. for BFGoodrich Cutless® Brand bearings.

Formed in 1976 by **Larry Vincent**, Marine Marketing specializes in the sale of marine products to the

commercial and pleasure boat industries. It has sales offices in Somerset, Mass.; Ellsworth, Maine; and Toms River, N.J. Moffitt is the marketing arm of BFGoodrich for Cutless bearings for marine and industrial applications.

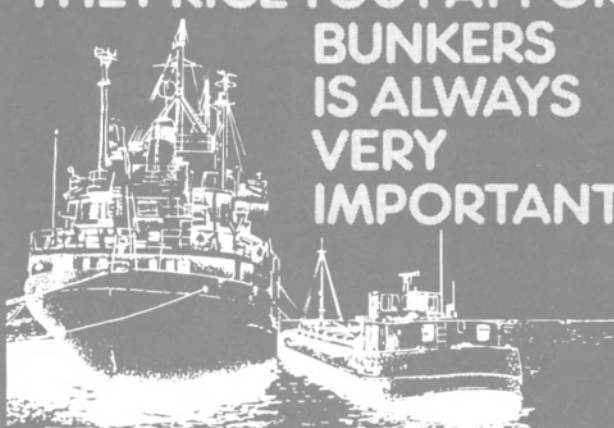
The new sales territory covers Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, Long Island, New York, New Jersey, and Delaware.

## SMATCO Gets \$3.5-Million Navy Contract For 14 Electro-hydraulic Winches

SMATCO, Inc. of Houma, La., has been awarded a \$3,475,766 firm-fixed-price Navy contract for 14 electric/hydraulic hauling winches for alterations on the auxiliary ships USS Butte (AE-27), USS Mars (AFS-1), USS Sylvania (AFS-2),


USS Niagara Falls (AFS-3), USS White Plains (AFS-4), and USS Concord (AFS-5). Work will be performed in Houma, and is expected to be completed in June 1986. Contract funds would have expired at the end of the current fiscal year. Thirty-seven bids were solicited and six offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-4258).

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# PROPULSION UPDATE

## Cat's New Diagnostic Tools Improve Servicing —Literature Available

Diagnostic tools adequate for engine systems designed a decade ago cannot compete with newly designed, more dependable, reliable, and accurate tools. Today's marine propulsion and auxiliary drive systems demand more accurate and technologically sophisticated diagnostic techniques. Caterpillar's new diagnostic tools feature state-of-the-art electronics and meet these requirements.

Electronic monitoring systems (EMS) were first introduced in Caterpillar products in 1978. The EMS monitors critical functions such as engine oil pressure and temperature, coolant temperature, and air system flow. Operators are alerted to problems that can be corrected before failures occur. Since 1978, numerous diagnostic tools have been added to the service specialist's tool box. Some of these new Cat diagnostic tools with specific marine task orientation are the following.

### Temperature Indicators

Temperature labels and temperature markers were introduced to assist in the determining when maintenance or repairs are needed. These low-cost labels and markers indicate when a component or system has exceeded predetermined temperatures. The labels are available in five temperature ranges from 140 to 350 F.

The high-temperature, crayon-like markers cover the temperature range from 390 to 1,240 F. As the chosen critical temperature is exceeded, the mark changes to a different color.

### Borescope



The release of the borescope has brought aircraft and medical technology to the field of engine and marine system inspection and maintenance management. This device allows the inspection of areas and components that otherwise would be impossible to inspect or required extensive disassembly.

The borescope can be used to inspect gearboxes, turbochargers, engine cylinders, and valves without total disassembly. It can also be used to inspect component passages during rebuild to insure proper cleaning of crankshaft oil, block water, and oil passages.

### Fuel Sulfur Analyzer

The fuel sulfur analyzer brings the laboratory to the field as a low-cost, hand portable unit that is simple and quick to use. It uses a simple five-minute test that accurately determines the sulfur content of the fuel. A sample of the fuel is burned under controlled conditions, and the resulting sulfur dioxide and trioxide are measured.

The analyzer can be used prior to a load of fuel being accepted, or to verify the contract price based on sulfur content. When there is no choice available in the fuel to be used, the analyzer allows the maintenance manager to select oil with an appropriate total base number that neutralizes the effects of high sulfur content.

### Fuel Rate Meter And Management Unit

A temperature-compensated, recording fuel rate meter is under development for availability in 1985 to measure fuel consumption rate on all engines from six to 600 gallons per hour. The meter is used during initial sea trials to confirm that vessel load profile matches engine design capability. Any necessary adjustments can be made prior to engine damage and/or inefficient operation of the vessel. The meter can be used periodically during vessel life to determine deterioration of



vessel and engine components. As a fuel management system, the unit has a full histogram memory to show load factor and duty cycle data along with detailed data on up to 20 load segments.

### Vibration Analyzer

Vibration analysis can be used to achieve smoother operation and reduce operating costs through detection of misalignment, out of balance, and roller bearing deterioration. Development work is being done to bring the skill level necessary to operate the vibration analysis equipment out of the specialty field and into the hands of service technicians. Menu-driven test procedures will guide the technician through the installation of the various transducers, gather the data, and perform the analysis and display the necessary corrective action. Further use of trend analysis techniques can help project necessary repairs, allowing the maintenance manager to schedule repairs rather than repairing due to failure.

### Digital Blowby Tool

The digital blowby/air flow indicator is used to measure diesel engine crankcase blowby as an indication of piston ring and valve guide condition. It also measures air flow rates to check for radiator plugging and fan performance. The digital

position indicator replaces mechanical dial indicators. Its position probe can be mounted on a diesel engine governor to provide an accurate readout of dynamic fuel settings. The microprocessor-controlled, hand-held readouts can also be located at the operator station, or communicate via an RS232 link to a computer or recorder.

### Infrared Thermometer



The infrared thermometer diagnoses hot or cold spots by measuring the surface temperature of any part or component. It is simple to spot a problem such as plugged radiator. The maintenance technician simply looks through the sight and scans the area under investigation. A sharp temperature increase or decrease may indicate the location of the problem. Other examples of its use are the quick detection of bad fuel injection nozzles, blocked heat exchangers, a leaking or blocked temperature regulator, excessive heat input from the transmission, or to measure keel cooler effectiveness. The unit is accurate from -20F to +2,500F.

For further information and free literature on Caterpillar's diagnostic tools,

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## Pennsylvania Shipbuilding. We're big enough

Pennsylvania Shipbuilding's yard on the Delaware River is big, capable and conveniently located near Philadelphia.

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A day out of service can cost you plenty. Whether it's inspection or voyage repairs, we guarantee that you will

## S/S R&D Offers Brochure On Fuel Oil Emulsifier

S/S Research & Development, Inc., Perth Amboy, N.J., is offering a free color brochure on the "ENJR" Fuel Oil Emulsifier that was designed and patented by chief engineer **Dannie B. Hudson** of the company. The ABS- and USCG-approved unit, which was manufactured, developed and perfected by S/S Research & Development, Inc., is unconditionally warranted for workmanship and material for one year.

The text of the brochure, which is illustrated with informative color photographs and diagrams, explains that water-in-fuel emulsion consists of small droplets of water suspended in oil. Water is injected at 60 psi during cavitation at pressures of 10,000 psi to 15,000 psi shear, and this system is capable of controlling water droplet size from one to 10 microns.

Emulsification is accomplished by the use of two fuel systems, and one water system and/or one fuel and one water system. This system monitors and maintains its fuel and water pressure automatically. Droplet size may be changed by varying emulsion chamber pressure. The burning of emulsified fuel explodes the water droplets during initial combustion, exploding the oil into smaller particles, creating secondary combustion. The flame changes in color, from orange center with black periphery to light-in-color flame in center and light brown periphery. Due to more complete combustion with the aid of water droplet explosions, the hard vanadium scale does not build up. The "ENJR" system will remove the present vanadium, and clean a partially clogged fire side.

Some of the advantages of the "ENJR" system listed in the bro-

chure are: reduced pollutants; reduced excess air; reduction of sulfuric acid; reduced soot removal; savings in fuel consumption and boiler maintenance; pays for itself within 30 to 45 days; all components are of highest quality; systems are fabricated by certified welders, hydrostatically tested and operational tested to ABS's satisfaction before shipment; and outstanding record of performance, efficiency and maintenance.

The brochure also contains a diagram of a typical installation that only requires the fuel system secured for a maximum of four hours. The entire installation can be accomplished in 24 hours, and the only adjustment to present boiler controls is air to oil ratio.

For a free copy of the brochure on the "ENJR" Fuel Oil Emulsifier from S/S Research & Development,

Circle 32 on Reader Service Card

## Sperry Gets \$16.8-Million Government Contract For Shipboard Data System

The U.S. Department of Commerce has awarded Sperry Corporation a \$16.8-million contract to provide a new shipboard data system for the acquisition and processing of hydrographic information by the National Oceanic and Atmospheric Administration (NOAA).

The system, known as the Shipboard Data System III (SDS III), will replace NOAA's current Hydroplot/Hydrolog system that has been in use since 1970. The SDS III will provide NOAA with greater automation in the acquisition of data, greater ability to verify the accuracy of that data while still at the survey site, and greater reliability.

The SDS III will consist of two separate but compatible systems: a Data Acquisition System (DAS)

that will be put aboard NOAA launches and other vessels; and a Data Processing System (DPS) that will be aboard hydrographic survey mother ships and in land-based installations.

Sperry will deliver 28 DASs and nine DPSs, with an option for the additional purchase of 20 DASs and 15 DPSs over six years. The contract also provides NOAA with the option to purchase separately additional components of the systems.

## Blake Joins Hi-Test As Manager Of Contracts And Business Development

**John H. Blake** recently joined Hi-Test Laboratories, Inc. as manager, government contracts and business development, and will assume negotiation and administration responsibilities for contracts involving the company's rapidly expanding underwater explosion testing business.

He will be located in Hi-Test's Crystal City, Va., office, and will be responsible for the development of new business in both the government and commercial sectors.

Prior to joining Hi-Test, Mr. **Blake** was contract manager for Bolt Beranek and Newman, Inc., and previously served 20 years with the U.S. Government in various contract management positions.

## Giannotti Firm Awarded Mexican Navy Contract For Engineering Services

The Office of Naval Construction and Repairs of the Mexican Navy recently awarded a contract to Giannotti & Associates International, Inc. of Houston for naval architecture, marine engineering, com-

puter-aided design, and testing services.

Initial requirements under the basic ordering agreement are to provide on-site engineering and testing support to the new Aguila Class ship design and construction program. A six-month model testing program for this project has been subcontracted by Giannotti to Hydronautics, Inc. of Laurel, Md.

On-site project support to the Mexican Navy is being provided by the firm's Mexican affiliate, Giannotti y Asociados International, S.A. de C.V., headquartered in Mexico City and managed by **Marcos R. Orunda**, vice president.

## ITT Awarded \$5.95-Million Addition To Contract For Product Improvement Work

ITT of Nutley, N.J., has been awarded a \$5,950,000 modification to a previously awarded cost-plus-fixed-fee Navy contract for the continuation of product improvement efforts for unit level circuit switches. Work will be performed in Nutley (90%) and Fort Huachuca, Ariz. (10%), and is expected to be completed by December 31, 1987. Contract funds would not have expired at the end of the current fiscal year. The Naval Electronic Systems Command, Washington, D.C., is the contracting activity (N00039-84-C-0403).

## Hoglund Named Senior Vice President For Dillingham Maritime

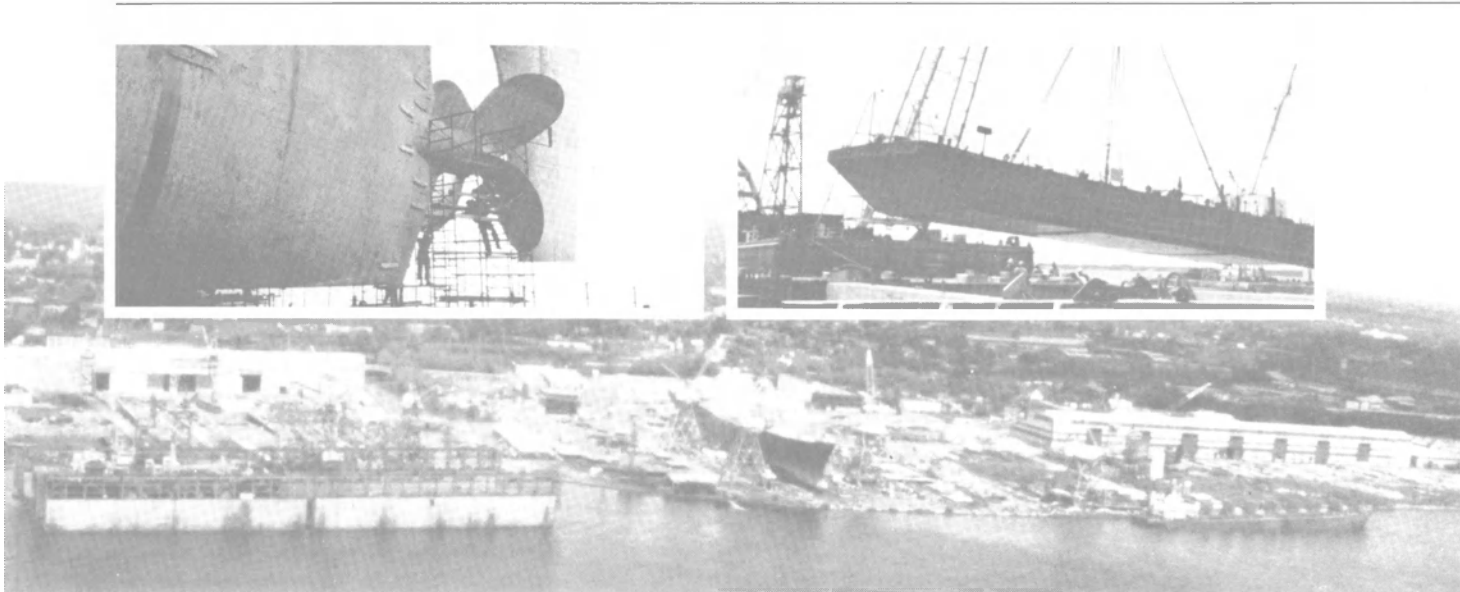


Gary Hoglund

**Gary E. Hoglund** has been appointed senior vice president-finance and administration for Dillingham Maritime. He previously served as vice president-finance for the Seattle-based Foss Launch & Tug Company, a Dillingham company. He has been with Foss since 1970.

In his new position, Mr. **Hoglund** will be responsible for the finance and administration functions for all U.S. Dillingham Maritime companies.

Dillingham maintains a U.S.-flag fleet of some 100 tugs and more than 100 barges, and serves major ocean transportation markets including the U.S. West Coast, Alaska, Hawaii, the Pacific, the Gulf of Mexico, and Central and South America. In addition, the company has major ship repair facilities in Portland, Ore., and Honolulu.



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## Sperry Marine Systems Plans To Acquire Navidyne

Sperry has announced that it intends to acquire the assets of Navidyne Corporation of Newport News, Va. Navidyne develops, sells, services, and operates marine electronic navigation and communications systems. The firm had 1983 sales of approximately \$5 million. The Newport News company will be operated as part of the Marine Systems Division of Sperry's Aerospace & Marine Group. MSD is headquartered in Charlottesville, Va.

The terms of the proposed acquisition were not disclosed.

**Joseph J. Campanella**, Group president, said the addition of Navidyne will help Sperry towards its goal of expanding and diversifying its commercial business. "The communications segment, particularly satellite communications, offers us an excellent opportunity with promising growth potential," he said. A principal Navidyne product is a shipboard satellite communications system, and all of the company's activity is in the commercial maritime industry.

## Executive Appointments Announced At HUD



Y. C. Chiu

Following the recent appointment of **Robert Smith** as managing director, Hongkong United Dockyards Ltd. (HUD) has announced executive management changes.

**Y.C. Chiu**, who has been with HUD since 1950, has been appointed commercial manager of the dockyard. A naval architect and marine engineer, he has held various posts at HUD including business manager and estimating and technical services positions.

**G.R. Gough** has been named executive manager-finance and administration. He joined HUD in 1978 as finance manager, and had previously been with the Hong Kong Government and Her Majesty's Forces.

**C.B. Harris** remains executive manager-marine operations. A naval architect, he has been at HUD since 1964 in various positions in the production management area, as well as in technical services and estimating posts.

**Mr. Smith**, who joined HUD in 1970, became managing director in

September 1984. An accountant by profession, he held various accounting positions at HUD, including finance director, before becoming executive director-group operations.

## Herman Of Mobil Shipping Named Chairman Of AIMS—Lengyel Remains President

**Albert J. Herman**, vice president of Mobil Shipping and Transportation Company, a subsidiary of Mobil Oil Corporation, has been elected chairman of the board of the American Institute of Merchant Shipping (AIMS) for a one-year term. A graduate of the State University of New York Maritime College at Fort Schuyler, he has been with Mobil since 1961.

Newly elected to the AIMS board is **Frank J. Iarossi**, president of Exxon Shipping Company. **Ran Hettena**, president of OSG Bulk Ships, Inc., and **Richard T. du Moulin**, executive vice president and director of OMI Corporation, were re-elected for three-year terms.

AIMS incumbent officers **Thomas J. Lengyel**, president, **Ernest J. Corrado**, vice president, and **Roseann Pazak**, secretary-treasurer, were all re-elected.

Other AIMS board members for 1985 are: **J.A. Cole Jr.**, vice-president-marine, Texaco Inc.; **A.B. Kurz**, president, Keystone Shipping Company; **Capt. Charles M. Lynch**, president, ARCO Marine, Inc.; **Joseph D. Mazzei**, general manager/president, Sun Transport, Inc.; and **George P. Steele**, president, Interocean Management Corporation.

AIMS membership consists of 24 U.S. shipping companies representing nearly 10 million dwt of oceangoing ships that fly the American flag.

## New Book On Radar Published By Cornell Maritime Press

A new book on radar, "The Radar Book" by experienced mariners **Max H. Carpenter** and **Samuel M. Van Wyck**, was published recently by Cornell Maritime Press of Centreville, Md. Both authors teach at the Maritime Institute of Technology and Graduate Studies in Linthicum, Md.

The book provides instruction in the use of radar as a tool for basic collision avoidance, plotting, navigation, and piloting. It also includes several self-testing quizzes, and it contains scores of diagrams of actual radar plot situations, related to actual experiences. Of special interest to the professional is the section devoted to preparation for passing the U.S. Coast Guard licensing ex-

aminations, both in written form and in the simulator.

The Radar Book is available from Cornell Maritime Press, Centreville, Md. 21617, at \$17.50.

## Brown Named General Manager Of Uniroyal's Engineered Systems Unit



Carl R. Brown

**Carl R. Brown** has been appointed to the newly created position of general manager for the Engineered Systems business unit of Uniroyal's Plastic Products Division, according to vice president and general manager **Al Weber**.

**Mr. Brown** will have direct responsibility for sales, marketing, and product development of Engineered Systems' line of specialty high-performance products for the marine, transportation, and aviation industries. He will oversee operations and will coordinate the activities of the unit's manufacturing superintendent in Mishawaka, Ind., and the factory manager at Uniroyal's Warsaw, Ind., plant.

A 19-year Uniroyal veteran, he was most recently business manager for the Adhesive and Rubber Specialties business unit. He has a BS degree in chemistry from Cumberland College and earned an MBA degree at Indiana University.

Engineered Systems manufactures Sealboom<sup>®</sup> oil spill containment systems, SealTank<sup>®</sup> portable transportation tanks, and marine fendering systems.

## TACH-IV Wide Range Non-Contact Tachometer Offered By Monarch —Literature Available

Monarch Instrument of Amherst, N.H., is offering free literature on the TACH-IV digital optical tachometer the company produces. One of the widest speed measuring ranges of any portable non-contact tachometer and a simultaneous maximum hold capability are two of the unique features that make the Model TACH-IV digital optical tachometer one of the most versatile instruments ever available for the instrument engineer.

The TACH-IV's ability to meas-

ure speeds from 5 rpm to 500,000 rpm makes it suitable for every application throughout industry, from adjusting extremely slow variable speed drives, to checking motor and pump speeds, to measuring very high-speed turbines. The TACH-IV's simultaneous maximum capability makes it also capable of capturing peak speeds, a feature particularly useful in setting speed governors of overspeed trip switches.

A unique self-test program that checks and displays key functions of the instrument is made possible by TACH-IV's micro-processor control, which also provides accuracy of .01 rpm, resolution of up to .0001 rpm, and a memory recall feature.

TACH-IV is designed to provide convenient portable operation in its padded carrying case, or semi-permanent operation by means of the remote mounting and control feature provided.

For free copies of the literature and additional information on the TACH-IV digital optical tachometer from Monarch Instrument,

Circle 26 on Reader Service Card

## Baldt Introduces New Rapid Release System —Literature Available

Baldt Incorporated of Chester, Pa., recently introduced the second generation MOOR-FREE<sup>™</sup> II rapid release system, the latest in a series of developments that allow rig operators to free a vessel from its moorings instantaneously. Significant improvements were implemented into the original MOOR-FREE system to provide longer service life and increased flexibility. The new system is illustrated and described in detail in a new four-page, two-color Engineering Innovations technical bulletin (#005) offered free of charge by the company.

An increased battery life of approximately six months, and the ability to position the disconnect link anywhere in the chain length are two product refinements that were developed to make the new unit a permanent part of the active system. As with the original system, MOOR-FREE II combines advanced acoustic detonation technology with the performance-proven Baldt chain connecting link concept. The system is totally self-contained and requires no outside assistance from supply/support vessels.

Baldt's continuing research, development, and testing for MOOR-FREE II have resulted in a system that provides: instantaneous release of vessel moorings; Grade 4 compatibility; Extended battery life; increased operating depth of 2,500 feet; maximum flexibility; and maximum efficiency.

MOOR-FREE II system components include Baldt's unique disconnect link, detonating bolt assembly, acoustic transducer, and command transmitter.

For further information and a free copy of bulletin #005,

Circle 29 on Reader Service Card

## EPSCO Gets Navy Order For Navigation Plotters

EPSCO, Incorporated of Westwood, Mass., has announced the receipt of an \$877,435 follow-on order for the manufacture of its large Integrated Navigation Plotters (INP).

The Model 4436 INP will be used on the U.S. Navy's new YP Class training vessels under construction at Peterson Builders for use at the Naval Academy in Annapolis. Automatic tracking of a vessel's course in either latitude/longitude or Loran C time difference is displayed on a 31-by 36-inch flatbed plotting surface. Microprocessor-controlled inputs, including multiple destinations, speed, cross track errors, compass corrections, etc., will be displayed. In its initial form, the YP's plotters will receive their position information from either satellite navigation receivers or Loran C receivers.

The new YP Class is just one application for the EPSCO INP. Initial plotter orders have been received recently for the Navy's new Patrol Boat Multi-Mission (PBM) craft. The INP may also be interfaced with multiple sources of navigation and target information including radar, sonar, gyrocompass/speed log, and the IEEE bus.

EPSCO designs and manufactures microwave components and systems, special test and simulation equipment, and navigation systems for both military and commercial markets.

# PROPULSION UPDATE

## Marine Jet Drives Offer Unique Advantages

In the late 1950's a company, Buehler, used patent and manufacturing rights from New Zealander **John Hamilton** to produce a line of water jet propelled boats and larger jet units which gained limited acceptance in the commercial and military fields.

Other firms soon entered the competition including Jacuzzi Bros. The period between 1960 and 1983 was active for people who built jet drives.

In 1982 Jacuzzi made the decision to discontinue manufacture of their Marine Drive Systems. Considering their considerable success in the commercial and military market, the decision surprised many people.

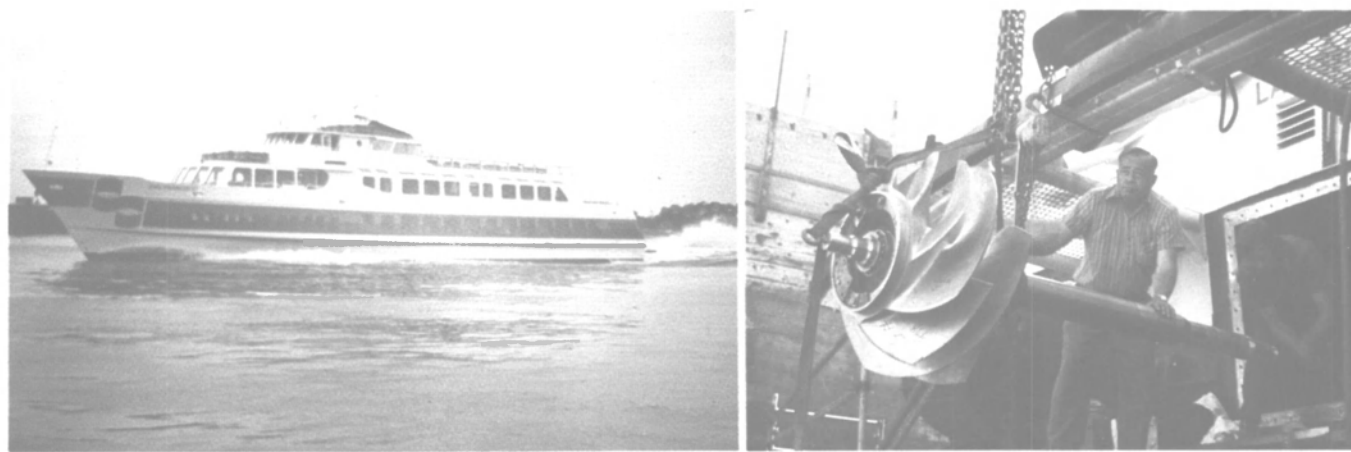
**Len Hill**, who was the Marine Jet Product Manager at Jacuzzi, was able to purchase the Jacuzzi Marine Jet product line and manufacturing rights. He then formed a new company, North American Ma-

rine Jet, Inc., located in Benton, Arkansas.

North American Marine Jet manufactures a full line of water propulsion drives, ranging from the Nomera 12 for automotive marine engines to the Nomera 20 which is used with engines such as the Detroit Diesel 92 series, M.A.N. and other lighter weight 2300 RPM engines.

Based on increasing interest in jet drives for applications throughout the world, North American is concentrating their efforts on military and commercial applications using the Nomera 14 and 20 unit either "stock" or with custom modification. These units are the Jacuzzi design with design detail improvements for increased horsepower capacity, longer component life and better performance potential.

(continued on page 46)



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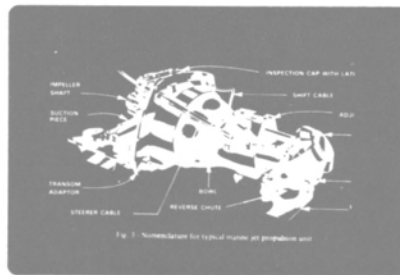
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## Marine Jet Drives

(continued from page 45)

years into business, North American has Nomera 20 modified units installed in the Canadian Forces Bridge Erection Combat support boats, with additional vessels projected. Units are also specified for boats being built in Korea, Japan, Thailand and for South America.

Experience of the long term and varied nature forms the management team for North American. Complementing Mr. Hill's strong marine jet background is **Jack Seastrom**. Mr. Seastrom has a background ranging from retail dealer through boat manufacturing at Kenner Boat Co., Marine Jet at Jacuzzi and operations with Offshore Logistics. His marine design skills are important to the engineering applications information needed by many North American Marine Jet customers.



North American Marine Jet will cite a host of advantages possible in a well engineered vessel, and just as quickly hesitate to recommend against or suggest changes when an application does not have the potential to fulfill expectations. Examples of success with proper applications include the U.S. Navy P.B.R. Program. Over 500 vessels were produced for the Navy since the late 1960's. This vessel is still operational throughout the U.S., Asia, the Mideast and in the South Americas. It is believed 80% of the vessels are still in service, some of them over 15 years old. Additionally, several countries are building new vessels

sion drives, and new markets in water areas worldwide where shallow draft, freedom from debris damage, operation at low tide and lack of drydock facilities are a consideration.

The use of jets eliminates, from the flywheel back, the gearbox, propeller shaft, strut, propeller, rudder and related hardware. This effectively eliminates costs associated with any damage to this hardware and downtime resulting from operations in shallow or debris prone areas.

The company reports, on the Nomera 20, the cost of the jet drive unit itself is a trade-off against eliminated hardware. The ability to operate in previously inaccessible areas, the opportunities for time/cost saving shallow area operations and the elimination of downtime are pluses.

For a free color brochure fully detailing specifications and performance statistics for North American Marine Jet's line of propulsion drives,

Circle 33 on Reader Service Card

# ANNOUNCING...

Combustion Engineering, Inc. and Murray Tube Works Inc., Boiler Tube Company of America and Senior Engineering Group plc. are pleased to announce that they have amicably resolved the disputes involved in Civil Action No. 1-83-577 in the United States District Court for the Eastern District of Tennessee, Southern Division, at Chattanooga, Tennessee.

By the terms of a settlement agreement, Combustion has granted to Murray Tube, Boiler Tube, and Senior Engineering Group the rights to receive Combustion proprietary engineering drawings from owners of Combustion fossil-fueled boilers and to use certain drawings for the manufacture and fabrication of boiler replacement parts, for an initial period of ten (10) years. Combustion will be paid a mutually agreed consideration for the additional benefits the companies have received.

The agreement extends to all drawings now in the possession of Murray Tube and Boiler Tube, as well as to the drawings furnished to them by Combustion boiler owners during the term of the agreement.



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from the old design.

One highly successful commercial operation is a fleet of 5 triple 20Y powered crew boats operating in the South China Sea. Mr. **Seastrom** was operations manager there and can cite figures indicating 100% utilization over periods longer than a year. Crossing a shallow river bar several times a day, the crewboats performed at speeds equal to the twin screw crewboats which were restricted to a deep water port 100 miles away. According to Mr. **Seastrom** the boats ran every day, kept well within maintenance allowances and operations records indicated costs (overall) were comparable to twin screw 80's Mr. **Seastrom** also managed.

The Navy has a fleet of little publicized armored personnel vessels. There are several timber companies using jets, the company also works with the Corps of Engineers, fire departments in Portland and New Orleans, service contractors on the Mississippi river; and many other operators.

Future plans include a new generation patrol boat, new water propul-



## Sohn Named President Of Hyundai Mipo Dockyard



Myung-Won Sohn

**Myung-Won Sohn**, formerly executive vice president of Hyundai Heavy Industries Company, Ltd., has been appointed president of Hyundai Mipo Dockyard Company, responsible for the management of the world's largest shiprepair yard.


He joined HHI in 1980 as senior vice president responsible for directing and controlling all activities of the company's Offshore & Steel Structure Division, including engineering, production, and business development.

Mr. **Sohn** holds an MS degree from Catholic University in Washington, D.C., and has been an engineer with several American firms, including Westinghouse subsidiary Tcom Corporation. Prior to going to Korea to join Hyundai, he had been for six years president of Neubauer-Sohn Consulting Engineering Company.

Former Hyundai Mipo president **Choong-ky Paik** has been named an advisor to the company.

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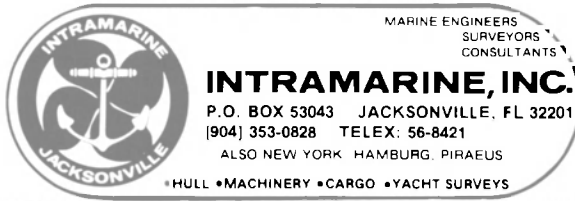
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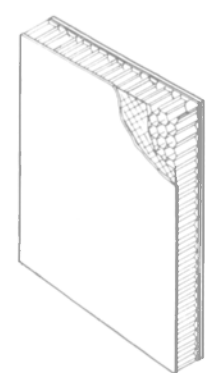
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## Moran Expands Container Barge Service To Ports Of Philadelphia And Baltimore



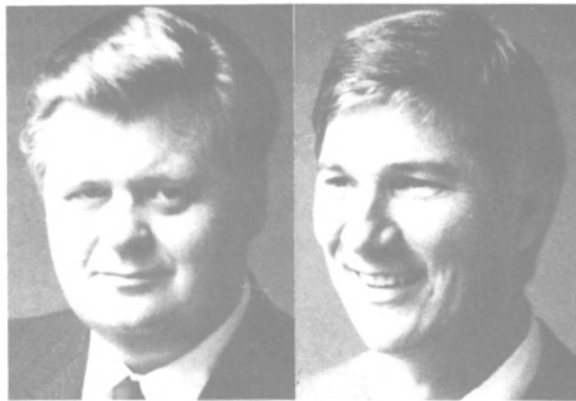
Moran Container Services Company, a subsidiary of Moran Towing and Transportation Company, Inc., has announced the expansion of its trade routes to Philadelphia and Baltimore. The company will load containers for this service in New York at the Global Marine Terminal, destined for Northern Shipping Terminal in Philadelphia and the Dundalk Marine Terminal in Baltimore.

Moran entered the container feeder barge service last year, operating between New York and Boston. The company's Barge 411 (shown above) has a capacity of 748 TEUs, and is said to be the largest LO/LO container barge now operating under the American flag. Moran plans to add additional routes and barges to the service as customers' need and market conditions dictate.

Manager of Moran Container Services Company is **Charles Cumming**, a graduate of the U.S. Merchant Marine Academy. He also holds an MBA degree from Northwestern University and an MS degree from SUNY Maritime College at Fort Schuyler. Prior to joining Moran he was manager of marine operations for Northern Europe with Sylvan Shipping Company.

## Hackney And Spath Appointed Vice Presidents At Beier Radio

The Board of Directors of Frank L. Beier Radio, Inc., a New Orleans-based marine electronics sales and service firm, has announced the appointment of two new vice presidents and the promotion to management positions of three other employees.



David C. Hackney

Louis Spath

**David C. Hackney** has been named vice president of sales and product development. With the company since 1967, he was formerly sales manager. He will continue to be involved with sales administration, but will now devote more of his time to developing new or different markets for Beier's present product lines, and searching out and developing new products in the marine electronics field.

**Louis Spath**, formerly corporate service manager, is now vice president of service. He has been with the company since 1973 when he joined as service manager in the Cut Off (Louisiana) office.

**Ted Murphey**, a sales representative in the Morgan City, La., office since 1976, has been named sales manager. He will be responsible for company-wide sales management but will continue to be based in Morgan City.

**Eric Kostelak** has been appointed senior technical advisor, responsible for technical

training of all personnel regarding the new high-tech products being developed and promoted by Beier Radio. He was formerly New Orleans service manager.

**Gary Yokum** is now service manager for the New Orleans office. He has been with the company since 1976, serving as a sales representative and regional sales manager.

## Henschel Dedicates New Combined Facility At New Location in Newburyport

Henschel Corporation, a unit of General Signal, recently dedicated its new plant in Newburyport, Mass. The newly constructed facility combines office, design, research and development, and manufacturing spaces. Henschel's move to this new location in historic Newburyport follows 50 years of operation in nearby Amesbury, Mass.

The modern, single-level building contains 82,000 square feet and is located on 24 acres of land in an industrial park. The company's 190 employees occupy this entire facility.

Henschel president **George U. Curry** stated that the new facilities will support the company's emphasis on advanced design work. This modern plant will improve its capability to design and manufacture the latest in electronic equipment. The facility contains a complete CAD/CAM installation, electrical/electronic assembly areas, full machine shop, and foundry. The plant is organized for efficient manufacture of Henschel's traditional line as well as new electronic products.

Henschel has been a leader in the design and manufacture of marine products since 1919. Its ship control and interior communications equipment and systems are sold worldwide and used aboard both Navy and merchant ships.

For additional information on Henschel and its products,

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Petrochemical Services, Inc., 3820 Dauphine St., New Orleans, LA 70117

Petroferm Marine, Route 2, Box 280, Amelia Island, FL 32034

Phosmarine Equipment, 21 Bd. de Paris, 13002, Marseille, France

Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044

Seaward International, 5409 Beamon Rd., Norfolk, VA 23513 TX: 710-881-1182

Taylor Diving & Salvage Co. Inc., 701 Engineers Rd., Belle Chasse, LA 70037

## HYDRAULICS

Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202

Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116

Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224

CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030

Del Gaudio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07067

C.D.I. Marine Co., 5520 Los Santos Way, Suite 600, Jacksonville, FL 32211  
C.T. Marine, 18 Church Street, Georgetown, CT 06829  
Phillips Cartner & Co., Inc., 203 So. Union St., Alexandria, VA 22314  
Century Engineering, Inc., 32 West Rd., Towson, MD 21204  
Childs Engineering Corp., Box 333, Medfield, MA 02052  
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, MA 02026  
Crane Consultants Inc., 15301 1st Ave., So. Seattle, WA 98148  
C.R. Cushing, 18 Vesey St., New York, NY 10007  
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129  
Designers & Planners, Inc., 1725 Jefferson Davis Highway, Suite 700, Arlington, VA 22202  
ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401  
Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706  
Fleetweather Ocean Services, Inc., Rd. #2, Box 260, Hopewell Junction, NY 12533  
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, NY 11050  
Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001  
John W. Gilbert Associates, Inc., 66 Long Wharf, Boston, MA 02110  
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104  
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480  
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107  
Hamilton Cornell Associates, Box 188, Snug Harbor Station, Duxbury, MA 02331  
J.J. Henry Co., Inc., 40 Exchange Place, New York, NY 10005  
Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921  
HydroComp, Inc., 10 Cutts Road, P.O. Box 865, Durham, NH 03824  
Inframarine, Inc., P.O. Box 53043, Jacksonville, FL 32201  
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073  
Jantzen Engineering Co., 6655-H Amberon Drive, Baltimore, MD 21227  
J.L. Konopasek & Associates, 3523 Scrimshaw Dr., Jacksonville, FL 32217  
James S. Krogen & Co., Inc., 3333 Rice St., Miami, FL 33133  
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225  
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063  
John J. McMullen Associates, Inc., 1 World Trade Center, New York, NY 10048  
McLear & Harris, Inc., 28 West 44 Street, New York, NY 10036  
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401  
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, OH 44114  
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, NY 11746  
Marine Power Associates, 4475 Mission Blvd., Suite 235, San Diego, CA 92109  
Marine Technical Associates, Inc., 95 River Rd., Hoboken, NJ 07030  
George E. Meese, 194 Acton Rd., Annapolis, MD 21403  
R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003  
NKF Engineering Assoc., Inc., 8150 Leesburg Pile, Vienna, VA 22202  
Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169  
New England Engineering & Marine Services, Rt. 2, Box 50, York, ME 03909  
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  
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117  
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 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  
Schmahl & Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 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 Systems, Inc., 28 Main St., Essex Ct. 06426; 17 Battery Place, N.Y. N.Y. 10004, P.O. Box 205, Solomons, MD 20688  
Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004  
George G. Sharp, Inc., 100 Church St., New York, NY 10007  
Simmons Associates, P.O. Box 760, Sarasota, FL 33578  
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
J.F. Stroschein Associates, 666 Old Country Rd., Garden City, NY 11530  
Richard R. Taubler, Inc., 610 Carriage La., Dover, DE 19901  
Timsco, 622 Azalea Road, Mobile, AL 36609  
Tracor Hydraulics, Inc., 7210 Pindell School Rd., Laurel, MD 20707  
Thomas B. Wilson, Associates, 1258 North Avolon Blvd., Wilmington, CA 90744

**NAVIGATION & COMMUNICATIONS EQUIPMENT**  
American Hydromath Co., Buckwheat Bridge Rd., Germantown, NY 12526  
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080  
British Telecom International, The Holborn Centre, 120 Holborn, London EC1N 2TE  
CMC Communications Inc., 5479 Jetport Industrial Blvd., Tampa, FL 33614  
COMSAT World Systems, 950 L'Enfant Plaza, S.W., Suite 6151 Washington, DC 20024  
A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway  
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
General Electric Company, Mobile Communications Division, Lynchburg, VA 24502  
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610  
Henschel Corp., 9 Hoyt Drive, Newburyport, MA 01950  
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631  
ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202  
Japan Radio Co., Ltd., Akasaka Twin Tower, 17-22, Akasaka 2-chome, Minato-ku, Tokyo 107, Japan U.S. Rep: 405 Park Ave., New York, NY 10022  
Kongsberg North America Inc., 400 Oser Ave., Happpauge, NY 11738  
Kongsberg Vopfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway  
Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065  
Micrologic, 20801 Dearborn, Chatsworth, CA 91311  
Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729  
Navigation Sciences Inc., 6900 Wisconsin Ave., Bethesda, MD 20815 TX: 705999  
Perko Inc. (Lights), P.O. Box 6400D, Miami, FL 33164  
Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033  
Raytheon Marine Co., 676 Island Pond Road, Manchester, NH 03103  
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914  
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061  
Robertson Autopilot, 400 Oser Ave., Happpauge, NY 11738  
Simrad, Inc., 2208 N.W. Market St., Suite 600, 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**  
Exxon Company, U.S.A., Room 2323 AH, P.O. Box 2180, Houston, TX 77001  
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001

Gulf Oil, New York District Sales Office (Domestic), 433 Hackensack Avenue, Hackensack, NJ 07601  
Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022  
Mobil Oil Corp., 150 East 42 Street, New York, NY 10017  
Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 10017

**OIL/WATER SEPARATORS**  
Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024  
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  
Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127  
Hyde Products, Inc., 810 Sharon Dr., Westlake, OH 44148  
Microphor, Inc., P.O. Box 490, Willits, CA 95490  
Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696  
Peck Purifier Sales Co., 3724 Cook Blvd., Chesapeake, VA 23323

**PAINTS—COATINGS—CORROSION CONTROL**  
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111  
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754  
A.W. Chesteron Co., Middlesex Industrial Park, Rt. 93, Stoneham, MA 02180  
Chugoku Marine Paints (U.S.A.) Inc., 1290 Ave. of Americas, New York, NY 10104  
CLEMCO, P.O. Box 7680, San Francisco, CA 94120  
"CONSOL" manufactured by Contact Paint & Chemical Co. Inc., 200 S. Franklinton Rd., Baltimore, MD 21223  
Dampney Company, Inc., 85 Paris St., Everett, MA 02149  
Devoe Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207  
Drew Ameroid Marine, One Drew Chemical Plaza, Boonton, NJ 07005  
E.I. DuPont De Nemours & Co., Inc. Nemours Bldg., Rm. N-2504-2, Wilmington, DE 19898  
DuPont Co. MPS, Room X40750, Wilmington, DE 19898  
Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA 94080  
Farboil Company, 8200 Fischer Rd., Baltimore, MD 21222  
Gidden Coatings & Resins, Architectural & Maintenance, 925 Euclid Ave., Cleveland, OH 44115  
Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 6868 NorthLoop East, Suite 304, Houston, TX 77028; P.O. Box 10265, New Orleans, LA 70181  
International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083  
Jotun Marine Coatings Inc., 840 Key Hwy., Baltimore, MD 21230  
Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650  
Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470  
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490  
Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203  
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143  
Sermatech International, 4401 SermeTel Dr., Moss Point, MS 39563

**PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings**  
Amermarine International, P.O. Box 9205, Dundalk, MD 21222  
Deutsch Metal Components, 14800 S. Figueroa St., Gardena, CA 90248  
Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063  
Selkirk Metalbestos, Box 19000, Greensboro, NC 27419  
Tioga Pipe Supply Co. Inc., 2450 Wheatshaf La., P.O. Box 5997, Philadelphia, PA 19137

**PLASTICS—Marine Applications**  
Hubeva Marine Plastic, Inc., 390 Hamilton Ave., Brooklyn, NY 11231  
Norton Chemplast, 309-150 Dey Rd. Wayne NJ 07470

**PLYWOOD**  
Simpson Timber Co., Third and Franklin, Sheton, WA 98584

**PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears Propellers, Shafts, Turbines**  
Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105  
Aquamaster Inc., 4125, 9th Avenue N.W. Seattle, WA 98107  
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043  
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150  
Bergen Diesel Inc., 2110-10 Service Rd., Kenner, LA 70062  
Bird-Johnson Company, 110 Norfolk St., Walpole, MA 02081  
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202  
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
Capitol Gears, 349 N. Hamline Ave., St. Paul, MN 55104  
Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629  
Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227  
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, CT 06095  
Coolidge-Stone Vickers, Inc., 56 Squirrel Rd., Auburn Hills, MI 48057  
Daihatsu Diesel (USA) Inc., 180 Adams Ave., Hauppauge, NY 11788  
Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340  
Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505  
George Engine Company, Inc., Lafayette, LA  
General Motors, Electro-Motive Division, LaGrange, IL 60525  
Goltan Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231  
Isotta Fraschini S.p.A., c/o Italian Aerospace Industries (U.S.A.), Inc., 1235 Jefferson Davis Hwy., Suite 500, Arlington, VA 22202  
KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada  
KaMeWa, P.O. Box 1010, S-68101, Kristinehamn, Sweden  
KaMeWa, 1800 West Loop So., Suite 1620, Houston, TX 77027  
Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323  
M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Holeyb, 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  
North American Marine Jet P.O. Box 1232 Benton, AR 72015  
Omnitruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670  
Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054  
Penske GM Power, Lodi N.J., 180 Rt. 17 South, Lodi, NJ 07644  
Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201  
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  
Stewart & Stevenson Services, Inc., P.O. Box 1637, Houston, TX 77251-1637  
Sulzer Brothers, Diesel Engines, CH-8401 Winterthur, Switzerland  
Tech Development Inc., 6800 Poe Ave., P.O. Box 14557, Dayton, OH 45414  
Transamerica Delaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621

Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, NJ 08650  
Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway  
Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021  
Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647  
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

**PUMPS—Repairs—Drives**  
Allweiler Pump Inc., 5410 Newport Dr., Rolling Meadows, IL 60008 TX: 270-0444  
Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224  
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030  
Goltens, 160 Van Brunt St., Brooklyn, NY 11231  
Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127  
Ingersoll—Rand Pump Group, Dept. B—346, Washington, N.J. 07882  
Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101  
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238  
Sims Pump Valve Co., Inc., 1314 Park Ave., Hoboken, NJ 07030  
Transamerica Delaval, Pyramid Pump Div., 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, Colton, CA 92324

**REFRIGERATION—Refrigerant Valves**  
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, NY 11231

**ROPE—Manila—Nylon—Hawser—Fibers**  
A.L. Don Co., Foot of Dock St., Matawan, NJ 07747  
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  
Samson Ocean Systems, Inc., 99 High Street, Boston, MA 02110  
Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666  
Tubbs Cordage Co., P.O. Box 7986, San Francisco, CA 94120-7986  
Vermeire N.V. Industriepark Zwaarveld, B-9160 Hamme, Belgium TX: 21687  
Wall Industries, Inc., P.O. Box 560, Elkin, NC 28621

**SANITATION DEVICES—Pollution Control**  
Davit Sales Inc., P.O. Box 232, Jefferson Valley, NY 10535  
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111  
FAST Sewage Systems, Div. of St. Louis Ship, 611 East Marceau St., St. Louis, MO 63111  
Golar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway  
Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127  
Marine Moisture Control Co., Inc., 60 Inip Dr., Inwood, L.I., NY 11696  
Marland Environmental Systems, P.O. Box 501, Great Falls, VA 22066  
National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105

**SCAFFOLDING EQUIPMENT—Work Platforms**  
McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238  
Trus-Joist Corp., P.O. Box 60, Boise, ID 83704

**SCUTTLES/MANHOLES**  
Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

**SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT**  
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081  
Crane Packing Company, 435 Regina Dr., Clarksberg, MD 20734  
Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470

**SHIPBREAKING—Salvage**  
Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217  
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

**SHIPBUILDING EQUIPMENT**  
Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116  
Cockatoo Dockyard Pty. Ltd., P.O. Box 1139, North Sydney, NSW 2060, Australia TX: 72086  
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156  
Total Transportation System Inc., 813 Forest Dr., Newport News, VA 23606  
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 248, N 5201, Os, Norway

**SHIPBUILDING STEEL**  
Armco Steel Corp., 703 Curtis St., Middletown, OH 45042  
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
United States Steel Corp., Christy Park Plant, 2214 Walnut St., McKeesport, PA 15132  
Welded Beam Company, P.O. Box 280, Perry, OH 44081

**SHIPBUILDING—Repairs, Maintenance, Drydocking**  
Amsterdam Drydock Company, Post Box 3006, 1003 AA, Amsterdam, Holland  
Arsenale Triestino-San Marco Shipyard, Trieste, Italy, U.S. Rep: Marine Technologies & Brokerage, 33 Rector St., New York, NY 10066  
Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.  
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150  
Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116  
Bath Iron Works Corp., 700 Washington St., Bath, ME 04530  
Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601  
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C., Canada  
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Geneva, Italy  
Chesapeake Shipbuilding Inc., 710 Fitzwater St., Salisbury, MD 21801  
Conrad Industries, P.O. Box 790, Morgan City, LA 70380  
Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10040  
Daewoo International (America) Corp., 437 Madison Ave., New York, NY 10022  
Daewoo Shipbuilding & Heavy Machinery Ltd., Ayangri, Changsung-PO Koje-Kun, Kyungnam, Korea  
Davie Shipbuilding Ltd., P.O. Box 130, Levis, Quebec, Canada G6V6N7  
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London, Republic of South Africa  
Dubai Drydocks, P.O. Box 8988, Dubai, United Arab Emirates—U.S.A. Agents: Keppel Marine Agencies, Inc., 26 Broadway, New York, NY 10040, 6240 Richmond Ave., Houston, TX 77057  
Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401  
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, OR 97208  
Far East Livingston Shipbuilding Ltd., 31 Shipyard Rd., Jurong Town, Singapore 2262  
Genstar Marine, 10 Pemberton Ave., No. Vancouver, B.C., Canada V7P 2R1  
Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, MA 02725  
Goltan Marine Co., Inc., 60 Van Brunt St., Brooklyn, NY 11231  
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219  
Halter Marine, Inc., P.O. Box 29266, New Orleans, LA 70189  
Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan  
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  
Jakobson Shipyard Inc., P.O. Box 329, Oyster Bay, NY 11771  
Jeffboat Inc., Jeffersonville, Ind. 47130  
Jered Brown Brothers, Inc., 56 S. Squirrel Rd., Auburn Hills, MI 48057

Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409  
 Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094  
 Kone Corp., P.O. Box 6 SF-05801 Hyvinkaa, Finland  
 Paul Lindenau GmbH, & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany  
 Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134  
 M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany  
 Main Iron Works, Inc., P.O. Box 1918, Houma, LA 70361  
 Marinette Maine Corporation, Marinette, WI 54143  
 Mitsubishi Heavy Industries, Ltd., 5-1, Marunochi 2-chome, Chiyoda-ku, Tokyo, 100 Japan  
 MonArk Boat Co., P.O. Box 210, Monticello, AR 71655  
 Moran Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077  
 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, CA 92112  
 Nautilus Surveys Inc., 10822 Sageleaf Lane, Houston, TX 77089  
 Neorion Shipyards Syros Ltd., Syros, Greece-U.S.A. Agents: Keppel Marine Agencies Inc., 26 Broadway, New York, NY 10004, 6420 Richmond Ave., Houston, TX 77057  
 Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607  
 Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249  
 Pennsylvania Shipbuilding, P.O. Box 442, Chester, PA 19016  
 Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22  
 Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905  
 Rauma-Repola, 26100 Rauma 10, Finland  
 Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea  
 St. Louis Ship, 611 East Marceau St., St. Louis, MO 63111  
 Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113  
 Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601  
 Thomas Marine, 37 Bransford St., Patchogue, NY 11772  
 Todd Shipyards Corp., 1 State St. Plaza, New York, NY 10004  
 Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316  
 Vanguard Services, P.O. Drawer A, New Johnsonville, TN 37134  
 Verlme Estaleiros Reunidos Do Brasil S.A., Rua Buenos Aires, 68, Rio de Janeiro—RJ—Brazil  
 Verreault Navigation Inc., Les Mechains, Quebec, G0J 1T0  
 Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

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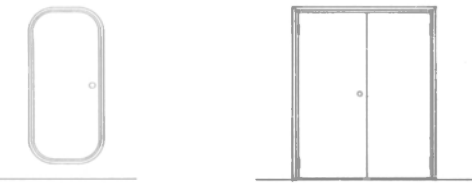
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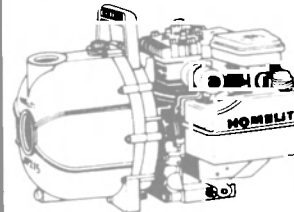
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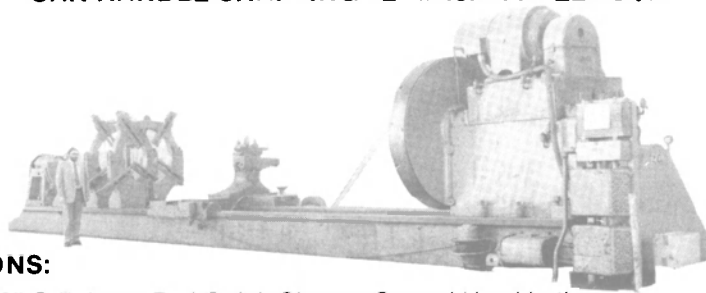
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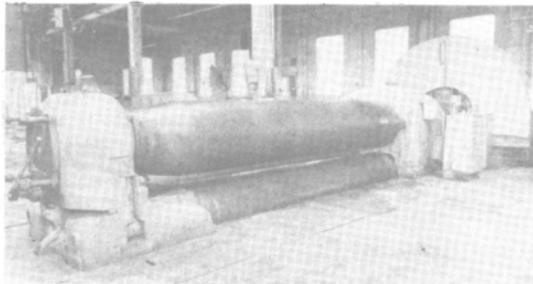
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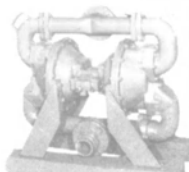
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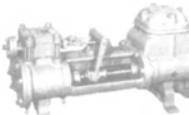


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5 1/4" x 4" x 5" mfg by Union; 5 1/2" x 4 3/4" x 5" mfg by Fairbanks-Morse.



### CRANE SCALES

50,000 & 200,000 lbs. Attach to hook.

## WATERTIGHT DOORS IN STOCK

### SIZES

26" x 48"                      26" x 66"  
26" x 60"                      30" x 60"  
5/16" Frame - 1/4" Panel

### STEEL DOGS

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



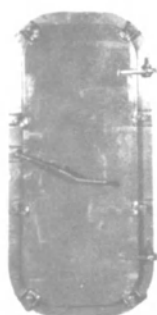
### QUICK ACTING

WHEEL OPERATED

LEVER OPERATED



6-DOG  
26" x 48"  
30" x 60"



8-DOG  
26" x 66"

IMMEDIATE DELIVERY  
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### NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)  
14" x 10" CLEAR OPENING

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

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## "Handy Size" Bulk Carrier Delivered By Mitsui Shipyard



The 27,622-dwt bulk carrier Sanko Daring (shown above) was delivered recently by Mitsui Engineering & Shipbuilding Company's Tomano Works to Panamanian owner Kisogawa Maritime S.A. She is the first of six sister ships ordered from MES by Kisogawa.

Built to Nippon Kaiji Kyokai classification, the Daring has an overall length of 552 feet, beam of 85.3 feet, depth of 44.7 feet, and full-load draft of 32 feet. Propulsion is provided by a Mitsui/B&W 6L50MCE diesel engine with a maximum continuous output of 7,500 bhp at 133 rpm. Trial speed was 16.5 knots.

The new bulk carrier is equipped with four 25-ton electrohydraulic deck cranes for efficient cargo handling. Nos 2 through 5 holds are equal in length to facilitate the loading of fixed-length items. Each hold is fitted with fixed cargo lamps fore and aft to reduce the need for installing temporary lighting during cargo-handling operations. Electrohydraulic folding type hatch covers are provided to reduce time and labor.

Bunkering the double bottom fuel tank is achieved by a gravity process utilizing a deep fuel oil tank on the starboard side of the engine room. This system effectively prevents fuel overflow from the fuel tank vent during cargo

loading. An MES loading calculator controlled by computer facilitates calculation of trim and stress of the hull.

The vessel is equipped with a satellite communication system and a collision-avoidance system, as well as normal navigation equipment.

## Cruise Ship Azure Seas Renovated At Southwest Marine's San Diego Yard



The cruise liner Azure Seas (shown above) was overhauled recently in Southwest Marine's ultra modern drydock Pride of San Diego. SWI workers repaired and renovated the vessel for about three weeks. The work included a new paint job and machinery repairs. Upon completion the ship returned to San Pedro to resume her cruise schedule to Mexico.

## WANTED

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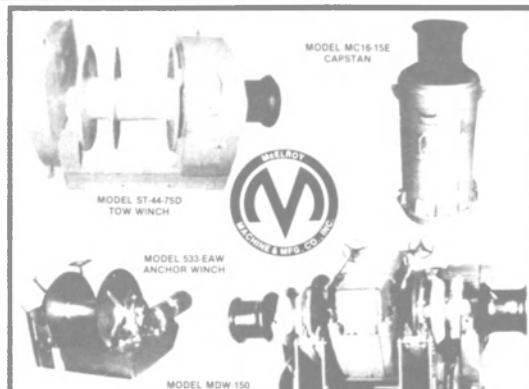
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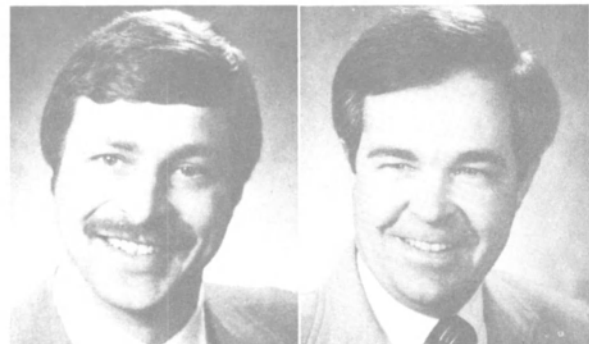
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## Michigan Wheel Announces Changes In Sales Department —Ronis Named General Manager

Charles A. Dykstra, general manager of Michigan Wheel Corporation, recently announced several changes in the Sales Department of the company.



Martin Ronis

William Herrick

**Martin Ronis** has been appointed general sales manager. He has been with the company for three years, previously holding a position with American Honda.

**William Herrick** has been named director of marketing services; he retains his position as Federal Propeller sales manager. He previously filled various sales positions.

**Donald Jackson** has joined the Sales Department and will be responsible for all service-related functions.

Michigan Wheel, based in Grand Rapids, is one of the world's largest suppliers of propellers, nozzles, towmaster nozzle rudder systems, and bow thrusters. The company serves both the commercial shipping and pleasure boating industries.





# FUTURE U.S. NAVY SHIP CONSTRUCTION

## Market Opportunities For Shipbuilders, Equipment Manufacturers, System Integrators And Engineering Firms

### New Report and Advisory Service

Available February 1985

Subscribers receive

- basic 200+ page report (outlined below)
- quarterly updates reporting important developments, program changes, analysis of contract awards
- advisory follow-up for clarification of recent developments

#### I. Introduction

- A. Historical pattern of naval ship procurement
- B. Market drivers—military needs, technical obsolescence, budget constraints, etc.
- C. Impact of technology
  1. Unit ship cost has risen vastly since 1960
  2. Systems more important than platform
  3. Electronics systems particularly growing in sophistication
  4. Weapons are increasingly more lethal and accurate
- D. Several important controversies
  1. Surface ship usefulness being questioned
  2. DOD trying to promote competition in procurement
  3. Insufficient work to support shipbuilding industry

#### II. Description of Current Players

- A. Shipbuilders
  1. Major surface combatants—Bath, Ingalls, Todd-LA
  2. Submarines—Newport News, GD-Electric Boat
  3. Carriers—Newport News
  4. Amphibious ships—Lockheed, Ingalls, Avondale
  5. Auxiliaries—GD-Quincy, NASSCO, Avondale, Tampa, Beth Steel Sparrows Pt., Pennship
  6. Small ships—Peterson, Marinette Marine, Bell-Halter, Todd-Seattle, Tacoma, others
  7. Patrol boats, landing craft and service craft—Boeing, Swiftships, Atlantic Marine, others
- B. Ship systems manufacturers
  1. Machinery—GE, Westinghouse, DeLaval, Colt
  2. Ordnance and Electronics—RCA, Litton, Sperry, GE Hughes, IBM, Raytheon, FMC, Honeywell, Rockwell, Gould, ITT, Interstate Electronics, Motorola, Sanders, Magnavox, Singer, GD-Pomona, Lockheed, Martin Marietta
- C. Engineering services
  1. Naval architects—AME, Adtech, Arinc, CASDE, D&P, Geo. Sharp, Gibbs & Cox, JJ Henry, JJMA, M. Rosenblatt, NKF, RAM
  2. Systems integration—Vitro, BBN, Booz Allen, C Cubed, Calculon, Columbia Research, EG&G, Essex, Milcom, ORI, Syscom, TRW, Westinghouse
- D. Summary of recent work distribution
  1. Top 200 contractors
  2. Top 50 ship system awards
  3. Top NAVSEA, NAVELEX, MSC engineering contractors

#### III. Procurement Process

- A. Organizations in DOD which impact on procurement
  1. OSD, SECNAV, CNO—how they relate
  2. Material Command—role of "Competition Czar"
  3. NAVSEA—role of SEA 06, 05, 02, PMS's—and SEA 08
  4. NAVELEX—role of PME's
  5. Planned reorganization, creation of Naval Combat Systems Command
  6. MSC—contracting office for T-ships
- B. The formal PPBS cycle
  1. Why introduced, how it works, is it effective
  2. Role of various DOD components, OMB, Congress
- C. NAVSEA's seven phase acquisition process
  1. Tied to PPBS cycle
  2. Provides points at which design is frozen (supposedly!)
  3. Makes early program entry important
- D. Recent variants to acquisition process
  1. Two step procurement
  2. Build/charter

#### IV. Projected Market

- A. Five year plan—analysis of business impact in 100 industries
- B. Analysis of major future ship programs
  1. DDG 51—lead ship decision imminent for 29 ship (\$20.30 billion) program, three contenders
  2. SSN 21—new submarine for 1990's, two contenders
  3. LPDX or modified LSD-41—amphibious ship planned for late 1980's

4. AE, AG, AOE, AR—auxiliaries planned, maybe conversions
  5. TAO, TAGOS—follow flight to be competed
  6. MSH—opportunities for subcontractors, second source expected
  7. Service craft—lots of opportunities
- C. Analysis of major ship systems now being procured or planned
    1. Ship mechanical systems—LM 2500 gas turbines (GE), reactor plants (GE, Westinghouse), diesel engines (Colt, Isotta-Fraschini), pumps (Worthington), condensers (DeLaval)
    2. Electronics—Aegis (RCA, Raytheon), control systems (Litton, GE), ASW systems (IBM, GE, EDO, Gould, Hazeltine, Raytheon, Honeywell), radar (Raytheon, ITT Gilfillan, Sperry, Cardion Electronics), SUBACS (IBM), navigation systems (Rockwell, Litton, Racel Decca), integrated radio room (RCA)
    3. Ordnance—Vertical launch system (Martin Marietta, FMC), torpedoes (Gould, Hughes, Honeywell), ASW stand-off weapon (Boeing), close-in weapons system (GD), missiles (GD, McDonnell Douglas, Lockheed, Raytheon)
  - D. Engineering services required in FY 1985
    1. Conceptual feasibility studies
    2. Preliminary design—repair ship (AR)
    3. Program design and engineering support—LOE contracts
    4. System integration support
  - E. Opportunities these programs offer
    1. Prime contracts—numerous opportunities available, emphasis on competition will help
    2. Subcontracts—many opportunities open to electronics firms, steel fabricators, pump manufacturers, machine shops and engineering firms
    3. Foreign firms—offset deals are very important
  - F. Sensitivity to future events
    1. Budget constraints—deficit will present increasing problem
    2. Surface ships—vulnerability big issue, could impact plan

#### V. Contracting Rules and Procedures

- A. Federal acquisition regulations and DOD FAR supplement—provides complete set of rules
- B. Contracting Methods
  1. Advertised procurement
  2. Negotiated procurement
  3. Types of contracts—fixed price, CPIF, CPAF, etc.
- C. Source selection process—path followed to award contract
- D. Set asides—small businesses, minority firms, labor surplus area
  1. Relevant rules
  2. How rules are implemented in NAVSEA
  3. Meaning to potential competitors
- E. Specifications
  1. Federal specifications, military specifications
  2. Qualified products list
- F. Buy American requirements
  1. Buy American Act
  2. Burns-Tollefson amendment
  3. Special legislative provisions—e.g., FY 1985 rules on LSV procurement
  4. Specialty metals restrictions
  5. Trade Agreements Act of 1979
- G. Defense cooperative agreements
  1. Memoranda of understanding
  2. Special agreement with Canada
  3. How foreign firms can utilize these agreements to sell into DOD programs

#### VI. Points Of Marketing Contact

- A. Navy Contacts—OPNAV, NAVMAT, NAVSEA, NAVELEX, MSC, SPCC, others
- B. Prime contractor contacts for subcontractors
  1. Shipyards—purchasing liaison
  2. Systems, equipment manufacturers—purchasing liaison
- C. Engineering and design firms—point of contact for early program contact

- Appendix A Detailed description of planning and acquisition process  
B Relevant DOD contracting forms  
C Detailed breakdown of 1985 Navy ship procurement, weapon procurement, other procurement, and research, development, test and evaluation budgets.

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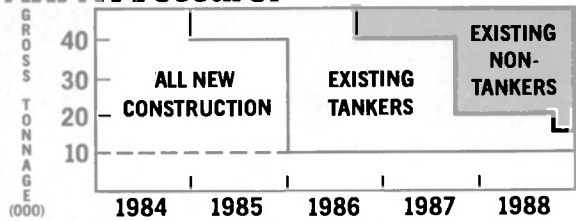
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True motion.  
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