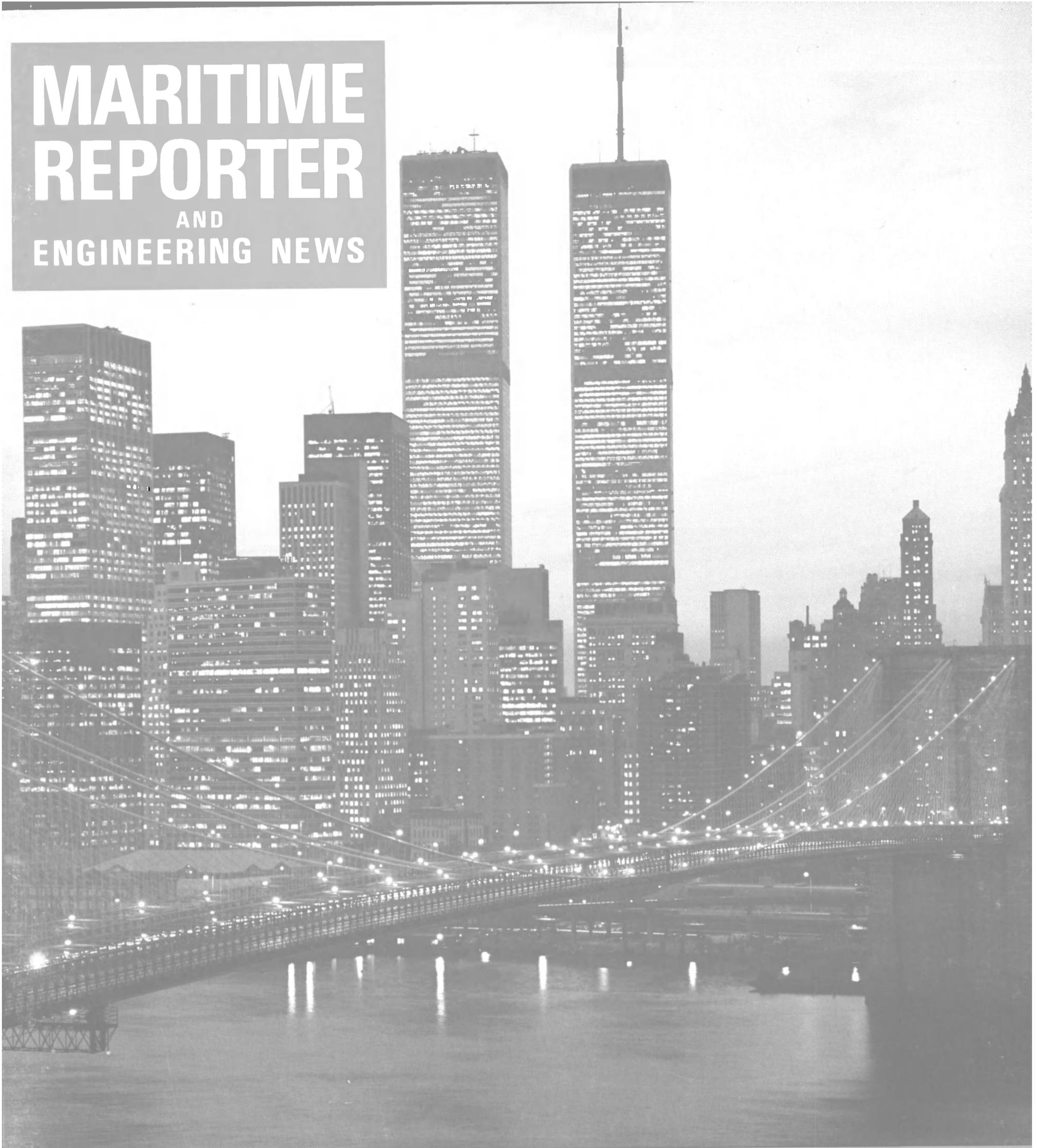


# MARITIME REPORTER AND ENGINEERING NEWS



View of New York Harbor

## 92ND SNAME ANNUAL

NOVEMBER 1, 1984 ISSUE

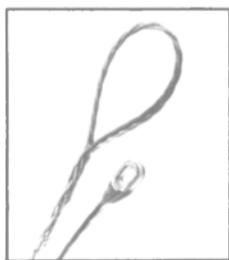
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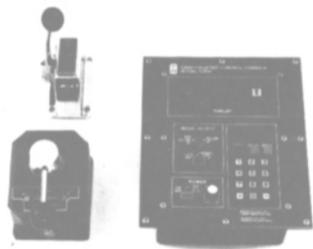


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# ON THE COVER

## 92nd SNAME Annual Meeting

PAGE 46

## AWO Perspective

PAGE 34

## E-Systems Awarded Navy Contract For \$6-Million

E-Systems of Dallas has received a Navy order valued at more than \$6-million for the production of varying quantities of 20 different module subassemblies for the AN/WSC-3 "Whiskey-3" UHF radio transceiver. The order was placed by the Naval Electronic Systems Command. The module subassemblies will be produced by the company's Communications Manufacturing Division at St. Petersburg, Fla.

The AN/WSC-3 is the standard UHF shipboard terminal for the U.S. Navy, and is widely used by allied naval forces. It is capable of both satellite and line sight transmissions.

## Worthington Fire Pumps Valued At \$5 Million Ordered For Navy Ships

The Worthington Custom Pump Operations in Harrison, N.J. will produce 179 fire pumps for the U.S. Naval Sea Systems Command, it was announced by **Robert V. Jeck**, president of the Worthington Division, McGraw-Edison Company. The specially designed shipboard pumps, with titanium casings, will be delivered starting in 1985. The order covering pumps and drive motors amounts to about \$5-million.

McGraw-Edison's Worthington Division is a leading manufacturer of compressors and pumps for the marine, petroleum, chemical, petrochemical, agricultural, electric utility, public works, natural gas, industrial air, pulp and paper, mining, pipeline and general industries. Worthington has 28 plants in 14 countries.

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## Saint John Shipbuilding Appoints Snyders VP And Manager, Shipbuilding Div.

J.K. Irving, chairman and chief executive officer of Saint John Shipbuilding Limited, has announced the appointment of Gilbert J. Snyders as vice-president and general manager of the Shipbuilding Division.

Mr. Snyders brings extensive experience in management to Saint John Shipbuilding. Formerly vice-president of Marinette Marine Corp. in Marinette, Wisc., Mr. Snyders led an organization which recently delivered 14 vessels ahead of schedule and under budget. As construction manager with Newport News Shipbuilding of Virginia, Mr. Snyders organized a workforce of more than 1,500 tradesmen for the successful construction of five nuclear-powered cruisers.

Mr. Snyders holds a BSE in marine engineering and naval architecture from the University of Michigan and is a graduate of the Executive Program of the University of Virginia's Graduate School of Business Administration.

Saint John Shipbuilding Limited has program management for the Canadian Patrol Frigate Program (\$3.85 billion) with three of the six new City Class frigates to be built at the Saint John Shipbuilding yard, in Saint John, New Brunswick, Canada. Saint John Shipbuilding is the lead yard for the program.

## Universal Metal Awarded \$394,593 MarAd Contract For Training Ship Repairs

The Maritime Administration has awarded a \$394,593 contract to Universal Metal Machine Works, Inc., Brooklyn, N.Y., to make repairs to the Empire State, the training vessel of the State University of New York Maritime College.

The work includes hatch repairs, wood deck renewal, and sun deck steel repairs and renewals. The repairs are required to meet American Bureau of Shipping and U.S. Coast Guard standards. The work is to be preformed while the ship is at berth at the Maritime College, Fort Schuyler, Bronx, N.Y., and is to be completed no later than November 16.

## Greller and Belt Promoted At Ashland Petroleum

Andrew H. Grellier and Rupert D. Belt have been promoted to new positions at Ashland Petroleum Company, the largest operating division of Ashland Oil, Inc., according to an announcement by Robert B. Keifer Jr., vice president, marine/surface transportation and facilities.

Mr. Grellier has been named manager, inland waterways transportation, and is responsible for managing traffic operations of Ashland's inland marine transportation division. In addition to his new duties, he will retain his responsibilities as president of TPT and Inland Towing Company, both marine transport operations of Ashland Pe-

troleum. He reports to Mr. Keifer in his new position.

Mr. Grellier joined Ashland in 1968 as executive vice president of TPT. He earned a bachelor's degree in engineering from Johns Hopkins University. He will be headquartered in Ashland, Ky.

Mr. Belt has been executive vice president of TPT, responsible for the management of the TPT opera-

tions. He will report to Mr. Grellier. Mr. Belt joined Ashland in 1955 as a laboratory analyst, and has held a number of supervisory and managerial positions. Since 1978 he has been manager, Gulf Coast Area, inland waterways transportation. He earned a bachelor's degree in business from the University of Michigan. He will relocate from Houston to Freedom, Pa.

## Engineering Excellence

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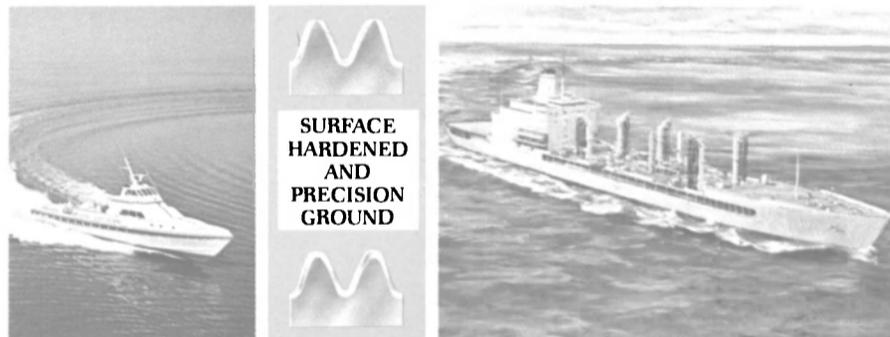
- The PHM/Jetfoil/H.M.S. Speedy (with CODOG drive) made by Boeing Marine Systems, all have gas turbine drives for the LM-2500 or 501.
- The American Enterprise crewboat was built by Halter Marine, Inc., with a 501 gas turbine drive.
- The T-AO 187 fleet oiler made by Avondale Shipyards, Inc., has the largest carburized and hardened and precision ground gears in the U.S. Navy.
- The 3K-SES Navy program involved four 40,000 hp CGCO epicyclic gas turbine drives.
- Each LCAC produced by Bell Aerospace Textron has 8 gas turbine powered gearboxes and 24 couplings and clutches provided by CGCO.



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T-AO 187

SURFACE  
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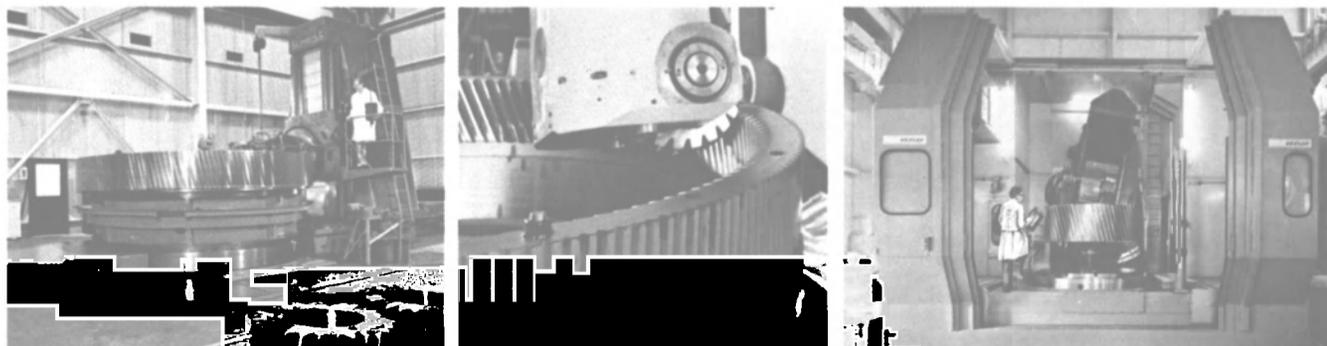
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## Veson Computer Systems Offers Free Literature On Shipping Programs

Veson Computer Systems of New York, N.Y., which specializes in the design and installation of computerized marine management systems, is offering a media folder that contains literature on the various specially developed shipping programs it has available.

Included in the literature is an article on computers that explains why Veson chose the particular hardware it did for what is said to be "a highly impressive, integrated package which is attracting increasing attention from ship operators and brokers." The micro is described as a compact desk top unit that can either stand alone or be clustered with up to 16 other units with each yard disk workstation having its own independent pro-

cessor, memory and optional storage. The article says that having such flexible power available, Veson has developed a range of software that is extremely sophisticated in capability but still user friendly.

In all, Veson offers 10 specially developed shipping programs. Discussed in the literature are the ACT 2000 Accounting System and the ABS 2000 Agency Bookkeeping System, both of which can accommodate any number of ships and several hundred vendors; the OPS 2000 Office Payroll System which is a one-step user interactive system for office employees; VES 2000 Voyage Estimating, a user interacting voyage estimating package; VVA 2000 Vessel/Voyage Accounting; CIS 2000 Crew Information System; CLM 2000 Container Loading Management and Stability Control System; INV 2000 Inventory Control; INS 2000 Insurance Monitoring; and CEM 2000 Capital Equipment Monitoring.

All Veson packages are said to have been designed to be flexible, versatile, and easy to use. No previous computer experience is required, and the typical office employee can learn to operate the system effectively within just a few hours.

For further information and a free copy of the literature on Veson Computer Systems,

Circle 15 on Reader Service Card

## Webb Institute To Hold Annual Alumni Banquet

The Annual Banquet of the Alumni Association of Webb Institute of Naval Architecture will be held on Thursday, November 8, 1984, in the Ballroom of the Loews Warwick Hotel, 54th Street on the Avenue of the Americas, New York City.

There will be reception at 5:30 p.m., followed by dinner at 7 p.m. Eugene Schorsch, president of the Association, will introduce the program for the evening.

The highlight of the evening will be the presentation of the W. Selkirk Owen Award to Victor W. Bethge. He will be the 19th recipient of the award that was established to honor alumni of outstanding achievement and service to their professions and alma mater, and given in memory of W. Selkirk Owen.

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

## Giannotti Awarded Contract For Ocean Thermal Study And Conceptual Design

The Taiwan Power Company (Taipower) recently awarded a contract to Giannotti & Associates International, Inc. (GAI) of Houston to conduct a feasibility study and provide a conceptual design for an ocean thermal energy conversion (OTEC) power plant that would be located along the East Coast of Taiwan, Republic of China.

OTEC is a renewable technology that has reached an advanced stage of development following an investment of some \$250 million by the U.S., France, and Japan. It utilizes as an energy source the temperature differences between ocean surface water and the nearly freezing water at depths of about 3,300 feet. In good tropical locations such as Taiwan, electricity generated by OTEC is likely to become economically competitive with electricity derived from the burning of oil.

The awarding of this contract by Taipower recognizes the interest of the Republic of China in diversifying its energy sources and its desire to utilize domestic resources of labor, materials, and energy. GAI is a diversified company with considerable experience in OTEC technology development.

## Wilhelmsen Agency And Trans-Astral Shipping Merge To Serve Australia

The shipping agency functions of Wilh. Wilhelmsen Agency Ltd. and Trans-Astral Shipping Ltd. have been merged into a joint company named Wiltrans Agencies Ltd., it was announced by Robert H. Pouch, president of Barber Steamship Lines Inc. and North American spokesman for the Wilhelmsen Group.

Trygve Amundsen will serve as managing director of Wiltrans, operating out of a Melbourne office while arrangements are completed for the opening of a Sydney headquarters at the end of this year.

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## Allen Named Director Of MDTSCO Washington Operations Division



Richard J. Allen

Richard J. Allen, formerly fiscal management director of McDonnell Douglas Technical Services Company (MDTSCO), has been appointed director of the firm's new Washington (D.C.) Operations Division. He replaces **Charles A. Jacobson**, who was recently promoted to the position of acting director of MDTSCO.

Mr. Allen joined MDTSCO in 1982 after serving as center controller for the Marshall Space Flight Center in Huntsville, Ala., for five years. He began his government service with the National Aeronautics and Space Administration in 1963 as part of the Gemini Program.

The Washington Operations Division, formerly a component of McDonnell Douglas Automation Company, was transferred to MDTSCO in February this year. The division, with offices in Rockville, Md., Arlington, Va., and Bremerton, Wash., has a long-time association with a broad range of naval clients, most notably the Naval Sea Systems Command.

## ARCTEC Wins \$559,831 Contract From MarAd

The Maritime Administration has awarded a \$559,831 contract to ARCTEC Inc., Columbia, Md., to continue cooperative research into the feasibility of year-round Arctic marine transportation of Alaskan oil and natural gas. The project includes the development of design and operational criteria for ice-transiting ships.

Other U.S. Government agencies, the Canadian Government and U.S. industries are participating in the project.

## Flint & Mercer Named Senior Vice Presidents For Eller & Company

Eller & Company, Inc., headquartered in Fort Lauderdale, announces the appointments of **Robert J. Flint** as senior vice president in charge of all stevedoring and terminal activities in South Florida ports, including operations at Tam-

pa, Miami, Port Everglades, and Port Canaveral, and **Ben E. Mercer** as senior vice president for the Middle Atlantic area, including the ports of Jacksonville, Savannah, Norfolk, and Wilmington. In making the announcement, Eller president **Arthur C. Novacek** noted that these two appointments will allow an effective direction to the

company's activities in these areas. Mr. Flint, who previously held senior management positions with Pittston Stevedoring Corporation and South Atlantic Terminals, Inc., joined Eller in 1981 at its Jacksonville location, and most recently served as vice president in charge of Tampa operations.

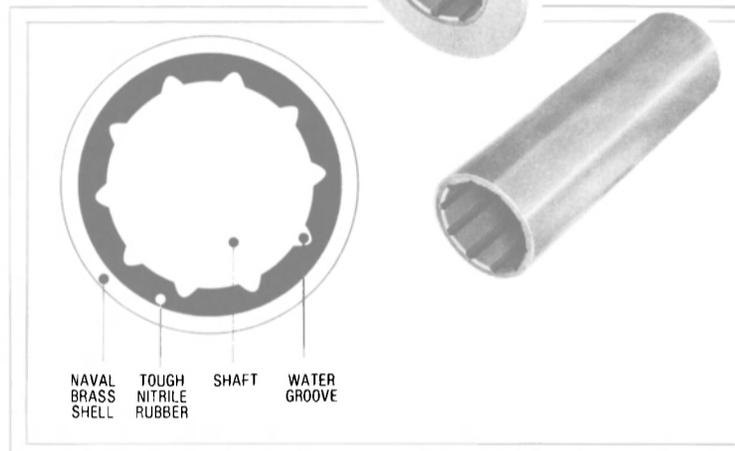
Mr. Mercer began his career

with Eller in 1974 as local manager for the Savannah office. Since that time he has held senior management positions within the Middle Atlantic area.

Mr. Flint will continue to be headquartered in Tampa, and Mr. Mercer in Savannah, with both executives reporting directly to Mr. Novacek.

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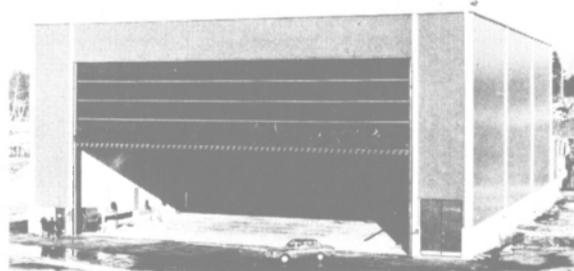
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## MarAd Awards \$4,250,848 In Contracts To Improve Productivity of U.S. Yards

The Maritime Administration has awarded \$4,250,848 in contracts for 10 projects designed to improve the productivity of U.S. shipyards and to reduce the cost of building ships in the United States.

All projects are part of the National Shipbuilding Research Program. Results will be shared throughout the U.S. shipbuilding community.

Summaries of the activities, including funding to be provided by the government, follow:

- Shipbuilding Facilities Improvement Program, sponsored by Avondale Shipyards Inc., New Orleans, La. Projects include studying and reducing costs associated with moving personnel onto a ship and about a shipyard; investigating the storage of pipe in shipyards and developing and demonstrating new methods, if indicated; and developing and implementing an on-line material control system. Contract amount: \$561,848.

- Shipbuilding Welding Improvement Program, sponsored by Newport News Shipbuilding and Drydock Co., Newport News, Va. Projects include developing a design and planning manual for cost-effective welding; writing a specification for a shipbuilding robotic welding system; reviewing automated, recordable ultrasonic inspection projects; developing an acceptable Eddy Current inspection method for ferrous surface flaws; evaluating benefits of the new high-strength, low-alloy steels; and developing standard test methods and values for hydrogen deposited in weld metal. Contract amount: \$545,000.

- Shipbuilding Design/Production Intergration Program, also sponsored by Newport News Shipbuilding and Drydock Co. Projects include briefing shipyards and design agencies on the efficient utilization of the recently developed "Design for Production Manual"; preparing a report on information needed from design/engineering departments by planning and production departments of shipyards; identifying information flow requirements for the design and procurement processes; examining the transition from system to zone production; and developing architecture and flow diagrams for a system which will produce piping arrangement and detail drawings. Contract amount: \$515,000.

- Shipbuilding Production Aids Program, sponsored by Todd Pacific Shipyards Corp., San Pedro, Calif. Projects include creating a publication on U.S. shipbuilding accuracy; studying and applying quality circles as production aids; and identifying a safety and health program to be used as an aid in zone-oriented production. Con-

tract amount: \$390,000.

- Shipbuilding Education and Training Program, contract awarded to University of Michigan, Ann Arbor, Mich. Projects include establishing a professional journal on ship production; continuing a microfiche preparation, indexing and distribution service; supporting the preparation of a video taped lecture course on basic

naval architecture; improving shipyard communication skills; evaluating European training concepts; developing a course on supervision; developing a modular training system for new employees; and developing an instructional syllabus for use with the "Design for Production Manual." Contract amount: \$470,000.

- Shipbuilding Industrial Engi-

neering Program, sponsored by Bath Iron Works, Bath, Me. Projects include improving planning and ship loading in shipyard production shops; developing shipyard training packages on industrial engineering procedures; training shipyard personnel in the analytical techniques of methods engineering; reporting on the optimal use of industrial engineering tech-

## LARGE BORE DIESEL USERS HAVE A NEW TEAM TO COUNT ON

Since Stewart & Stevenson teamed up with MWM large bore division, they have doubled their Diesel power offerings from 4400 to 8680 HP for all applications, including marine, drilling, industrial, stationary power and cogeneration. These large bore engines have proven reliability and offer great economy with specific fuel consumption as low as .313 lbs/BHP/hr.

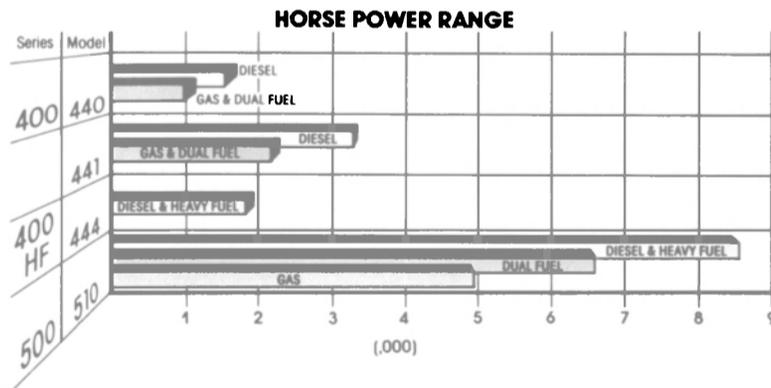
MWM's large bore series 400, 400 HF, and 500 "V" and in-line engines from 6 to 16 cylinders, also expand Stewart & Stevenson's horsepower ranges for multi-fuel, dual-fuel, and heavy-fuel, as well as Diesel capabilities.

MWM heavy-fuel models burn fuels having a 7000 Redwood Index. Heavy-fuel engines can save \$450,000 to \$600,000 yearly, compared to a similar boiler-steam turbine system, according to U.S. Maritime Administration Study MA-1PD-6013.

MWM built its first internal combustion engine over 100 years ago. Since then, they've researched, developed and manufactured millions of Diesel, gas and dual-fuel horsepower. Now, the value of MWM's design and engineering expertise is further enhanced because of the application experience, and parts and service support of Stewart & Stevenson's worldwide organization.

The MWM 400 HF and 500 series engines represent the state of the art in multi-fuel and heavy-fuel technology and engine design. Introduced in 1975, the model 510 engines, along with other series engines have established a worldwide reputation as highly reliable and efficient, Diesel and heavy-fuel engines. These engines are also available as gas and dual-fuel engines.

Stewart & Stevenson's 46 years of Diesel power application experience, and MWM's 100 years as a manufacturer of dependable and efficient large bore engines make a strong team—and this team is now ready to serve power users' varied offshore or onshore drilling needs, marine, stationary power, cogeneration or industrial applications. For more information, write or call MWM Marketing Group at (713) 868-7700.



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Domestic Offices: Beaumont, Corpus Christi, Dallas, Lubbock, Odessa, San Antonio, San Juan, Wichita Falls, Texas; Denver, Colorado;

niques in shipyards; and analyzing manpower estimating and control procedures. Contract amount: \$340,000.

- Shipbuilding Flexible Manufacturing Program, sponsored by Todd Pacific Shipyards Corp. Projects include reviewing flexible automation technology applications for shipyards and developing a device to mark plates cut by computer numerically controlled burn-

ing machines. Contract amount: \$340,000.

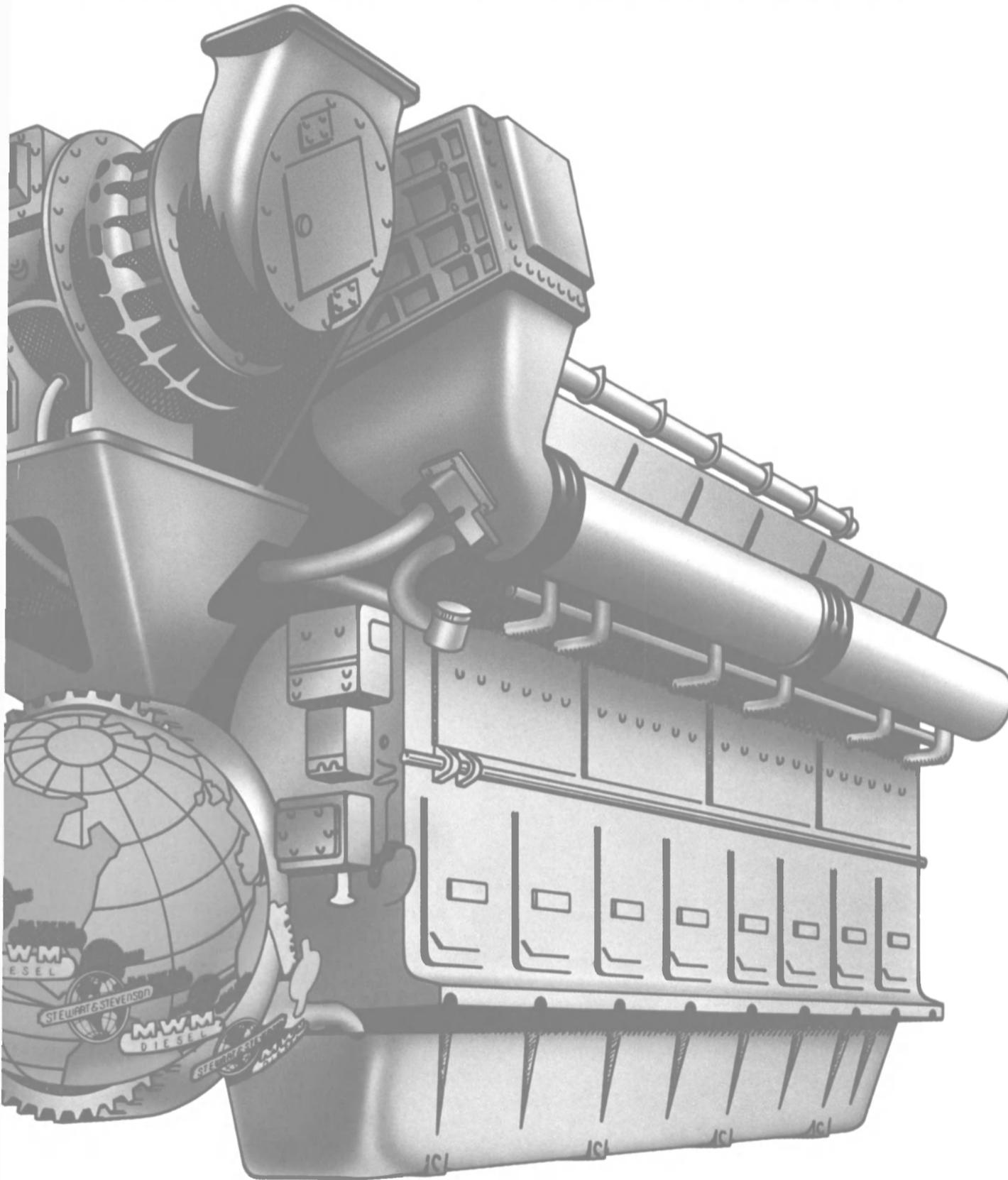
- Surface Preparation and Coatings Program, sponsored by Avondale Shipyards, Inc. Projects include defining and standardizing requirements, testing and procedures for the certification of weld procedures through shop primers; determining the effect of contaminants on coating performance; studying the cost effectiveness of

flame-sprayed coatings for shipboard corrosion control; and establishing the feasibility of the automated painting of pipe pieces, wire ways, hangers and other small parts. Contract amount: \$499,000.

- Shipbuilding Standards Program, sponsored by Bath Iron Works. Projects include developing comprehensive drafts of cableway standards for surface ships and standard practice for the se-

lection and application of marine deck coverings, and supporting a U.S. Navy document conversion program involving documents which have a high potential for conversion into industry standards. Contract amount: \$365,000.

- Shipbuilding Human Factors Program, sponsored by Bethlehem Steel Corp., Bethlehem, Pa. Projects include establishing problem-solving teams in shipbuilding; relating organizational innovation with shipyard safety; and planning, developing and testing prototype work groups in a product-oriented work breakdown structure. Contract amount: \$225,000.



### Oil Content Monitor Offered By Salwico —Literature Available

The Salwico Controil is an infrared type oil content monitor for oil in ballast water from tankers that is notable for its ease of use and simplicity of installation, yet with sophisticated functional ability. The portable hand-held control terminal can be deployed wherever convenient.

A product of Salen & Wincandler AB of Sweden, the Controil is fully approved under IMO Resolution A. 393 (X) and also satisfies the design criteria of IMO Resolution A.496 (XII). It is available for both retrofitting and newbuildings. Only three small penetrations are required between safe and hazardous areas—two for the 8-mm sampling pipes and one for the sample feed pump drive.

Water drawn by the sample feed pump from the overboard discharge line is screened for solids before a small portion of the flow is intermittently drawn off by a secondary sampling pump in the analyzing unit, situated on the gas-free side of the bulkhead. PPM signals are passed through a two-wire communication loop to the computing unit, which also comprises a display and an alphanumeric printer. The hand-held control terminal, also used for operator input, can be plugged in virtually anywhere on the communication loop.

The flow meter (required only for "new ships" as defined by IMO) is an ultrasonic flow meter or a differential pressure-sensing flow meter. The two models complement each other, and selection of the flow meter is dependent upon price, location of installation, type of cargo, system design, and accuracy required.

For further information and free literature on the Salwico Controil,

Circle 12 on Reader Service Card

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**Drew, DHL In Agreement  
For Worldwide Port Fuel  
Evaluation Service—  
Literature Available**

Charles Stucky of Drew Ameroid® Marine has announced that

DHL Worldwide Courier Express will be the exclusive service for air dispatch of PACE™ fuel evaluation program bunker samples from ports located at the major shipping routes around the world. Upon notifying DHL that a fuel sample is ready for the Drew PACE program, the sample will be picked up, flown to the nearest Drew laboratory for evaluation and a service report will be tel-

axed to the office designated. From principal ports Drew guarantees this service in 48 hours. In addition Drew provides 72-hour service from secondary ports. Service from any remote outpost is available within 48 hours after samples are received at a cognizant laboratory.

Because Drew is able to use its already established marine service network and recognized expertise,

the PACE program offers the most comprehensive service of its kind, at competitive prices, providing information required to reduce fuel consumption and prevent engine damage.

The PACE program fees are structured to meet ship operators' needs. PACE program costs are based on individual bunkering occasions and not solely on a contract fee.

For information about the PACE fuel evaluation program and its dispatch system,

Circle 35 on Reader Service Card

**Geary Named Engineering  
Vice President At GD's  
Quincy Shipyard**



Robert B. Geary

Robert B. Geary was recently appointed vice president-engineering at the Quincy Shipbuilding Division of General Dynamics. He began his career with General Dynamics in 1965 as an engineer with the Electric Boat Division in Groton, Conn., and over the years has held increasingly more responsible positions in research, development, and program management.

In this position, Mr. Geary is responsible for direction and control of all major design and engineering programs within the Quincy Shipbuilding Division. He holds BS and MS degrees in naval architecture and marine engineering from the University of Michigan.

**Industrial Welding Gets  
MarAd Contract For  
Repairs To Training Ship**

The Maritime Administration has awarded a \$540,000 contract to Industrial Welding and Machine Company of Portland, Maine, for hull and machinery repairs to the Maine Maritime Academy training vessel State of Maine.

Included are steel repairs and repairs to boiler mountings, Coffin feed pumps, an evaporator, and radar. The work is required to meet American Bureau of Shipping and U.S. Coast Guard standards.

The work is to be performed while the ship is at berth at the Maine Maritime Academy in Castine, Maine, and is to be completed no later than November 17. The vessel will be loaned to the Massachusetts Maritime Academy for that institution's annual training cruise.

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- Fire and Tank Cleaning (Butterworth)
- Bilge and Ballast
- Air Conditioning
- Plant Pumps
- Distilling Plant Pumps
- Refrigeration
- Plant Pumps
- Salt Water Service
- Swimming Pool Pump
- Sanitary
- Contaminated
- Evaporator Feed
- Fresh Water Service
- Hot Water and Ice
- Water Circulating
- Heating System
- Circulating
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- Boiler Test
- Cargo Stripping
- Bilge and Ballast
- Stripping
- Port Feed
- Low Pressure
- Cam pumps for special applications

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Maintenance budgets have never been tighter, but the need for rust protection has not diminished. FLUID FILM<sup>®</sup> Liquid AR is the most economical, cost-effective protection available today. Here's why:

- Application rate: 8 mils thickness.
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Norway, Denmark, Finland, Germany, Italy, Greece, Taiwan, Japan and Singapore.

## Cable Splicing System Lowers Shipbuilding Costs —Literature Available

AMP Special Industries recently issued Product Bulletin 805-1. This Bulletin, entitled "Marine Cable Splicing Kit," describes the latest equipment for wiring methods to be used in modular shipbuilding, jumboizing and repairs. The meth-

ods and equipment listed have been reviewed and accepted by the Coast Guard and the American Bureau of Shipping.

The AMP System is a low-cost method of marine cable splicing. It includes pressure-type butt connectors, thick-wall heat-shrink tubing throughout for replacement cable jacket and maintains the electrical continuity of the armor by AMP "TERMI-FOIL" ground-

ing harness.

The methods described in the Bulletin make it possible to eliminate long cable pulls, splicing of cables at modular breaks, salvage broken shipboard cable and facilitates a faster turnaround in damaged vessels.

For your copy of this bulletin,

Circle 43 on Reader Service Card

## Evans Appointed Vice President of ODECO



James C. Evans

**James C. Evans**, a veteran of 31 years in the oil and gas industry, has been elected a vice president of Ocean Drilling & Exploration Company (ODECO) of New Orleans, responsible for environment and governmental affairs. He succeeds **John R. Macgregor**, who recently retired after six years in that post.

**Hugh J. Kelly**, ODECO president and chief officer, said Mr. **Evans** will be responsible for coordinating the company's compliance with and analysis of regulatory requirements in the areas of environment, production, and drilling operations.

Mr. **Evans** joined ODECO in 1957 after working four years for Texaco in various engineering assignments. He managed ODECO production operations for many years, and the highly successful operations of the dynamic positioning drillship *Ben Ocean Lancer*, from 1977 until 1980 when he returned to ODECO headquarters in New Orleans.

He served as assistant vice president-foreign drilling operations from 1981 until he joined ODECO's environment and government affairs staff earlier this year.

## Hydranautics Skids Exxon's 'Platform A' Jacket To South Pass 89-B Field

The 8,400-ton jacket for Exxon's Platform A was loaded out recently at Avondale's Morgan City, La., shipyard onto Brown & Root's BAR 376, using the onboard Hydranautics Hydraulic Systems skid system. The eight-legged, 24-slot structure was subsequently launched using the Hydranautics equipment in 436 feet of water in the South Pass 89-B field in the Gulf of Mexico.

Hydranautics Hydraulic Systems is headquartered in Goleta, Calif., with offices in London, Singapore, and Houston. The company designs and manufactures heavy-load moving equipment for offshore and shipyard-related activities, including systems for applications ranging in size from 50 tons to more than 50,000 tons.

For additional information,

Circle 24 on Reader Service Card

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**G**enstar Shipyards Ltd. is the new name of Vancouver Shipyards. We've been part of the Genstar family for many years, and this name change formalizes that relationship.

For more than 80 years the name of Vancouver Shipyards has been synonymous with excellence in vessel design, construction and repair. Such an outstanding record has been achieved by our ability to meet the demands of an industry in which change is a constant.

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### Literature Available On Sperry's New Deepwater Navigation System

Sperry Corporation has announced the development of a high accuracy, deepwater integrated navigation system for use aboard seismic exploration vessels, and is now offering this system to potential users of such equipment.

Free literature is now available from Sperry completely describing

the new system in detail.

A major advance in the Sperry system is a dead reckoning subsystem which uses a Sperry-developed parametric array doppler sonar. This sonar is capable of obtaining ship speed over the ocean bottom in depths of up to 6,000 feet. The subsystem also uses dual Sperry high accuracy MK 29 Mod 1 gyrocompasses with velocity outputs.

In addition to the dead reckoning subsystem, the integrated nav-

igation system includes two Loran receivers and data processing capabilities for selected radio navigation aids. Extremely sophisticated data and signal processing techniques, including the use of five Kalman filters, are used in the system to reduce navigational errors.

All data processing for the system is performed by a 32-bit computer with a five megabyte disc memory. The computer program uses 152,000 words of memory. In

addition to navigation information, the system provides guidance to the ship's crew for optimum approaches to designated survey lines, and provides input to the ship control system to permit the ship to remain on survey lines. Data logging on two magnetic tape drives is also provided. The system is controlled from any of four CRT terminals.

Among the key features of the ship's navigation system is the use of two Sperry CAS II collision avoidance systems which have been specially modified to display the position of the seismic streamer.

For free copies of the literature on this new navigation system,

Circle 82 on Reader Service Card

# The Proven Vacuum Toilet System from ENVIROVAC

### The ENVIROVAC record

For ten years ENVIROVAC has been designing and supplying vacuum toilet systems for the U.S. Marine Industry (Navy, Coast Guard, Corps of Engineers and Commercial). Our toilets and systems are operating in, or on order for, 155 ships including:

#### Navy ships

- DD963 Spruance class (30 ships)
- DD993 Kidd class (4 ships)
- T-ARC-7 Zeus (cable repair)
- T-AK(X) Rapid deployment force (8 ships)

#### Coast Guard ships

- WMEC Famous cutter class (13 ships)
- WHEC Secretary class (5 ships)
- WYTM Bay class (7 ships)
- WIX Eagle
- WMEC medium endurance cutters (7 ships)
- WLB buoy tenders, 180 ft. (36 ships)

### ENVIROVAC Vacuum Systems offer:

**3 pint water flush** with 90% reduction in sewage volume and sewage holding weights.

**Dependable operation** of ENVIROVAC's vacuum toilet was proven with eight months operating history on the USS Kinkaid (DD965). Only one man hour of maintenance per month per ship set was required to keep all 30 ENVIROVAC vacuum toilets 100% operational. The same degree of high reliability is designed and built into the mechanical portion of the system.

**No slope piping** feature provides wide flexibility in piping design and upward flushing capability.

**Topside piping weight reduced 60-80%** because smaller diameter piping (2 inch) is used.

**Vitreous china toilet** meets MIL-S-901C high shock specification.

Circle 127 on Reader Service Card

### MarAd Awards Contract To Southwest Marine For Repairs To Training Ship

The Maritime Administration has awarded a \$312,383 contract to Southwest Marine, Inc. of San Francisco for hull and machinery repairs to the California Maritime Academy training vessel Golden Bear. Included are repairs to the anchor windlass, turbogenerator, main condenser, and motor generator, and installation of a milling machine.

The repairs are required to meet American Bureau of Shipping and U.S. Coast Guard standards, and will be performed while the ship is at berth at the California Maritime Academy in Vallejo, Calif. A schedule of 45 working days has been set for completion of the work.

### Literature Available on New Ultra-Long-Stroke Diesel From M.A.N.-B&W

The first large engine in M.A.N. B&W's new line of ultra-long-stroke engines was successfully tested recently in Copenhagen.

New color illustrated literature describing this new engine in full detail is now available free of charge.

M.A.N.-B&W reports this new engine type for the marine market will offer a combination of the lowest fuel oil consumption and lowest rpm, and the optimum in economy for shipowners.

The engine's small installation measurements require a minimum of engine space, thus increasing cargo capacity.

The two-stroke engines were developed in Copenhagen and will be manufactured by B&W Diesel or by their worldwide network of licensees. B&W Diesel's line of main engines for large ships cover a power range of 2,300 to 56,000 hp.

For complete literature on M.A.N.-B&W's full line of marine diesel engines including the new ultra-long stroke engines,

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Maritime Reporter/Engineering News

## Norshipco Gets Contract For Lay-Up Work On Two Reserve Fleet Vessels

Norfolk Shipbuilding and Drydock Company of Norfolk, Va., has been awarded a \$407,470 contract by the Maritime Administration for shipyard work required to lay up the C4 cargo ships American Champion and American Ranger. The vessels are part of the National Defense Reserve Fleet maintained by MarAd.

The work includes drydocking to inspect underwater hull areas, sealing the ships, and installing dehumidification equipment. Following completion of the lay-up and deactivation procedures, the vessels will be returned to the James River, Va., NDRF site.

## Asea Hagglunds Opens Office In New York Area

Asea Hagglunds of Houston has opened an office in Yonkers, N.Y., to further improve its service to shipping and industry. Manager of the new office is **John A. Albino**, executive vice president of Asea Hagglunds Inc., who was formerly with Asea Stal-Laval Inc. The address is: Asea Hagglunds Inc., 1 Odell Terrace, Yonkers, N.Y. 10701; telephone (914) 969-1900, telex 646564.

Asea Hagglunds is a manufacturing and distributing company concerned primarily with products of AB Hagglund & Soner, the Swedish engineering enterprise well known for hydraulic drives, electro-hydraulic deck cranes, offshore handling equipment, tunneling equipment, and specialized vehicles.

## 21 New Members Elected To ABS

Twenty-one executives of the maritime industry from nine different countries were elected members of the American Bureau of Shipping (ABS) at the semi-annual meeting in September of the Board of Managers of this international ship classification society. The meeting was held at ABS headquarters in New York. The new members are: **Artistides Alafouzou**, Glafki Shipping company, S.A., Athens, Greece; **David Beebe Jr.**, manager, **Chubb & Son Inc.**, Warren, N.J.; **Hatsu Y.F. Chang**, chairman, Evergreen Marine Corp. (Taiwan) Ltd., Taipei, Taiwan, China; **Henry F. Gooss**, manager, Institutional Investments, Brown Brothers Harriman & Company, New York, N.Y.; **Alvin Green**, executive vice president and senior counsel, Seatrains Lines, Inc., New York, N.Y.; **Gary S. Grimes**, vice president, general manager, Quincy Shipbuilding Division, General Dynamics, Quincy, Mass.; Dr. **Peter A.H. Landsberg**, president, Verolme

Estaleiros Reunidos do Brasil S.A., Rio de Janeiro, Brazil; Dr. **A.K. Malhotra**, member operations, Oil & Natural Gas Commission, Bombay, India; **Ward L. Mauck**, president, American Institute of Marine Underwriters, New York, N.Y.; **Joseph D. Mazzei**, president and general manager, Sun Transport, Inc., Aston, Pa.; VAdm. **K.R. Menon**, chairman and managing director, Hindustan Shipyard Ltd., Gandhigram, Visakhapatnam, India; **William J. O'Brien**, Kirlin, Cam-

bell & Keating, New York, N.Y.; **N.K. Sawhney**, chairman and managing director, Mazagon Dock Ltd., Bombay, India; **G.R. Stewart**, deputy commissioner, Canadian Coast Guard, Ottawa, Ontario, Canada; **A.P. Vacca**, technical manager of Marine Technical Services Ltd. Bermuda, R and K Ltd., London, England; **Vardis J. Vardinoyannis**, Varima Corporation International S.A., Piraeus, Greece; **Enrique Vargas Ramirez**, general manager, Flota Mercante Gran-

colombiana S.A., Bogota, Colombia; **Douglas C. Wolcott**, president, Chevron Shipping Company, San Francisco, Calif.; **Emilio T. Yap**, chairman of the board, Philippine President Lines, Inc., Manila, Philippines; **Donald R. Yearwood**, president, American Trading Transportation Company, Inc., New York, N.Y.; and VAdm. **Paul A. Yost Jr.**, Commander-Atlantic Area and Third Coast Guard District, United States Coast Guard, New York, N.Y.



# Eliminate on board welding with Coast Guard accepted Model PS exhausts and ducts.



Model PS Exhaust and Duct Systems are accepted by both the U.S. and Canadian Coast Guard for use aboard Coast Guard inspected vessels.

Applications include main propulsion systems, auxiliary and emergency systems, and galley ventilation systems.

Model PS thermal and structural characteristics and limits have been defined through exhaustive in-house testing and by seven years of on-the-job performance on land based installations. And, Model PS systems satisfy the requirements of Chapter 4, Engine Exhaust Systems in NFPA 302. Standard on Fire Protection for Pleasure and Commercial Motor Craft.

### Check these advantages over single wall piping systems:

- No on-board welding is required. Systems are assembled quickly and easily with just standard hand tools.
- Model PS is lightweight.
- With modular design, it is possible to remove, inspect, and replace Model PS parts in much less time and without lay-up.
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INTERNATIONAL COMPANY

**Mitsubishi Kakoki Offers  
New Products For Solving  
The Fuel Quality Problem  
—Free Literature Available**

Mitsubishi Kakoki Kaisha, Ltd. of Japan is offering free literature on three new products that the company recently placed on the market as a solution to the fuel quality

problem—Selfjector Excellent-Series, e-HIDENS-System, and Marine Decanter Centrifuge.

The attractive 16-page brochure on the Selfjector Excellent-Series (SJ-E) explains that the SJ-E is a remodel of the original Selfjector (disc type centrifugal separator) that incorporates many new outstanding features such as a pilot valve mechanism and a high-tensile stainless bowl in a simple, compact

and lightweight, yet durable body, and the introduction of a microprocessor into the automatic control system. Besides being able to handle marine fuel oil and lubricating oil, the SJ-E is suitable for use whenever superior oil purification is required, from electrical power generating stations, through the whole range of industrial applications. Seven models of total and partial discharge oil separators are avail-

able so that the most economical for any particular main engine can be selected. The brochure contains cut-away color views, text and important data on the various models as well as the automatic control system component, and dimensions and space for installation.

Mitsubishi's six-page brochure on the e-HIDENS-System states that the deterioration of fuel oil for both stationary and marine diesel engines is steadily advancing on a worldwide scale and in light of this, the company has developed a high density fuel oil treating system—the e-HIDENS-System. The term HIDENS is an abbreviation of High Density Fuel Oil Treating System. The pamphlet contains an outline of what the system is, and discusses its features, actions, main components, and throughput capacity of Selfjector for e-HIDENS-System use. Several pages of drawings, charts and diagrams serve to complement the text.

The Mitsubishi Marine Decanter Centrifuge is the subject of literature that points out that it was developed in order to cope with the deterioration of marine fuel oils, and that it fully meets the requirements for the clarification of low grade fuel oils with high viscosity, high specific gravity and especially high content of sludges. The publication covers the principle and structure of Decanter Centrifuge, its features, the effect of two-stage purification through the combination of Marine Decanter KVZ-M and Disc Type Oil Purifier (Mitsubishi Selfjector), and specifications for the various models.

For copies of the brochures and literature on Mitsubishi's Selfjector Excellent-Series, e-HIDENS-System, and Marine Decanter Centrifuge,

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More than 28,000 skilled men and women.

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8 piers for berthing ships to 1200 feet, drydocks from 650 to 1600 feet. We can dock fully loaded container ships, jumboize tankers, renovate or repair every aspect of any vessel...cruise ship, tanker, product carrier, or specialty cargo.

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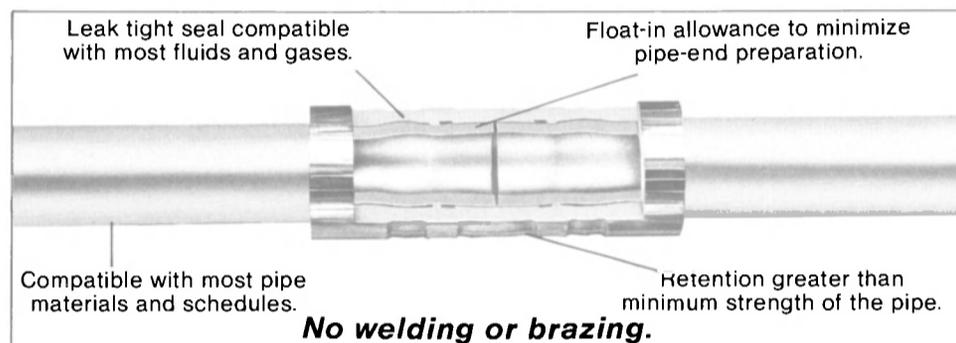
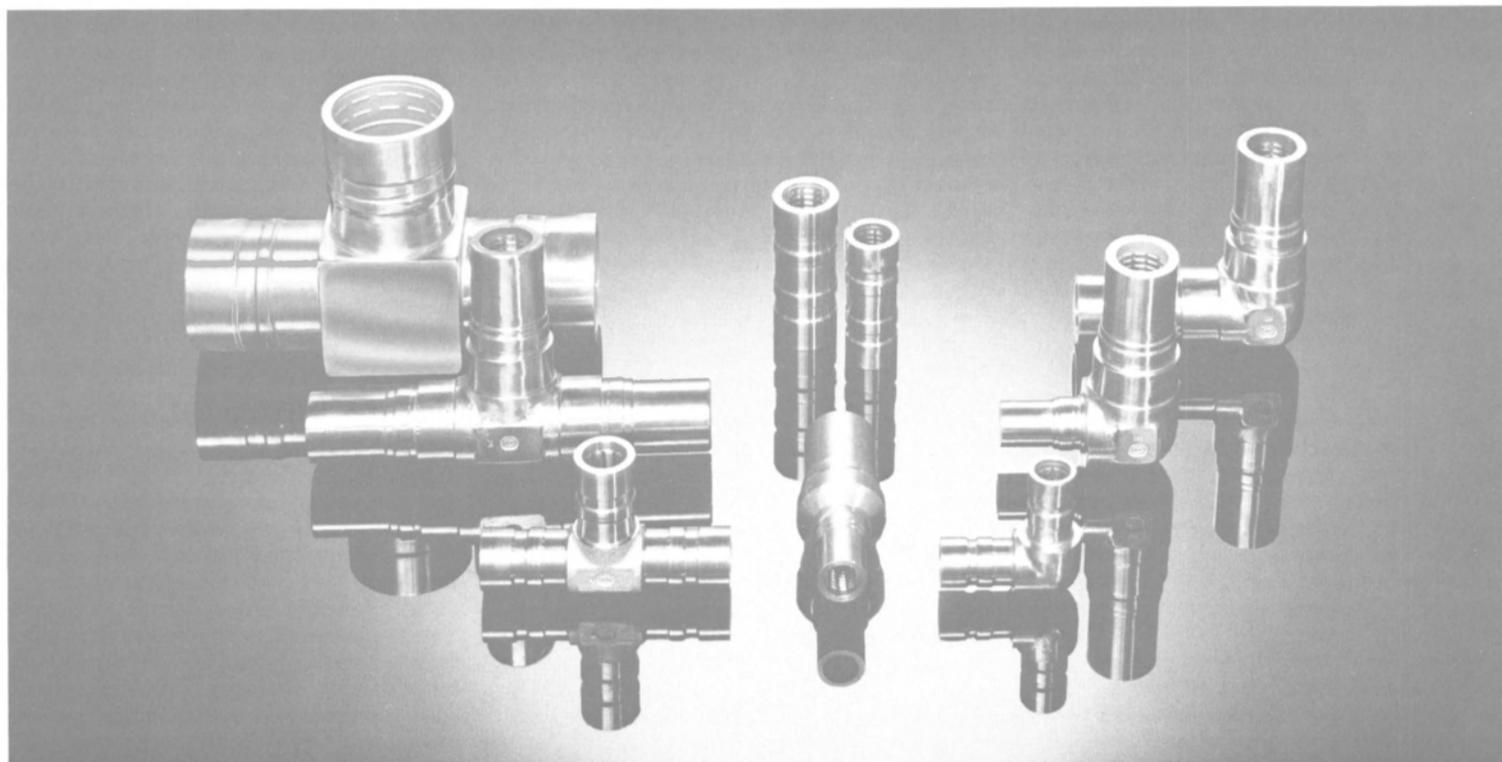
Circle 12 on Reader Service Card

**Promotions Announced By  
Consolidated Grain**

Consolidated Grain & Barge Company of St. Louis recently announced several personnel changes. **Jim McEvelly** has been elected vice president with responsibility for all aspects of the company's barge operations. He had previously served as manager of barge operations and manager of barge transportation at Consolidated.

**Don Lecker** has been appointed vice president-marine services with responsibility for the management of Consolidated's marine services. He served previously as chief dispatcher, assistant manager, and manager of barge operations.

**Mark Stoppel** has been promoted from chief dispatcher to manager of barge operations, responsible for coordinating the day-to-day activities of the fleet. He joined Consolidated in 1980 at the Naples, Ill., facility after receiving an MBA in finance from Kansas University.



## WHEN THERE'S NO TIME FOR DOWN-TIME

The cost of fabricating piping systems is expressed in more ways than just material costs.

When you've got three weeks to do what they've estimated would take twenty weeks, you've got serious down time costs.

When you need gas free certification, a fire watch, a pipe fitter and a welder, you've got serious labor costs.

And when the whole welding process is "complete," you could spend money and time doing extensive NDT.

This is why PYPLOK® pipe fittings were developed.

A one-man crew is all it takes for most PYPLOK® installations. And we can train your installer in one afternoon.

No gas free certification. No fire watch. No welding and no welding hazards.

And independent studies have shown that PYPLOK®

## IT'S TIME FOR **PYPLOK**®

fittings cut installation time an average of 200 percent and up to 600 percent over welded fittings.

Qualified by NAVSEA, the U.S. Coast Guard, ABS and virtually every maritime approval agency, PYPLOK® has proven acceptance worldwide.

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**Alden Introduces New  
Facsimile Transceiver  
—Literature Available**

Alden Electronics, Inc. of Westboro, Mass., announces the introduction of a new facsimile transceiver for shipboard installations. The Alden FAX 340 III is compatible with all Group 3 systems, and operates over a variety of communica-

tions links including phone line, microwave, and satellite communications systems. This feature makes the small desktop transceiver ideal for shipboard as well as land-based facsimile communications applications. The FAX 340 III interface to shipboard satcom systems is simple and straightforward.

The new unit will transmit a page-sized document in less than 30 seconds. A line skip transmission mode skips over blank sections,

greatly reducing transmission time. An automatic background control automatically discriminates between color and background and copy, and "whites out" the background so every image is a black image on a white background.

A fine mode feature allows the transmission of finely detailed diagrams, maps, etc. A liquid crystal display panel serves as a clock and provides complete verification of each transmission or reception

made. Finally, the FAX 340 III will store and print out, on command, a complete activity report that identifies each exchange as a transmission or reception, phone number and/or code for the receiving or transmitting station, and time/date information.

For further information and free literature on the FAX 340 III,

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THERE ARE JUST  
TWO KINDS OF VENT VALVES...

# Wager Vent Valves

(THEN ALL THE OTHERS)



We make Wager Vent Valves—strong, true, rugged performers. These are vent valves you can count on for the long haul, in all kinds of sea, in all kinds of weather.

No one comes close to Wager in fine quality of design, materials, and workmanship—yet you can have Wager valves and pay about the same, sometimes surprisingly less than you might spend elsewhere.

Some marine people have asked us why we don't come up with a "blind" line of less exacting quality—just to compete with those lowest bidders. But we are not interested in producing "makeshift" valves, with the troubles they may give you at sea and the delays for replacement they may cause you in port.

Wager has meant finest quality back to our introduction of the innovative "ball float" valve in 1933. We have perfected that valve along the way. If we hit on a way to perfect it further—we will.

Quite simply: Wager makes the best vent valves in the business.

We intend to keep it that way.



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**Brown Named Director  
Of Marketing For  
Seaward International**



Dexter Brown

Seaward International, Inc. has announced the appointment of **Dexter H. Brown** as director of marketing. He will be based at Seaward's corporate office in Falls Church, Va. and will be responsible for marketing and sales of the company's marine products. He has 20 years of sales and marketing experience in the marine and petroleum industries.

Mr. Brown's experience includes sales and marketing for the leading manufacturer of non-destructive inspection equipment worldwide, NDT Systems, Inc. For 14 years he worked with Plastic Applicators, Inc., where he went from sales engineer to vice president for sales and marketing. He has also been founder and owner of three companies that offered sales and general consulting services to the marine, oilfield, and petroleum industries. Prior to joining Seaward, he was the sales representative for Seaward products on the U.S. Gulf Coast.

**Asea Hagglunds Marine  
Division Now Operating  
From London Headquarters**

The Marine Division of Asea Hagglunds Ltd. is now operating from the London headquarters of the parent company, Asea. The new address is Hagglunds Ltd., Marine Division, 48 Leicester Square, London WC2H 7NN; telephone 01-930 5411; telex 261243.

The Marine Division markets electrohydraulic deck cranes manufactured by AB Hagglund & Soner, the Swedish engineering enterprise in the Asea Group.

Maritime Reporter/Engineering News



# ON LAND AND SEA — SERVICED BY WÄRTSILÄ DIESEL.

At Wärtsilä Diesel service carries high priority. After all, as the manufacturer of the Real Heavy Fuel Engines, we have a reputation to live up to. A reputation for quality and reliability we really care about.

And so we pay that much more attention to details. To the in-built serviceability of our engines. The skill of our service engineers. The coverage of our spare parts and service network. The technical back-up and training we give our customers.

And that's only mentioning a few, all of which, when put together, ensures you fast and dependable service. Wherever you operate — on land or sea.

Circle 345 on Reader Service Card

## WÄRTSILÄ DIESEL

!! THE FUEL ECONOMY SPECIALIST !!

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Southwest Marine, Inc., Sand Pedro Yard, 985 So. Seaside, Terminal Island, CA 90731. Tel. (213) 519-0600. Telex 910-345-6638 swm term

## IMODCO Awarded Contract By Esso Suez For Mooring Terminal Offshore Egypt

IMODCO of Los Angeles, a unit of AMCA International Corporation and pioneer offshore marine terminal company, has been awarded a contract by Esso Suez, Inc. for a

catenary anchor leg mooring (CALM) terminal. This unit for Esso is designed to securely moor tankers of up to 85,000 dwt, primarily for the loading of crude oil in the Gulf of Suez, offshore the East Coast of Egypt. The value of the contract was not disclosed.

This terminal, nearly 28 feet in diameter and 10 feet deep, will be installed in 95 feet of water. In addition to a 16-inch-diameter line to

load crude oil, the cargo system includes a 12-inch-diameter line to simultaneously unload tanker de-ballast water to an on-shore treatment facility.

IMODCO installations are a common sight in Egyptian waters. An inventory buoy was provided to Arabian Petroleum Pipeline Company (SUMED) in 1982 for Sidi-Kerir in the Mediterranean for replacement use when two previous

buoys sold to SUMED in 1976 underwent overhaul. Two other IMODCO buoys remain in operation for the same company in the Gulf of Suez.

## Marine Machinery Industry Forms Trade Association

A new trade association called the Marine Machinery Association has been formed to aid in restoring quality in parts and repair service procurement for ships.

The association aims to strengthen the competitive position of manufacturers who design and build high-quality parts and render services of proven quality, as opposed to inferior spare parts and repair services sometimes available in the industry.

Membership cost is low and the benefits to be gained are said to be considerable. For full details and an application, call or write Marine Machinery Association, 1629 K Street, N.W., Suite 600, Washington, D.C. 20006; phone (202) 293-7169.

## WABCO Introduces New Pneumatic Control Valve—Literature Available

Bulletin A4-63.00 from WABCO Fluid Power Division, American-Standard, describes the new Type 740 pneumatic directional control valve, designed for lightweight installation in critical environments. The Type 740 is a family of highly chemical-resistant valves with high-impact polyacetal bodies, which easily gang-mount through a shear plug knot-out design in the body, or mount on a unique new polyacetal spring-latching manifold, designed for 10 million cycles.

The 740 features built-in, adjustable low power consumption of 2.1 watts. Built-in manual overrides offer four alternative arrangements by means of cut-off segments with or without locking overrides.

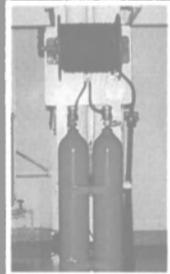
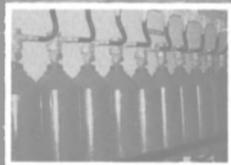
The new valve line has buna N seals. Internal fittings for 3/8-inch OD poly tubing or 5/16-inch OD nylon tubing are standard. Solenoid coil is 50/60 Hz dual-rated; indicator lights are available as a standard option. Basic operations include single/double solenoid, three-position double solenoid, and single/double air-pilots.

For a free copy of Bulletin A4-63.00, which includes operating features and benefits, mounting dimensions, and ordering details,

Circle 31 on Reader Service Card

## WALTER KIDDE Marine Fire Systems Operations . . .

# YOUR BEST DEFENSE!



At sea, dependable performance is what counts. That's why WALTER KIDDE Marine Fire Protection Systems are chosen for military and commercial vessels around the world. Our Halon, Carbon Dioxide, Foams and Smoke Detection Systems offer superior performance when seconds count.

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# Nobody turns on a ship like Russellstoll.

Russellstoll is now your most complete source for marine lighting, plugs and receptacles.



If you're outfitting rigs, ships, docksides, or other marine installations, you already know the advantages of working with one supplier. Less paperwork, less confusion, fewer problems.

We've served the marine market for over eighty years. Our engineers are experts at matching product to application—without guesswork. And since we have so many time-tested products to choose from, we can meet virtually all your requirements.

What's more, we're one of the few manufacturers that engineer products for unique and special applications.

For marine lighting, plugs and receptacles, there's only one name you need to know. Russellstoll.

Write today or call toll-free (800) 526-2590.

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- Surface Mount Fluorescent (Snaplight)
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- Corner Mount Passageway Fluorescent
- Fluorescent Mirror Lights
- Incandescent Table Light
- Fluorescent Desk Lamp
- Incandescent Ceiling Fixtures
- Rotary Switches

## ② Outside Type Products:

- Incandescent Flood Light
- Vaportight Fluorescents (NRL Products)
- Vaportight Incandescents
- HID Deck Fixtures
- Convenience Outlets

- Max-Gard Plugs and Receptacles
- J-Line Plugs and Receptacles
- Mipco Reefer Power Plugs and Receptacles
- Navigation Lights
- Helipad Deck Lights

## ③ Hazardous Location Products:

- Explosion Proof Fluorescent
- Class I, Division II HID Fixtures
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201/992-8400  
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# MIDLAND ROSS

## Moody-Tottrup Brochure Available On Offshore And Marine Industry Services

Moody-Tottrup International, a Reliance Consulting Group Company, has available a new six-page brochure on services it offers to the offshore and marine industry.

The publication features a large

three-page "marine activity" color photograph over which boxes are laid out somewhat in genealogical chart style, showing at a glance what services are offered to the offshore and marine industry by Moody-Tottrup International, and where they fall in the overall design of executing an entire project. Heading the whole scheme is the project director, followed by the design project manager, construc-

tion project manager, and commissioning project manager. Listed in the appropriate place under these are such services as planning, scheduling, cost control, change orders and claims, contract administration, purchasing, expediting, shipping, design review, vendor evaluation, vendor inspection, welding, anti-corrosion, etc.

There is also a list of major clients, printed over an outline

map of the world in keeping with their international character, and on the back of the brochure is a list of worldwide locations of Moody-Tottrup International's offices, and the addresses of the Eastern and Western Hemisphere offshore and marine divisional headquarters.

For a free copy of the brochure and further information on the offshore and marine industry services offered by Moody-Tottrup International,

Circle 14 on Reader Service Card

## THE JAMESBURY VALUE:

# Lightest performance valves afloat: Wafer-Sphere!

Time's gone when your only choices for the hazardous marine service were bulky and costly gate and be valves. Or rubber-lined butterfly valves with their limited pressure/temperature capabilities, short life, and tearing liners.

Jamesbury Wafer-Sphere® high performance valves pushing all of them right overboard! These revolutionary valves suit practically every ship's 2½" and larger valve requirement.

How good? Check these features:

Flexible-lip TFE seat that gives tight shutoff up to 1480 psi, temperatures ranging from cryogenic (-320°F) to +500°F—there's no metal-to-metal contact.

More compact, much lighter, easier and faster to install.

Greater corrosion resistance, much longer cycle life, much easier and less expensive to service.

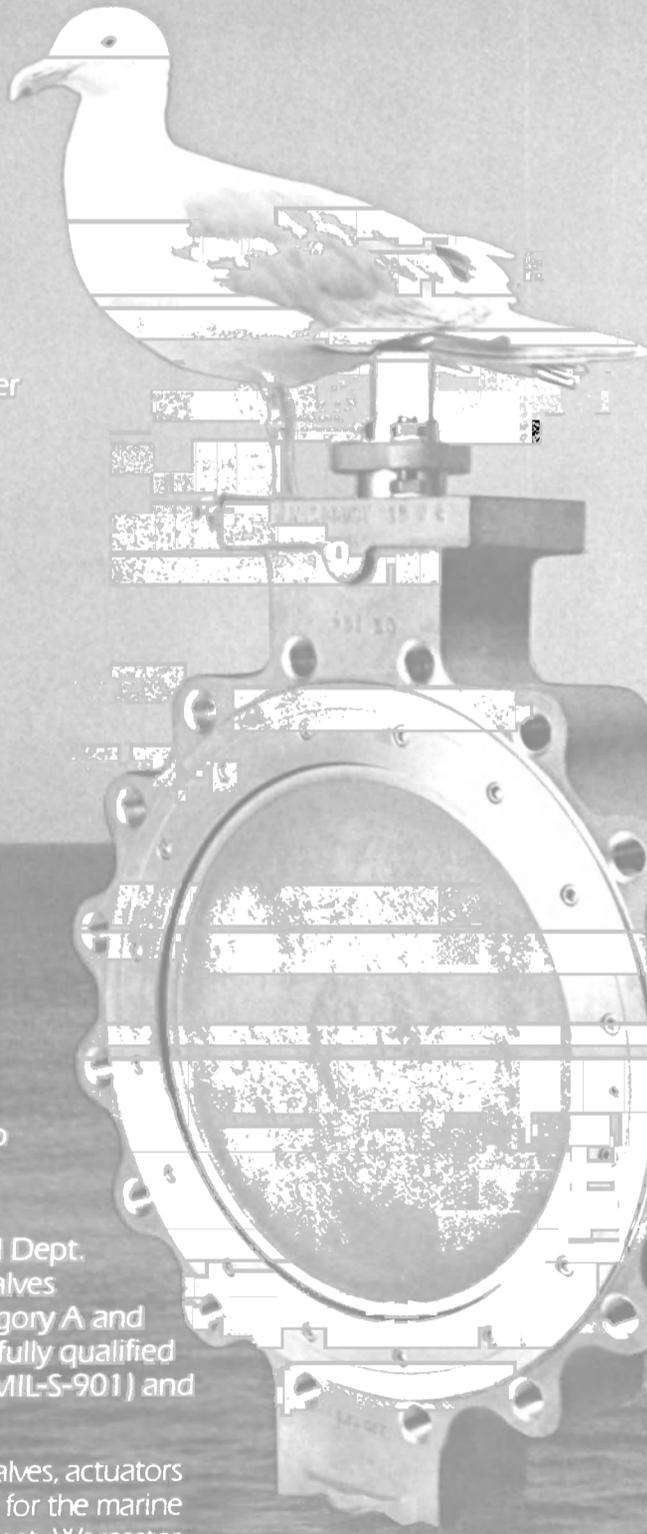
Easier to operate.

Optionally available with a wide choice of Jamesbury actuators for both automatic on-off and proportioning control.

Materials and designs include nickel aluminum bronze, 316 stainless steel, Alloy 20, Monel, plus titanium steel; ANSI Class 150, 300 and 600 wafer flanged, standard and fire-tested configurations—to the widest possible range of shipboard services.

Approvals include Lloyd's Registry of Shipping, Germanischer Lloyd, American Bureau of Ships, and Dept. of Transportation-Marine Services-Canada. These valves have been accepted by the U.S. Coast Guard (Category A and positive shut-off valves), and have been tested and fully qualified by an independent laboratory to U.S. Navy shock (MIL-S-901) and vibration (MIL-STD-167-1) specifications.

For full details on Jamesbury Wafer-Sphere valves, ball valves, actuators and control devices, the most outstanding product line for the marine industry, write or call Jamesbury Corp., 640 Lincoln Street, Worcester, Massachusetts 01605 U.S.A. (617) 852-0200. International manufacturing/sales locations: Ottawa, Canada; Rustington, West Sussex, England; Wasserburg, Federal Republic of Germany; Tokyo, Japan; Singapore; Mexico City, Mexico.



**jamesbury**  
THE SURE ONES

## CEC Awarded \$2.5-Million Contract For Ship Unloader

A \$2.5-million contract to build a pneumatic ship's unloader has been won by the Brazilian marine, offshore, and industrial equipment manufacturer CEC Engineering of Rio de Janeiro. CEC is part of the CCN shipbuilding, shipping, and equipment group. The unloader, which will be used for the unloading of alumina and coke, will be sited on the River Para in the Port of Vila do Conde, about 25 miles from Belem, the capital of the Brazilian State of Para.

The purchaser of the equipment is ALBRAS (Aluminio Brasileiro S.A.), a 51/49 percent joint company between the Brazilian state-owned company Companhia Vale do Rio Doce and a Japanese group. ALBRAS will process the alumina into aluminum ingots for export.

The equipment, which is to be delivered and commissioned by June 1985, will have an unloading capacity of 500 tons an hour through two parallel suction systems and will operate on a 24-hour-a-day basis. It will be capable of unloading ships up to 37,500 dwt at any tide level.

## Mirrlees Blackstone Moves Into New Houston Facility

Mirrlees Blackstone, one of the world's largest manufacturers of medium-speed diesel engines, has moved into its recently constructed sales, service, and warehousing facility in Houston. The facility, located near Intercontinental Airport, will house a large inventory of spare parts for the company's U.S. customers and provide a base for sales and service personnel.

The U.S. corporation Mirrlees Blackstone (USA) Inc. has been organized to better serve the U.S. market and existing marine and industrial clients, including co-generation plants, base power plants, major ship operations, and the U.S. Navy. The parent company, a wholly owned subsidiary of Hawker Siddeley of Britain, manufactures diesel engines in the range of 32 to 14,000 brake horsepower.

Mirrlees Blackstone (USA) Inc.'s address is 2011 Matilda Street, Houston, Texas 77039; telephone (713) 449-2253.

Circle 31 on Reader Service Card

# ARE YOU RESPONSIBLE FOR MAINTENANCE COSTS? THE BOTTOM LINE IS COST REDUCTION.

TAKE A GOOD LOOK AT THE FACTS ABOUT THE PRORECO DECK COATING SYSTEM WHICH HAS A HISTORY OF PROVIDING A SIGNIFICANT REDUCTION IN DECK MAINTENANCE COSTS.

- **FACT** No repetitive metal surface preparation cost — one time only.
- **FACT** Complete elimination of metal loss and replacement due to corrosion.
- **FACT** Providing a fire-retardant, fuel and oil resistant, protective deck covering with 3 to 7 times the service life of other coatings.
- **FACT** A minimum of 50% reduction in labor and material deck maintenance costs.
- **FACT** A 15 year service history of providing deck maintenance cost savings on all types of high wear deck surfaces including aircraft carrier flight decks, helicopter landing platforms on military ships and on offshore drilling rigs, cruise ships, cable laying ships, ice breakers, fishing vessels and ocean going towboats of all types.

# REDUCE



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

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

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

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

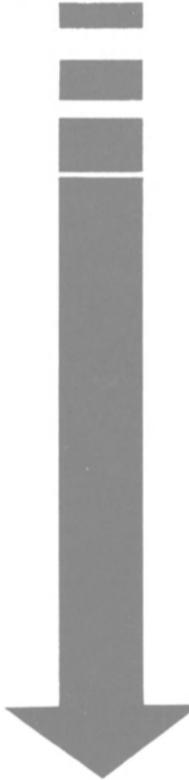
A PRC Proreco coatings system protects your deck better because it protects itself. The elastomeric base coat is not brittle, so it won't crack like epoxy coatings or cement-type deck coverings. It resists the heaviest impact and abrasion. The corrosion-inhibiting primer does not sacrifice itself as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

No other company offers products with a track record of more than 10 years' service with virtually no maintenance costs. All types of ships use the PRC.

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

Ask about our Proreco interior and exterior decking systems. Write to Rodney N. Morris, Marine Products Manager, Products Research & Chemical Corp., P.O. Box 1800, Glendale, CA 91205.

**Proreco Deck Coating Systems**


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

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

When you coat your deck with paint and zinc, you are forced to replace the coating every few years. The zinc sacrificially corrodes to protect the steel, but it eventually runs out, leaving you with a bare metal deck. The high cost of metal replacement makes this a costly solution.

Proreco has learned to deliver with the best: you get a permanent metal deck in less than 10 years. The high cost of metal replacement makes this a costly solution.

The PRC PRORECO® III system can virtually eliminate both ongoing maintenance and replacement costs. Unlike other coatings on the market, the resilient PRORECO® III system protects against corrosion and impact as well as corrosion. It does this with three layers: a corrosion inhibitor and a flexible primer for crew safety.

PRC products have a proven track record in the most demanding high-wear conditions. Decks coated with PRORECO® III have seen years of heavy abuse with absolutely no repairs.

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

For information, call your nearest PRC representative or write to Rodney N. Morris, Marine Products Manager, PRC, 5454 San Fernando Road, Glendale, Calif. 91205.

**The PRORECO® III Deck Coating System**



# COSTS

## The PRORECO® III Deck Coating System



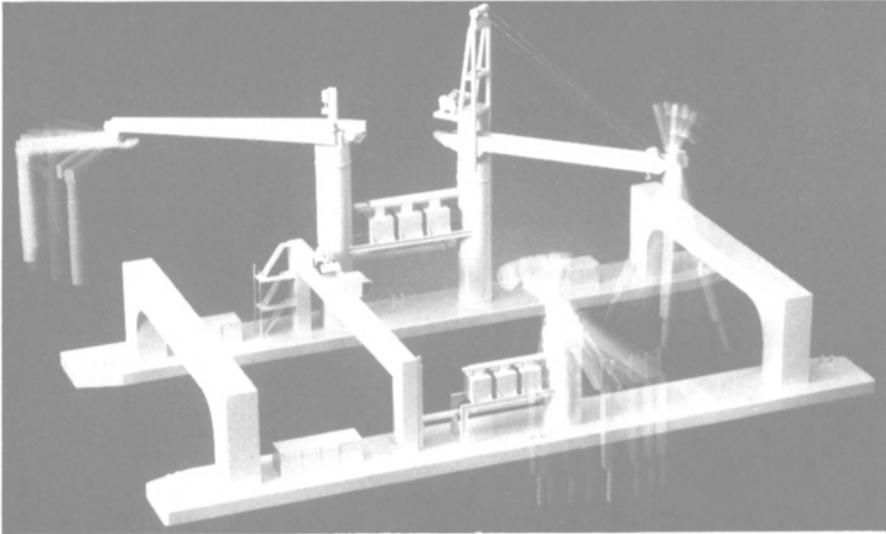
Products Research & Chemical Corporation  
5430 San Fernando Road, P.O. Box 1800  
Glendale, CA 91209  
(213) 240-2060



## Siwertell Develops New Design For Floating Bulk Transfer Station

AB Siwertell of Sweden has developed a design for floating bulk transfer stations based on a catamaran platform equipped with various configurations of unloading and

loading towers according to required capacity and duty. It is intended for direct trans-shipment between oceangoing carriers and shuttle craft in sheltered waters



such as river estuaries and landlocked bays, as a supplement to or substitute for shore terminals with limited capacity or depth of water.

The platform consists of two 230-by 26-foot pontoons connected by bridges at each end, with a 75.5-foot-wide docking space between them to accommodate up to two barges or shuttle craft side-by-side. A third barge can be berthed outboard on the side opposite from the oceangoing ship. The area between the pontoons and bridges could be decked over if desired.

Cargo transfer equipment consists of one or two ships or barge unloaders and one or two loaders, all mounted on towers on the pontoons. The unloaders are of the standard Siwertell type, with digger-tipped, pendulum-action vertical arms and slewable, luffable horizontal arms. The loaders comprise a horizontal slewable arm with an epicyclic extension that terminates in a telescoping discharge tube to minimize spillage and escape of dust. For further information,

Circle 23 on Reader Service Card

## Richards & Associates Named Representative For Asea Marine's Line

Asea Marine, an operating group of Asea Inc. of White Plains, N.Y., has appointed C.A. Richards & Associates, Inc. of Houston as a manufacturer's representative for marketing and sales of marine electrical equipment for installation on board ships, offshore rigs, and supply vessels.

Bo Stenhall, Asea manager of marine sales, said that the Houston firm will represent Asea in Texas, Louisiana, Mississippi, and Oklahoma. Asea Marine is involved in power, automation, and monitoring equipment for marine and offshore applications.

Asea Inc. is the principal U.S. subsidiary of the \$3.8-billion Asea Group of Sweden, a worldwide designer and manufacturer of electrical, automation, and monitoring equipment for marine and offshore applications.



## Getting Burned by Cheaper Fuels?

Tired of that extra maintenance work and delays for repairs? Worried about increased engine wear, cost of spares or heavier boiler deposits?

Fed up with fuel additives that sound good but don't work?

Are the "bean counters" on your back to burn even cheaper fuels?

Here's hope: Ferrous FE4 Fuel Oil Catalyst for marine diesels and boilers. It lets you burn cheaper fuels just as easily as higher grade fuel.

### No Magnesium Oxide

Unlike most fuel oil additives, FE4 does not contain magnesium. It won't leave efficiency robbing magnesium ash deposits or cause accelerated wear. And it won't settle out of the fuel, even while in storage.

A gallon of FE4 treats 3,000 gallons of fuel oil and produces less than 2 grams of ash. That's 150 to 450 times less ash than you may have experienced with other additives. Our best customers are probably just like you. They tried everything and gave up on additives. Then we convinced them to try FE4. It worked.

### Ferrous has the proof:

Maybe you already know some of our satisfied customers. More than 50 ships use FE4. Like to find out who they are? Please contact K Chorlton:

**Ferrous Corporation**  
910-108th Ave. S.E.  
P.O. Box 1764, Bellevue, WA 98009  
(206) 454-6320  
TWX 910-443-2326



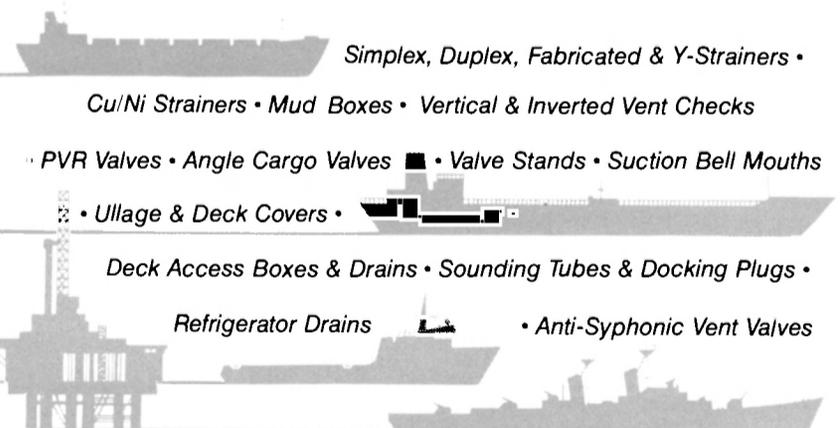
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## Marine engineered strainers, valves, fittings and more from Hayward!

### Plus...

- Quality assurance (our plant QC conforms to MIL-I-45208A)
- Technical & field assistance worldwide
- Mil/Navy specification conformance
- On-time delivery (from one of the world's largest inventories)

After 50 years... shipyards, repair yards, owners, operators, naval architects and marine engineers continue to rely on Hayward. Hayward manufactures a broad range of quality-engineered marine products for all types of vessels and rigs. Before you specify or buy a strainer, valve or fitting, talk to Hayward Marine. You can rely on us.



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Circle 297 on Reader Service Card

Maritime Reporter/Engineering News

# Checking into major shipyards?



- EXPERIENCE:** For almost 40 years, Triple A has maintained a "Get the job done right" reputation unequalled in the industry.
- PERFORMANCE:** We apply state-of-the-art quality control procedures of inspection and documentation to every aspect of our work.
- LOCATIONS:** Triple A has the largest, most multi-purpose, all weather facilities and capabilities on the West Coast. San Francisco and San Diego.
- COMPETITIVE:** Our on time and on budget deliveries are second to none.
- SHIP REPAIR, CONVERSIONS & CONSTRUCTION:** We are equipped to handle every large or small vessel challenge using the most advanced equipment and skills in the world.
- VOYAGE REPAIRS:** Triple A maintains, around-the-clock, a fleet of mobile equipment specializing in portable machining and boring operations.
- GRAVING DOCKS:** We have six docks, one of which accommodates ships up to 1100 x 144 x 40 feet. And that's just in San Francisco.
- DEEP WATER BERTHS:** Triple A has seven deep and sturdy berths of 1000 feet.
- CRANE FACILITIES:** Our 16 gantry or numerous locomotive, barge-mounted, mobile, truck or boom cranes provide from 35 to 80 tons of versatile weight handling.
- SHOP CAPABILITIES:** We have extensive and highly skilled machine, valve, lofting, plate and welding, sheet metal, paint, electrical and electronic, pipe, joiner, staging and rigging shops.
- COMMITMENT:** Getting the job done right, on time, within budget, to all codes and specifications is our commitment to you. Check us out.

## Check us out.

In San Francisco call (415) 822-8222. In San Diego call (619) 236-1391. Telex—34-265 AAA RPR





## Nichols Brothers Boat Builders Christens Second Passenger Catamaran

Closely following the completion of its first catamaran, Nichols Brothers Boat Builders of Freeland, Wash., has just christened the Spirit of Alderbrook, its second 72-foot, all-aluminum, high-speed passenger catamaran, this time for the **Wes Johnson** family of Union, Wash. Some 600 guests gathered at the Alderbrook Inn for the christening ceremonies.

Powered by two GM Detroit Diesel 12V-92TA main engines of 800 bhp each, the Spirit of Alderbrook (shown above) cruises at 26 knots fully loaded with 200 passengers,

and is based in Union, Wash.

The vessel's design is by International Catamarans Pty. Ltd. of Australia, for whom Nichols Brothers is the sole licensee in the U.S.

Tours of Seattle waters, as well as those of Puget Sound, are conducted by Capt. **Lynn Cambell**, who has leased the vessel. Deluxe appointments include upholstered seating, large windows for outdoor viewing, and full bar and galley.

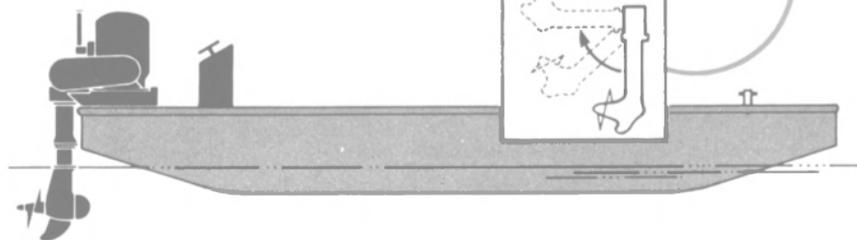
Meanwhile, plans are going ahead at the Nichols yard for two more passenger catamarans to be delivered in 1985.

**BOLT IT TO THE DECK,  
FILL IT WITH FUEL,  
AND IT'S READY  
TO GO TO WORK!**

The HARBORMASTER is the practical answer to powering work barges, sectionals, portable pipe-line dredges, etc. Marine power where you want it—when you want it. A self contained propulsion unit that can be handled at the job site and transported to another without the need for heavy lift equipment or low bed trailers. Send for our brochure.

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Circle 13 on Reader Service Card

## E-Systems Receives Canadian Contract For Frigate Radio Terminals

E-Systems will provide AN/WSC-3 UHF shipboard radio terminals for the new "City" class Canadian patrol frigates.

The company's Communications Manufacturing Division at St. Petersburg, Fla., will produce the radio terminals.

CMD has received an initial contract valued at about \$3.5 million to produce AN/WSC-3 "Whiskey-3" radios for the first six ships of the class. The Canadian Department of National Defence has programmed 20 ships for the class. They will be named for various Canadian cities.

CMD's contract is with Paramax Electronics Inc. of Montreal, electronic systems contractor for the program. St. John Shipbuilding and Dry Dock Company Limited, of St. John, New Brunswick, is the prime contractor and lead shipbuilder.

## ABS Elects Gillies Vice President



A. G. Gillies

Archibald G. Gillies was recently elected vice president in the executive administration of the American Bureau of Shipping (ABS). The announcement was made by **William N. Johnston**, ABS chairman and president, following a meeting of the board of managers at the semiannual meeting of the international ship classification society at ABS headquarters in New York. Mr. Gillies was previously an assistant to the vice president in the technical division.

He will assist **Lawrence J. Bates**, executive vice president, with the negotiations of this international marine classification society with other classification societies, government agencies, and national regulatory and standard making organizations.

Mr. Gillies joined ABS as a surveyor on the Hull Technical Staff in the New York office in 1961. He was appointed senior surveyor in 1972, principal surveyor in 1973, assistant chief surveyor in 1975 and chief surveyor of the Hull Technical Staff in 1978. He was appointed principal surveyor for Singapore, Malaysia and Indonesia in 1980 and assistant

to vice president of the technical division in New York in 1982.

He is a graduate of the Royal Technical College, Glasgow, Scotland, and is a chartered engineer registered with the Council of Engineering Institutions, London. He is a Fellow of the Royal Institute of Naval Architects, London, a member of the American Welding Society and the American Society for Testing and Materials (ASTM). He is also a member of the ASTM Committee F-25 on shipbuilding and chairman of the F-25.04 subcommittee on hull structures.

## All Oceans Ship Repair Named U.S. Agent For Maritime Enterprise Co.

**S. Hirayama**, manager of Marine Enterprise Co., Ltd. in Japan, has announced the appointment of All Oceans Ship Repair, Inc. as its exclusive agent in the United States. **Richard F. O'Boyle**, president of the firm, stated that he is "extremely pleased to be able to offer the services of this fine organization to American shipowners."

With headquarters in Kobe, branches in Yokohama and Moji, and subsidiaries throughout Japan, Marine Enterprise applies its technical know-how and mobile service backed by over two decades of experience to all ports of Japan. Specialties include electrical troubleshooting, main and auxiliary diesel repair, underwater service, hatch covers and cranes, survey work, and more. The company is the technical service agent in Japan for AEG, Clark Chapman, and GEC/Ruston, among others.

## Free Brochure Details New Digital Readout Unit For Gem Sensors Flow Meter

Gems Sensors Division of Plainville, Conn., has introduced a companion digital indicator for use with its 'Flow Ranger' Flow Meter. The indicator provides a readout of flow rates of 0-36 gph and 0-360 gph as well as an accumulative consumption rate. Literature is offered detailing the unit.

The positive-displacement Gems flow meter measures these flow rates and totals aboard boats, on trucks, with furnaces, and in chemical batching. The indicators provide an accuracy within 2 percent of actual flow rate. The indicator case is made of durable steel and measures 3-7/8 inches by 6-1/16 inches. Used with Gems Flow Meters they provide total system control and assure uninterrupted flow of liquid to its point of use.

For more information,

Circle 33 on Reader Service Card

## Racor Offers Literature On Its New Spin-On Fuel Filter/Water Separator

Racor Industries, Inc. of Modesto, Calif., has literature available on the company's new Spin-On Fuel Filter/Water Separator which the company says achieves levels of water separation and particulate removal that previously required two or three separate units.

Under the heading "One Head Is Better Than Three," the literature, illustrated with color photographs, explains that the key component of the Racor Spin-On Fuel Filter/Water Separator is one die-cast aluminum head, now being OEM installed as standard equipment. The head accommodates one of three spin-on filter options: Filter Type I provides vacuum or pressure side high-capacity solids removal with water sump; Filter Type II is a vacuum side dual-media element that optimizes water and particulates removal down to two microns; and Filter type III is a pressure side element with four distinct media that capture particulates while coalescing and separating emulsified water. Filter Types II and III are installed with a clear impact-resistant collection bowl or metal bowl for severe conditions.

Racor says that when two or three fuel filters (primary, secondary and water separator) are replaced by one, manufacturing costs are dramatically reduced and at the same time, the new system gives users flexibility through a series of upgradable spin-on filters and accessories that will meet their filtration needs in any application. Standard features include primer pump, check ball, bleed vent and dual outlet ports for ease of installation. For cold weather starting and running, an electrical in-filter heater is an optional feature. Water sensor indicators may also be specified.

For further information and a free copy of the literature from Racor,

Circle 19 on Reader Service Card

## Airco Introduces New Pulsed Welding Systems — Literature Available

Airco Welding Products has announced the introduction of the newest member of its family of Pulse Arc™ welding systems for pulsed spray transfer welding. The Pulse Arc 500 system, like the Pulse Arc 350 model, is designed around the pulsed spray process. The process allows for spatter-free welding and excellent arc control in applications ranging from high deposition out-of-position welding on thick plate to smooth, low-distortion welding on thin gauge materials.

The Pulse Arc 500 system has the power to handle large diameter cored wires up to 3/32 inch and can pulse Metal-Cor® 6 wire for high deposition rates. The system also has exceptional smaller diameter performance characteris-

tics. Like the Pulse Arc 350, the 500 model is a complete system consisting of a transistorized 500-ampere air-cooled or 550 ampere water-cooled gun. The fully integrated machine takes the normally complex engineering requirements of pulsed spray welding and translates them into a few simple pushbutton functions—at a price comparable to a standard MIG package.

The pushbuttons and toggle

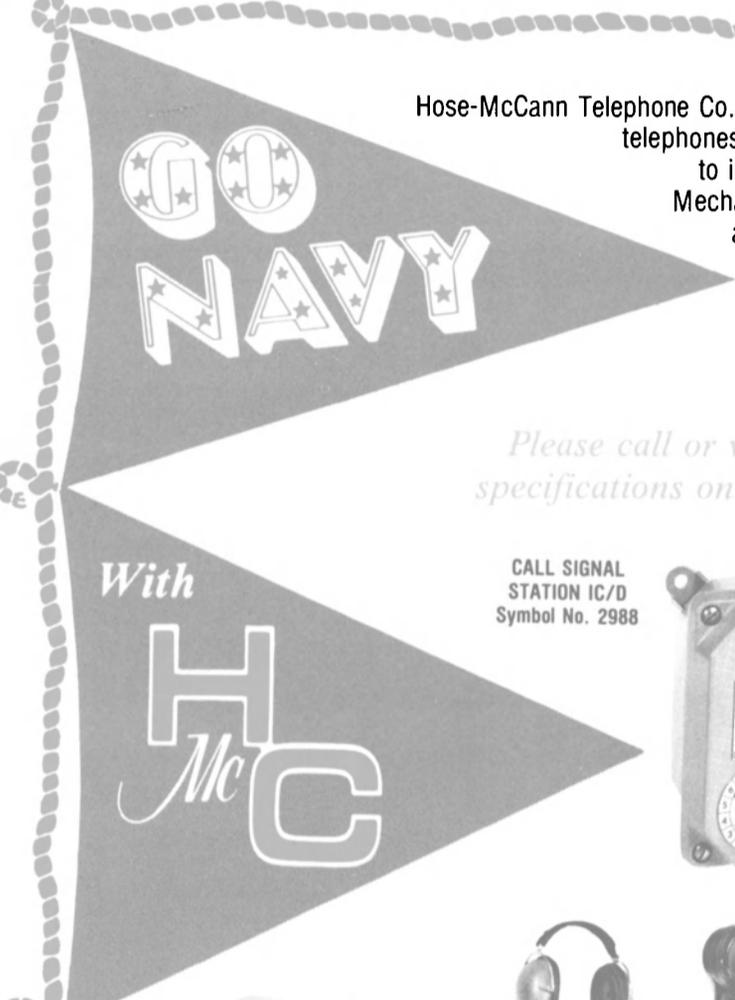
switches allow the operator to select among pulse, spray and dip transfer processes. He then presses the appropriate switches for the required wire diameter and shielding gas, and he's ready to go. A single knob on the remote pendant simultaneously sets welding current, voltage, wire feed speed, and pulse frequency. The advanced solid-state circuitry automatically controls all parameters.

The system is pre-programmed

for stainless and mild steels, but other wires, such as silicon bronze and aluminum can be used by referring to the easy-to-read process selector charts. The Pulse Arc 500 system is well suited for plants where one machine is needed to perform several welding operations.

For further information and free literature on the Pulse Arc 500 system,

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Hose-McCann Telephone Co., Inc., originators and pioneers of Sound Powered telephones for marine use, has expanded their product line to include a wide variety of U.S. Navy Electrical and Mechanical products. An assortment of these products are shown here. All Hose-McCann Navy Products are manufactured, tested, and qualified in accordance with the latest Military specifications.

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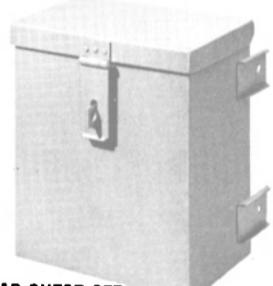
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SOUND-POWERED  
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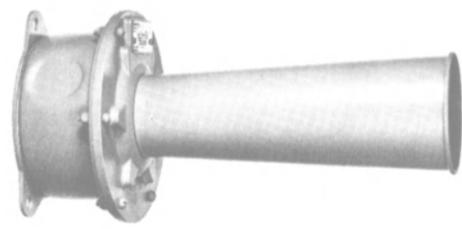
SOUND-POWERED  
TELEPHONE JACK  
H27A



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## Bender Delivers Tour Boat 'Amarya' To Nigerian Government

Bender Shipbuilding & Repair Co., Inc., of Mobile, Ala., recently delivered the 78-foot tour boat Amarya to the Government of Nigeria.

The vessel will be operated as a V.I.P. harbor tour boat by the Federal Ministry of Transportation, with her home port being Lagos. Thoroughly modern in her pro-



pulsion and electronics, she carries a complement of four crew with berths, and seats up to 30 guests in comfort and style. Throughout the interior a complex closed circuit television system provides security for the Minister and guests.

The focal point of the interior is the spacious lounge which features a hand-painted mural depicting some

of the rich history and art of Nigerian culture.

The Amarya has an overall length of 78 feet, beam of 22 feet 6 inches, depth of 10 feet and a draft of 6 feet. Her cruising speed is 12 knots with a maximum speed of 14 knots.

### Brown Promoted To Jahre Headquarters In Sandefjord, Norway

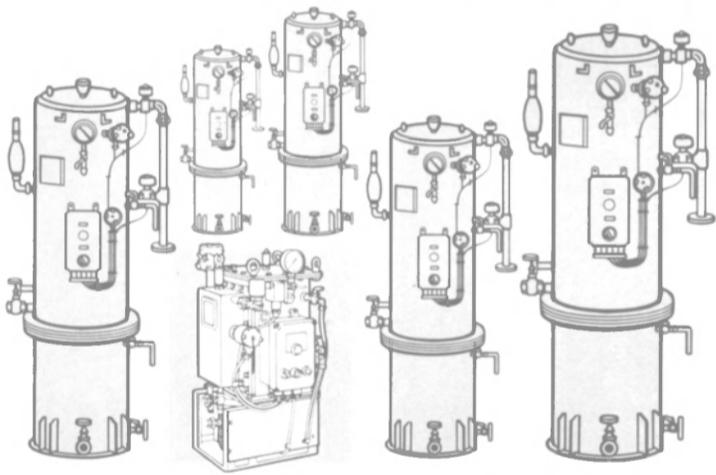
Robert E. Brown, formerly chartering manager of Jahre Shipping U.S.A., Inc. of Houston, has been transferred within the company to corporate headquarters in Sandefjord, Norway.

Mr. Brown will continue to be involved in the chartering area; his responsibilities, however, will become more global. He will strengthen Anders Jahre's chartering operations through his experience in the areas of tankers and OBOs. A graduate of Mississippi State University, he worked with Shell before joining Jahre in January 1984.

#### AMARYA Major Suppliers

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Reduction gear	Twin Disc
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Gyrocompass	Sperry
Autopilot	Sperry
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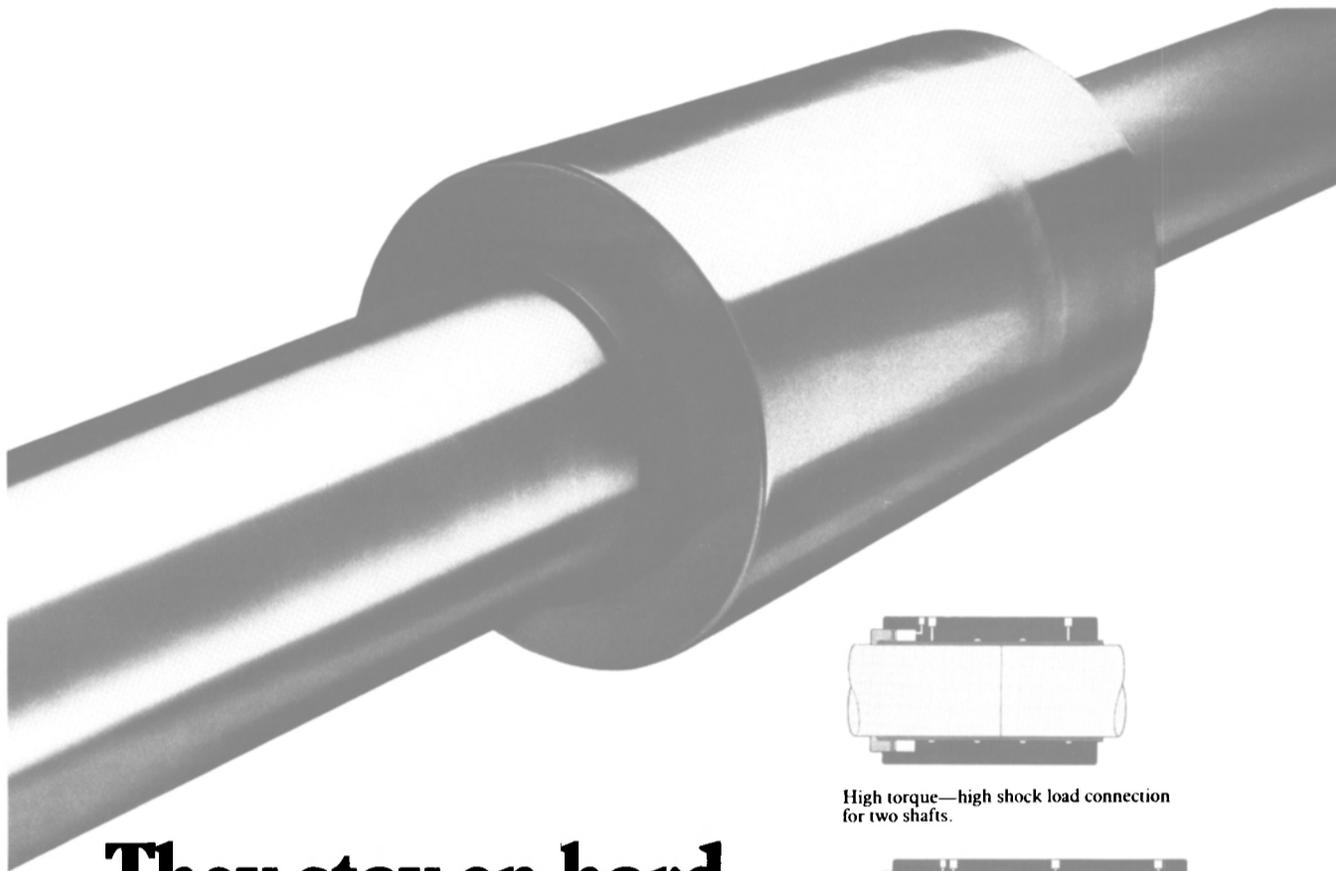
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Maritime Reporter/Engineering News



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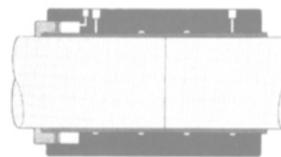
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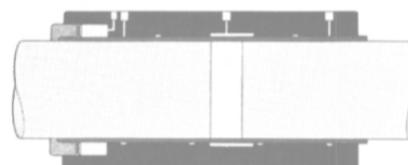
Wherever the duty is heavy, there's an OK Coupling that fits. For the principles, performance and world-proven track record, contact SKF Steel Coupling Division, P.O. Box 745, Avon, CT 06001. (203) 677-4423.

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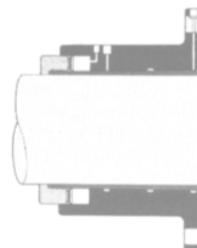
**SKF**



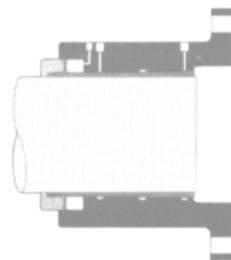
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Launching of passenger vessel Umsini was witnessed by some 200 guests.

## Meyer Werft Launches One And Delivers Another Passenger Ship For Indonesian Inter-Island Service

For the second time this year, a newbuilding was launched and another newbuilding was delivered on the same day recently by the Meyer Werft shipyard in Papenburg, West Germany. These newbuildings are two of a series of four passenger vessels ordered by the Directorate General of Sea Communication, Jakarta, Indonesia, for delivery between July 1983 and early 1985.

These 1,737-passenger, twin-screw vessels with a cruising range of 5,500 nautical miles at a speed of 20 knots will be used for the Indonesian inter-island service. The first two ships of this series, the Kerinci and Kambuna, have been in service

since August 1983 and March 1984, respectively.

In the presence of approximately 200 guests, mainly from Indonesia, the Umsini (the name of a mountain in Irian Jaya) was launched after being named by Mrs. R.A. Soerjati Roesmin Nurjadin, wife of the Indonesian Minister of Transport. The christening and launching ceremony was followed by the delivery ceremony of the Rinjani in the outer port of Emden, at which the Republic of Indonesia was represented by the Indonesian Ambassador in Bonn, H.E. Ashadi Tjahjadi, who officially accepted the vessel.

These 13,861-grt passenger ships are built in compliance with the regulations of the Indonesian classification society KI, and under the survey of Germanischer Lloyd to the class KI+A 100 1 Passenger Vessel +SM. They have an overall length of about 472.5 feet, beam of 76.8 feet, depth from the second deck of 27 feet, and draft of 19.4 feet.

Main propulsion is provided by twin MaK diesel engines, each with a maximum continuous rating of 8,700 bhp. Operating at 85 percent of mcr and 15 percent sea margin, the ships have a service speed of 20 knots. Each of the nine-deck vessels operates with a crew of 145.

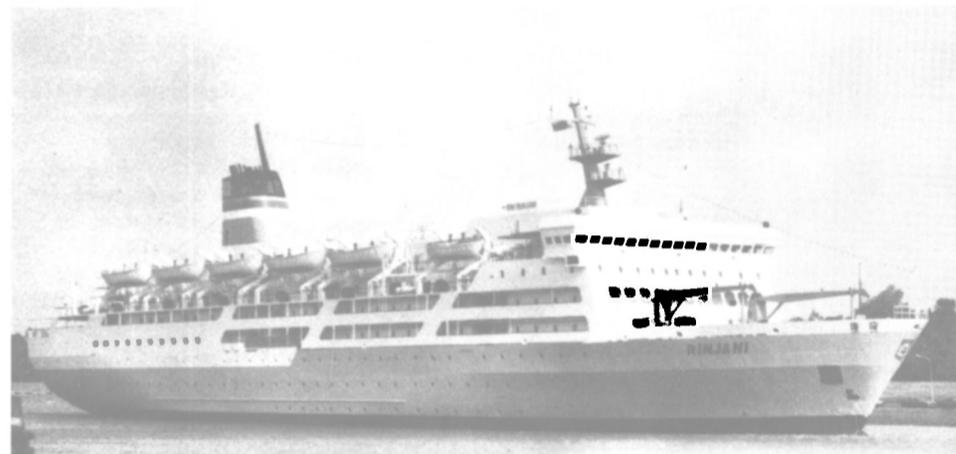
For the safety of passengers and crew, 12 motor lifeboats and 38 life-rafts with a total capacity of 1,412 and 950 persons, respectively, are provided on board, meeting the highest requirements of the SOLAS 1974 Convention.

The ships are divided into four fire zones. A smoke and fire detecting system is installed in the

machinery spaces, cargo holds, and air conditioning rooms. A CO<sub>2</sub> fire-fighting system is provided in the engine rooms and cargo holds, while a sprinkler system is fitted in all other areas. In addition, fire alarms can be released manually in all areas of the ships. All are connected to a central fire alarm system located on the bridge, with optical and acoustical indicators. Manual fire door release is provided on the bridge.

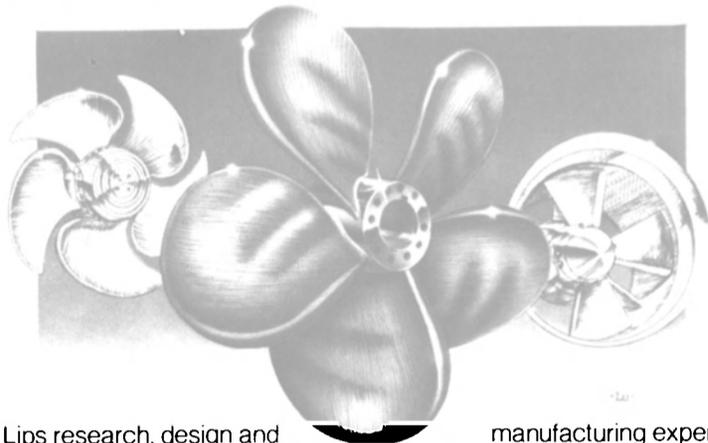
The ships are divided into 13 watertight compartments, with all watertight doors closed and opened electro-hydraulically from the bridge and hand-hydraulically from above the bulkhead deck and on both sides of the doors.

The interior design is typically Indonesian and consists of incombustible materials. All paints, pictures, and other wall decorations were chosen by Indonesian architects who stayed at the shipyard during the building periods. Most of the Indonesian decorations were, however, made in Germany.



Indonesian passenger ship Rinjani, built by Meyer Werft, is powered by two MaK diesels.

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Maritime Reporter/Engineering News



Julia V. Taft, wife of Deputy Secretary of Defense William Howard Taft IV, breaks the champagne bottle during recent christening of Aegis cruiser Valley Forge (CG-50) at Ingalls yard.

## Aegis Cruiser 'Valley Forge' Christened At Ingalls Shipyard

Deputy Secretary of Defense William Howard Taft IV was principal speaker at the recent christening ceremony for the U.S. Navy's newest, most powerful warship, the Aegis guided missile cruiser Valley Forge (CG-50). Built by Litton's Ingalls Shipbuilding division in Pascagoula, Miss., the new ship is the fourth in a class that is revolutionizing the U.S. Navy's aircraft carrier battle groups defenses.

She is the second Navy ship named in honor of the area in Pennsylvania where General George Washington's Continental Army suffered through the bitter cold winter of 1777-78. The first Valley Forge, an aircraft carrier later re-

designated as an amphibious assault ship, earned 17 battle stars and three unit commendations during a quarter century of fleet duty.

Julia Vadala Taft, a leading authority in the field of international refugee relief and resettlement and wife of Secretary Taft, served as sponsor of the new cruiser, smashing the traditional bottle of champagne across the bow. Patricia Goldman of Washington, D.C., vice chairman of the National Transportation Safety Board, was matron of honor.

Vice Adm. Harry C. Schrader Jr., USN, Commander of the U.S. Pacific Fleet's Surface Force, which Valley Forge will join after commis-

sioning in July 1985, said that "more than any other surface combatant since World War II, Valley Forge and her sister cruisers are designed to operate on the very cutting edge of our nation's maritime deterrent strategy. They have been given extraordinary capabilities that make them one of the most complex and sophisticated structures ever designed to sail on the ocean...the crew of this ship, if called into battle, will take with them the very best our nation has to offer."

Aegis cruisers are large ships—567 feet long, with a beam of 55 feet. Four gas turbine engines power the 9,400-ton ship to speeds in excess of 30 knots. As elements of the most important surface shipbuilding program in America today, Valley Forge and other ships of the Aegis class will provide the primary protection for the Navy's battle forces well into the next century. With her Aegis weapons system, Valley Forge is designed to counter all present and projected missile threats to the Navy's battle forces.

Her Aegis weapons system, the heart of her warfighting capability, is a significant advance in fleet air defense. Four fixed array radar antennae, mounted on the four sides of the ship's superstructure, replace conventional rotating radars enabling the ship and her crew to "see" in all directions simultaneously. The Aegis weapons control system simultaneously fires and directs more missiles at more targets, with greater accuracy, than any other system.

## Racor Offers Literature On Its Self-Regulating Diesel Fuel Line Heater

Racor Industries, Inc., of Modesto, Calif., is offering literature on its Thermoline™ Self-Regulating Diesel Fuel Line Heater.

The text of the literature, which contains a performance chart, specification table, photographs and drawings to complement the descriptive material presented, explains that the heater is constructed of a conductive polymeric core extruded between two parallel copper bus wires. At low temperatures, electrical current flows through the core between conductors, generating heat. As the temperature rises, the electrical resistance of the core material increases, reducing current flow and decreasing heat output. This infinitely reversible process occurs independently at each point along the heater strip and prevents overheating.

Diesel engines fitted with the Racor Thermoline Diesel Fuel Line Heater are said to be able to operate year-round on less expensive, higher BTU No. 2 diesel fuel. Overnight engine idling to keep fuel warm is not necessary.

The Thermoline heater comes fully assembled and ready to install with a complete accessory kit that includes circuit breaker, solenoid, dashboard switch, hardware and easy-to-follow instructions.

For further literature containing full information,

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# AWO Perspective

## The Angel Of Competition

From an address recently presented to  
The Annual Meeting of the Propeller Club of the  
United States

by  
**Joseph A. Farrell, President**  
American Waterways Operators, Inc.



Joseph A. Farrell

Our inland and coastal barge industry is too little understood, indeed it is largely invisible and we have only to look into the mirror to discover who is to blame for that. Our indictment might read, "They have done poor work, but they are slow."

Early in this job of president of the American Waterways Operators, Inc., working late one night, I grew increasingly angry as I contemplated the federal government's initiatives to confiscate ever larger user taxes from our depressed industry. How could they do that, I wondered. And then the light dawned: because they don't know anything about us, especially the great benefits derived by the American consumer from the competitive force engendered by the barge industry.

Beginning that night, AWO has been embarked on a campaign to educate our government, and the people at large, about this industry.

Since the earliest days of the republic down to the present day, all American Presidents and Congresses have acknowledged America's seafaring character, fronting as we do on oceans, lakes and the Gulf of Mexico. Our government has always recognized the need for a strong and healthy merchant marine through the substance and direction of U.S. maritime policy. This maritime pol-

icy understandably has focused on the deep draft fleet. But, it is well past time that constructive federal policy extend to the inland and coastal tug and barge industry.

Our industry uniquely and independently contributes to the economic well being and the national security of the United States. It is composed of about 1,000 companies operating a massive fleet of tugboats, towboats and barges: 4,400 towboats on the reaches of 25,000 miles of navigable inland rivers, and 2,600 tugboats on the Atlantic, Pacific and Gulf Coast tow over 32,000 barges. Over 100,000 direct jobs for our citizens come from this industry. Fifty-seven percent of all on-board jobs in the U.S. flag merchant marine are on the vessels of this fleet. Indirect employment is in the millions.

Competition is the centerpiece of our industry, providing a choice for shippers of the bulk products which fuel our economy. Lower prices resulting from this competitive choice ultimately benefit the individual American consumer. We carry 13 percent of the nation's freight for 2 percent of the national transportation cost. We are the most efficient, safest and least expensive mode of transport.

Our industry has also been a vital adjunct to our armed forces in times of war:

- Submarines built in inland shipyards in the Second World War;

- Commodities vital to the war effort shipped along the Gulf Intra-coastal Waterway, safe from enemy submarines, in that same war;

- Transporting and distributing huge quantities of material off loaded in Saigon during the Vietnam War; and

- Resupplying the remote dewline radar sites in Alaska.

With all that, we are a deeply troubled industry.

The barge and towing industry has not come back with the general economy. We are in a depression, not a recession, and we are not recovering.

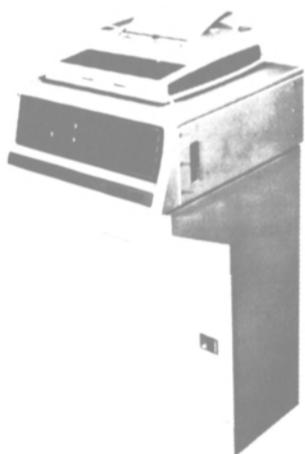


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Circle 298 on Reader Service Card

Witness a study done by the renowned accounting firm of Arthur Andersen & Co. They gathered financial data from 15 of the largest inland barge companies. In 1980, these companies earned an aggregate profit of \$130 million on \$1.1 billion in revenue. In 1982, these same companies lost \$30 million. In 1983, they lost over \$40 million. Mind you, these are among the largest companies. You can imagine how the little fellows have fared. Bankruptcies abound. The downward spiral is unmistakably clear.

What happened?

The industry is dependent upon bulk products, largely petroleum, coal and grain. All three commodities are depressed.

President Carter's disastrous grain embargo savaged this industry. We carried 46 percent of all U.S. grain for export. In 1980, before the embargo was imposed, the U.S. shipped 20 million metric tons of grain to the USSR. That went to zero until last year when this administration signed a new agreement with the Soviets for 8-12 million metric tons. It will be very difficult to recapture the market share we once had. The Soviet government, to protect its own interests, has diversified its purchases to include Australia, Canada and Argentina.

The economies of western Europe and Japan have lagged the robust recovery of the American economy. As a result of that and fissures in the OPEC cartel, the world is awash in petroleum. Demand is slack and transportation of the black gold is down.

What has been good for the United States has hurt the barge industry: energy conservation has taken hold. Last year, demand for electricity actually went down for the first time in our history. And, with it, domestic coal consumption slowed. Barge traffic suffered.

Overhanging all this is a vast surfeit of equipment in the industry. New tax laws brought hordes of investors ... physicians, dentists, attorneys ... into barge owning partnerships used to shelter their income. We are about 15 percent overbuilt.

Understanding its importance and its troubles, I have been asked to address, "What is the role of the federal government in the waterways industry?" That depends on who you talk to.

My old friend Dave Stockman, director of the Office of Management and Budget, says the federal government should recover between 70-100 percent of all federal expenditures on the waterways and the ports.

Senator Abdnor and Senator Stafford believe the federal government should recover 100 percent of federal capital outlays for inland projects and 30-100 percent of port development.

The Interstate Commerce Commission believes that the Panama Canal Act is outmoded and railroads can own barge lines.

Bob Roe, Congressman from the 8th District of New Jersey, believes

that the industry should pay a third of the cost of inland capital projects, no inland operation and maintenance costs, 50 percent of superport development and no port operation and maintenance costs.

President Reagan believes that the maritime industry is "important in peacetime and critical in times of conflict," but has done so little as to consign that statement to an empty rhetoric bin.

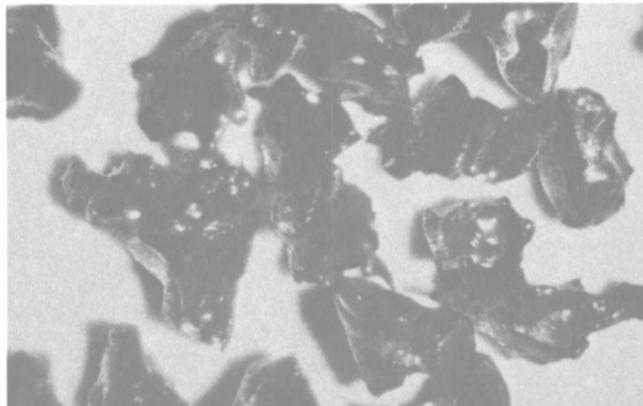
So, you see what the federal government's role is depends entirely on who is talking. Let me tell you what I believe.

I want first to persuade you that we have every reason to be proud of and pleased with our nation's overall transportation system. Indeed, our domestic transportation system is one of the most highly developed—and envied—in the world, providing the foundation upon which

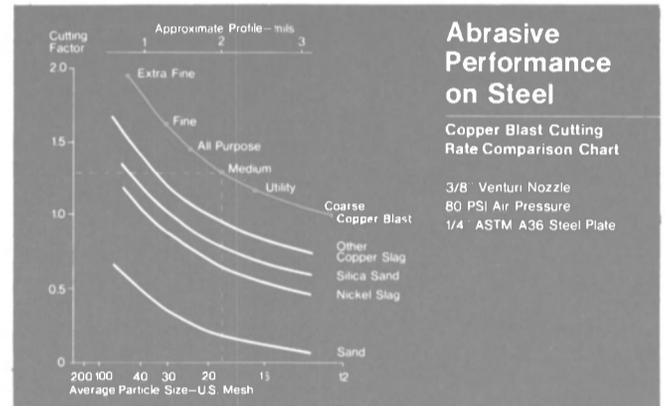
American economic growth progresses—or declines. Our prosperity as a nation is due in large part to the success of that system, and to the two hundred years of ever advancing technology, combined with old-fashioned know-how which has enabled us to build such a formidable network of highways, railroads, airways, pipelines, and last, but not

(continued on page 36)

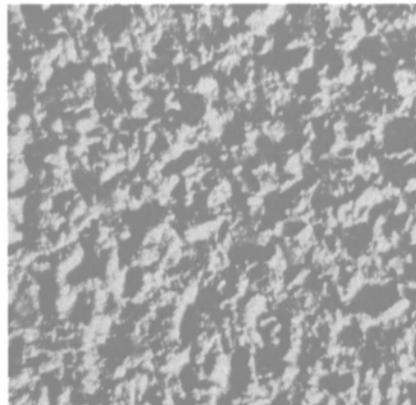
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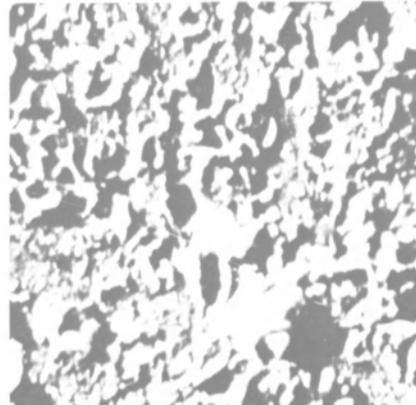
COPPER BLAST particles are reusable, virtually dust-free and every edge is a cutting edge (magnified 17 times).



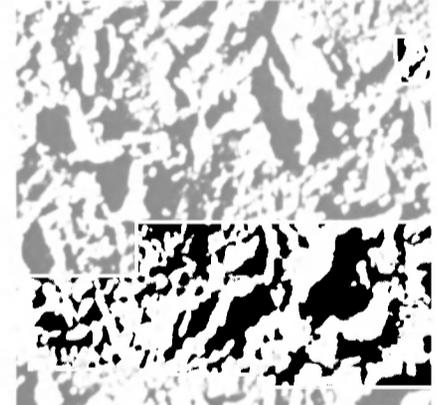
COPPER BLAST cleans metal faster, which means more work in fewer hours.



COPPER BLAST creates a uniform anchor pattern.



These cratered surfaces were made by nickel slag abrasive (left) and silica sand (right). They left more residue, have an uneven profile and will require more paint.



New COPPER BLAST is a premium-quality, all-purpose copper slag abrasive with more cleaning power for your money. COPPER BLAST is well-screened to retain only the particles that do the job. You don't pay for dust which does no work.

COPPER BLAST gives you consistently superior cutting with angular, low free silica abrasive particles many buyers can use again and again. Because COPPER BLAST works harder and faster than dusty abrasives, *job time goes down and cost effectiveness goes up.*

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## AWO Perspective

(continued from page 35)

least, inland and coastal navigable waterways.

The system is in fact so all pervasive and so efficient that those who are outside our industry rarely give it a second thought, like the air they breathe. This attitude is due in part to the fact that the role transporta-

tion plays in our day to day lives is virtually inseparable from life itself. Our daily commutes to and from work, shopping centers, learning centers—all involve transportation. Our social, political and cultural unity as a nation, as well as our national defense, are all embedded in this sweeping transportation network. And, the great engine that drives what benefits us all in this

network is competition: competition among the various modes of transportation.

The general economic health of our nation is, to a very great degree, dependent upon its national transportation system as a vital link in the chain of production, distribution and sale of goods. The keystone of national transportation policy must be healthy, separate modes,

free to compete with one another. It is only through the continued competition among and between the various modes that the public will be served by: lower costs, better service, and increased efficiency.

Our transportation network should exist today as a balanced system. No single mode should reign supreme. All forms—rail, water, motor, pipeline, air—have roles to play. Each is a vital link in the chain.

Historically, the uniting force provided by transportation has been stimulated, encouraged and supported by the federal government. As far back as 1787, the Northwest Ordinance stated, "The waterways shall forever remain free," thus recognizing the public benefits flowing from this national treasure. So, too, our government, nursed the infant rail industry through federal land grants beginning in 1850.

The operation of the modes born in the 20th century, trucking and the airlines, also drew the attention of the federal government. Under one of the programs begun by President **Franklin Roosevelt** in 1934, called the Civilian Works Administration, 500,000 miles of roadways were built or improved as part of his program to cure the devastating unemployment of the depression. President **Eisenhower** followed that with the mammoth interstate highway network, begun in the 50's.

Later, the government subsidized the regional airport program, building 500 new airports as well as the upgrading of an equal number.

It is the possible weakening and eventual breakage of the waterways link in that chain that concerns me today. As I have already suggested, it is the singular ability of the water mode to provide a choice for such crucial commodities as petroleum (and its products), coal, chemicals and fertilizers, grain, sand, ore, gravel and lumber, that makes barge carriage so attractive. If this most efficient form of transport—the barge industry—were removed from the overall traffic system, there would be a marked and immediate increase in the cost of some of the necessities of life—electricity, cereal, gasoline, automobiles and housing.

Unfortunately, the future ability of the barge and towing industry to continue to offer bargain transportation of these vital commodities is being threatened by current misguided legislative and executive branch initiatives. Mindless attempts to impose higher levels of user taxes on the navigation industry, the loosening of the protections now afforded shippers and our industry by the Panama Canal Act are the two looming threats to the foundations of this industry. There are many other issues which command our attention, also . . . assaults on our cabotage laws, proliferating, and unnecessary regulations of vessels and crews, labor union excesses, to name a few . . . but, for now, I'll dwell on the two giants.

That infant the federal government  
(continued on page 38)

# The Tri-Feature "DL Series"— For tomorrow's 700 cSt fuel from Daihatsu.

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Does it polish in service?	X	✓
Does it provide predictable fouling control?	X	✓
Can it be applied over most high performance antifouling?	✓	✓
Is it effective during long stationary periods?	X	✓
Does it minimize the roughness penalty?	X	✓
Is Interswift the economical alternative?		<b>YES</b>

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Specify

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more performance

more economical

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## AWO Perspective

(continued from page 36)

ment nurtured, the railroads, grew up with a mean streak. After completing their transcontinental link-up the railroads turned their attention to eliminating barge industry competition by purchasing marine terminals and barge lines, cutting the rates and ultimately driving all

independent operators off the rivers. This is what led to the creation of the Interstate Commerce Commission in 1887.

By 1912, the necessity of bolstering that independent regulatory body charged with assuring balanced treatment of the modes became evident when rail interests made a feint to divert traffic from the newly-opened Panama Canal.

Alert to the rail industry's inclination to exercise its monopoly power and determined to nourish the new Canal, Congress enacted an amendment to the Interstate Commerce Act in 1912, which prohibited, with conditions, ownership by a railroad of a competing water carrier.

For three quarters of a century, the Panama Canal Act was unchallenged. Then, in June of 1983, the

CSX Rail Corporation announced its intention to purchase Texas Gas Resources with its big barge subsidiary: American Commercial Barge Lines. The case was argued for six months before the Interstate Commerce Commission. On July 24th, the Commission voted 4-0 to allow the transaction, thereby standing the law on its head.

That law says:

A railroad cannot own a water carrier with which it does, or may, compete

unless

Competition will not be diminished on the water route in question,

and

The public interest will be served by the acquisition.

Even the ICC, which my friend Carl Bagge, president of the National Coal Association, calls "... a wholly owned subsidiary of the American Association of Railroads," conceded that CSX and American Commercial Barge Lines do, in fact, compete.

Will competition be lessened by this transaction? Last year, CSX hauled 20 million tons of coal to the river. Two million tons of that coal were transhipped in American Commercial Barge Lines bottoms, the remaining 18 million tons were carried by American Commercial Barge Lines' competitors. If CSX had owned American Commercial Barge Lines last year I contend that not one lump of coal would have gone to the competition.

There goes competition. There goes the public interest.

The barge and towing industry will appeal this decision of the ICC to the Appellate Court and, if necessary, to the Supreme Court in an attempt to receive a fair hearing. Our industry cannot afford to go into the clutches of its chief competitors, certainly not gently.

The other marauders on the loose threatening the barge industry, and therefore the American consumer's pocketbook, are the government bureaucrats who blind to all reason pursue the imposition of even higher user taxes on this industry. We are awash in studies which show high user taxes will surely:

- Harm U.S. exports by decreasing their competitiveness;
- Hurt the already bleeding American farmer who must bear the brunt of increased costs; and
- Cause a net drain on the U.S. Treasury due to lost export related jobs.

As I have said around the country, in their reckless quest to kill what they believe is a "free ride vampire," they would drive a stake into the heart of the angel of competition.

Witness the case of coal. Today, we are the beneficiaries of electric generating plants that provide us with some of the cheapest utility rates in the world. However, this bargain electricity may be in jeopardy. A new user charge "impact" assessment conducted by Walter J. Wills, economics professor emeritus at Southern Illinois University's School of Agriculture, warns that

(continued on page 40)

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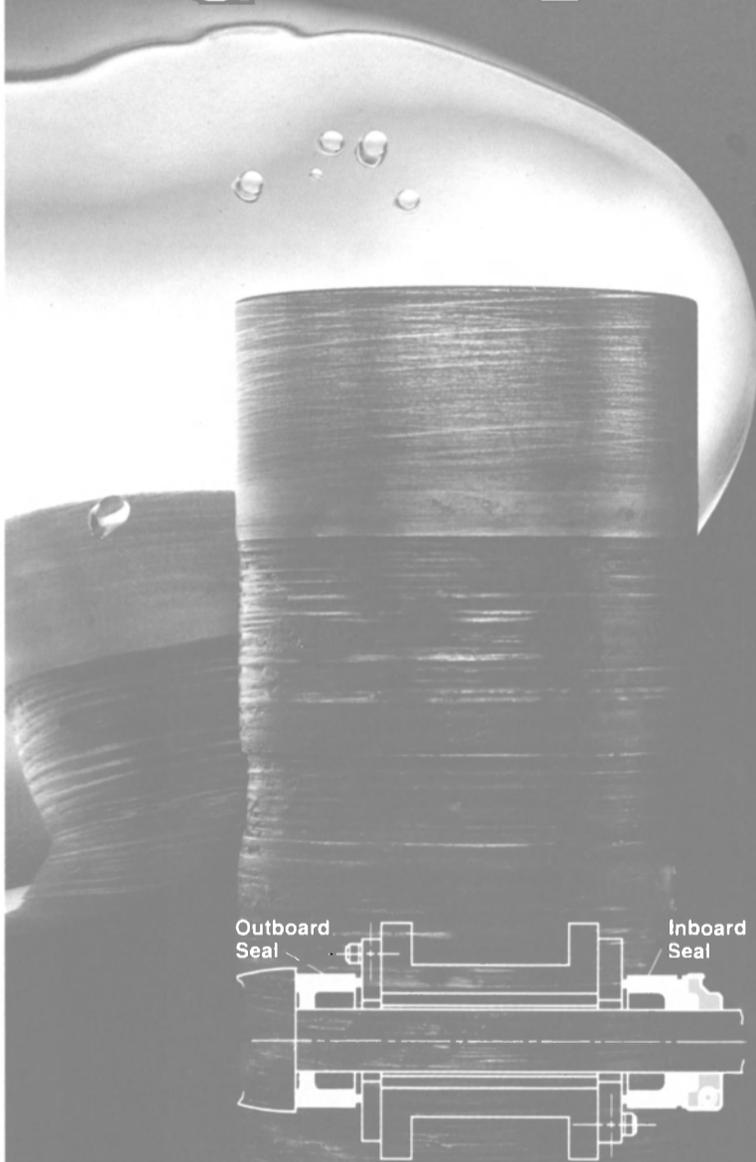
Write us today for your free copy of the Armco AQUAMET Boat Shafting Product Data Bulletin. This 44-page bulletin contains complete mechanical and physical properties, corrosion resistance information, machining guidelines, and design curves. Armco, Stainless Steel Division, Dept. SS-34, Box 600, Middletown, Ohio 45043.



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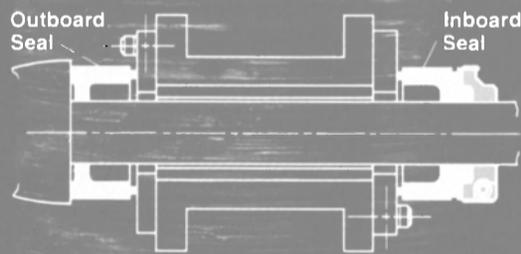
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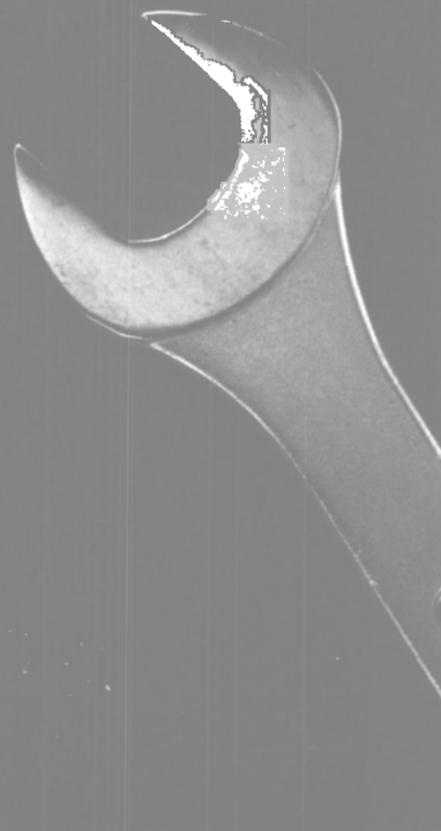
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## AWO Perspective

(continued from page 38)

increasing user taxes on waterways transportation could damage the coal industry in the "eastern interior basin" and increase electricity rates. "A 10¢ per gallon (barge fuel) tax would increase electricity rates about 2 percent, a 34¢ per gallon tax would increase costs 6 percent, a 70¢

per gallon tax would increase electricity costs 14 percent and a \$1.30-per-gallon tax would increase electricity costs 33 percent," he says.

It is the barge industry which holds down the price of the kilowatt. Clearly it is in the national interest to keep utility rates at low levels to stimulate production, making American goods more attractive to other countries by making them

cheaper to produce.

Without question it is also in the individual consumer's interest to pay lower utility rates, enabling him to have more discretionary buying power.

Look at export coal. In 1982, the U.S. exported 105 million tons of coal. During 1983, total U.S. coal exports equalled only 76.9 million tons at a value of \$4.07 billion.

According to the Department of Commerce, through May of this year, coal exports have exceeded the 30 million ton mark and are running ahead of last year, but only slightly.

There are several reasons for declining U.S. coal exports. Canada, Australia, South Africa, Poland and increasingly, Columbia, have been able to capture large shares of the export market due to lower production costs and lower transportation costs. Transportation costs of U.S. coals account for 30-50 percent of the price of U.S. export coal. Here is where the barge industry is able to have a positive impact toward reducing the total price of this important commodity.

History reveals that where railroads have to compete directly with barge lines to haul coal traffic, miraculously, the rail rates are reduced to meet the barge competition.

According to published Tennessee Valley Authority statistics, the rate for shipping coal by rail from Coalmont, Tennessee to Birmingham, Alabama, is \$20.10 per net ton where the railroads face no competition from the waterways. The identical shipment costs \$15.14 per net ton where waterborne competition comes into play, a difference of \$4.96 per net ton. Such water-compelled rail rate reductions range from 40-110%, and using the rail industry's own estimate, force the railroads to charge almost \$1 billion less per year—industry wide—for shipment by rail.

These are only two examples of two issues in a jungle of federal forays, many of which are misguided and based upon no information or misinformation. Again, our own failing. To paraphrase **Jack Kennedy**, "ask not what your government can do for you. Be damn sure your government knows who you are and what you can do for it."

### 16-Page Alfa-Laval Brochure Describes Its Full Capabilities

Alfa-Laval Inc., Ft. Lee, N.J., has published a new 16-page full-color brochure describing its activities and the kinds of technologies in which it is involved, including centrifugal separation, energy management, process systems, biotechnology and dairy farm management.

The brochure, subtitled "Serving America with Technology for a Changing World," gives a detailed description of products and systems manufactured by Alfa-Laval's two major components in the U.S., the Agri Group based in Kansas City and the Industrial Group based here.

Alfa-Laval, Inc., is the U.S. subsidiary of the international Alfa-Laval Group, based in Sweden and a world leader in process systems and equipment for a broad range of marine, industrial and bioengineering applications.

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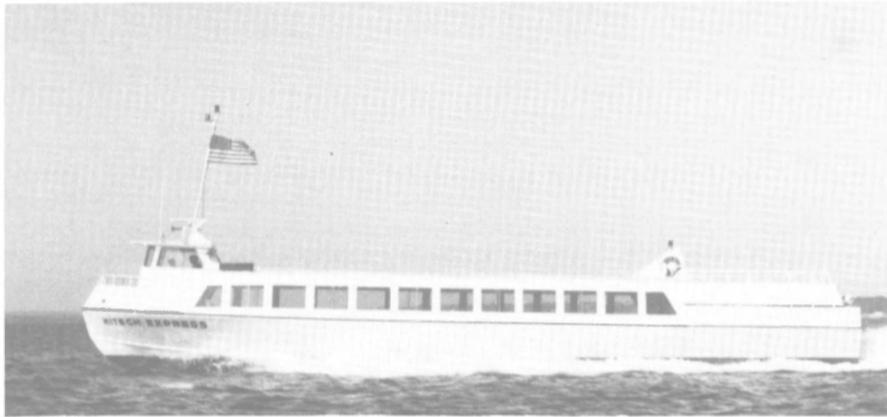
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## Blount Marine Yard Completes High-Speed Commuter Vessel

Blount Marine Corporation has announced the completion of the Hitech Express, an extremely lightweight commuter boat built of aluminum, foam, fiberglass, and stainless steel. Making a speed of 31 mph, the vessel completed test runs in Narragansett Bay and is available for demonstration.

Certified by the U.S. Coast Guard for 149 passengers in seats, the foam core of this high-speed craft renders it virtually unsinkable. In addition, all components are extremely dura-

ble, and the hull needs a minimum of maintenance. Of significant operational importance, the craft produces a minimum wake at high speeds.

In January this year Blount Marine launched the Hitech Express upside down, proving its unsinkability. Final outfitting had to wait until ordered boats were finished this summer. Blount was granted a U.S. Patent after constructing a 40-foot preliminary model in 1982. It was satisfactorily tested for two years.

The boat was fast for its power, reasonable in cost, easily repaired and exceptionally durable.

Hitech Express (shown above) is a totally enclosed, windowed craft seating 149 passengers. It is 77 feet long, 20 feet wide, draws 3 feet, and weighs 22 tons—about half the weight of a steel or all fiberglass boat. It is lighter than an all-aluminum boat of equal strength. Power

is supplied by two GM Detroit Diesel 12V71 turbocharged engines. Other commuter boats require three such engines.

For docking, the Express noses bow first into a special floating dock, much as a railroad car is coupled. This speeds docking and allows fast passenger loading and unloading off the bow. The craft can be delivered with its own docks.

### Free Eight-Page Brochure Available From Racor

Racor Industries, Inc. of Modesto, Calif., which was founded in 1969 to manufacture and market innovative diesel fuel filter/water separator systems, has made available an eight-page brochure describing these and other items that the company has extended its product line to include.

Drawings, diagrams, photos, and descriptive and specification data are used in the three-hole-punched publication to cover the Racor 20 Series Spin-on Diesel Fuel Filter/Water Separators; Recycling and Re-cycle/Blender Systems; Air Dryers for vehicular compressed air systems; Diesel Fuel Heaters; Fuel Additives; and Hydraulic Filtration Systems.

Options and accessories are also listed, such as the Racor vacuum gage that permits accurate monitoring of the vacuum level in the outlet line of the Racor filter/separator; the Racor compound gauge which provides a wider range of measurement for applications that may be exposed to both vacuum and pressure; replacement elements (Racor manufactures a complete line of high quality replacement elements for all Racor products); quality fittings for installing Racor units; automotive mounting bracket kits for installing Racor filter/separators on automobiles; and water sensors that detect water and, by LED readout, alert the operator to drain the bowl (a water sensor with light and audio alarm is also available).

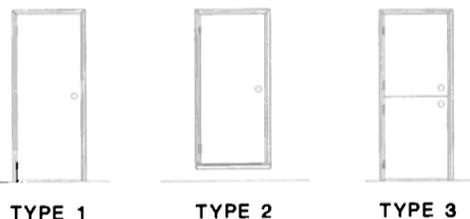
For a free copy of the brochure and further information,

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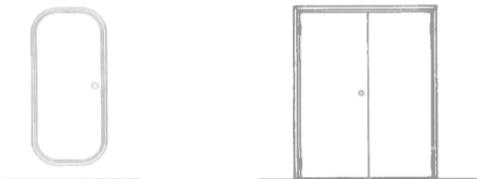
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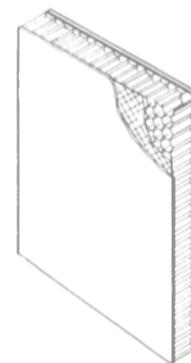
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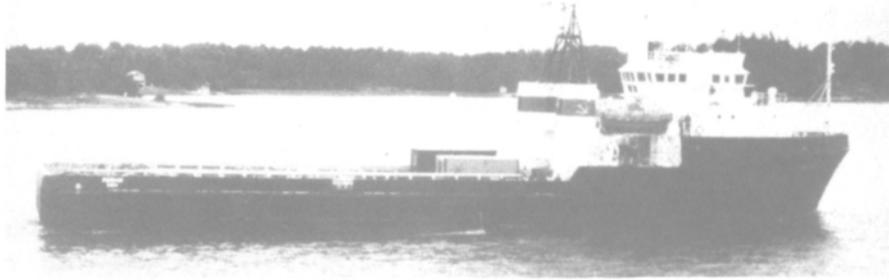
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## Valmet Delivers First Of Four Supply Vessels To Soviet Union

Valmet's subsidiary yard, Valmetin Laivateollisuus Oy in Turku, Finland, recently delivered the first unit in a four-vessel series being built for the Ministry of Gas Industry of the USSR. The supply/

anchor-handling vessel Rioni incorporates a number of interesting features, like the "father and son" machinery installation, as well as one-compartment structural subdivision to provide extra safety for opera-

tions in harsh conditions such as the Arctic.

The Rioni (shown above) is the lead vessel in the series that will be delivered during 1984-85. Behind the customer's decision to place the order with the Valmet yard was, among others, the fact that Laivateollisuus already had good experience with such craft. In the mid-70s the Turku yard built a series of Ulstein type UT 704 vessels for I.M. Skaugen in Norway and The Offshore Company of Houston. The Rioni type, however, is the yard's own design and is tailor made to meet the stringent requirements of the USSR rules and specifications.

The Rioni type is intended to serve the needs of offshore installations with the transport of pipe, bulk material, fresh and potable water, fuel, cement and mud, as well as food provisions in refrigerated containers. She will also be able to tow drilling rigs and other structures. In addition, she will be able to carry and handle anchor chains and cables of the offshore structures, as

well as take the drill sludge ashore in containers.

The Rioni has an overall length of 220.8 feet, beam of 45.6 feet, and design draft of 16.4 feet. Storage capacities are designed to give 30 days of uninterrupted operation with a complement of 24 and at an 85-percent machinery output.

The machinery arrangement comprises two separate propeller shafts, each driven via a reduction gear by two diesels of different sizes. Each diesel is coupled to the reduction gearbox by flexible couplings; in addition, the smaller engines are coupled from their front ends to separate alternators. Thus the smaller engines serve a dual purpose—as a main engine or as a generating set, either coupled independently.

All four diesels are of Wartsila type 22, the two larger in V form with 22 cylinders each and the two smaller units in R form with six cylinders each. The corresponding outputs are 2,420 bhp and 1,200 bhp, respectively, for a total vessel output of 5,330 bhp. Both of the smaller engines are fitted with 550-kva alternators. One generator is needed to serve the vessel in all conditions except when the 1,000-hp bow thruster and the towing winch or the cargo-handling equipment are in operation.

The two propellers are of controllable-pitch type fitted in fixed nozzles. They can be controlled by joystick type operation from both ends of the bridge. Also on the bridge are remote controls for the towing winch, and alarm stopping of the cargo pumps.

The one-compartment structural subdivision is achieved by careful placement of the bulkheads and tanks. As a result, either of the compartments may be flooded without causing danger to the vessel.

## Browning Named Contracts And Sales Vice President For Sonat Offshore Drilling

As part of the recent consolidation of the Executive Marketing and Contracts and Sales Departments, Sonat Offshore Drilling Inc. of Houston named **J. Robert Browning** to the position of vice president-contracts and sales, a position that has been vacant for some time. Prior to this change, he was the vice president of executive marketing.

Mr. **Browning** began his career in the petroleum industry in 1952 in Maracaibo, Venezuela, as a mud engineer for Mene Grande Oil Company, a subsidiary of Gulf Oil. In 1964 he joined Sonat Offshore Drilling as an assistant manager in Libya and was progressively promoted to more responsible positions in Africa and the Mideast prior to returning to the Houston headquarters in 1981. In his new position, he will manage the worldwide contracts and sales functions, including these departments in the London and San Francisco offices.



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## MarAd Awards Crowley Contract For \$150,000

The Maritime Administration has awarded a contract to Crowley Maritime Corp., San Francisco, Calif., to maintain three T-1 tankers in Ready Reserve Force (RRF) status for a period of up to 10 years. The contract has an estimated value of \$150,000 during the next year.

The RRF is a joint program—administered by MarAd and funded by the U.S. Navy. It is a select component of the National Defense Reserve Fleet consisting of vessels which can be activated for sealift operations on 5 to 10 days' notice.

The ships are the USNS Nodaway, USNS Alatna and USNS Chattahoochee. Work under the contract could include the activation, operation and deactivation of one or all of the vessels upon notification by the U.S. Navy.

Two of the vessels will be laid up in Japan and one in Hawaii. All will be under dehumidification with cathodic hull protection.

## Norcontrol Wins Contracts Valued At \$1.5 Million

The Norwegian company Norcontrol has recently been awarded contracts for four advanced surveillance systems for maritime traffic. The orders represent a value of some NOK 13 million (about \$1.486 million). One of the systems is for surveillance of an oil field in the Bass Strait between Australia and Tasmania, the second is for coastal surveillance in the U.K., and the other two are harbor systems for Plymouth in the U.K. and Halifax in Canada.

Since 1980, Norcontrol has signed contracts for approximately 40 display systems for a total value of some NOK 130 million (\$14.86 million), which represents at least 60 percent of the world market for such maritime surveillance systems. The company's successful penetration of the world market is a result of the ability to develop purpose-designed equipment that allows the operators easy, instantaneous access to all relevant information.

## MarAd Submits Final Rule For Governing Evaluation Of Bids

The Maritime Administration has submitted for publication in the *Federal Register* a final rule governing the evaluation of bids submitted to federal agencies by subsidized U.S.-flag bulk vessel operators for the carriage of dry-bulk preference cargoes.

The new rule requires that operating-differential subsidy (ODS) received by operators of vessels carrying dry-bulk preference cargoes be considered a cost to the government for carriage of such cargoes and be included in calculating reasonable rates for such carriage.

In issuing the rule, MarAd noted that it is intended to ensure equita-

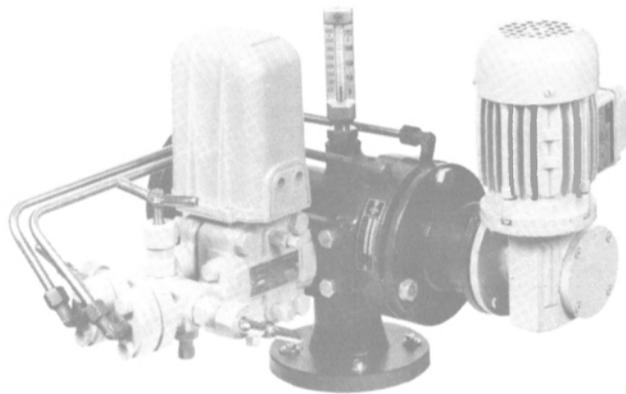
ble competition between subsidized and unsubsidized operators of dry-bulk preference cargoes and the carriage of these cargoes at the lowest cost to the government.

MarAd issued an interim rule on this subject last January (see B84-021;1/19/84) and requested comments from concerned members of the public. Comments were received for six ocean shipping companies

and one maritime trade association.

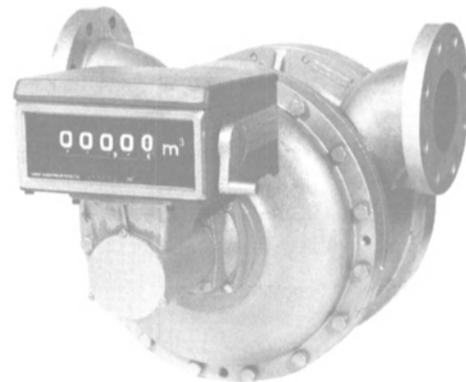
Information on the background of this rulemaking is available in the preamble to the interim rule published in the *Federal Register* on January 24; in Aeron Marine Shipping Co., et al., *Final Opinion and Order*, Docket No. A-132 (MSB, December 22, 1983) and the *Tentative Order on Remand* of the same case (MSB, August 23, 1983).

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fications on input hub assemblies designed to fit Vulastik torsional couplings. The bulletin also contains basic capacity and dimensional data on the company's standard and multi-pump PTO's, top PTO's, live PTO's, indicating gauges, output shaft flanges, trolling valves and heat exchangers.

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**Wartsila Turku Yard Delivers Big  
Catamaran Crane Vessel To USSR**

The crane ship Titan-1 (shown above) was delivered recently at the Wartsila Turku Shipyards in Finland. Ordered by Sudoimport as the first in a series of four identical vessels, the Titan-1 is said to be the world's biggest catamaran ship, and is intended for hoisting and installation duties in the offshore oil fields. She is a single-deck vessel, with engine room, accommodations, and bridge located far forward, and propulsion motor rooms, diving station, and workshops aft.

The catamaran has a maximum overall length of 464 feet, beam of 177 feet, and depth of 42.65 feet. The propulsion machinery is diesel-

electric. Total output of the three diesel engines manufactured at the Wartsila Vasa factory is 7,550 bhp; output of two electric propulsion motors is 3,400 kw, and that of the two bow thrusters 800 kw. The vessel's speed is 11 knots.

Unlike most of the large offshore cranes today, the crane of the Titan-1, manufactured by Kone Oy, is the center-pillar type, partly because it is situated on one of the hulls and because of the very high free space requirement under the boom. The capacity of the two main hooks is 300 tons each; together they lift 600 tons at an outreach of 128 feet, or 150 tons at 226 feet. Total installed power of the all-electric crane is 2,350 kw.

The vessel is equipped with complete offshore construction equipment, including steam hammer, pile-boring gear, automatic flame cutting and welding equipment, platform leveling equipment, and a diving station with decompression chamber for three divers and one doctor. The craneship, with its eight 10-ton anchors, can be moored in water depths of up to about 650 feet.

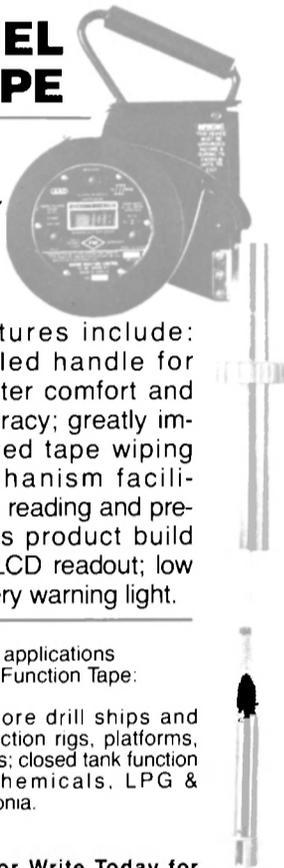
When hoisting, the catamaran concept is advantageous due to its inherent good stability. As the world's largest catamaran, the Titan-1 was a formidable challenge to the Turku Shipyards. New calculation methods had to be developed as there were available neither classification society rules nor ready-to-use calculation methods concerning the seakeeping characteristics and the hull strength of a catamaran vessel of this size.

Two of the vessels in this series of four will be delivered in sections for assembly at a Soviet shipyard under Wartsila supervision. The transport will take place via the Volga waterway, the hulls separately and the deck and deckhouse in sections.

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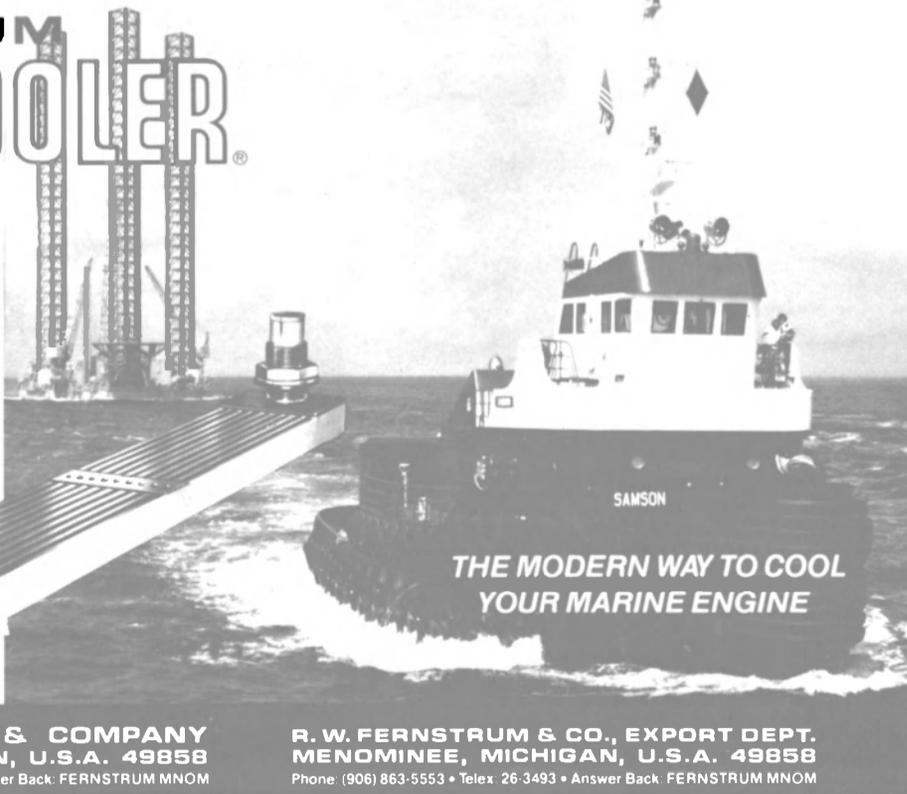
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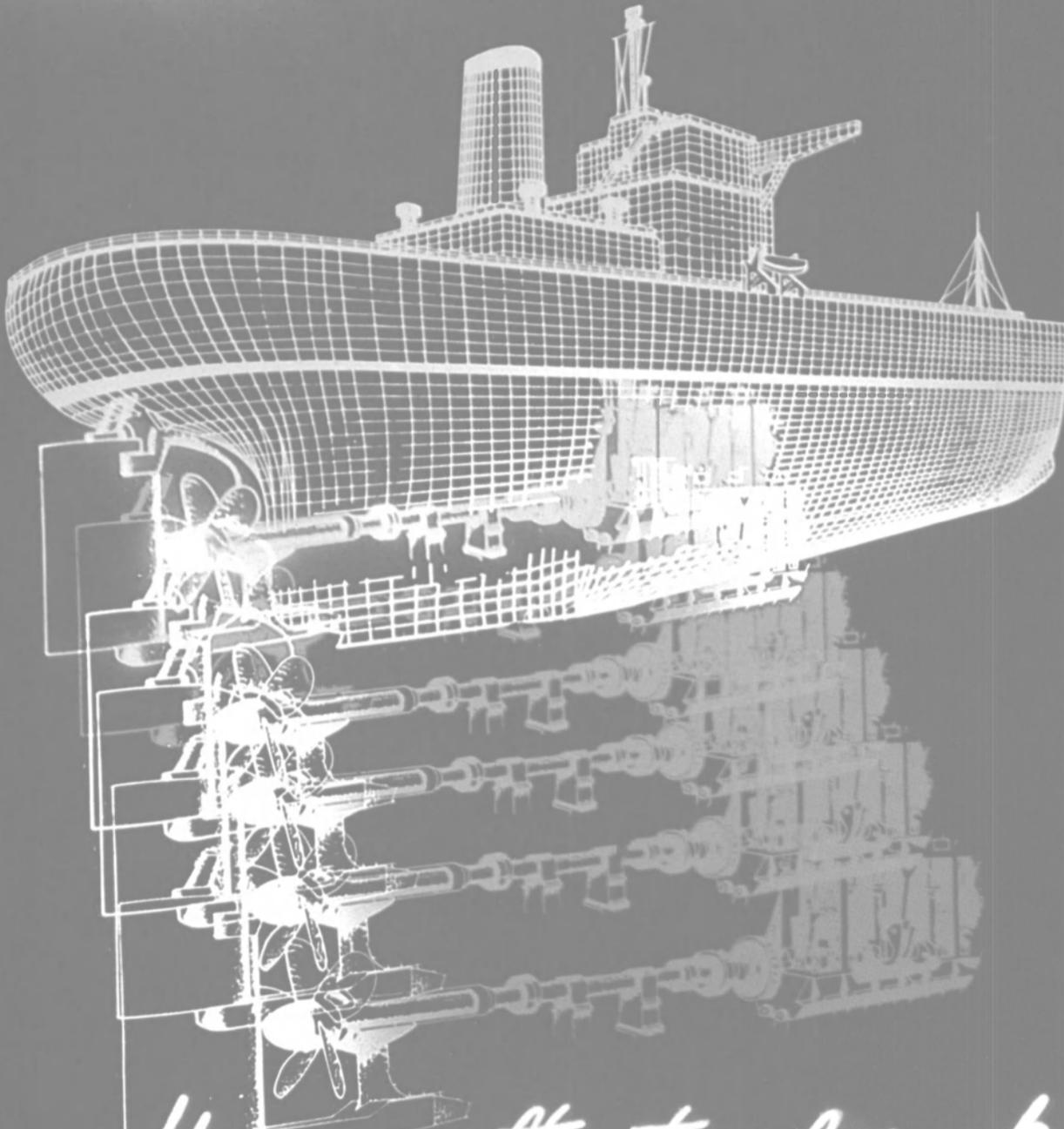
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## 92nd S N A M E Third International



The 92nd Annual Meeting and Third International Maritime Exposition of The Society of Naval Architects and Marine Engineers

will be held November 7-10, 1984, at the New York Hilton Hotel.

The exposition, with more exhibitors than ever before and a larger number of firms from overseas, will cover the entire exhibit space of

some 26,000 square feet on the second floor of the Hilton. A new feature this year will be the posting of directional signs to make it easier for visitors to find their way around the exhibition, which has shown a

steady growth since its inception in 1982. This year some 165 exhibitors will show their products and services to an attendance expected to top 3,000. Registration for the Annual Meeting includes free admis-



# Annual Meeting Maritime Exposition

sion to the exposition, which will be open 2-6 pm on November 7, 10 am to 6 pm on November 8, and 10 am to 4 pm on November 9.

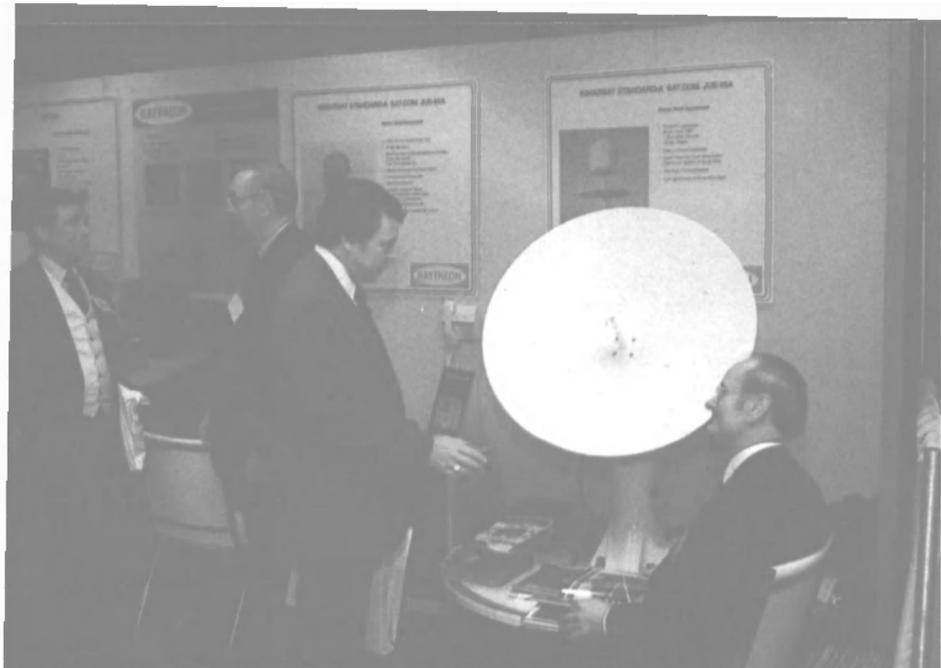
The Society's Papers Committee has selected 13 papers to be pre-

sented on November 8th and 9th in the Trianon and Mercury Ballrooms on the hotel's third floor. Among the topics to be discussed are the cause and correction of propeller-induced vibration, noise reduction for U.S.

Coast Guard patrol boats, ship manning trends in Northern Europe, and government policies affecting maritime innovation.

At the luncheon on Thursday, November 8, SNAME president and

chairman/chief executive officer, NASSCO, **Larry French** will deliver the address, and several important awards will be made. Following the President's Luncheon a Busi-  
(continued on page 48)



## 92nd SNAME Annual Meeting — A Preview

ness Session will be held in the Grand Ballroom, where the new SNAME president for 1985-86 will be elected. This session will be chaired by Mr. French, and will include a report of the elections that occurred at the Council Meeting on November 7, consideration of the proposed amendments to the By-laws, and other such business as may be introduced by the chair.

At the Annual Banquet in the Grand Ballroom on Friday, November 9, the Society's highest awards will be bestowed. The David W. Taylor Medal "for notable achievement in naval architecture" will be awarded to **Jan D. Van Manen**, professor and managing director of the Netherlands Maritime Research Institute. The Vice Admiral "Jerry" Land Medal "for outstanding accomplishment in the marine field" will go to **Lester Rosenblatt**, chairman of the board of M. Rosenblatt & Son (past president of SNAME). **John V. Wehausen**, recently retired professor of engineering science, University of California, Berkeley, will receive the Davidson

Medal "for outstanding scientific accomplishment in ship research." Following the awards presentations and acceptance speeches, president **French** will introduce the banquet speaker, VADM **James B. Stockdale**, USN (Ret.), one of the Navy's most decorated officers.

A ladies' hospitality room will be located in Suite 524/526, and will be open from 9 am to 4 pm on Thursday and 8 am to 4 pm on Friday. A spouses' tour of Lincoln Center has been planned for 9:30 am to 2 pm on Friday, November 9, ending with a luncheon at the Adagio Cafe in Avery Fisher Hall of the Center.

The final event of the Annual Meeting will be the Dinner Dance to be held at 8:30 pm on Saturday, November 10 in the Grand Ballroom. A reception (no host) will precede the dinner, beginning at 7 pm in the Grand Ballroom Foyer.

### Technical Papers

(See table for time and location)  
**Paper No. 1**—"Modeling of Diesel Engine Transient Behavior in Marine Propulsion Analysis," by **Robert G. Latorre** and **John B. Woodward**.

**SYNOPSIS**—This paper discusses mathematical modeling of diesel engines for use in computer simulations of marine propulsion tran-

## TECHNICAL AND SOCIAL PROGRAMS

THURSDAY		
	TRIANON	MERCURY
9:00	1. Modeling of Diesel Engine Transient Behavior Woodward/Latorre	3. Semisubmersible Wind Loads & Wind Effects Macha/Reid
10:30	2. Two State-of-the-Art Specialty Product Ships Koops/Caldwell/Gordon	4. High Speed Displacement Ship Systematic Series Hull Forms Blak/Beukelman
12:00	PRESIDENT'S LUNCHEON Grand Ballroom Reception, East Ballroom Foyer	
2:00	BUSINESS SESSION Grand Ballroom	
3:00	5. SNAME T&R Program of 1984 Kiss	
3:30		

FRIDAY		
	TRIANON	MERCURY
9:00	6. Minimizing Propeller-Induced Vibration Hadler/English/Gupta	8. Analysis of Extreme Ice Loads Daley/St. John/Seibold
10:30	7. Noise Reduction Program for USCG 95-Ft. Patrol Boats Fischer	9. Global Ship Ice Impact Forces Ghoneim/Johansson/Smyth/Grinstead
12:00		
2:00	10. Government Policies Affecting Maritime Innovation Johnson	12. Natural Vibrations of Beams in a Fluid with Applications Daidola
3:00		
3:30	11. Ship Manning Trends in Northern Europe Benford	13. Implementation of Reliability Methods to Marine Structures Mansour/Jan/Zigelman/Chen/Harding
4:30		
7:30	92nd ANNUAL BANQUET Grand Ballroom	



sients. Modeling is founded on basic thermodynamic and fluid flow principles, aided by empirical relationships as necessary. Equations for several engine variations are presented, and evaluation of their constants from engine performance data is outlined.

**Paper No. 2**—"Two State-of-the-Art Specialty Products Ships: Design, Construction, and Operation," by **Robert X. Caldwell, Maurice Gordon, and Dwight H. Koops.**

**SYNOPSIS**—In 1979, Exxon Shipping Company decided to replace four aging specialty product tankers with modern equipment. Diesel power was selected because of inherent economies and simplicity of operation. This paper traces the development of the ships' design, with particular emphasis on the cargo and related systems. It also explores the contractual relationship between the owner and the shipyard.

**Paper No. 3**—"Semisubmersible Wind Loads and Wind Effects," by **J. Michael Macha and Dale F. Reid.**

**SYNOPSIS**—This paper presents the results of a comprehensive investigation of wind effects on a contemporary semisubmersible drilling vessel design. Wind loads were measured on a wind tunnel model as a function of draft, heading, inclination, and deck arrangement. Scale and lift effects, and effects related to the representation of the sea surface were critically analyzed. The measured wind loads were compared with loads obtained using two classification society procedures.

**Paper No. 4**—"The High-Speed Displacement Ship Systematic Series Hull Forms: Seakeeping Characteristics," by **Wim Beukelman and Jan J. Blok.**

**SYNOPSIS**—A systematic series of high-speed hull forms has been model tested at the Maritime Research Institute in the Netherlands. The series has been designed to possess both good calm water resistance properties and to have favorable seakeeping characteristics. This pa-

(continued on page 50)

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## 92nd SNAME Annual Meeting

### — A Preview

(continued from page 49)  
per illustrates the thoughts underlying the selection of main hull shape parameters, the build-up of the se-

ries, and typical results in both fields. Ship motion computations were carried out in parallel, and a correlation is provided.

**Paper No. 5**—"The SNAME Technical and Research Program of 1984," by **Ronald K. Kiss**.

**SYNOPSIS**—This paper traces the progress of the Society's Technical and Research Program since its inception. It provides an up-to-date

overview of what is taking place in each of the T&R panels and ad hoc committees, thereby presenting the diverse activities to SNAME members at large. Finally, the paper provides a look at the future needs and the Program's potential to continue to serve the members and their profession.

**Paper No. 6**—"Program to Minimize Propeller-Induced Vibration

on Converted Maersk 'E' Class Ships," by **John W. English, Sudarshan K. Gupta, and Jacques B. Hadler**.

**SYNOPSIS**—In converting the Maersk "E" class of ships, the ship was lengthened and the engine re-rated to maximum output. The increase in power plus the effects of lengthening the hull required the design of a new propeller—one which would minimize the pressure forces generated by the propeller. Identifying the cause of the large two, three, and four times blade frequency pressure forces, and designing a propeller to ameliorate them is the subject of this paper.

**Paper No. 7**—"Noise Control Program for the USCG 95-Foot Patrol Boats: A Case History," by **Raymond W. Fischer**.

**SYNOPSIS**—This paper details a case history of a noise control program for U.S. Coast Guard 95-foot patrol boats. Diagnostic tests and recommended and installed noise control treatments are discussed. The propulsion diesel noise is shown to be effectively controlled by special vibration isolation mounts. Propeller-induced noise, while not directly treated, is addressed, as well as an investigation into a "singing" propeller.

**Paper No. 8**—"Analysis of Extreme Ice Loads Measured on USCG Vessel Polar Sea," by **Claude G. Daley, Frederick Seibold, and James W. St. John**.

**SYNOPSIS**—Ice impact pressures have been measured on the U.S. Coast Guard icebreaker Polar Sea in heavy Arctic ice conditions. This paper presents an analysis of the results and proposes a general algorithm for the determination of loads in multi-year ice based on probability. The algorithm accounts for ship displacement velocity and bow shape. Ice thickness and strength are included in an alternate approach.

**Paper No. 9**—"Global Ship Ice Impact Forces Determined from Full-Scale Tests and Analytical Modeling of the Icebreakers Canmar Kigoriak and Robert LeMeur," by **G.A.M. Ghoneim, John Grinstead, B.M. Johansson, and M.W. Smyth**.

**SYNOPSIS**—This paper presents results from analytical modeling and full-scale testing of the icebreakers named in the title. The objective was to evaluate the global ice impact force time histories developed during ramming thick first-year and multi-year ice features. The method presented herein estimates the components of the total

(continued on page 53)



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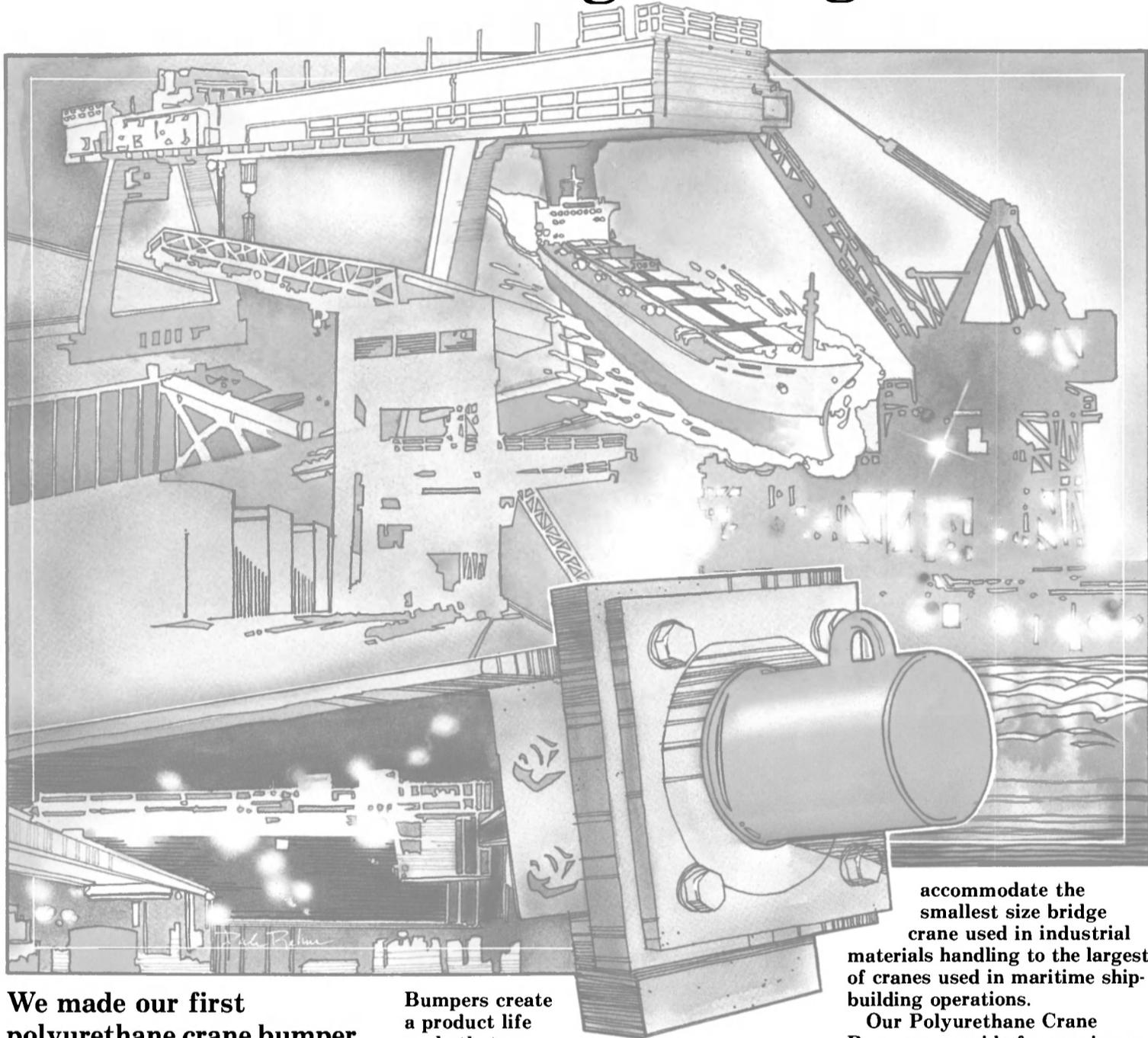
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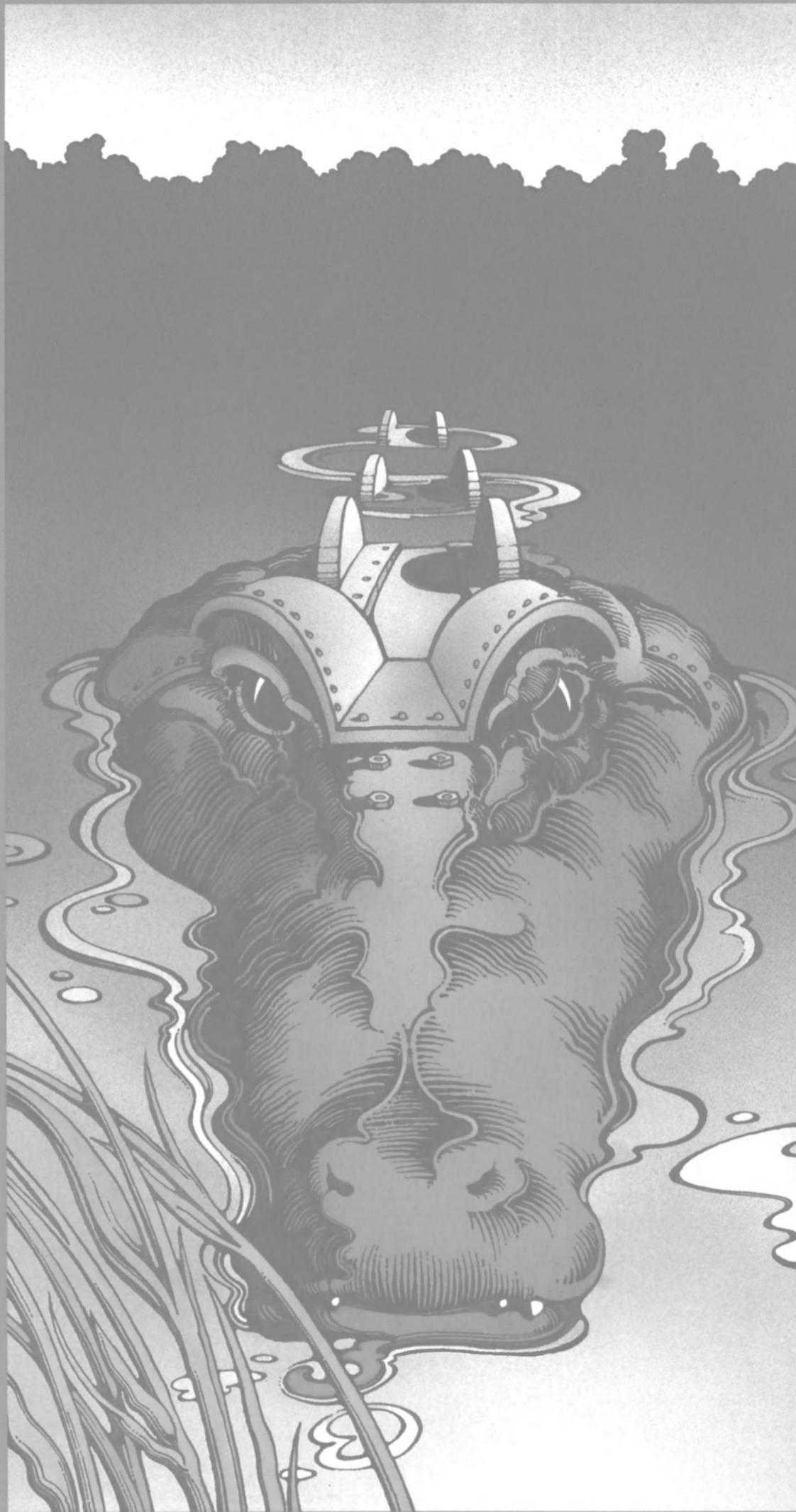
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**92nd SNAME  
Annual Meeting**

**— A Preview**

(continued from page 50)

force by extrapolating measured shear forces and bending moments at several sections along the hull to the point of application of the load.

**Paper No. 10**—"Government Policies Affecting Maritime Innovation," by **Peter A. Johnson**.

**SYNOPSIS**—This paper presents data and analyses of various U.S. Government and international policies, and attempts to trace both positive and negative effects upon technological innovation in the maritime industries. The policies discussed include trade and cargo, subsidies or other industry assistance, and regulatory policies. The paper describes the present status of these policies and how certain debates are forcing some policy changes.

**Paper No. 11**—"Ship Manning Trends in Northern Europe: Implications for American Shipowners and Naval Architects," by **Harry Benford**.

**SYNOPSIS**—This paper summarizes the interwoven economic, technical, and human factors that are forcing change in managing the fleets of Northern Europe. The core aim of these changes is to bring productivity into line with high wages. Lessons we may learn from the European experience offer promise of overcoming the handicap of high wage rates in the U.S.-flag merchant fleet.

**Paper No. 12**—"Natural Vibrations of Beams in a Fluid with Applications to Ships and Other Marine Structures," by **John C. Diadola**.

**SYNOPSIS**—This paper gives a method for the prediction of the vertical and lateral natural vibrations of a Euler beam in a fluid, based on a simultaneous solution of the mechanical equation of motion of the surrounding fluid. The effects of the fluid on the vibratory characteristics and the impact on vibration analyses are considered, as well as



compared to the results of classical approaches.

**Paper No. 13**—"Implementation of Reliability Methods to Marine Structures," by **Y.N. Chen, S.J. Harding, H.Y. Jan, A.E. Mansour, and C.I. Zigelman**.

**SYNOPSIS**—This paper presents a rationale for selecting and calibrating a format of reliability-based strength standards for use in design of ships and marine structures. A

comprehensive framework comprising all aspects of reliability methods and code development is discussed. Typical values and trends of reliability indices and partial safety factors are determined and illustrated for a series of selected existing ships, and also for some designs based on the current rule requirements.

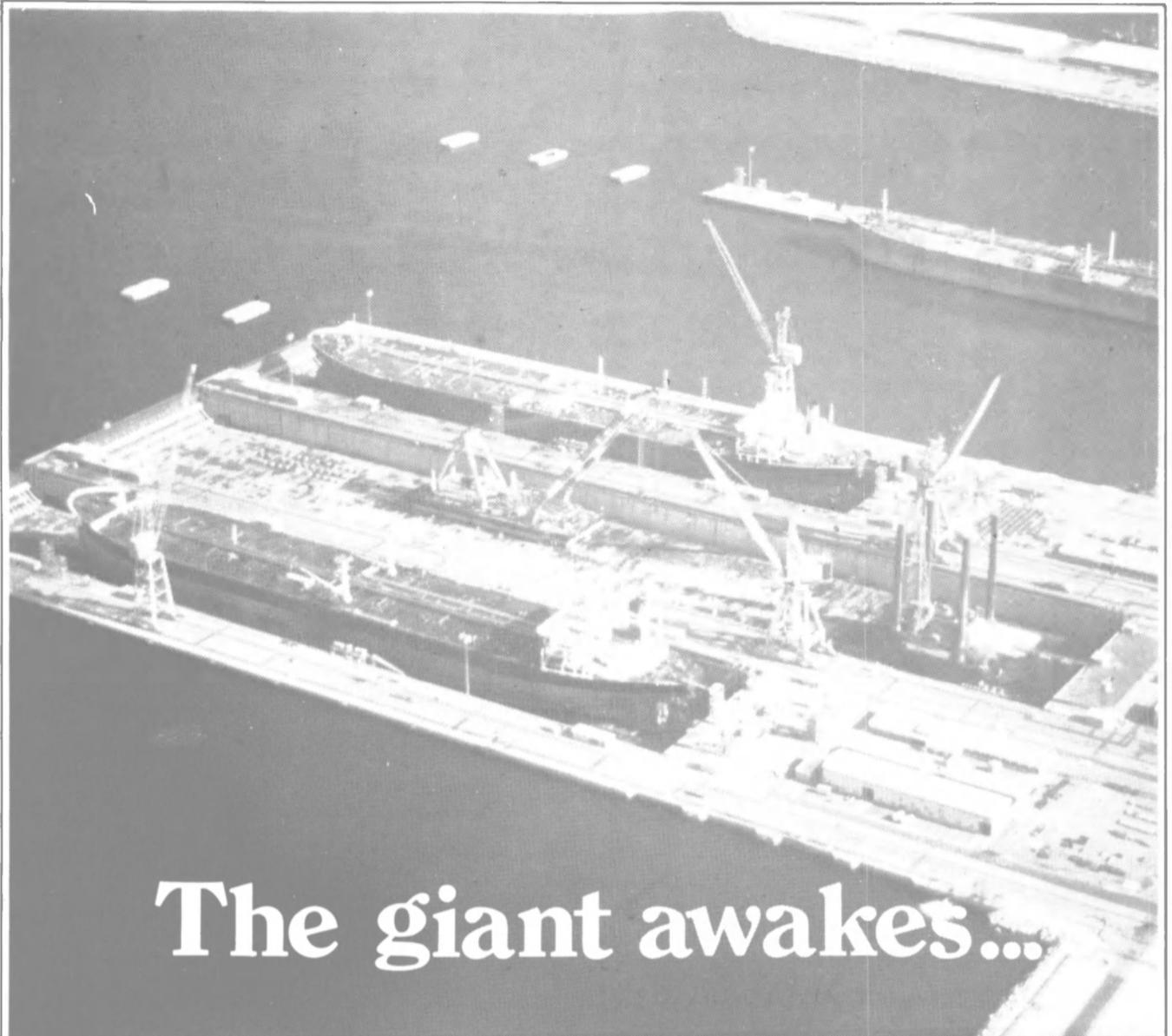
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November 1, 1984

APS 2067

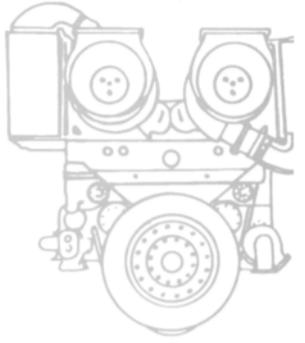
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**Colt-Pielstick Diesels**  
Big horsepower in less space  
Ratings to 29,700 bhp.

# THE POWER IS

When it comes to dependable, economical marine POWER, you can't beat Colt-Pielstick diesel engines. The PC-4 Series is now available with a horsepower range to 29,700 bhp. PC-2 Series to 13,266 bhp. Their reliability has been proven in many millions of hours of operation with over 70% on heavy and residual fuels.

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Fairbanks Morse has built the Pielstick PC-2 Series diesels in ratings to 13,266 bhp since 1970 and during that time has built engines for a wide range of commercial and naval applications including the current Navy LSD program. In addition to the Pielstick, the Fairbanks Morse O-P engine, with ratings of 700 to 4200 bhp, meets many Navy applications and has long played an important propulsion and ship service role in the fleet.

Get the complete Colt-Pielstick marine POWER story, today. Write or call Colt Industries, Fairbanks Morse Engine Division, Beloit, Wisconsin 53511. 608/364-4411.

**Colt Industries**



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**Fairbanks Morse**

Engine Division



**Third  
International  
Maritime  
Exposition**

(continued from page 53)

List of Exhibitors

AMT, INC.  
ADMIRAL MARINE

AERO NAV LABORATORIES  
ALLIED MARINE CRANE  
AMATECH  
AMERICAN METAL BEARING  
AMERON  
ANSCHUETZ OF AMERICA  
AQUA-CHEM  
AQUA-SIGNAL/BROWNING MARINE  
ARCO METALS/WISCONSIN CENTRIFUGAL  
THE ARNESSEN CORPORATION  
W.B. ARNOLD COMPANY/PISTON

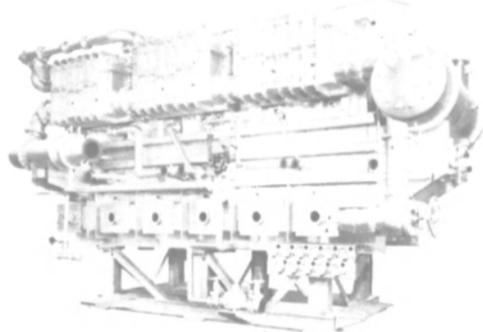
PRODUCTS  
ASEA, INC.  
ATLANTIC SANDBLASTING  
AUTRONICA-MARINE U.S.A.  
B&W DIESEL  
BAILEY CONTROLS  
BATH IRON WORKS  
BETHLEHEM STEEL  
BIOSPHERICS  
BIRD-JOHNSON  
BROMMA, INC.



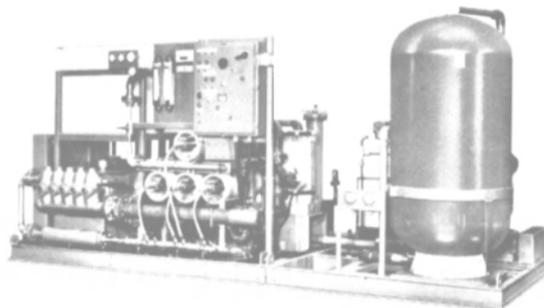
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CDI MARINE  
CTI INDUSTRIES  
CANADIAN CONSULATE GENERAL  
CANTIERI NAVALI RIUNITI  
CATERPILLAR TRACTOR  
CHEMTRON FIRE SYSTEMS  
CHEM-TRONICS  
CIBA-GEIGY CORPORATION  
CLOW CORPORATION  
COMBINATION PUMP VALVE  
COMBUSTION ENGINEERING  
COMPUTERVISION CORPORATION  
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COOPER ENERGY SERVICES  
CROSSFIELD PRODUCTS  
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CUNICO CORPORATION  
DAMPA (USA)  
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DESIGNERS & PLANNERS  
DETECTOR ELECTRONICS  
DEUTSCH METAL COMPONENTS  
DEUTZ  
DEVOE MARINE COATINGS  
DOVER CORPORATION/NORRIS DIVISION  
DREW CHEMICAL  
ELECTRO-MOTIVE DIVISION GM  
ENVIROVAC  
ESGARD  
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GOLAR METAL  
MORRIS GURALNICK ASSOCIATES  
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HENSCHEL  
HILMAN ROLLERS  
HITACHI Zosen  
HYDE PRODUCTS  
HYDRANAUTICS HYDRAULIC SYSTEMS  
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ITT MACKAY  
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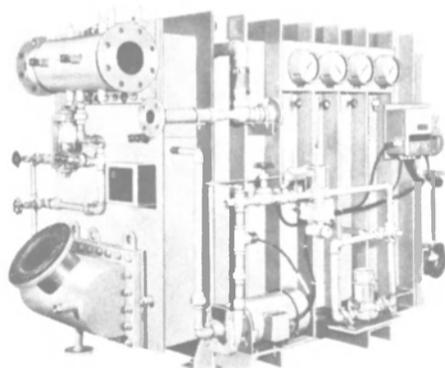
Flash, Heat Recovery and Reverse Osmosis Plants. Whichever is best for your marine application, Aqua-Chem can supply it. We also offer a no-obligation engineering evaluation to help you make the best choice possible. Whatever your saltwater conversion needs, let us put our experience and reputation as "The Shipboard Water Company" to work for you.



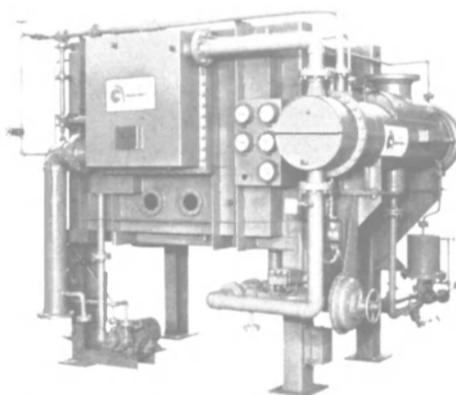
**Multi-Stage High Economy Flash Distilling Plants** are available for installation on large vessels (i.e., cruise ships, carriers, etc.). Plants are specifically designed for the application.



**Acro-Pac<sup>®</sup> Reverse Osmosis System** with hollow-fiber type module is a complete packaged system for producing potable water from seawater. Includes pre-treatment and cleaning equipment, chemical feeder and turbidity separator. Standard sizes range from 5,000 to 25,000 GPD with larger sizes available.



**Waste Heat Recovery Evaporators** utilize diesel engine's jacket water or steam for efficient use of energy that might otherwise be wasted. Supplied in complete packages — 200 to 1000 GPH.



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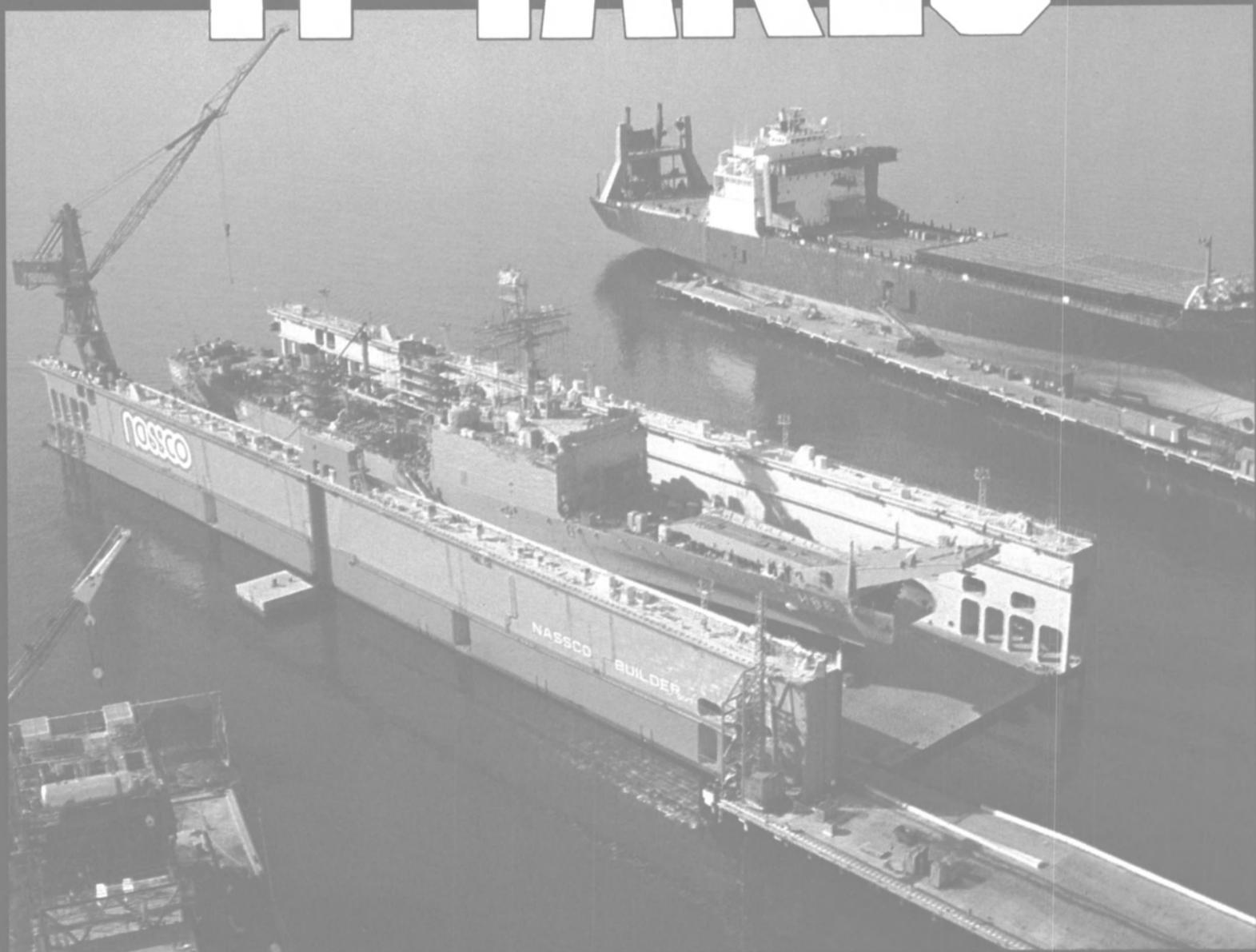
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WT82-128

(continued on page 58)

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San Diego needed drydocking capacity to assure a fair share of Navy and commercial repair and overhaul work. The NASSCO Builder is now in service. Maximum ship size is 780 foot length, 135 foot beam, and displacement up to 25,000 long tons.

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**Third  
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Maritime  
Exposition**

(continued from page 56)

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TIMSCO  
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MAGNUS MARITEC is a subsidiary of Economics Laboratory, Inc., which invests millions each year to research and develop new chemical products and systems suited to the marine environment. Every day—on the sea, in

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MAGNUS MARITEC's position as an industry leader is founded on a global distribution system/communications network of proven reliability. We're there when we're needed. Ship-owners depend on us and know we deliver.

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range in capacity from 40,000 to 400,000 lb/hr; auxiliaries from 5,000 to 130,000 lb/hr; and our waste heat boilers reclaim heat from exhaust gases of diesel engines and gas turbines. Providing a reliable source of steam for power generation, hotel services and other functions.

Count on Combustion Engineering to continue its 50 year old tradition of innovation, quality and design leadership. And to provide a complete range of follow-on services. From construction guidance and start-up,

through ongoing technical support, outage assistance, onboard service calls and OEM parts.

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COMBUSTION ENGINEERING, INC.

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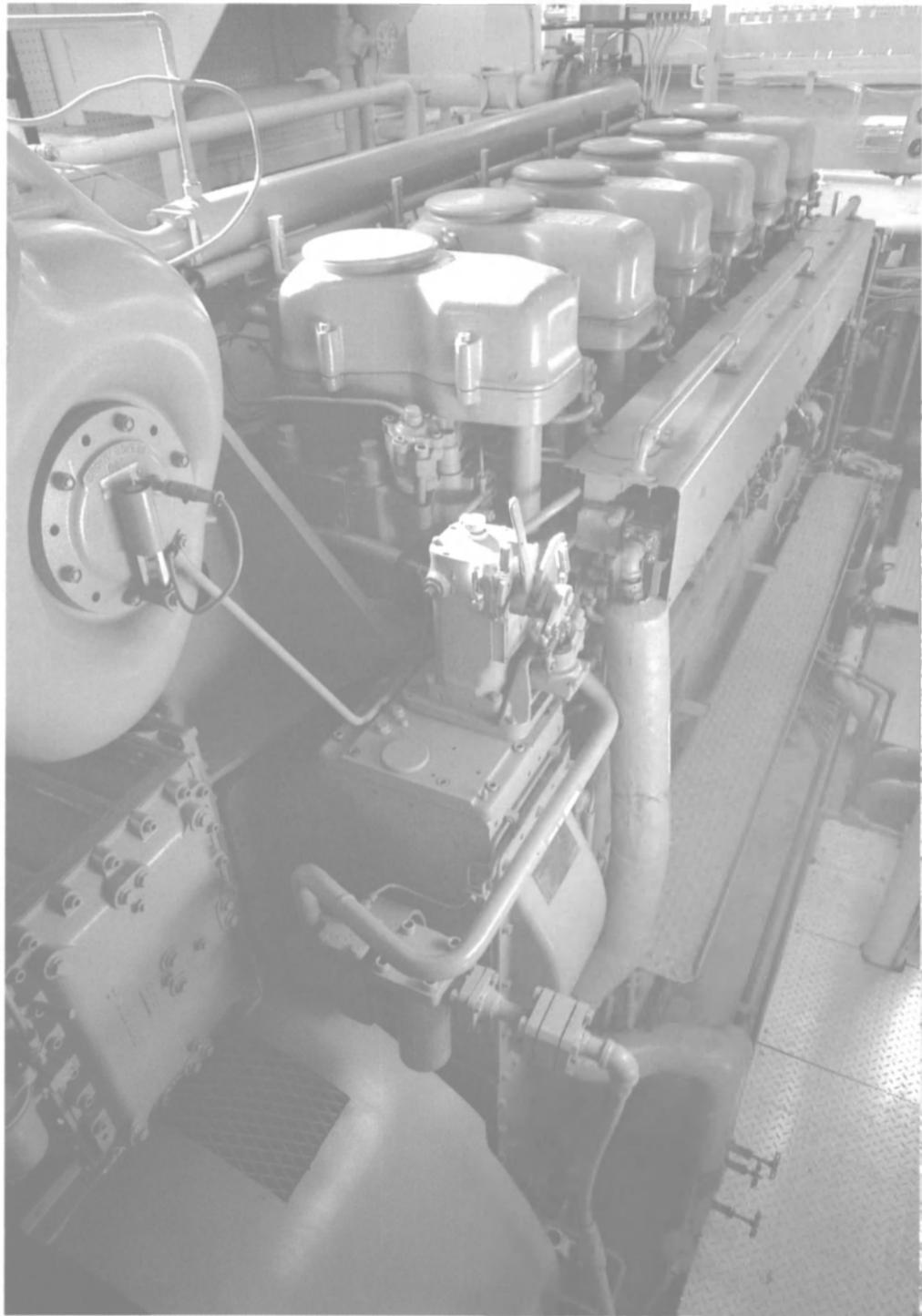


*The Bill Elmer visited New Orleans for the 1984 Work-Boat Show.*

"Repowering the M/V Bill Elmer with these Krupp heavy fuel engines didn't happen overnight," recalls Butch Barras of ACBL. "We studied this move for a long time; serious study for 2½ years, and dyno testing for close to a year before putting a heavy fuel engine in the boat.

"All through that, Gulf was a constant source of information and advice. Gulf helped determine power requirements and fuel mixtures, and provided a lot of information on the kind of lubricants we'd need to keep things running burning 1500 Redwood fuel with its high vanadium and carbon deposits."

*With 1320 hours on the engines, the rings remain clean and free, and piston skirts show minimal scuffing.*



*One of three Krupp MaK 453 inline 6 cylinder engines now powering the M/V Bill Elmer. ACBL repowered the vessel after studies showed the probability of significant fuel savings from heavy fuel engines.*

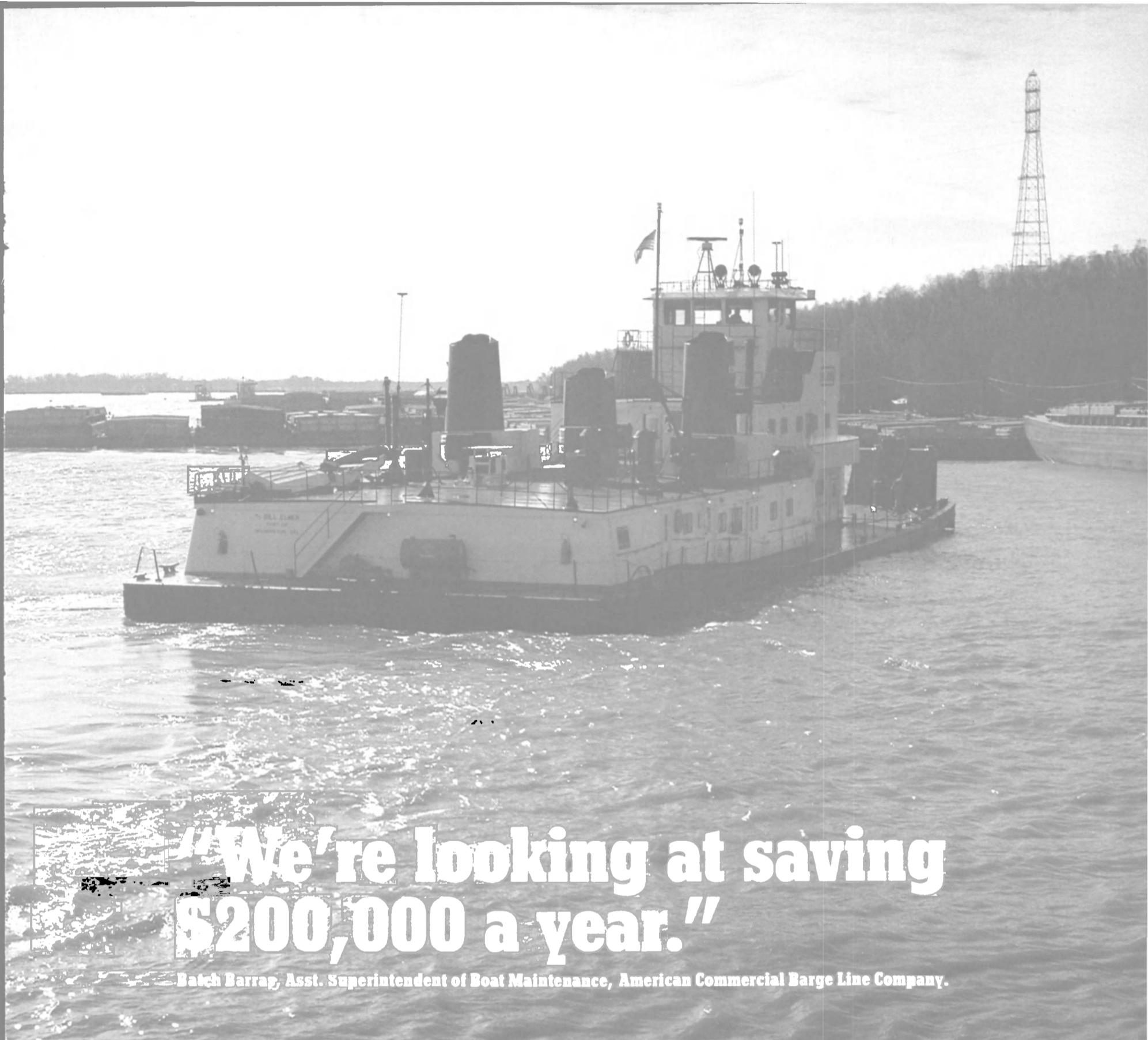
Barras continues, "It's no exaggeration to say we wouldn't be where we are on this without Gulf. They work hard to help, and their Harmarville lab is an excellent research facility.

"Along with the advice and information, Gulf provides excellent lubricants. Gulf-tow Select 40 is our main engine oil, and look at these engine parts. We were planning to pull the heads and check all the valves at 2,500 hours. After looking at one cylinder here

in New Orleans during the Work-Boat Show, with 1320 hours on the engines, we'll

*Gulf representatives Warren Eise and Sam Ross with Butch Barras, ACBL Assistant Superintendent of Boat Maintenance, in the Bill Elmer pilot house.*





**"We're looking at saving  
\$200,000 a year."**

**Butch Barrag, Asst. Superintendent of Boat Maintenance, American Commercial Barge Line Company.**

probably wait until 4,000 hours before we even have to check for wear."

Butch concludes, "We're projecting a savings of about

*Gulf pro R. O. Whelchel and ACBL Senior Vice President, W.N. Whitlock.*



\$200,000 a year in fuel cost alone due to repowering with the heavy fuel engines. Gulf helped make the transition a lot smoother."

For products to help save your machinery, and information to help you save money, ask your Gulf pro, or write, Gulf Oil Products Company, P. O. Box 1563, Houston, Texas 77251.



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**Everything we do makes  
business better for you.**

## Peck & Hale Offers Container Lashing System Literature

Peck & Hale Inc., W. Sayville, N.Y., designer and manufacturer of material handling and cargo securing systems, has completed their contract with Bell Aerospace in Buffalo, N.Y., for a container lashing

system to be used on the new LACV-30 vehicle. The LACB (Lighter Air Cusion Vehicle) is capable of carrying up to 30 tons over land, water, swamp, snow, ice and low brush at speeds up to 62 mph. It is being built by Bell for the U.S. Army Mobility Equipment Research and Development Command. The contract was the development contract conducted by Peck & Hale

for the Navy several years ago.

The cargo securing system used on the LACV-30 combines the advantages of rigid rods and quick acting tensioners. Rods are easily inserted into the top ISO container hole from the deck, eliminating insertion normally requiring a ladder which is time consuming and hazardous, especially during emergency situations. The light-weight ten-

sioners replace heavy cumbersome turnbuckles, and are stowable along with the rods in small compact bins.

Peck & Hale has designed many cargo and vehicle lashing systems for the U.S. Government over the past 35 years. The company is the major supplier of these systems currently used on military assault, support and transport ships.

For further information concerning Peck & Hale container lashing system,

Circle 50 on Reader Service Card

## General Ship Awarded U.S. Navy Contract To Overhaul Frigate

General Ship Corporation of Boston has been awarded a contract by the U.S. Navy for the regular overhaul of the frigate USS Connole. Work on the ship will start at once, as work has just been completed by the shipyard one week ahead of the contract schedule on a similar overhaul of the frigate USS Jesse L. Brown.

General Ship president James Harvie said, "We are pleased that the Navy has recognized our good performance on other recent overhaul work by awarding us this contract, which will provide up to 200 jobs during the next seven months."

## Simrad Introduces New Synthesized Weather Facsimile Receiver

Simrad Inc., of Seattle, Wash., has recently introduced the new Simrad Taiyo TF-733, a revolutionary new synthesized weather facsimile receiver. The TF-733 has a unique Thermal Head recording system which operates without belts and styluses, and yields sharp, detailed recordings. Because it has very few moving parts, the TF-733 operates silently, and requires virtually no maintenance.

Standard models are preprogrammed with an existing weather facsimile frequencies worldwide, for continuous chart reception on long journeys. The built-in receiver automatically starts, phases, and stops on all WMO (remote control) signals, and can be programmed for auto on/off, with built-in timer. Additionally, the TF-733 prints out transmitted satellite pictures in 7 grey tones, for easy weather chart interpretation.

The TF-733 is extremely lightweight and compact and can easily be bulkhead or tabletop mounted.

For further information,

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The S.S. Chemical Pioneer was conceived and built as a state-of-the-art vessel. Integrating over 30 years of shipbuilding experience. As one of the world's most sophisticated chemical carriers, its cargo tanks rely on Ameron's Dimetcote 4 organic zinc. Ameron products are at work just about anywhere you look. Dimetcote and Amercoat marine coatings

systems provide maximum protection for steel surfaces above the waterline, while an Amercoat anti-foulant system delivers cost-effective protection for the bottom hull.

When the world's most sophisticated shipbuilders and owners want state-of-the-art marine coatings and tank-lining systems, supported by an expert international marine service network, they specify "Ameron".

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**SkidGuard®**

You'll find it much easier to keep your sea legs with Simpson's SkidGuard. A slip-resistant waffle weave surface over a solid core exterior plywood panel makes SkidGuard great for boat decks and docks.

**Marine DecraGuard**

Simpson's Marine DecraGuard combines the beauty of a stain and moisture-resistant solid color or wood grain finish with the durability and workability of a plywood substrate. Ideal for interior bulkheads and cabinetry.

**Guardian Medium Density Overlay**

From cabinets to cabin doors, Guardian MDO is the perfect choice for a whole boatload of applications. It combines the structural strength of a plywood panel with a tough, paintable surface.

**MarinePly**

Simpson's MarinePly is the seaworthy choice for use in hulls and other below waterline applications. It's a tough marine grade plywood suitable for moist or dry conditions.

# Seaworthys.

No doubt about it, the sea's tough on boats. So, get tough back with Simpson's seaworthy line of marine panels.

The combination of a rugged plywood core with a variety of surface treatments makes for panels strong enough to use anywhere moisture is a problem.

What's more, all our marine panels come ready to use. So whether you're using Marine DecraGuard or Guardian MDO for cabinetry work, or building decking or docks with SkidGuard®, there's no need for costly secondary operations such as sanding, laminating, buffing or

spot refinishing.

All our panels are backed by the Simpson commitment to quality which has made us the leading manufacturer of industrial panels in the U.S. today.

So send your next project to sea with Simpson marine panels. They're the wave of the future.

For more information, contact your Simpson distributor. Or write Simpson Timber Company, Panel Products Division, Third and Franklin, Shelton, WA 98584.

Marine Panels  
**Simpson**

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## AMMCO Enters License Agreement With Damen Shipyards Of Holland

American Marine and Machinery Company, Inc. (AMMCO) of Nashville, Tenn., has announced the signing of an agreement with Damen Shipyards, Ltd. of Gorinchem,

Holland, for the manufacture and marketing of selected models of the Damen line of vessels. The pact establishes AMMCO as exclusive Damen licensee for the entire U.S. market.

AMMCO, a leading builder of standard model portable dredging equipment, has been building dredges and a variety of other marine equipment for more than 25

years. Damen is generally regarded as a leading builder of series-built ships.

The Nashville company will be offering small worklaunches and tug/workboats up to 48 feet, larger worklaunches up to 52 feet, work pontoons to 60 feet, harbor tugboats to 65 feet, A-frame lift barges to 65 tons, general service vessels to 65 feet, and other specialized vessels.

AMMCO recently concluded a license agreement with O & K Orenstein & Koppel of West Germany for the marketing of that company's line of underwater bucket wheels on an exclusive basis in the North American Market.

# NEW HIGH EFFICIENCY ON THE HIGH SEAS

## WITH MAXIM® HEAT RECOVERY SILENCERS AND MAXIM® HEAT RECOVERY EVAPORATORS

### ENERGY CONSUMPTION = ZERO

These small Maxim Heat Recovery Silencers also include spark arresting, and generate over 6,000 #/hr of 60 psig steam from propulsion engine exhaust heat.

Units are aboard the Falcon Leader, built by Bath Iron Works Corporation. Steam produced is used for the tanker's heating system, evaporators, and for tank cleaning.

### HEAT SOURCE = FREE

Maxim Thermal Circulation Flash jacket water heat recovery evaporators each provide 11,000 gpd of 2 ppm fresh water. Two units are aboard this Atwood Oceanics, Inc. rig, Shenandoah, shown operating in the Arabian Sea. All material in contact with sea water is of 90-10 copper nickel alloy for maximum corrosion resistance.



**RILEY** **RILEY-BEAIRD**  
A DIVISION OF UNITED STATES RILEY CORPORATION

## New Pipe Connecting System Reduces Costs —Literature

A new mechanically applied pipe connecting system called PYP-LOK® that eliminates the costly expense, hazard and time of welding and brazing has been designed for use in the marine shipbuilding/repair industries and introduced by Deutsch Metal Components Division, Los Angeles, Calif.

PYPLOK eliminates costly fire watches, gas free certification requirements and extensive pipe and preparation, and offers the long-term benefits of fast installation and proven reliability. Permanently joining piping by means of hydraulically actuated swaging tools, PYP-LOK connections are said to be stronger than the pipe itself.

All standard configurations, including couplings, 90 degree elbows, tees and reducer fittings are available in materials of 70/30 Cuni, 316L stainless and carbon steel in N.P.S., O.D., and metric sizes. Installations can be made by a single operator of moderate skill.

PYPLOK is available in pressure classes up to 6,000 psi, and seals are compatible with most fluids and gases.

Approvals have been received from NAVSEA, USCG, ABS, Lloyd's Registry, and virtually every maritime approval agency in the world.

For more information and a free brochure,

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## Cybernet Offers Complete Marine Electronics Catalog

The complete range of Cybernet's quality electronics is available in a new mini-catalog. Shown for the first time are three new completely automatic VHF-FM radiotelephones, the famous CMS-3000 marine stereo AM-FM-Cassette entertainment center and the brand new CMS-3050 stereo equalizer and power booster, plus marine CB, intercom-loudhailer-auto foghorn, handheld and low-cost VHF-FM, and accessories.

For a free copy of the new catalog,

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**WAKE UP AMERICA! YOUR DIESELS  
CAN'T COMPETE WITH COAL FIRED SHIPS!**

**The SKINNER connection.**

**it can save you \$500,000 a year,  
reduce in-port repair time,  
lower maintenance and increase profits.**

Skinner "Unaflow" marine steam engines offer your coal fired ships these profitable advantages:

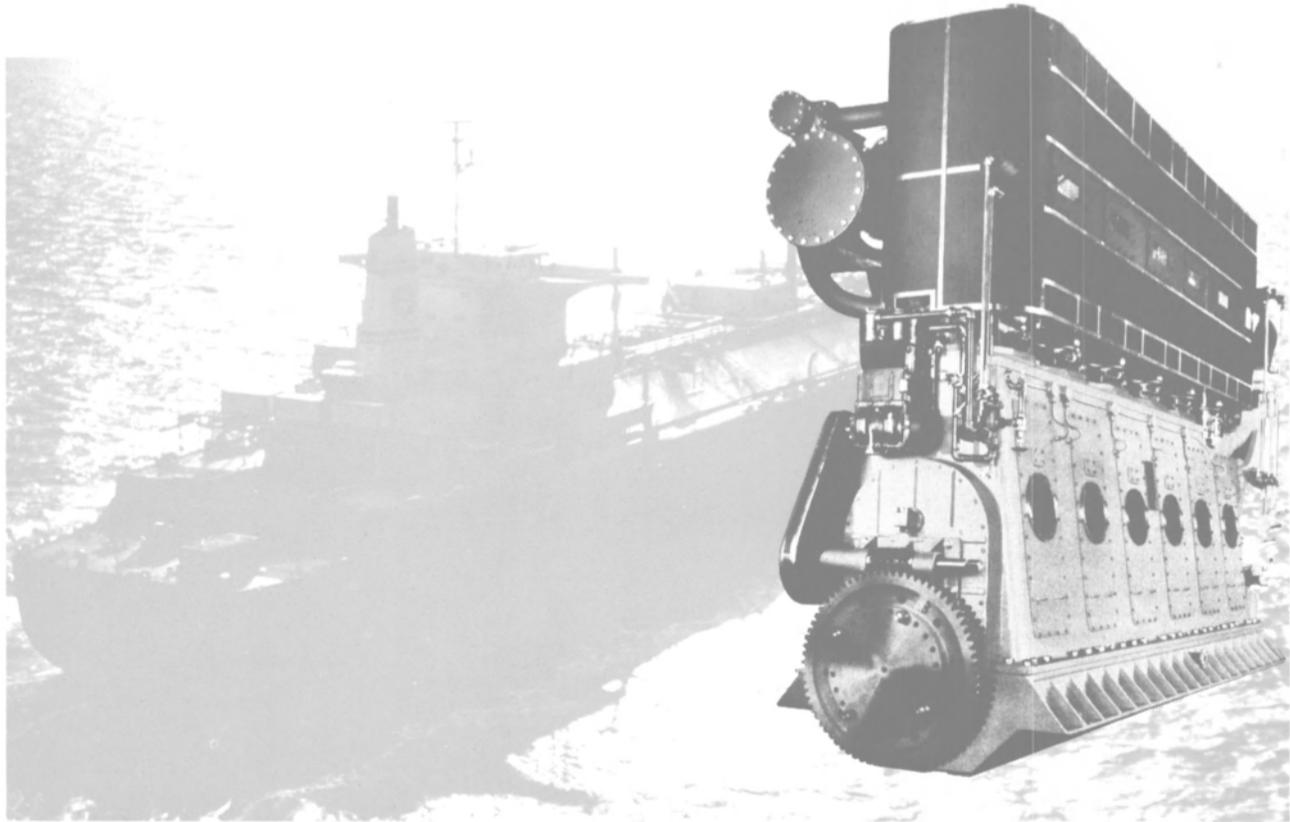
1. Positive, simple, direct connection to propeller shaft.
2. High steam economy over the entire load range.
3. Outstanding maneuvering characteristics.
4. Wide range of speeds for maximum propeller efficiency.
5. Horsepowers available up to 15,000 shp.

**Compare These Fuel Costs  
For A Typical 600 ft Bulk Carrier 10,000 SHP**

COAL FIRED SKINNER STEAM ENGINE	OIL FIRED DIESEL ENGINE
Coal at 12,500 Btu/lb. \$40.00/ton in Bunkers	No. 6 Fuel Oil at 18,500 Btu/lb. \$180.00/ton in Bunkers

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Circle 276 on Reader Service Card



Mrs. Frederick Scudder christens The Pilgrim Belle while (left to right) Tom Bender Jr., president of Bender Shipbuilding & Repair Co., Inc., Rob Nelson, general manager for Coastwise Cruise Line, John Logan, general sales manager for Bender, and Richard Scudder, president of Coastwise Cruise Line, look on.

## Bender Christens And Launches Cruiser 'Pilgrim Belle'

Bender Shipbuilding & Repair Co., Inc. Mobile, Ala., recently christened and launched the cruise vessel Pilgrim Belle for Coastwise Cruise Line of Hyannis, Mass.

Coastwise Cruise Line's parent corporation, Hyannis Harbor Tours, Inc. is also known as Hy-Line. Hy-Line operates the largest fleet of passenger vessels on the East Coast. Representing Coastwise Cruise Line were **Richard and Federick Scudder, Robert Nelson, and John Hunter.** Mrs. **Frederick Scudder** broke the traditional bottle of champagne during the christening ceremonies.

The Pilgrim Belle is 192 feet long with a beam of 40 feet and a draft of 7½ feet. She is twin-diesel powered with 1,055-hp Caterpillars, and has a 300-hp bow thruster. She is thoroughly modern in her machinery inventory with full electronics and electrical power supplied by two 390-kw Caterpillar diesels. The 49 outside cabins all have private bathroom facilities and individually controlled heating and air conditioning. An elevator is included which serves three decks for passenger convenience. Her appearance is in the manner of a 1925 coastal steamer with a finish and ambiance which Coastwise Cruise Line has christened the Steamer Class (TM).

Design of the interior has been assigned to Interior Design International of Seattle, Wash., and Copenhagen, Denmark. **John W. Gilbert** of Boston is the architect.

Lofting and engineering started in late summer 1983 and delivery of the new vessel will be later this year. The hull was built upside down with frames and bulkheads installed. In January steel was plated over the hull framework. The hull was then rolled over into an upright position in March. From this upright position on the ways, prefabricated sections were added to complete the shell while interior systems were installed. After launching, the vessel's interior will be completed.

**Robert C. Nelson**, general manager, will captain the Pilgrim Belle during shake down and repositioning from Mobile to West Palm Beach in preparation for her maiden voyage. She is designed to be highly maneuverable and with a turn of speed greater than other coastal cruise ships. The Steamer Class (TM) coastal cruise boat is the first of its type to be constructed by Bender and is to be a showpiece for the quality of the Gulf Coast Yard of 60 years' experience.

Bender specializes in the construction and repair of a wide variety of oceangoing and inland vessels.



The Pilgrim Belle, built for Coastwise Cruise Lines, being launched at Bender Shipbuilding.

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**New Literature Sheet  
Describes Simpson's  
Seaworthy Panel Products**

New, three-hole punched, literature from Simpson Timber Company of Shelton, Wash., describes their line of seaworthy marine panels. It contains complete specifications for Marine DecraGuard, Ma-

rinePly, SkidGuard and Guardian MDO along with a color illustration of the products.

Ideal for interior bulkheads and cabinetry, Marine DecraGuard is a stain and moisture resistant panel available in wood grain or solid colorfinish. MarinePly, a tough marine grade plywood is perfect for below waterline applications while Guardian MDO with its tough

paintable surface can be used for a multitude of marine applications. SkidGuard provides a slip resistant waffle-weave surface for decks and docks.

Ready-to-use Simpson marine panels eliminate costly finishing operations and promise to outlast ordinary plywood. All are backed by a commitment to quality and on-going research from the nation's

leading manufacturer of industrial panels.

For a copy of the literature or more information about Simpson's marine panels,

Circle 45 on Reader Service Card

**Continental Maritime Gets  
\$18-Million Navy Contract  
For Crane Ship Conversion**

Acting on behalf of the United States Navy, the Maritime Administration recently awarded a \$17,952,454 contract to Continental Maritime of San Francisco, Inc., San Francisco, to convert a government-owned containership into a naval auxiliary crane ship.

The ship, the ex-President Monroe built in 1966, will become the Navy's second auxiliary crane ship. Upon completion of the conversion, expected to take 12 months, the ship will be renamed by the Navy. She is a sister ship of the ex-President Harrison, now the Keystone State, which was converted into a crane ship by Bay Shipbuilding of Sturgeon Bay, Wis., and redelivered earlier this year.

The crane ships are designed to be used at anchor in a forward deployment area or an undeveloped port to unload containers and other military cargo from containerships lacking their own cargo-handling equipment. Conversion of the ex-President Monroe will include reactivating existing machinery, repairing broken items, and constructing and installing rotating twin-pedestal marine deck cranes and auxiliary equipment.

**Clemco Introduces  
Wetblast Injector System  
— Literature Available**

Clemco's Wetblast Injector System eliminates dusty blasting environments without detracting from abrasive cleaning speed.

A unique water-jetting design combined with precise metering improves abrasive velocity rather than causing abrasive flow interference. The result is a hard hitting, high velocity blast force that will clean to white metal faster than any other system on the market.

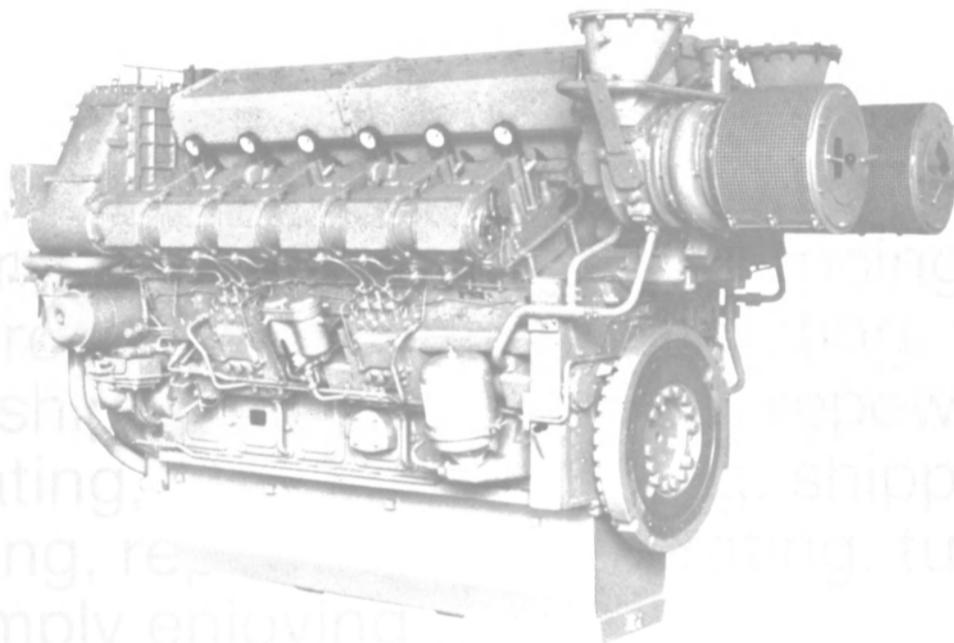
A versatile function of the system is its ability to remove aged top layers of paint while retaining solid, tightly adhered base coats. This feature eliminates the necessity of applying new primer when existing primer is intact. When blasting is done, the water and air flow can be controlled to wash down surfaces and air-dry to speed up application of coatings.

For more information on the Wetblast Injector System,

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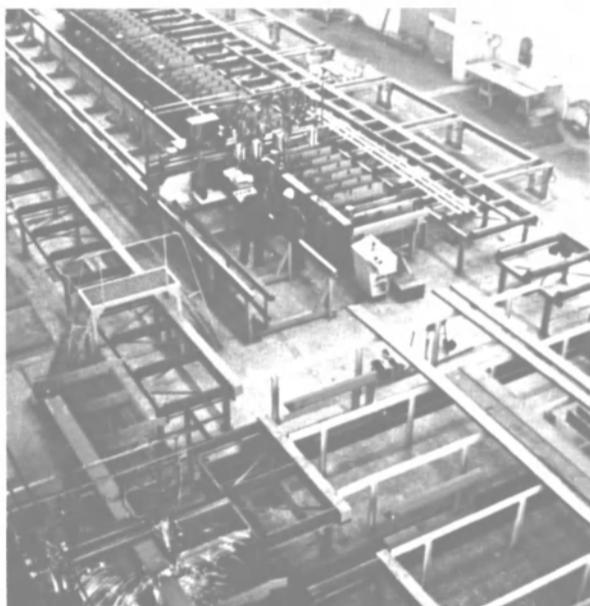
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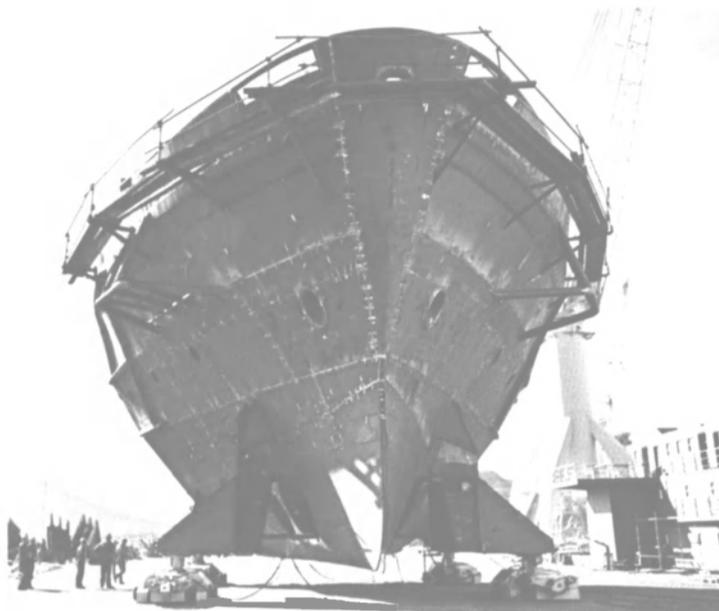


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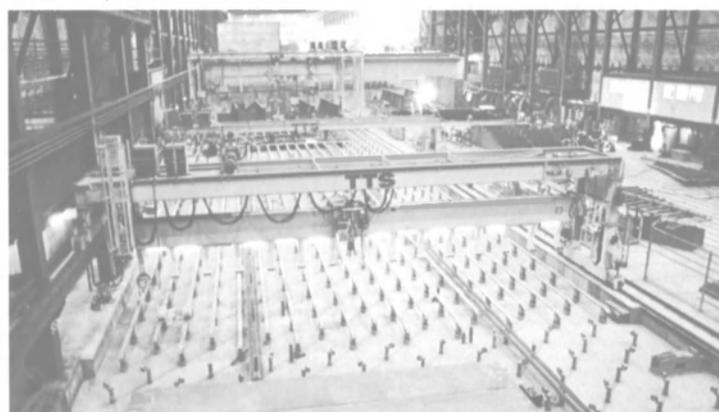
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### Three Offshore Service Fleets Plan Merger Into New Company

Three offshore service companies—Gulf Fleet Marine Corporation of New Orleans; Jackson Marine Corporation of Aransas Pass, Texas; and Zapata Marine Service of Houston—plan to merge into a new company that will have \$600 million in assets and a fleet of 325 vessels to serve offshore oil and gas operations throughout the world. The three companies are subsidiaries of Houston Natural Gas Company, Halliburton Company, and Zapata Corporation, respectively.

To be named Zapata Gulf Marine Corporation, the new company will be owned 42.6 percent by Zapata, 36 percent by Houston Natural Gas, and 21.4 percent by Halliburton. It will be controlled by two directors from each of the parent companies. Subject to approval by several regulatory agencies, the merger will be one of the largest offshore oil and gas industry service fleets in the world, according to a Zapata spokesman.

The 325-vessel fleet of the new company will comprise 196 supply and tug/supply vessels, 89 tugboats, 22 crew and utility boats, and 18 barges.

Houston Natural Gas Company is also involved in shipbuilding and transmitting and selling natural gas. Halliburton is active in oilfield production and services, engineering, construction, and insurance. Zapata operates offshore drilling rigs and is also involved in exploration and production.

### Regency Introduces New Marine Transceiver —Literature Available

Regency Electronics, Inc. of Indianapolis, Ind., announces the introduction of the Polaris MT6500, a synthesized marine band transceiver.

The MT6500 operates all U.S. and international channels, 10 weather channels, and has capacity to add up to 10 private channels. The scanning receiver section can be programmed to scan as few as two or as many as all of the marine channels. All information is entered into the microprocessor through the backlit translucent rubber keyboard. Channel numbers and prompting information is displayed on the vacuum fluorescent display.

A special feature of the MT6500 is a programmable dual priority feature that either automatically reverts to the priority channel when a call is received or beeps to let you know there is a call on the priority channel. The new unit also features a 25/1 watt selector, bright/dim panel light control, digital clock, and reversible mounting bracket.

For further information and free literature on the MT6500,

Circle 53 on Reader Service Card

### Hydranautics Awarded Contract By Marathon Oil For Rig-Skidding Systems

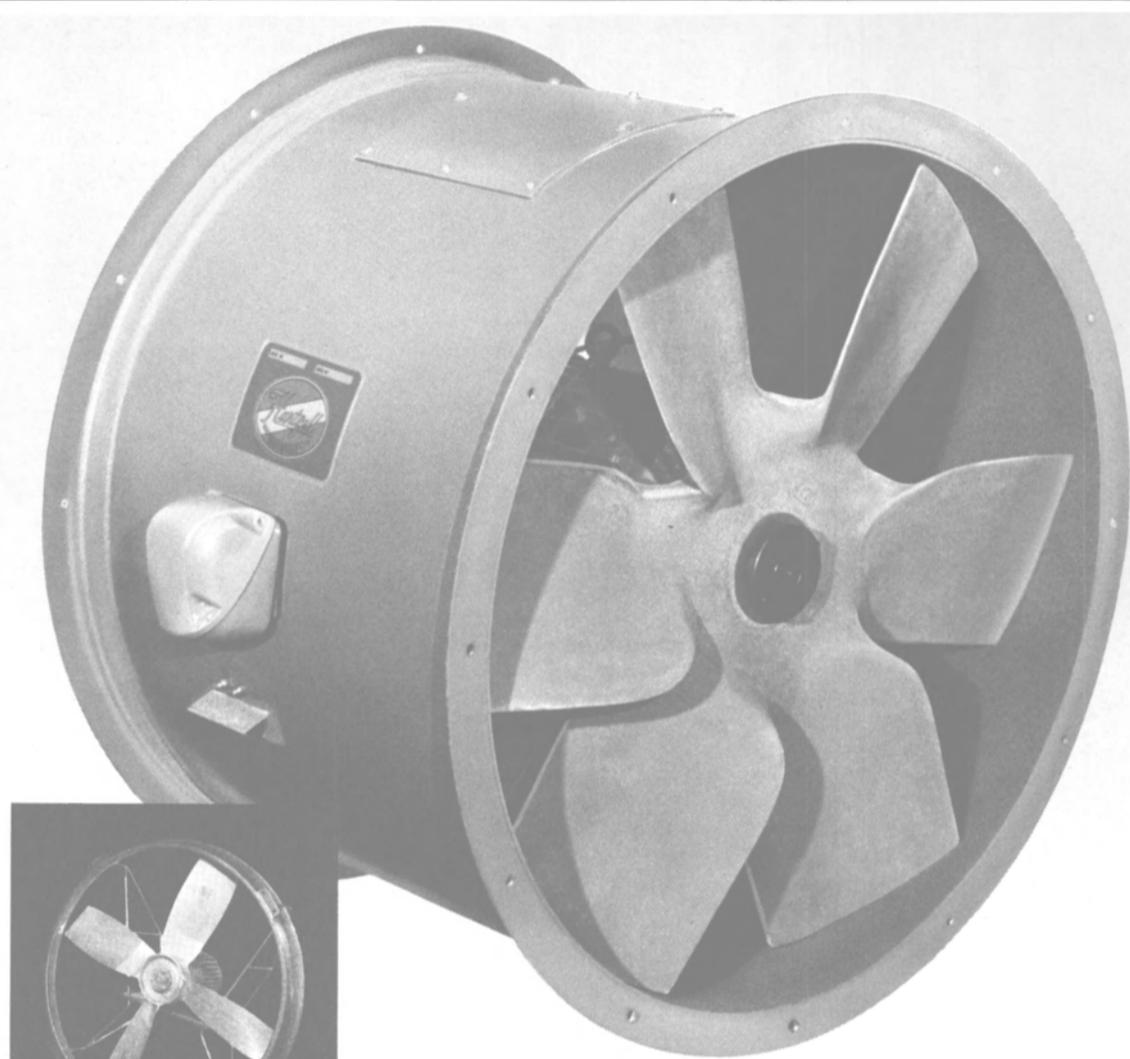
Hydranautics Hydraulic Systems has received a contract from Marathon Oil UK, Ltd. for two rig-skidding systems for use on the Brae B platform for the North Brae gas condensate field in the North Sea. Each system consists of two 420-

metric-ton and two 210-metric-ton, push-pull capacity hydraulic gripper jack assemblies and a control console. The 420-metric-ton gripper jacks are the largest gripper jacks ever bought for rig skidding.

Hydranautics also has its equipment operating on Marathon's Brae A platform in the South Brae oil reservoir. Satisfaction with the way that equipment works led Marathon to grant Hydranautics the latest

contract. Shipment of the new systems is scheduled for mid-1985.

Hydranautics Hydraulic Systems is headquartered in Goleta, Calif., with offices in London, Singapore, and Houston. The company designs and manufactures heavy-load moving equipment for offshore and shipyard-related activities, including systems for applications ranging in size from 50 to more than 50,000 tons.



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Hartzell marine fans meet MarAd specifications S38-1-101, S38-1-102, and S38-1-103. Motors are available for above and below deck operation to meet IEEE45, U.S.C.G., and A.B.S. regulations. And in addition to complying with all official marine requirements, we make our fans even more seaworthy with hot dip galvanizing and special corrosive resistant coatings.

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## Western Gear To Build And Sell Rademakers Epicyclic Transmissions

The Power Transmission Division of Western Gear Corporation, Lynwood, Calif., has entered into a license agreement with Rademakers Aandrijvingen, B.V. of Rotterdam, the Netherlands. The

agreement gives Western Gear's Power Transmission Division the right to manufacture and sell Rademakers epicyclic planetary transmissions in the United States, Canada and Mexico.

This particular Rademakers product line is based on the Stoekicht design which provides for a compact co-axial shaft transmission with low noise levels, high

efficiencies and high reliability. Applications for the Rademakers epicyclic planetary transmissions include speed increasers and decreasers for turbine generators, pumps and compressors and various marine propulsion reduction gears.

The Power Transmission Division of Western Gear Corporation manufactures an extensive line of

mechanical power transmission equipment including marine propulsion gears for military and commercial vessels; industrial gear drives used in the production, transportation and processing of petroleum, natural gas and chemicals; drives used in the generation of electrical power; and gears used for refrigeration and air-conditioning applications.

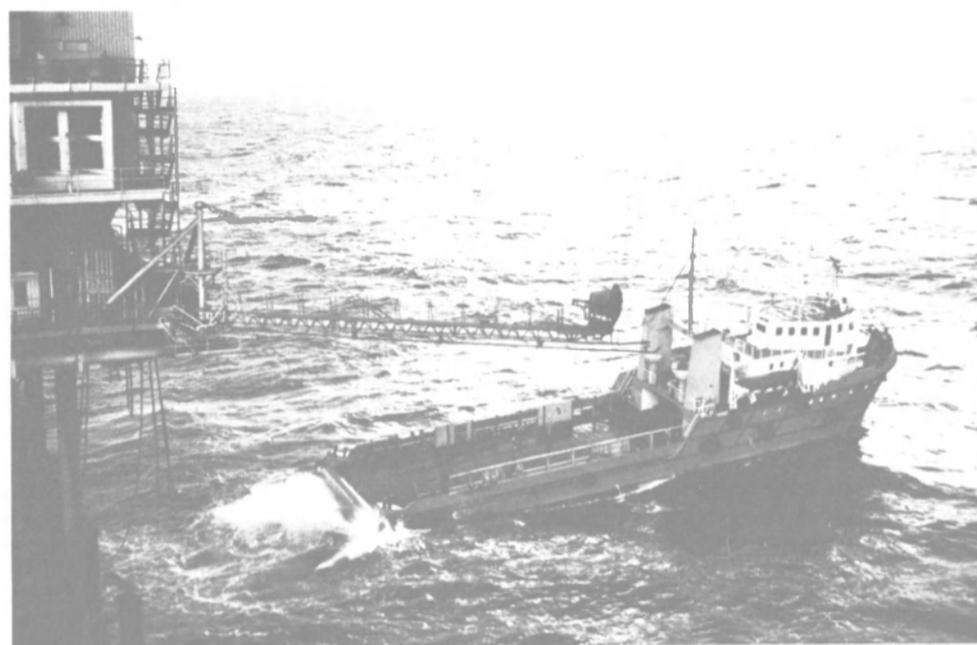
For free literature on Rademakers transmissions,

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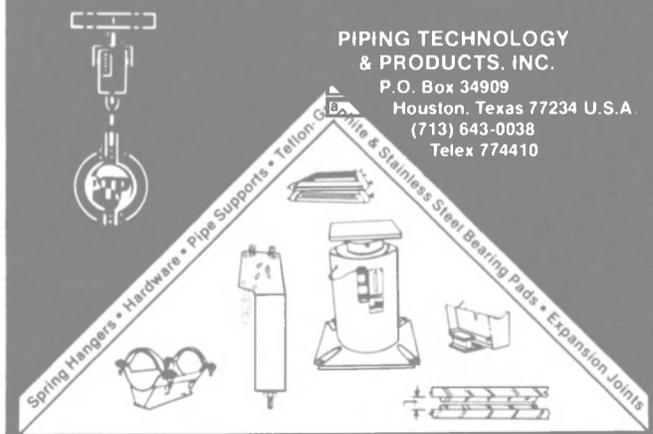


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Circle 325 on Reader Service Card

## UNIPAR Offers Literature On Diesel Power Packs, Parts And Components

UNIPAR, Inc., a division of National Marine Service, Inc., has made available literature that highlights the 40,000-square-foot facility the company has in St. Louis, Mo., to provide the diesel engine power packs, parts and components that industry requires.

The literature points out that robotics, monorails and accumulating conveyors in UNIPAR's semi-automated process play major roles in the company's commitment to quick service and quality products at competitive prices. The semi-automated line of work stations are well illustrated with black-and-white photographs, and there is a discussion of each process along the way through the final work station.

For more information on UNIPAR's diesel engine power packs, parts and components,

Circle 74 on Reader Service Card

## Free 26-Page Brochure Features Aeroquip Marine Refueling Products

Aeroquip Corporation's extensive line of products designed to increase ease and efficiency when refueling at sea are described in a comprehensive new brochure.

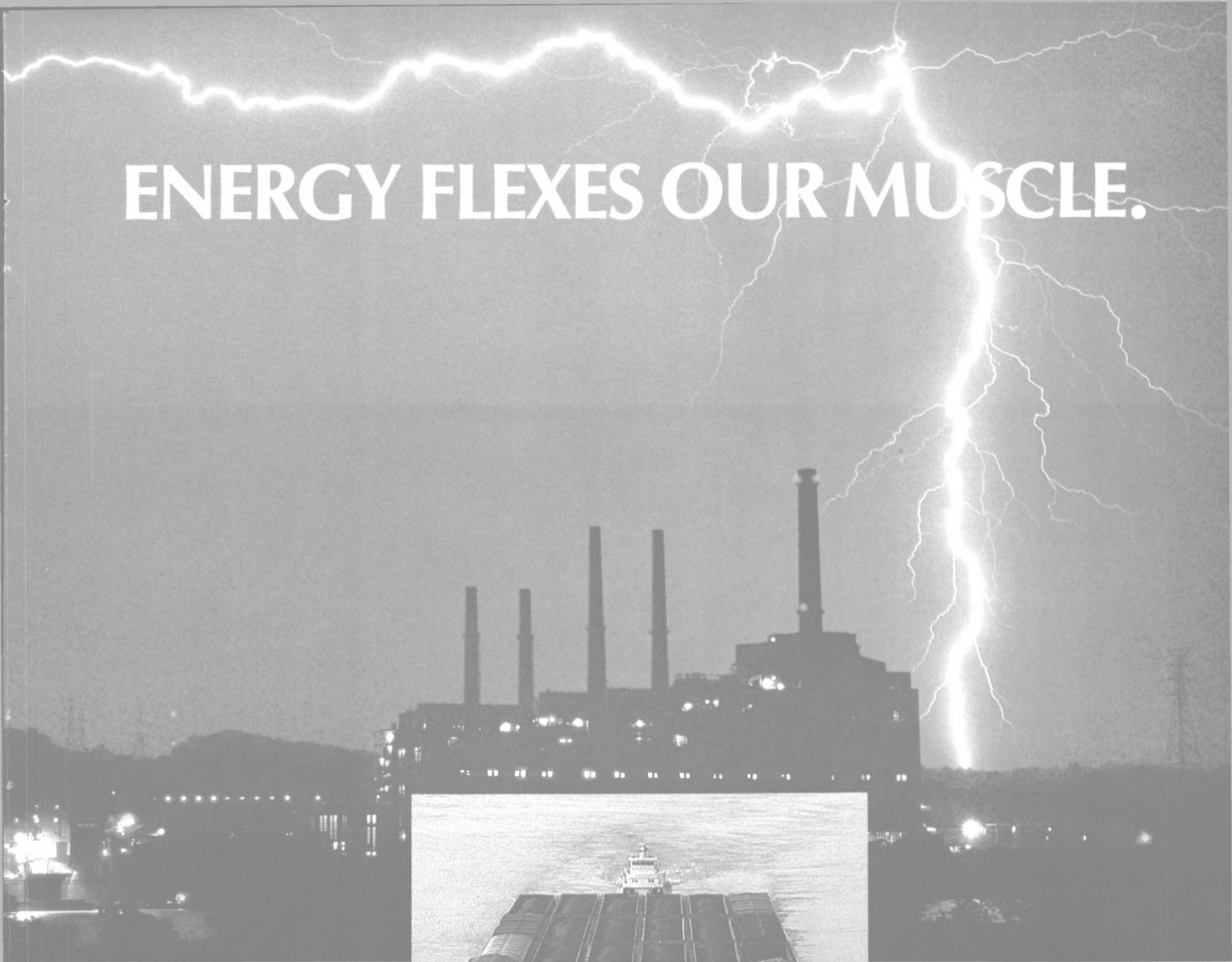
This 26-page Aeroquip Industrial Division publication contains information on a wide variety of bulk hose and hose assemblies; hose rig hardware; quick couplers and decouplers; adapters for liquid transfer systems; accessories such as flow-through saddle supports, hose fittings plugs and caps; and special marine hardware.

This is actually a product guide. It contains specification tables on each piece of equipment accompanied by keyed mechanical drawings for each unit with clearly marked dimensions.

For a free copy of "Refueling at Sea Products,"

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## New Integrated Navigation & Command System From Krupp Atlas Elektronik

Nacos 20, a new computerized integrated navigation and command multi-processing system for the optimization of navigation and bridge control of both standard and specific purpose vessels, has been announced by Krupp Atlas Elektronik. Integrating a series of navigational sensors and an autopilot within one modular work station consisting of standardized modules, interfaces and operational procedures, it is designed to realize precision navigation at reduced cost while improving overall levels of safety.

A basic configuration comprises two of the latest Atlas Rastercan radars, the 8600 ARPA and either a 7600 TM or ARPA unit, which are the only systems to offer continuous true daylight rastercan viewing on a 16-inch screen; a doppler log; an echosounder; an Adaptive Radar Controlled Autopilot (ARCAP), for which the 8600 ARPA additionally provides input and monitoring functions; and a central control console embodying a full-color Navigation Information Display (NID), together with interfaces for other sensors and bridge equipment.

Among key functions fulfilled by the system are determination of actual position from up to three inde-

pendent primary sensors such as Loran C, Decca and Satnav, in association with an Atlas doppler log and a standard gyro system. Long-term route planning for deep sea operations by waypoint input and short-term maneuvering and track planning in coastal waters are also possible, the latter using predictive input from the 8600 ARPA.

Other main functions include automatic track control via either the 8600 or ARCAP facility, with error limits and alarms depending on the precise operational mode; collision and avoidance alarm together with comprehensive, easily assimilated indication of navigational and other ship's data on the NID. Using a common data bus, the system also provides for functional integration of other ship's systems such as those for administration, communications, engine control and centralized monitoring. Its flexible design concept additionally allows for integration of future generations of navigational equipment, including the Navstar GPS.

Primary aims of the system are directed towards the consolidation and control of both routine and specific data from various sources for central display at a console designed

for one-man operation. A decentralized, redundant processing of operational data principle is employed in which various key function areas are grouped organically and provided with relevant hardware for processing, operation and display.

Incorporating extensive on-line self-test facilities and designed to comply with DoT, DHI, USCG and other leading specifications, NACOS 20 provides simple cost-effective installation and integration with other systems in a ship while also allowing for reduced cost for overall system maintenance and personnel training.

Partly developed under sponsorship of the West Germany Ministry of Research and Technology's "Ship of the Future" project, a system is scheduled for installation on Krupp Atlas Elektronik's own research vessel, MS "Schall", this December. Three configurations have also been ordered by a leading Norwegian owner for new PROBO carriers presently undergoing construction in South Korea.

For a complete literature package describing the new system in full detail,

Circle 27 on Reader Service Card

The new Krupp Atlas Elektronik navigation and command system Atlas Nacos 20.



## Harbormaster Offers Free 8-Page Brochure On Propulsion Units

Harbormaster of Quincy, Mass., Division of Mathewson Corporation, has available a free eight-page brochure on the Harbormaster® propulsion units produced by the company.

Harbormaster deck-mounted and thru-hull mounted propulsion units are illustrated in the publication, with pertinent data for each series given in easy-to-read chart form. Included also are four pages of photographs showing various types of vessels that are equipped with Harbormaster units and thrusters. The back cover of the brochure gives a historical chronology of the company's outstanding accomplishments in its field.

The literature points out that Harbormaster originated the concept of deck-mounted outboard drives, and in 1982 once again originated a new concept in steerable thrusters with its transverse-mounted series. This last series is attractively illustrated in color on the cover.

For a free copy of the Harbormaster brochure and further information,

Circle 65 on Reader Service Card

## Korea's Samsung Shipyard Offers 24-Page Brochure On Facilities, Capabilities

Samsung Shipbuilding Co., Ltd. (SSC) of Koje, South Korea, has published a 24-page full-color brochure describing the company and its shipbuilding facilities and capabilities.

Elaborately presented, photographs, drawings, and text describe the up-to-date facilities and equipment of the yard, its layout (with a numbered diagram identifying all components), business scope, production capacity, design and special process procedures (showing design office, engine control console, engine room model and stern tube boring at block stage), quality control program, and CAD/CAM systems.

In addition there are photos of the vessel types that have been delivered by the yard and types that are now under construction, as well as a corporate organizational chart and a list of worldwide SCC and Samsung Group offices, of which the shipyard is a part.

The guest facilities at the yard are given a special page in the brochure, with photos of Western-style apartments for owners, supervisors, makers and other visitors, and of the Guest House, which faces a magnificent seaside view and has single and twin rooms, suites, a restaurant, bar, garden and other facilities.

For a free copy of the brochure from Samsung Shipbuilding,

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# ELECTRONICS UPDATE

## TI Has A New Fleet Management System To Improve Vessel Operating Efficiency

Texas Instruments has announced the new TI Marine Business System designed to give fleet

managers a promising new home-office tool for improving vessel operating efficiency. Designed to utilize



information logged by a TI 8000 Integrated Marine System installed on individual vessels, the system permits managers to download information to a Texas Instruments Professional Computer, and to apply advanced computer spreadsheet capabilities to the analysis of vessel operation.

"With the TI Marine Business System interfaced to a Texas Instruments PC equipped with Lotus 1-2-3 software, fleet managers can use a variety of spreadsheet techniques to study a broad spectrum of vessel operating parameters—from speed and fuel efficiency to engine life and crew performance," said **Gary Howe**, marketing manager for Texas Instruments Marine Products.

The company reports the system was created to help vessel owners and managers make the most of the information logged by their TI 8000 Integrated Marine System. It provides a complete, easy-to-use system for monitoring and maximizing vessel operating efficiency, particularly with regard to fuel efficiency. Mr. **Howe** also reported recent studies for some major fleet operators indicate a fuel savings of up to 25 percent.

Information can be analyzed and correlated in a variety of ways—by vessel, by captain, or by trip. Totals and averages can be calculated for each category. With the addition of word processing and file management software, the user can generate files, reports, charts, and graphs for further study.

The new system consists of TI

Marine Business System software, a TI 8010 Command Module, a power supply, cables, and operating manual. A TI Professional Computer with appropriate software and peripherals is also required.

For free literature describing the new TI Marine Business System,

Circle 36 on Reader Service Card

## A.M.T. Electrolytic System Now Available With An Automatic Alarm Unit

The C-2000 electrolytic antifouling and corrosion-suppression system manufactured by A.M.T. Incorporated of Miami is now available with a solid-state control panel that incorporates a digital display and automatic alarm system to indicate any malfunction during operation.

The C-2000 system operates on an electrolytic principle to treat seawater passing through the cooling equipment and fire main services on ships, offshore rigs, or shore installations using seawater. The treatment, which continuously feeds copper and aluminum ions into the seawater, creates an environment in which primary forms of marine life cannot settle. This process eliminates fouling on internal metal surfaces of pipework, valves, etc., as well as providing an anti-corrosion protective coating formed by the aluminum ions.

For complete details on the C-2000 system,

Circle 41 on Reader Service Card

## Don't put up with a leaker!

Self-lubricating nylon bearings; no metal-to-metal contact for better wear resistance.

Stainless-steel, quick-lock clamps on access door for easy re-lamping underway.

Simple 2-screw-adjustment packing gland is easy to repack.

Self-locking elevation twist-lever and wheel controls stay where you put them.

The packing gland on this PHOENIX Super-Searchlite™ fixture keeps water out of the pilot house. It's watertight to begin with. And easy to keep that way, because you can adjust or repack it anytime. Without pulling the head and shaft.

That's remarkable enough, but there's more. Just check these other features that make PHOENIX a valuable hand on deck: Nylon bearings; self-locking elevation control; quick-clamped access door.

PHOENIX. The searchlight that works as hard as you do. It's no leaker.

**SUPER-SEARCHLITE**  
FIXTURES

**PHOENIX**  
PRODUCTS COMPANY, INC.

4785 North 27th Street  
Milwaukee, WI 53709  
(414) 445-4100  
Telex: 910-262-3389

PX-2-4

Circle 33 on Reader Service Card

## SNAME BOOTHS 331, 333

Circle 284 on Reader Service Card

## New Bulletin Makes Small Standard Heat Exchangers Easy To Select

Revised Bulletin 104-23, just published by American Standard Inc.'s Heat Transfer Division, Buffalo, N.Y., gives details of small pre-engineered, fixed-tubesheet heat exchangers used for heaters

or oil coolers in a wide variety of industrial applications.

The bulletin includes details of 57 BCF<sup>®</sup> heat exchanger models, many that are available on local American-Standard Distributor stock. Also included is information about HCF<sup>®</sup> models, which can be quickly assembled using standard, pre-engineered components to accommodate special shell and tube

materials, special tube sizes, nozzle configurations and orientations, special gaskets and mountings.

Model HFF units, also included in the bulletin, feature SAE flanged, shell-side connections for quick bolt-in place installation.

For a free copy of Bulletin 104-23,

Circle 71 on Reader Service Card

## Paul King Appointed Division Manager For Sonat Offshore Limited

Paul A. King has been promoted to division manager of Sonat Offshore Limited, major operating subsidiary of Sonat Offshore Drilling in the North Sea. He joined Sonat Offshore Drilling in 1976 as a trainee in the North Sea, and was then assigned to the Discoverer Seven Seas deep-water drillship project under construction in Japan. Since then he has served in several capacities, including technical supervisor, division engineer, and assistant division manager of the Discoverer Seven Seas during its worldwide drilling operations. Based in Aberdeen, Scotland, Mr. King will have responsibility for the company's drilling operations primarily in the U.K. sector of the North Sea.

Sonat Offshore Limited, with offices in London, is engaged in international contract drilling of oil and gas wells. Sonat Offshore Drilling, headquartered in Houston, is a wholly owned subsidiary of Sonat Inc., and is one of the largest international offshore drilling contractors. It is aggressively seeking to strengthen its presence in the North Sea and other European areas.

## Deutsch Metal Offers Free Pyplok Catalog

Deutsch Metal Components, Los Angeles, Calif., has announced the release of their new detailed Pyplok catalog which contains technical and dimensional information on the mechanically applied pipe connecting system.

The catalog illustrates how Pyplok is designed for the shipbuilding and ship repair industries. A cut-away illustration is featured to show specific design benefits.

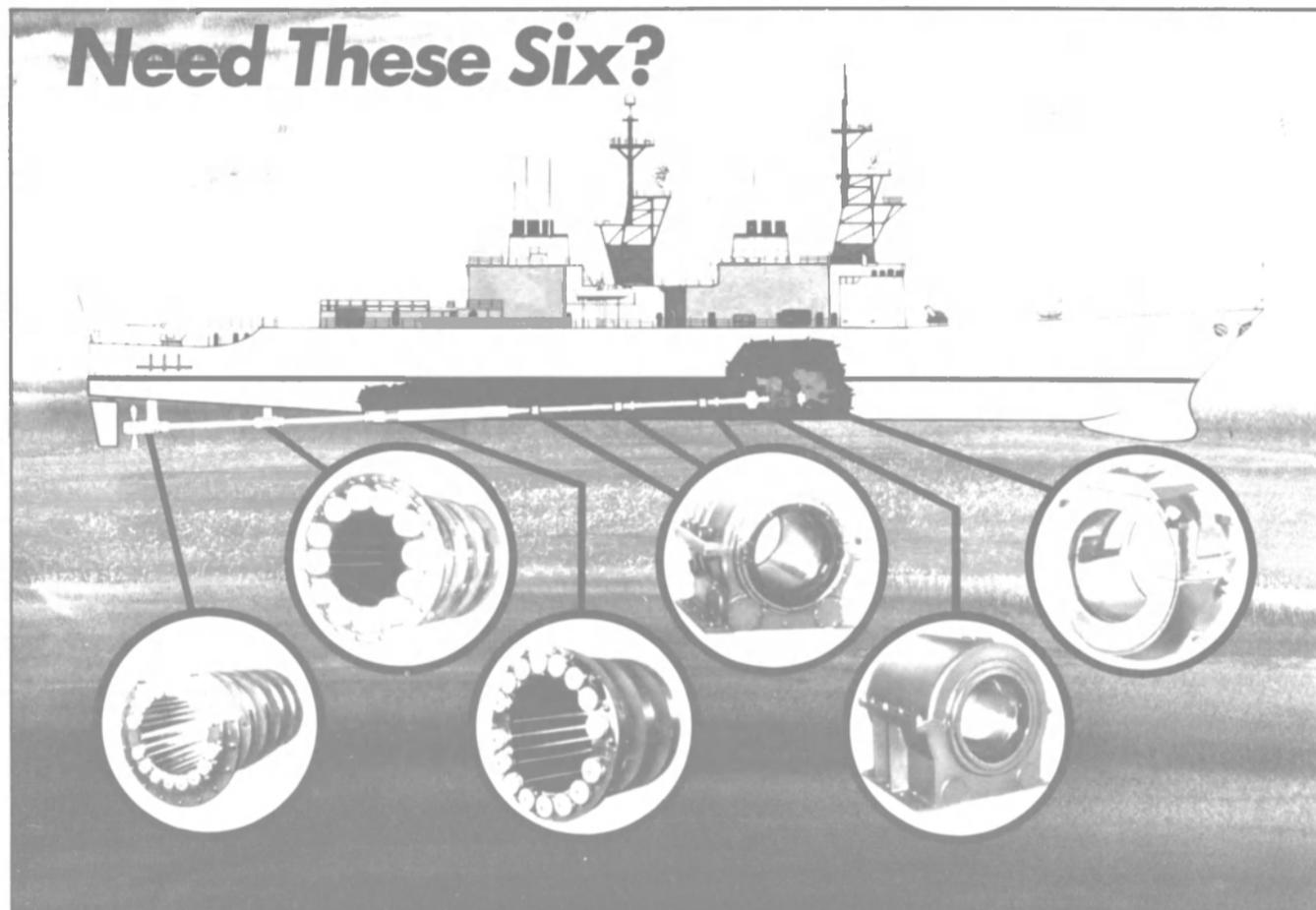
Pyplok, the system that eliminates welding and hot work, has been tested and qualified by Navsea for its 6,000-psi fittings (70/30 CuNi) and 3,750-psi fittings (316L Stainless) and has received approvals from virtually every maritime approval agency in the world, including ABS and the U.S. Coast Guard.

The catalog is assembled in a hard-bound, protective coated binder and also details sizes (up to 2-inch), materials and tooling requirements necessary for Pyplok installations.

This informative catalog also illustrates the simplicity of Pyplok installations, explains testing results and gives ordering information.

For a free copy of the catalog,

Circle 25 on Reader Service Card



## Make Sure You Get These Three: Full Line, Full Quality, Full Service

Don't think you have all bases covered when you find a bearing supplier with full-line capability. You also need full quality and full service! With American Metal Bearing, you get all three:

**Full Line**—Starting at the stern, American provides strut and intermediate strut bearings, stern tube bearings, line shaft bearings, journal thrust bearings, and reduction gear/turbine bearings.

**Full Quality**—Because it's less expensive in the long run, American designs and manufactures its bearings to the highest possible quality level, not to a price. They are fully engineered prior to production. Potential problems are solved before the bearings are installed, not after.

**Full Service**—With an American Metal Bearing System, you need service much less often. But when you do, we take full responsibility and do all the work, using original engineering drawings. You get performance, not excuses!

**Don't settle for less than Full Line, Full Quality, and Full Service!**



**Buy American!**

**AMERICAN METAL BEARING**

7191 Acacia Ave.  
Garden Grove, Calif. 92641  
Telephone: 714/892-5527  
Telex: 655-362

*"Marine Bearing Specialists Since 1921"*

Circle 27 on Reader Service Card

## From this in '42



Launching of the White Pine I and II

## ...to 1,200-plus since. That's Marinette.

When we built and delivered our first vessels 40 years ago, the U.S. Maritime Commission learned what many other customers have since discovered:

Marinette's production line philosophy of modular shipbuilding means highest quality, within budget, and on-time delivery always

Why else do customers return to us, for whatever their needs? It's our superior manufacturing techniques, our modern NC equipment, computerized system management, enclosed facilities for year-round work, full line of engineering design services, technical orientation to custom requirements.

Since '42 we've built a modern shipyard and a large staff of professional architects, engineers and construction specialists...all dedicated to demands of our customers. Not once have we failed them...nor will we, as we expand our operations, facilities and performance record in the years ahead

Look into Marinette Marine. Today!



**Marinette Marine**  
Marinette, Wisconsin 54143  
Telephone 715-735-9341  
TWX 910-270-1388



65' fast patrol boat



Artubar integrated tug



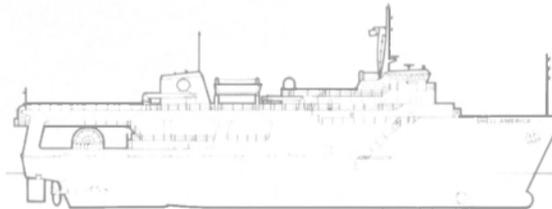
100' patrol craft



Deep-notch tug



Pilot boat



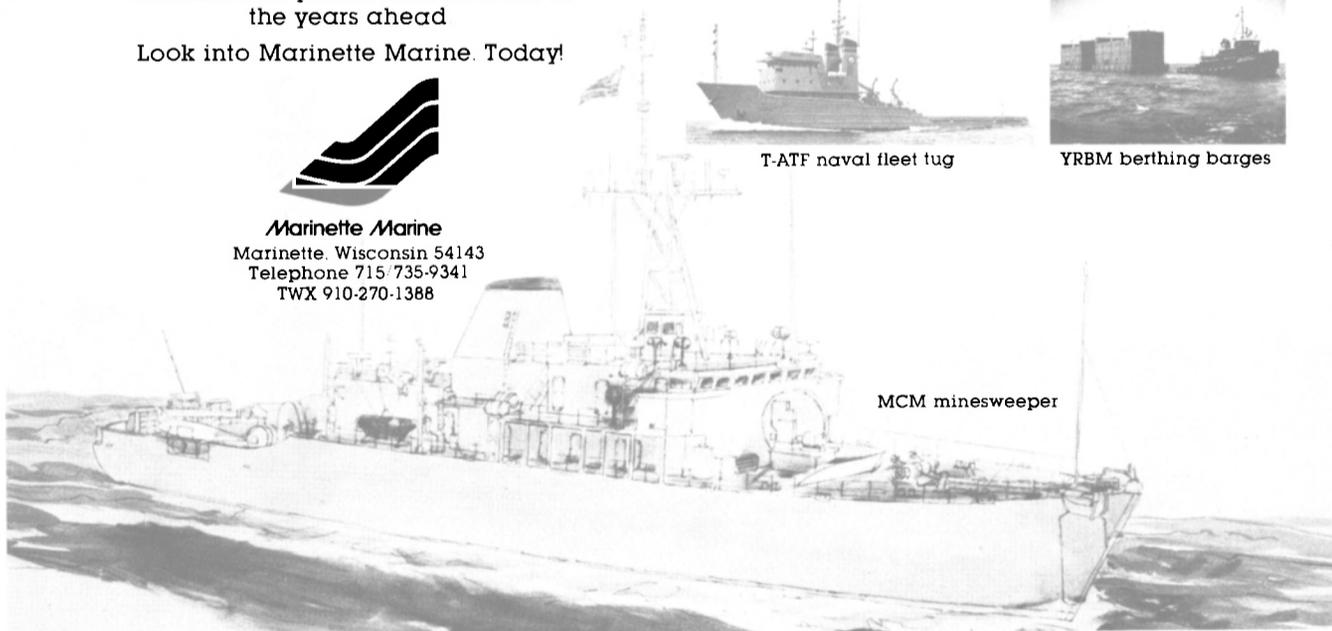
300' research vessel



T-ATF naval fleet tug



YRBM berthing barges



MCM minesweeper

Circle 136 on Reader Service Card

## New Brochure Describes John Crane Maintenance Training Center

John Crane-Houdaille, Inc. of Morton Grove, Ill., offers a new full-color brochure that describes the company's Mechanical Maintenance Training Center (MMTC) and explains its specialized training program.

"A maintenance man can save millions of dollars on repairs, replacements, and downtime," said **Stan A. Hodgkin**, John Crane training director, "if he's trained to spot potential problems early, diagnose them accurately, and correct them properly."

John Crane operates the MMTC in Atlanta to train maintenance personnel to become skilled trouble-shooting technicians. The prime

function of the facility is a continuing program of comprehensive, non-commercial four-day seminars on mechanical maintenance skills development and improvement. Each seminar is limited to 20 attendees.

The MMTC seminar combines lectures, practical demonstrations, and film and slide presentations with hands-on training in tearing down and reassembling equipment

internal elements, seals, and related components. The center is equipped with more than 30 pumps, several lapping machines, and other new and old equipment.

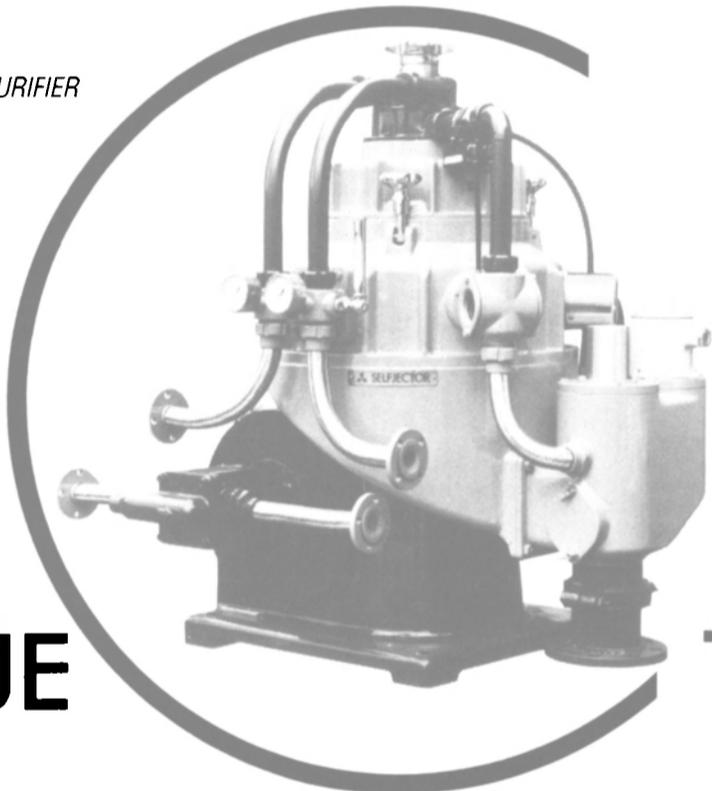
Cost of the John Crane MMTC four-day seminar is \$495, which includes all classroom and take-home materials, breakfasts, lunches, and breaks.

For a free copy of the MMTC brochure (Bulletin No. MS-101),

Circle 39 on Reader Service Card

# Here's our solution to the fuel quality problem.

 **MITSUBISHI OIL PURIFIER**



# SELFJE

# TOR

**MITSUBISHI  
SELFJECTOR**

**EXCELLENT-SERIES & E-HIDENS-SYSTEM**

## EXCELLENT-SERIES

The SJ-E Series, while being developed with the idea of improving separation and coping with lower grade fuel oils on one hand, incorporates various features which contribute to enhanced reliability and less maintenance labor.

### ■ Features

1. Compact and lightweight due to the use of newly developed special high-tensile stainless steel.
2. Superior separation through large centrifugal effect.
3. Pilot valve with quick response to sludge discharge mechanism.
4. Water shut valve for increasing replacement efficiency.
5. Desired capacity suction pump to be chosen.

**MITSUBISHI MARINE DECANTER CENTRIFUGE** will also solve the problem of clarification of very low grade fuel oils with high sludge content. With the support of Mitsubishi decanter, sludge discharge interval of purifier is extended, and oil loss and maintenance of purifier can be reduced.

Call your nearest distributor for details:

**MITSUBISHI KAKOKI KAISHA LTD.**  
Mita Kokusai Bldg. 4-28, Mita 1-chome  
Minato-ku, Tokyo 108, Japan  
Tel: (03) 454-4811 Telex: J22624



## E-HIDENS-SYSTEM

**HIGH DENSITY FUEL OIL TREATING SYSTEM:** This newly developed system provides stable operation in treating high density fuel oil. It consists of the partial discharge type clarifier of SJ-E Series and water detector.

### ■ Features

1. Maximum limit of density of fuel oil to be treated is 1010 kg/m<sup>3</sup>.
2. No lower limit for density of fuel oil to be treated.
3. Two discharge methods-Partial and Total-are available, which help us carry out easy maintenance.
4. No need for gravity disc.

**MITSUBISHI INTERNATIONAL CORPORATION**  
MACHINERY DIVISION  
520 Madison Ave. New York, N.Y. 10022  
Tel: (212) 605-2634 Telex: 420368

Circle 321 on Reader Service Card

## George Sharp Firm Gets \$300,000-MarAd Contract For Technical Support

The Maritime Administration has awarded a \$300,000 contract to George G. Sharp, Inc., New York, N.Y., to provide technical support for the conversion of a government-owned containership into a naval auxiliary crane ship. The ship, the ex-President Monroe built in 1966, will become the Navy's second auxiliary crane ship.

Conversion work will be done by Continental Maritime of San Francisco, Inc., under a separate contract with MarAd. Funds for the project have been provided by the U.S. Navy.

Under the contract with George G. Sharp, that company's employees will inspect the vessel and oversee the conversion work, which is expected to be completed within one year. They will report to MarAd's construction representative for the project.

## Gulf Oil Offers Free Full Color Guide To Marine Lubricants

Selection of appropriate lubricants for marine equipment is one of the most important steps toward ensuring maximum protection of marine engines and efficient operation of the vessels. To aid in the selection process, Gulf Oil Corporation has published a guide to its complete line of marine products.

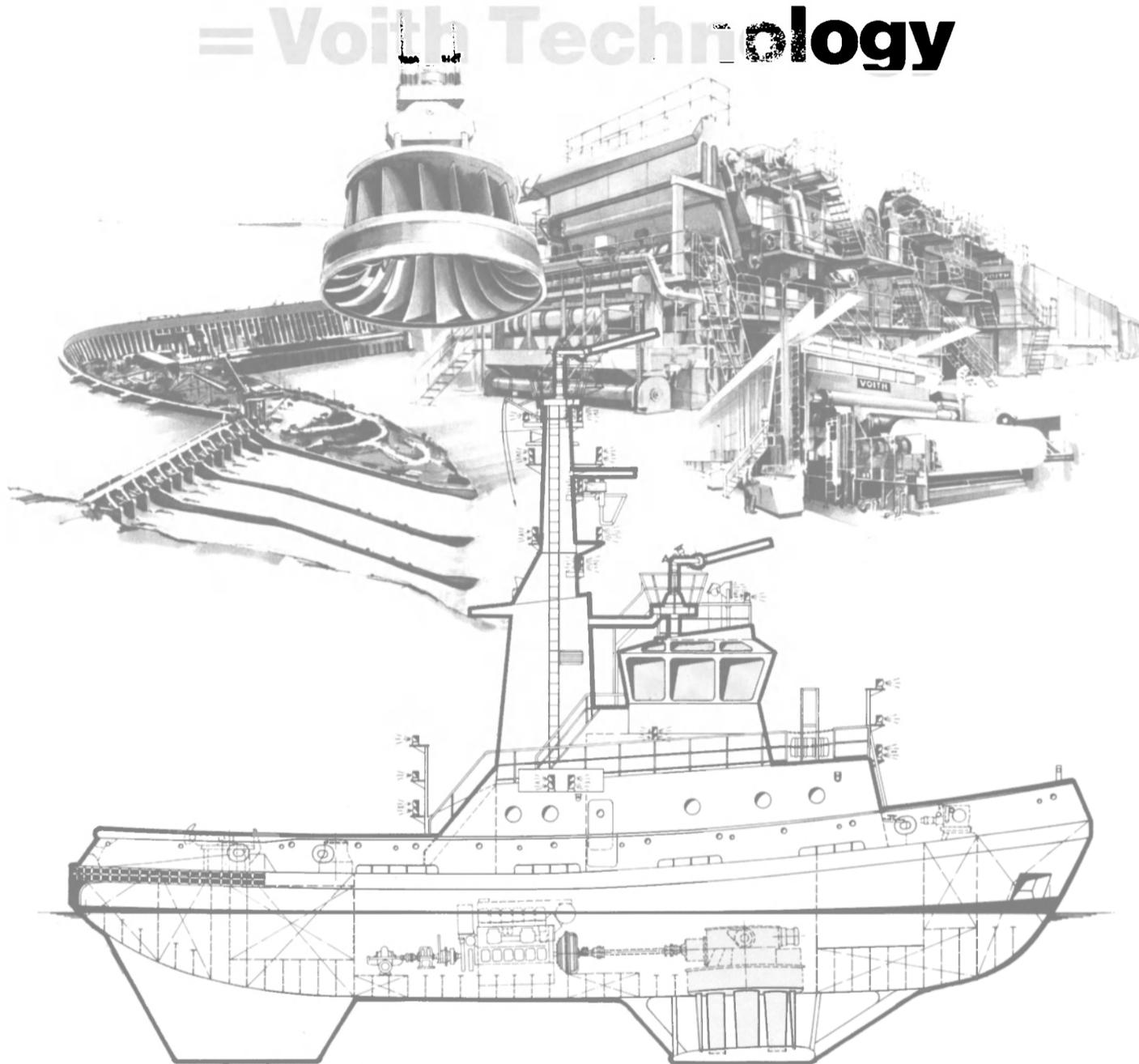
Called "Gulf Inland & Coastal Marine Lubricants," the brochure includes a quick reference guide to Gulf's marine lubricants as well as detailed data sheets on the properties of individual grades of lubricants.

Gulf marine products are available from many midstreamers and commercial marine outlets. A convenient pull-out folder, included in the brochure, identifies the ports where Gulf marine service and products are available.

For a free color brochure from Gulf Oil Corporation,

Circle 40 on Reader Service Card

# Voith Water Tractor = Voith Technology



World records in paper production on  
● Voith Paper Machines.

The world's largest hydroelectric power station with  
● Voith Turbines.

Highest safety, reliability and versatility in shiphandling by  
● Voith Water Tractors.

These unique three, among other significant products, have one in common:

USA: Voith-Schneider America Inc., (Eli Shaprut)  
159 Great Neck Road (Suite 200), Great Neck, N.Y. 11021  
Telephone: 516-466 5755, Telex 510-221 1864

Canada: Diamond Canapower Ltd.  
1122 Pioneer Road, Burlington, Ontario L7R 4A7  
Telephone: 416-335 0321, Telex 061-8286

J.M. Voith GmbH  
Marine Engineering Division  
Postfach 1940, D-7920 Heidenheim  
Tel. (0 73 21) 37-0, Tx. 714 799-60VHD

VOITH  
TECHNOLOGY

ts 8402 e/2

## New 16-Page Brochure From Caterpillar On Six Diesel Series

The manufacture of the highest quality engines and engine systems is the subject of a new 16-page, full color brochure. "Caterpillar Engines, An Industry Standard of Excellence" discusses all elements of the company's engine program. Numerous photographs show research

and engineering, foundry technology, production, quality control, and parts distribution capability at company locations. Also described are basic specifications of six series of Caterpillar Engines ranging from 85-6,000 hp (63 kw to 4,500 kw) for use in a broad variety of truck, marine, agricultural, electric power generation and industrial applications.

To obtain a copy of the brochure,

Circle 60 on Reader Service Card

## Farmer Named Worldwide Operations Manager For Sonat Offshore Drilling

James R. Farmer has been promoted to manager of worldwide operations for Sonat Offshore Drilling Inc., according to a recent announcement by company president W.C. O'Malley.

Mr. Farmer joined Sonat Offshore in 1966 and was named ad-

ministrative manager of operations in 1970. In 1978 he was appointed division manager responsible for the operations of the Discoverer III drillship in India, the Philippines, Thailand, and the Republic of Singapore. In 1980 he was elected a vice president of Sonat Offshore A.S., Sonat Offshore Drilling's major operating subsidiary, and then served as division manager of Sonat Offshore's largest division located in Abu Dhabi.

Sonat Offshore Drilling, headquartered in Houston, is a wholly owned subsidiary of Sonat Inc. of Birmingham, Ala., and one of the largest international offshore drilling contractors.

## Ferrous Announces FMS, System For Administering Catalyst Into Fuel Oil — Literature Available

Ferrous Corporation, Bellevue, Wash., a manufacturer of combustion catalyst for marine diesel and boilers has developed a complete system for administering catalyst into the fuel oil. The Ferrous Marine System (FMS) provides the user with a proportioning pump, depulsing unit and 24-gallon day-tank for injecting Ferrous FE-4 Catalyst into the fuel oil at a ratio of one gallon per 3,000 gallons of fuel. The FMS automatic injection system mixes the fuel and catalyst with a minimum of effort and maintenance and a high degree of reliability. The standard FMS package also includes a 90 gallon storage tank.

The FMS proportioning pump allows accurate proportioning of FE-4 Catalyst from the catalyst daytank into the fuel line. It is powered by a variable stroke, oil driven, diaphragm pump. The standard pump operates on 115 VAC. DC and multiphase pump motors are available on special order. The pump comes in various output capacities, measured in gallons per minute or hour, to meet virtually any fuel oil flow requirement.

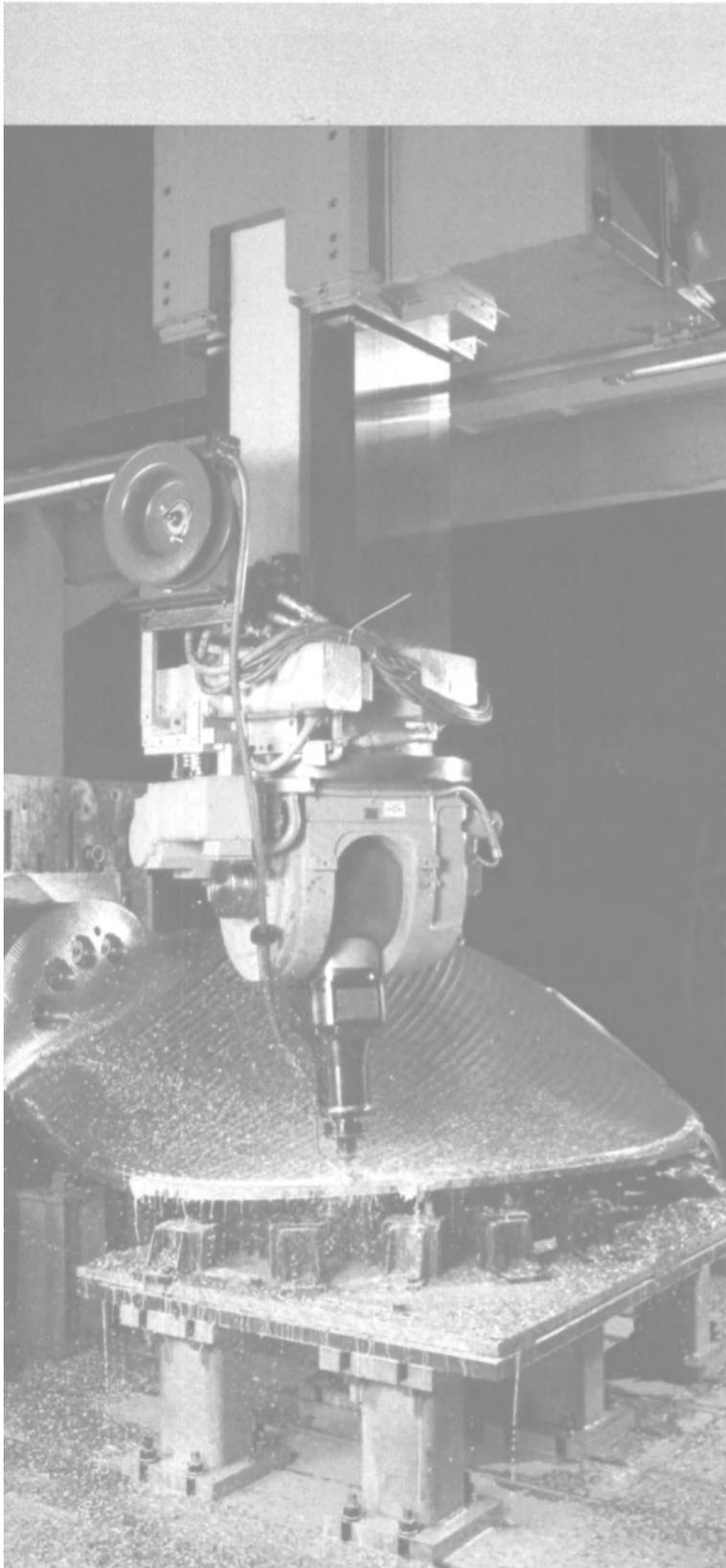
The FMS Depulsing Unit is designed to smooth out the pumping pulses in the flow from the catalyst proportioning pump to the fuel oil line.

The FMS Daytank incorporates a sightglass and measuring markings which allows easy on-board calibration. The daytank permits monitoring the addition of catalyst to maintain a constant "fuel to catalyst" ratio.

The FMS includes a pump mounting plate measuring 12 by 14 by 3 inches; the daytank measures 15 by 15 by 32 inches. The system includes an in-line filter, pressure gauge and a spring-loaded in-line check valve as well as operating and installation manuals.

For free literature containing full information about the FMS System and Ferrous FE-4,

Circle 57 on Reader Service Card



# Quiet Starts Here

Bird-Johnson's controllable pitch propellers are quiet. By design and execution. Designed by experts. Executed by computer controlled machines. Using both 3-axis and 5-axis profile milling to finished dimensions. On blade faces, leading and trailing edges, flanges and fillets. Identical profiles. Identical sound signatures. Precision unequalled in monobloc propellers. We've already delivered over 700 CNC-machined blades for warships.

Quiet—One reason to select Bird-Johnson CP propellers for your navy. For the facts on all our capabilities for producing naval propellers (our facilities are unique in the U.S.), contact the International Marketing Manager.

**BIRD-JOHNSON  
COMPANY** MARINE  
DIVISION  
110 Norfolk Street, Walpole, Massachusetts 02081, USA  
Telephone: (617) 668-9610 Telex: 6817294

← Circle 107 on Reader Service Card

## New York Port Engineers Meeting Hears Paper on Computer Uses

The first meeting of the 1984-85 season for The Society of Marine Port Engineers (SMPE) New York,

N.Y., Inc. was held at the Union Club in Hoboken, N.J. A good turnout of members and guests heard a



Principals at a recent meeting of the New York Port Engineers Society included (L to R): **David A. O'Neil**, author, president of Seaworthy Systems; **John Antonetz**, chair-

man, Papers & Technical Committee; **Edward English**, secretary-treasurer; **Thomas J. Young**, chairman of the board; and **Charles Hoetzel**, meeting coordinator.

presentation titled "Computer Applications for the Marine Port Engineer" by **David A. O'Neil**, president of Seaworthy Systems, Inc. of Essex, Conn.

Mr. O'Neil discussed the capabilities of the microcomputer and the quickly expanding library of software in the ship operating area. He pointed out several significant trends in that field, as well as pitfalls to be avoided.

Five demonstrations with audience interaction were given, using two computers and three large monitors dispersed within the audience. One demonstration dealt with useful port engineer-oriented routines that could be custom-generated on "spread sheets" without any requirement to be able to program. Other demonstrations included: using portions of "canned" programs to generate heat balances; analyze plant, hull, and boiler performance; and to rank for purchase the most acceptable steam plant fuels on an automatically screened technical/economical basis.

Mr. O'Neil concluded by sum-

marizing specific programs produced for a number of operators by several firms. He also praised the work of the Maritime Administration in this area, and distributed copies of MarAd's "Catalog of Computer Software Applications for Maritime Transportation," June 1984.

### Drew Ameroid® Offers Capabilities Brochure

Drew Ameroid® Marine, Boonton, N.J., has announced the availability of a new brochure that describes the service it offers to the marine industry worldwide.

The four-color, eight-page brochure covers all Drew's chemical programs as well as its newest lines, sealing products and welding and refrigerant products.

For a free copy of the brochure,

Circle 96 on Reader Service Card

Put flexible reach rods on remote valves.

## And save more than half the time and costs of installing rigid rods.

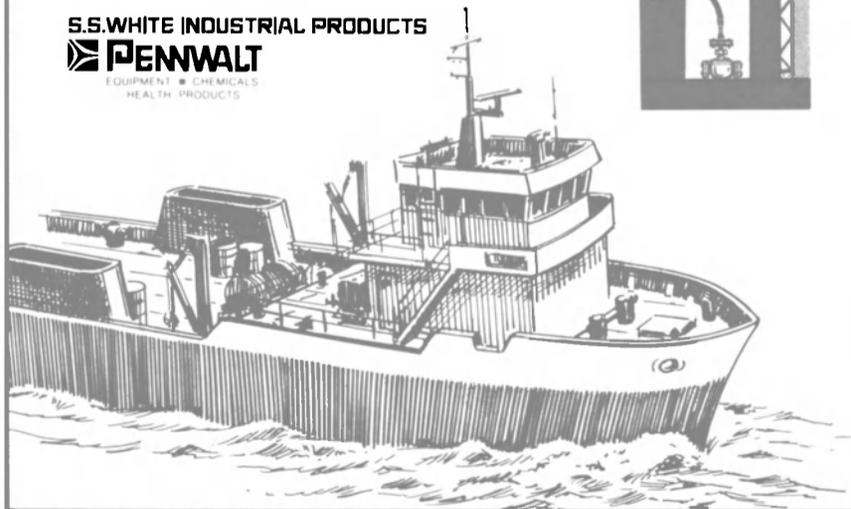
Use S.S. WHITE Industrial™ Heavy Duty Flexible Reach Rods for safe remote control of valves in hazardous or inaccessible areas. Install them for smooth manual operation of valves from distances up to 40 feet away or more. And enjoy new design freedom. Ease of installation. Less maintenance. Safe, reliable operation. And big savings.

Route these flexible rods around curves and over or under obstacles. They require no additional expensive operating gear such as universal joints or right angle gear boxes. Flexible reach rods absorb shock and vibration and stand up to abrasion, abuse and corrosion. They're pre-lubricated, and the only maintenance required is once-a-month operation.

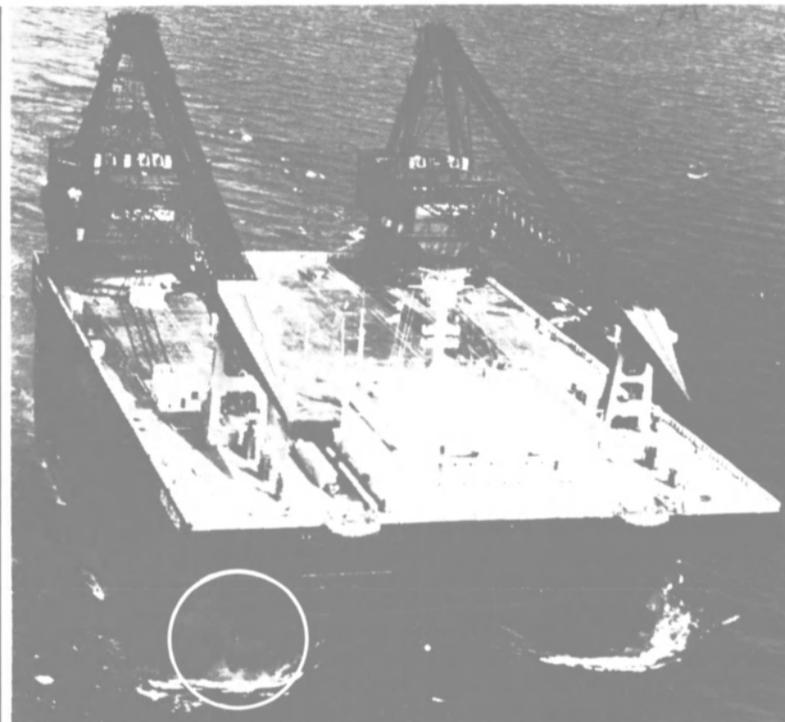
S. S. WHITE Industrial Heavy Duty Flexible Reach Rods are available in standard lengths from 3 to 36 feet and in three sizes to fit valves from 3/4" to 16" in diameter. Other lengths are available on request.

For flexible "heavy duty" reach rods see your local authorized S. S. WHITE distributor. Or contact S. S. WHITE Industrial Products, 151 Old New Brunswick Road, Piscataway, NJ 08854. or call 201-752-8300. TELEX: 833-477; FAX: 201-752-8315.

S.S. WHITE INDUSTRIAL PRODUCTS  
**PENWALT**  
 EQUIPMENT • CHEMICALS  
 HEALTH PRODUCTS



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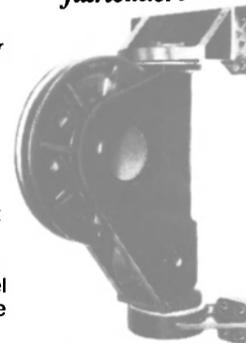


## BERGER KEEPS THE BALDER

Heerema has a giant task... keeping the "Balder", the world's largest crane barge in line.

Smith Berger's Self-Lubricating Underwater Fairleaders provide a reliable way to handle the "Balder's" massive three-inch diameter anchor ropes. Smooth, hardened sheave grooves protect the ropes from flattening and chafing. Heavy alloy castings and steel fabrications provide the

**IN LINE!**  
 With underwater fairleaders



strength to withstand the breaking strength of the rope in any direction. Stainless steel pins and self-lubricating bearings are maintenance-free under marine conditions. Berger Fairleaders have been doing man-sized and giant-sized jobs for over 50 years... both on the water and under the water... all over the world.

Call Smith Berger at their new headquarters for Fairleaders to meet your needs... and to keep you in line!



**Smith Berger Marine, Inc.**  
 SHIPBOARD SYSTEMS & FISH PROCESSING EQUIPMENT

516 South Chicago St., Seattle, Wa. 98108  
 Telephone (206) 764-4650. Telex No. 32-8912

Circle 12 on Reader Service Card

# DIRECTORY

## U.S. NAVY BUYING OFFICES

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

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

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

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

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

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

### DEPARTMENT OF THE NAVY MAJOR BUYING OFFICES

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

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

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

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

### COMMANDS AND OFFICES

**Commandant of the Marine Corps (Code LS)**  
Headquarters, U.S. Marine Corps  
Washington, D.C. 20380  
Tel: 202/694-1939

Electronics equipment, specialized vehicles, and equipment peculiar to the Marine Corps.

**Chief of Naval Operations**  
Naval Department Procurement  
Branch (OPNAV—09B31)  
Room 5E587, The Pentagon  
Washington, D.C. 20350  
Tel: 202/697-3155

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

**Commander**  
Military Sealift Command  
Tamol Building, 4228 Wisconsin Ave., N.W.  
Washington, D.C. 20390  
Tel: 202/282-2601

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

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

Arlington, Virginia 22217  
Tel: 202/696-4601

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

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

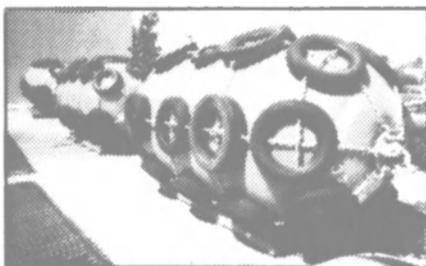
Material support responsibility for Navy and Marine Corps aircraft systems; air-launched weapons systems and subsystems; airborne electronics systems; air-launched underwater sound systems; airborne pyrotechnics; astronautics and spacecraft systems; airborne mine countermeasures equipment (except for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

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

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

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

Cranes; powerplants; floating piledrivers; major boiler

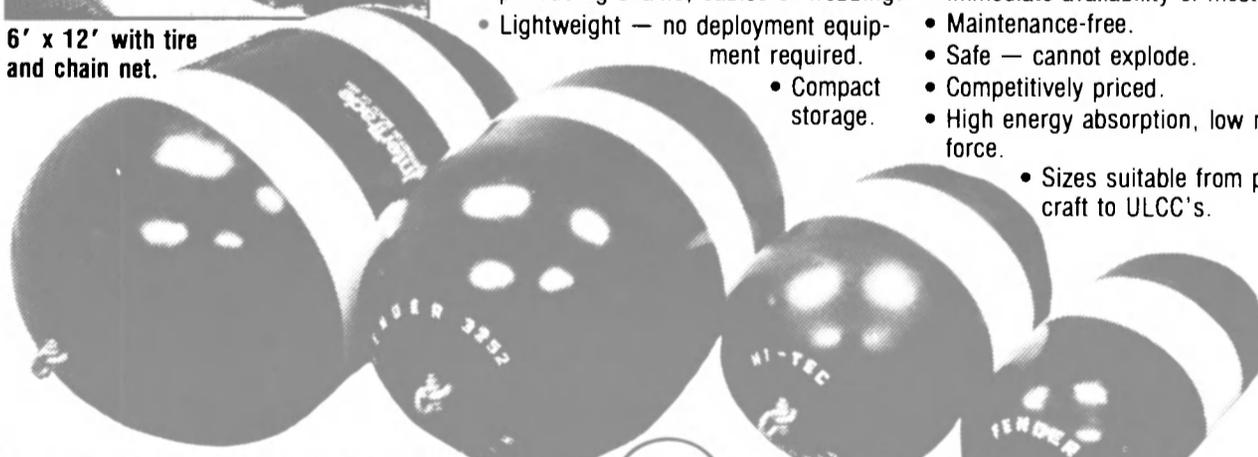


6' x 12' with tire and chain net.

# FENDERS

## HI-TEC™ MARINE FENDER SYSTEMS

- Snag-free designs — without protruding chains, cables or webbing.
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- Durable rugged construction.
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- Safe — cannot explode.
- Competitively priced.
- High energy absorption, low reaction force.
- Sizes suitable from pleasure craft to ULCC's.



DIA.	LENGTH	WEIGHT	DIA.	LENGTH	WEIGHT
16"	36"	31 lbs.	32"	50"	172 lbs.
24"	36"	75 lbs.	36"	60"	211 lbs.
*24"	36"	80 lbs.	48"	88"	425 lbs.
24"	36" Extra Large	85 lbs.	72"	144"	3,100 lbs.

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## U.S. Navy — Major Buying Offices

(continued from page 85)

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

### INVENTORY CONTROL POINT

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

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

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



### SUPPLY CENTERS AND DEPOTS

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

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

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

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

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

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

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Telephone: (212) 668-4700 Cable: "Robin" New York  
LOS ANGELES/SAN FRANCISCO/SEATTLE/NEW ORLEANS/GALVESTON



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

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

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

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

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

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

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

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

**Commanding Officer**  
**U.S. Naval Supply Depot**  
**Guam, Mariana Islands**  
**Tel: 339-4111**

(Mail Address: FPO San Francisco 96630)  
 General procurement for activities ashore and afloat in the Mariana Islands, including subsistence items, miscellaneous ships and marine equipment and parts; automotive parts; building and construction materials; electrical and electronic components and parts; communication equipment and parts; and general supply items. Services purchased include overhaul and repair of office machines, appliances and equipment; lease/rental of equipment; packing and crating of household goods; laundry; stevedoring; and tug and towing.

#### SHIPYARDS AND REPAIR FACILITIES

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

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

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

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

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

(continued on page 88)

# Stop these creatures before they stop up your fuel system.

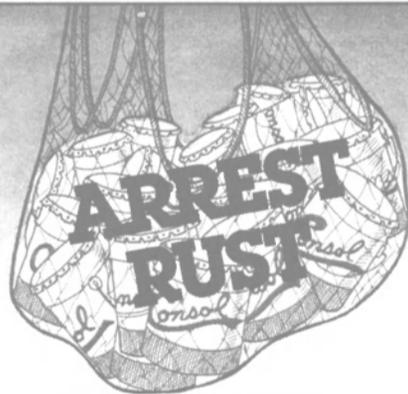
Your fuel tanks are the perfect breeding grounds for fungi and microorganisms that thrive in diesel and other hydrocarbon fuels. They produce a kind of slime that clogs filters and pipelines and can destroy metal surfaces. All of which means nothing but trouble. To save yourself all that trouble, just add BIOBOR® JF fuel fungicide. About a gallon of

BIOBOR JF in 5,000 gallons of fuel will eliminate microorganisms and improve fuel stability without harming parts or interfering with performance.

So keep trouble from breeding in your fuel system. Find out more about BIOBOR JF from your distributor, or write to Industrial Chemicals Department, U.S. Borax, 3075 Wilshire Boulevard, Los Angeles, CA 90010.

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Consol Rust/Kill Systems penetrate under rusted surfaces to seal off and protect the sound iron or steel beneath. The specially formulated coating combines penetrating oils,

protective ingredients and finished compounds to shield marine metals exposed to the most adverse atmospheric and salt water conditions.

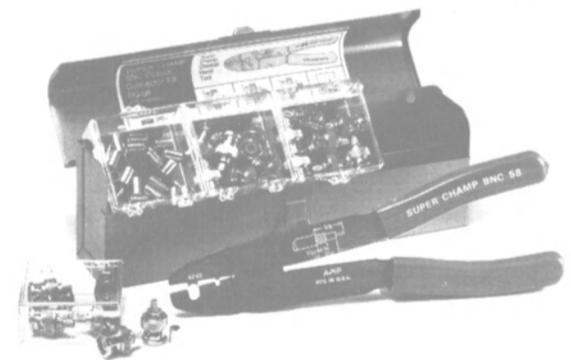


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Quick, easy and positive BNC series cable connectors need just two crimps for fast, solderless termination to keep applied cost very, very low. Heavy duty, yet inexpensive, SUPER CHAMP tool is built for rugged use and supplied with our RG 58 coax kit. Assortment of 20 connectors and tool are packaged in sturdy, attractive steel box.

For more information, contact AMP Special Industries, P.O. Box 1776, Southeastern, PA 19399. Or call (215) 647-1000.

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Circle 270 on Reader Service Card

## U.S. Navy — Major Buying Offices

(continued from page 87)

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

Commander  
Portsmouth Naval Shipyard

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

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

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

cleaning services; and storage and shipment of household goods.

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

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

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

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

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

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

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

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

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

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

### ORDNANCE ACTIVITIES

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

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

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

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

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

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

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

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

## Measure the THICKNESS of:

### WALLS and CORROSION from one side — ultrasonically



LOW-PRICED • RUGGED  
RELIABLE • GUARANTEED

All Metals, Ceramics,  
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0.040" - 8.000"  
(1.00 - 199.9 mm)

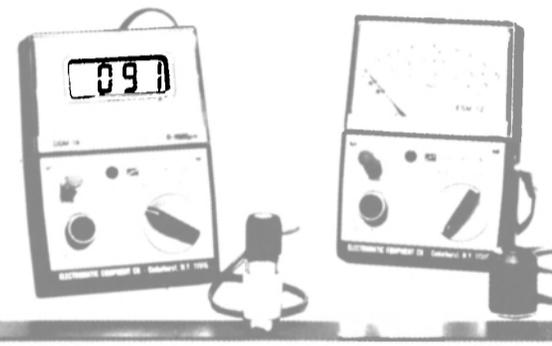
Five (5) CHECK•LINE® TI-6  
Ultrasonic Wall Thickness Indicators for Standard, High-Precision, Small Bore Pipe, High Temperature and Cast Iron applications.

- Fits in a pocket
- Accuracies to 0.5% ± 0.002"
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### PAINT, PLATING, FILMS and CLADS on metal surfaces —

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- Non-destructive, easy-to-use and calibrate
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- Reliable, accurate, guaranteed.



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1 to 16 WORK STATIONS WITH COLOR AND GRAPHICS/WORD PROCESSING,  
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- Classification Survey Status Monitoring
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TO YOUR NEEDS

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chemicals; rockets and missiles, both loaded and inert, required for rocket and missile testing.

**Commanding Officer**  
**Naval Undersea Warfare**  
**Engineering Station**  
**Keyport, Washington 98345**  
**Tel: 206/396-2324**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

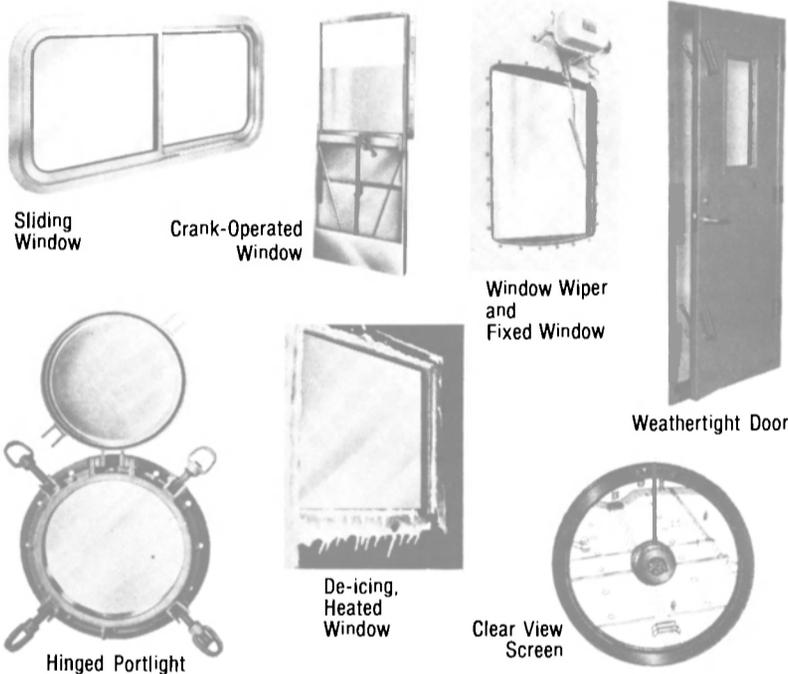
**Commanding Officer**  
**Naval Weapons Station**  
**Seal Beach, California 90740**  
**Tel: 213/594-7319**

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

(continued on page 90)

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*Marine Channel: 82*

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**Mr. Robert M. Catherine**  
**17 Battery Place, New York, N.Y. 10004**

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**269-0930 WU 640 164**

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The AMP SMA coax connector meets all requirements of Category F, MIL-C-39012. It's fast, reliable and comes completely pre-assembled. Tooling per MIL-C-22520 requires no special operator training. As a result, not only is our SMA extremely economical to apply but it is fully intermateable with existing designs.

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Division of AMP Products Corporation



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# U.S. Navy — Major Buying Offices

(continued from page 89)

## OTHER ACTIVITIES

**Commander, Navy Resale and Services Support Office**

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

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

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

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

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

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

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

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

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

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

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

**Commander**  
David Taylor Naval Ship Research & Development Center

Bethesda, Maryland 20084  
Tel: 202/227-1220

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

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

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

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

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

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

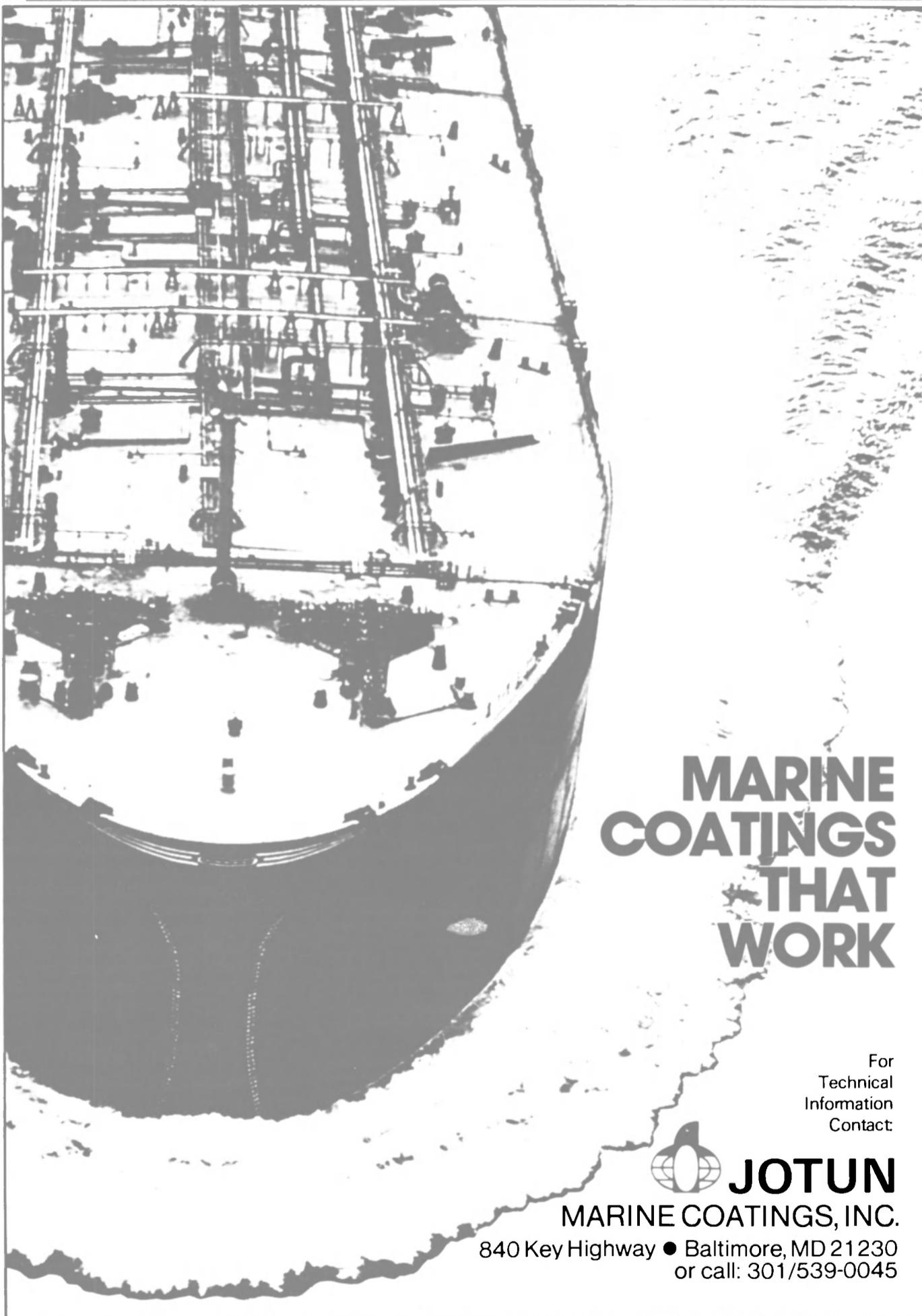
Research, development, test and evaluation supplies and services relating to command control and communications, electronic warfare, ocean surveillance, antisubmarine warfare weapon systems, submarine arctic warfare, ocean science, ocean engineering, biosystems research, and related technologies. Purchases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

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

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

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

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



**MARINE COATINGS THAT WORK**

For Technical Information Contact:

**JOTUN**  
MARINE COATINGS, INC.  
840 Key Highway • Baltimore, MD 21230  
or call: 301/539-0045

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### NAVY CONSTRUCTION

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

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

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

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

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

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

**Commander**  
**Atlantic Division**

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

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

(continued on page 94)



Suderman & Young tugs Sea King and The Judge.

## Serving the Texas Gulf Coast Since 1895

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

# SUDERMAN AND YOUNG

Towing Company, Inc.

918 World Trade Center, Houston, Texas 77002 713/227-1128 Cable: SANDY HOUSTON  
 Houston • Galveston • Texas City • Freeport • Corpus Christi

Circle 203 on Reader Service Card

## Economical ORCA Sewage Treatment Systems

**Space saving physical/chemical design** requires 90% less space than biological systems.

**Low installation costs**

**Simple, automatic operation**

**Low operating and maintenance costs**

**Reliable micro-processor control**

**Quick delivery...**  
6 standard models

Model	II-12	II-24	II-36	II-165	II-330	II-500
Number people served	12	24	36	165	330	500

Model ORCA II-24

\*If low volume flush toilets are used, the number of people can be doubled

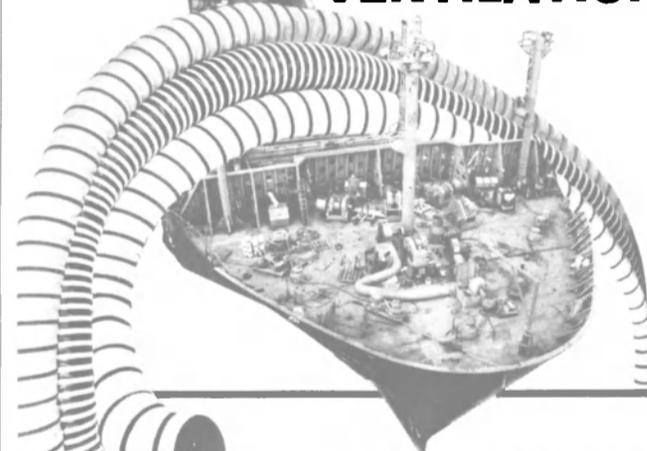
### USCG certified and IMO approved

Call or telex Dick Lambert for technical information, brochures or a quotation on a specific model.

**ENVIROVAC INC.** 1230 Turret Drive  
 Rockford, IL 61111 U.S.A.  
 Telephone 815/654-8300, Telex 257-415 (ENVIROVAC RKD)  
 Toll Free (USA only) 800-435-6951 (except in IL, HI, AK)

Circle 327 on Reader Service Card

## SHIPBOARD VENTILATION



Supplying the Marine, Shipbuilding and Ship Repair Industries with durable, flexible, wire reinforced ventilation hose and duct. Most hoses now meet UL 94-V-0 flame retardance standards promoting safer and healthier work conditions. Prompt shipment from five manufacturing locations. Send for free catalog or call toll free 1-800-343-0428.

**THE FLEXAUST**  
 DIVISION OF CALLAHAN MINING CORPORATION

11 Chestnut Street  
 Amesbury, MA 01913  
 (617) 388-9700  
 TWX 710-347-0593

SERVING THE MARINE INDUSTRY FOR OVER 38 YEARS

Circle 221 on Reader Service Card

# Number

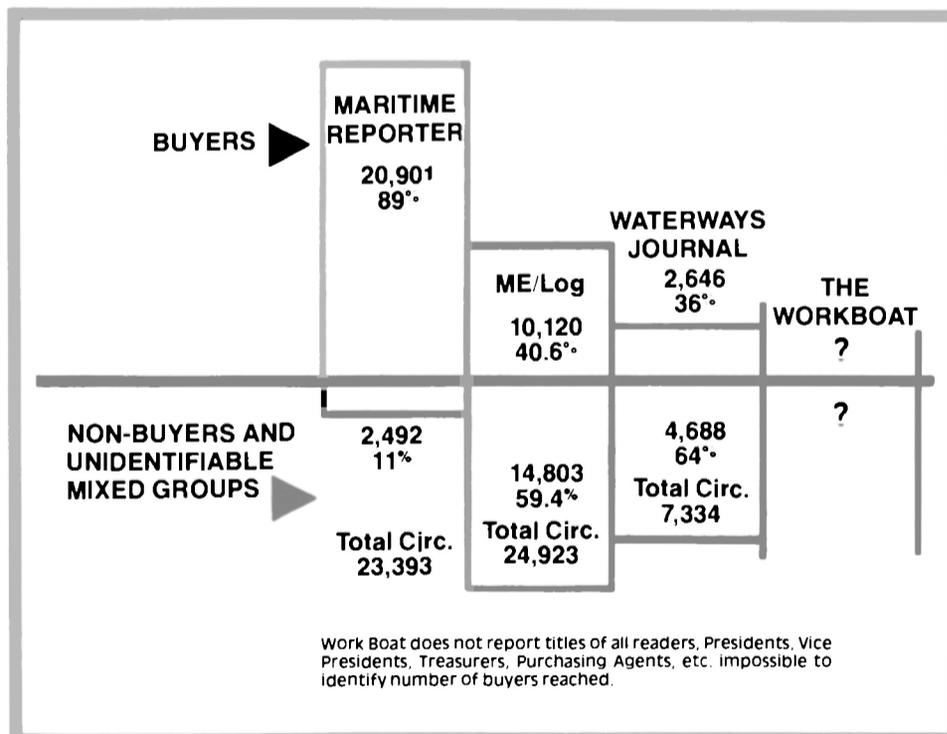
## MARITIME REPORTER THE LARGEST INCREASE IN IN MARINE PUBLI

In 1984, MARITIME REPORTER's total circulation increased by thousands to a record 23,323 copies every issue.

This entire increase consisted of only Buying influence Readers. MARITIME REPORTER now delivers your advertising to an unequalled 20,901 buying influence readers...

### WORLD'S LARGEST CIRCULATION TO BUYERS

Now, MARITIME REPORTER delivers your advertising to 20,901 identifiable buyers...over twice the number 2 magazine.



### THE BEST ADVEI

MARITIME REPORTER produces n other Marine magazine...two tir number 2 magazine. Each figure for an individual advertiser by M.

<b>Paints/Corrosion Control</b>	756
	657
	655
<b>Shipbuilding/Repair</b>	2,147
	613
	547
<b>Deck Machinery/ Cargo Handling</b>	523
	419
	395

## THOUSANDS MORE BUYERS . . . FOR B

# er ONE



# TER A'NNOUNCES CIRCULATION TO BUYERS ISHING HISTORY

thousands more than ever before...and thousands more than any other Marine magazine in the entire world.

Here is complete and unmatched coverage of your entire marine buying market...for maximum advertising results in 1984-1985.

## ISING RESULTS

e and better sales leads than any  
s and three times more than the  
ted represents inquiries produced  
TIME REPORTER in one year or less.

## THE ADVERTISING LEADER

In 1983, and for years, more media buyers placed more pages of advertising, for a larger number of advertisers, in MR than in No. 2, ME/Log.

### Diesel Engines

1,168  
1,153  
1,123

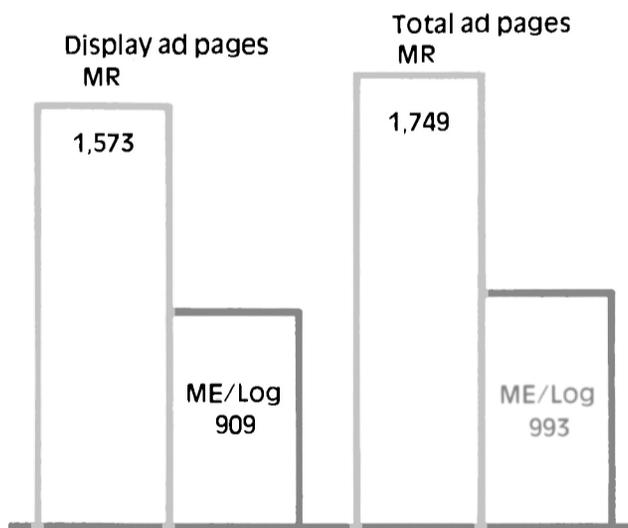
### igation & Communications

663  
621  
590

### Oily Water Separators

756  
459  
360

### COMPARE 1983 ADVERTISING



Note — shows only magazine advertising  
13 ME/Log issues —  
24 MR issues . . .  
no catalogs, buyers  
guides, etc.  
Ad pages reported  
in 7" x 10" units  
for comparison.

And in the first 6 months of 1984, MARITIME REPORTER carried more pages of advertising than No. 2, ME/Log.

**MR clearly leads by a wide margin in advertiser acceptance.**

## ST ADVERTISING RESULTS

November 1, 1984

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

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

# U.S. Navy — Major Buying Offices



(continued from page 92)

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

Commanding Officer  
Southern Division

Naval Facilities Engineering Command  
P.O. Box 10068  
Charlestown, South Carolina 29411  
Tel: 803/743-3995  
North Carolina—except counties under Atlantic Division; South Carolina, Georgia, Florida, Tennessee, Mississippi, Alabama, Louisiana, Arkansas, Oklahoma, Texas, and New Mexico.

Commanding Officer  
Western Division  
Naval Facilities Engineering Command  
P.O. Box 727  
San Bruno, California 94066  
Tel: 415/877-7479  
Arizona, Nevada, California, Utah, Washington, Oregon, Idaho, Montana, Alaska, and Aleutians.

Officer in Charge of Construction  
NFEC Contracts, Mediterranean  
Mail Address:  
Officer in Charge of Construction  
Naval Facilities Engineering  
Command  
APO New York 09285  
Spain, Portugal, Greece, Italy, Libya, Algeria and Morocco.

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

Commanding Officer  
U.S. Navy Public Works Center  
Yokosuka, Japan  
Mail Address:  
Commanding Officer  
U.S. Navy Public Works Center  
NFEC Contracts, Far East  
FPO Seattle 98762  
Japan area

Officer in Charge of Construction  
NFEC Contracts, Southwest Pacific  
Mail Address:  
Officer in Charge of Construction  
NFEC Contracts, Southwest Pacific  
FPO San Francisco 96528  
Philippine Islands

Officer in Charge of Construction  
NFEC Contracts, TRIDENT  
Naval Submarine Support Base  
Kings Bay, Georgia 31547  
Design, construction and maintenance of the Naval Submarine Support Facility at Kings Bay, Georgia.

Following is the most recent list of "Small and Disadvantaged Business Subcontracting Specialists of the Department of the Navy":

The responsibility of the individuals listed below is to administer Government contracts and to aid and assist businessmen who may be interested in subcontracting opportunities.

## CALIFORNIA

### Burbank

Loretta C. Laird  
Billee B. Hubbard  
(213) 847-4577  
NAVPLANTREPO  
Lockheed-California Company  
P.O. Box 551  
Burbank, CA 91520

### Long Beach

Herbert Winslow  
(213) 832-3361 Ext 4683  
SUPSHIP, Conversion & Repair, USN  
Long Beach Naval Shipyard  
(Code 1400B)  
Bldg. 300-2  
Long Beach, CA 90822

### Pasadena

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

### Pomona

Joseph Stehlik  
(714) 620-7511, Ext 8918  
NAVPLANTREPO (Code COA-3)  
1675 West Mission Blvd.  
P.O. Box 2505  
Pomona, CA 91766

(continued on page 96)

## NOW IN STOCK

• MIL-C-2212 Motor Starters • MIL-S-17773 Automatic Bus Transfer Switches  
• Commercial Marine Motor Controls • Contactors, Relays & Replacement Parts

Now there's no need to put up with long factory deliveries on A.C. Motor Starters and Bus Transfers for shipboard use. Our Navy/Marine Control Distributors now stock a larger assortment of popular sizes to meet MIL and I.E.E. 45 specs. They also carry a wide selection of control relays and replacement parts for magnetic contactors.

So make it easy... just call our nearest Stocking Navy/Marine Distributor in your area.

<b>CALIFORNIA</b>			
Emeryville	Beck Electric Supply	415-652-5665	
National City	Potter Electric Inc.	714-474-8171	
San Leandro	Benkiser Electric Motors	415-638-8262	
Wilmington	California Marine Supply	213-435-8224	
<b>FLORIDA</b>			
Jacksonville	Ace Electric Supply Co.	904-396-5101	
<b>LOUISIANA</b>			
New Orleans	Long Electric Supply Co.	504-524-8383	
<b>MAINE</b>			
Portland	WESCO	207-772-6507	
<b>MICHIGAN</b>			
Iron Mountain	Z & R Electric Service	906-774-0468	

<b>NEW YORK</b>			
New York	Argo International Corp.	212-431-1700	
<b>OREGON</b>			
Portland	Apollo Marine Service, Inc.	503-286-3693	
<b>SOUTH CAROLINA</b>			
Charleston	Ace Electric Supply Co.	803-552-7342	
<b>VIRGINIA</b>			
Norfolk	Bay Marine Supply Co.	804-627-1889	
<b>WASHINGTON</b>			
Seattle	Beck Electric Supply	206-763-2011	

**Ward Leonard**

31 South Street  
Mt. Vernon, N.Y. 10550  
Phone (914) 664-1000  
Telex 13-7427  
TWX-710-562-0144

"VISIT Booth 327  
INTERNATIONAL MARITIME EXPOSITION"



Circle 341 on Reader Service Card

## ATTENTION JACUZZI JET DEALERS AND OWNERS

North American Marine Jet, Inc., of Little Rock, Arkansas, has purchased the entire product line of Jacuzzi Marine Jet, including all manufacturing rights, from the Jacuzzi Bros. Division, also of Little Rock.

North American Marine Jet will supply OEM parts for all Jacuzzi Marine Jets and is now the manufacturer of replacement parts for Jacuzzi Marine Jets as well. Parts are now available for immediate delivery.

The company will also supply new units of the 12YJ, Piranha, 12WJ, 14YJ and 20YJ as well as accessories for the units.

We're ready to respond with instant, personal attention to your needs.

Call us at (501) 794-0676 or write:  
Leonard Hill, President  
North American Marine Jet  
P. O. Box 1232  
Benton, Ark. 72015



Circle 165 on Reader Service Card

For docking and repairs  
up to 100,000 dwt

**OUR MAN  
IN NEW YORK  
IS WALTER  
THORSEN**

Call him at (201) 659-8200/8201  
for details of our facilities



**Burrard  
Yarrow  
Corporation**

SHIPBUILDERS,  
SHIP REPAIRERS,  
GENERAL ENGINEERS

Vancouver and Victoria, British Columbia, Canada

Inquiries for both Vancouver and Victoria  
Divisions: P.O. Box 86099, North Vancouver,  
B.C. Phone (604) 988-2111, Telex 04-352-652.  
Cable Address 'Drydock' Vancouver

A member of the Versatile Corporation group of companies.

Circle 279 on Reader Service Card

# MURPHY'S LAW NUMBER 51.



IF A PLANK DOESN'T WARP, IT WILL SPLIT.

**W**

hereas MICRO = LAM<sup>®</sup> Law #1 states: MICRO = LAM scaffold planking will neither warp nor twist. It's made from engineered lumber and has virtually none of the defects of solid sawn planks. It cuts costs by lasting longer.

Any every MICRO = LAM scaffold plank is proof-tested for strength and branded to certify compliance with OSHA.

MICRO = LAM engineered lumber is made from ultrasonically graded veneer, laminated under heat and pressure with waterproof

adhesive. This process results in a plank that is stiffer and more uniform than any solid sawn plank on the market. We guarantee it.

Available in any specified length up to 40 feet, up to 24" wide, and in 6 thicknesses.

Immediate shipment. Write or call today for product samples, information and prices.

Walk a safer plank:  
**MICRO = LAM<sup>®</sup>**  
Scaffold planking



Name \_\_\_\_\_  
Company \_\_\_\_\_  
Phone \_\_\_\_\_  
Mail To \_\_\_\_\_

**TRUS JOIST CORPORATION**

P.O. Box 60-E • Boise, Idaho 83707 • 208/375-4450

MR

Circle 336 on Reader Service Card

## U.S. Navy — Major Buying Offices



(continued from page 94)

### San Diego

**W.D. Hoff** (Code 425)  
**B. Evans** (Code 415)  
 (619) 233-9136  
 SUPSHIP, Conversion & Repair, USN  
 Naval Station  
 Box 119  
 San Diego, CA 92136

### San Francisco

**Louie H. Mar**  
 (415) 641-2295  
 SUPSHIP, Conversion & Repair, USN  
 (Code 430)  
 San Francisco, CA 94135

**Sunnyvale**  
**Michael A. Tyson**  
 (408) 742-6120

NAVPLANTREPO (SSPO)  
 Lockheed Missile & Space  
 Company Inc. (Code SPL-501)  
 P.O. Box 504  
 Sunnyvale, CA 94086

### CONNECTICUT

**Groton**  
**Everett J. Kagan**  
 (203) 446-2728

SUPSHIP, Conversion & Repair, USN  
 (Code 424)  
 Groton, CT 06340

### Stratford

**James A. Donnelly**  
 (203) 386-4493  
 NAVPLANTREPO  
 United Technologies Corp.  
 Sikorsky Aircraft Div.  
 Stratford, CT 06497

# SHI-Built Vessels Are Slightly Ahead of Their Time

When SHI started building ships a few years ago, few could realize how far and where we could go. With an infusion of the combined technologies of East and West shipbuilding technologies SHI launched a variety of vessels in a short span of time. Because of our management expertise, technology and competitive pricing, world renowned seapowers, including Hapag-Lloyd, have placed orders outside of Europe for the first time with SHI. Embarking on a new era of technology, SHI is geared to produce high value ships and offshore platforms that are economical in operation and profitable for the Owner. Our corporate philosophy is structured to satisfy our clients in terms of on-time delivery, within budget and to provide quality seldom found elsewhere. Contact SHI today and share in its advantages.

### VESSELS UP TO 250,000DWT

- Bulk Carriers •Oil/Chemical Tankers •Container Vessels
- Ro-Ro Vessels •Combined Carriers •M.P.C.



19,900 DWT Crude Oil Tanker



SHI Koje Shipyard



33,000 DWT Heavy Deck Cargo/Product Tanker

SHIPBUILDING DIVISION

## SHI SAMSUNG SHIPBUILDING & HEAVY INDUSTRIES CO., LTD.

HEAD OFFICE: Samsung Main Bldg. 150, 2ka, Taepyeong-ro, Chung-ku, Seoul, Korea  
 Tel: 771-33, Telex: SHICO K23726, SSYARD K23306 Cable Add: STARS SEOUL  
 KOJE SHIPYARD: 530, Jangpyung-ri, Sinhyun-up Koje-kun, Kyongsang Nam-do, Korea  
 P.O. Box: Gohyun 9, Kyongsang Nam-do, Korea  
 Tel: Gohyun 2-2151/9, Telex: SSCYARD K52211, 52212, 52213

### Jacksonville

**Stanley V. Jones**  
 (904) 246-5741  
 SUPSHIP, Conversion & Repair, USN  
 Drawer T  
 Mayport Naval Station  
 (Code 420)  
 Jacksonville, Florida 32228

### HAWAII

#### Pearl Harbor

**Ivan A. Holm**  
 (808) 471-3661  
 SUPSHIP, Conversion & Repair, USN  
 (Code 1410A, Box 400)  
 Pearl Harbor, HI 96860

### LOUISIANA

#### New Orleans

**Frederick W. Brown, Jr.**  
 (504) 361-2584  
 SUPSHIP, Conversion & Repair, USN  
 (Code 425)  
 New Orleans, LA 70142

### MAINE

#### Bath

**Lloyd F. Coombs Jr.** (Code 410)  
 (207) 443-6611, Ext 3115  
**Phillippa H. Dexter** (Code 412)  
 (207) 443-6611, Ext 2236  
 SUPSHIP, Conversion & Repair, USN  
 574 Washington St.  
 Bath, ME 04530

### MARYLAND

#### Laurel

**Robyn Salawitch**  
 (301) 953-7100, Ext 7571  
 NAVPLANTREPO (Code COC-2)  
 Johns Hopkins Rd.  
 Laurel, MD 20707

### MASSACHUSETTS

#### Boston

**James F. Donnelly**  
 (617) 451-4613  
 SUPSHIP, Conversion & Repair, USN  
 (Code 420B)  
 495 Summer St.  
 Boston, MA 02210

#### Lynn

**Charles I. Lamson**  
 (617) 594-5304  
 NAVPLANTREPO  
 General Electric Company  
 Aircraft Engine Group  
 1000 Western Ave., Bldg. 4-45  
 Lynn, MA 01910

#### Pittsfield

**Neil B. Siegel**  
 (413) 494-3266  
 NAVPLANTREPO (Code SPG005)  
 100 Plastics Ave.  
 Pittsfield, MA 01201

### MINNESOTA

#### Minneapolis

**Louis G. Nosan**  
 (612) 571-9201, Ext 2097  
 NAVPLANTREPO  
 4800 East River Rd.  
 Minneapolis, MN 55421

### MISSISSIPPI

#### Pascagoula

**John F. Lord**  
 (601) 769-4467  
 SUPSHIP, Conversion & Repair, USN  
 (Code 424)  
 Pascagoula, MS 39567

(continued on page 98)

## STOCKHAM'S WIDE PRODUCT SELECTION MAKES YOUR JOB EASIER.



With our wide selection of quality products, we can handle most any request. Whether you need gates, globes, angles, and checks in bronze, iron, carbon steel, and stainless steel or quarter turn valves such as ball, butterfly, or Wedgeplug, we have them in the sizes and types called for most often. In addition, a complete line of cast iron, malleable iron, and ductile iron pipe fittings, along with grooved couplings and fittings, are also available.

By specifying Stockham, there's no need to worry about quality. All products are manufactured to meet strict engineering standards.

The next time you need valves and fittings, specify Stockham. We'll make your job easier. Call or write for more information.

 **STOCKHAM**  
**VALVES & FITTINGS**  
Making your job easier

Box 10326 Birmingham, AL 35202 U.S.A.  
Telephone (205) 592-6361  
TWX 810-733-5546

Circle 334 on Reader Service Card

## U.S. Navy — Major Buying Offices

(continued from page 96)

### MISSOURI

St. Louis  
John E. Harriman  
(314) 232-2381  
NAVPLANTREPO  
McDonnell Douglas Corp.  
P.O. Box 516  
St. Louis, MO 63166

### NEW YORK

Bethpage  
Lt. Cdr. Stephen C. Nyland, SC, USN  
(516) 575-2617

Mark Weiner  
(516) 575-3413  
NAVPLANTREPO  
Grumman Aerospace Corp.

Grumman Data Systems  
Bethpage, NY 11714

Brooklyn  
Tony Trozzo  
(212) 834-2277/2278  
SUPSHIP, Conversion & Repair, USN  
(Code 433)  
Flushing & Washington Aves.  
Brooklyn, NY 11251

Great Neck  
Marjorie D. Seaman  
(516) 574-2987  
NAVPLANTREPO (Code COA)  
Sperry Corporation  
Great Neck, NY 11020

New York  
Horace F. Burr  
(212) 264-8172  
Office of Naval Research  
715 Broadway, 5th Floor  
New York, NY 10003

### PENNSYLVANIA

Philadelphia  
vacant at press time  
(215) 755-4201  
Philadelphia Naval Shipyard  
Industrial Management Dept.  
(Code 1411)  
Philadelphia, PA 19112

### SOUTH CAROLINA

Charleston  
Richard E. Stanley (Code 412)  
Janet G. Lietha (Code 418)  
(803) 743-3863/3834  
SUPSHIP, Conversion & Repair, USN  
Naval Base, Bldg 76  
Charleston, SC 29408

### TEXAS

Dallas  
H.M. Johnson  
(214) 266-3911  
NAVPLANTREPO  
Vought Corporation  
P.O. Box 225907  
Dallas, TX 75265

### UTAH

Magna  
Ila Rae Peterson  
(801) 250-5911, Ext 2744  
NAVPLANTREPO (Code SPLB-712)  
Hercules Aerospace Division  
P.O. Box 157  
Magna, UT 84044

### VIRGINIA

Newport News  
Kyle R. Duffie  
(804) 380-4136  
SUPSHIP, Conversion & Repair, USN  
(Code 402)  
Newport News, VA 23607

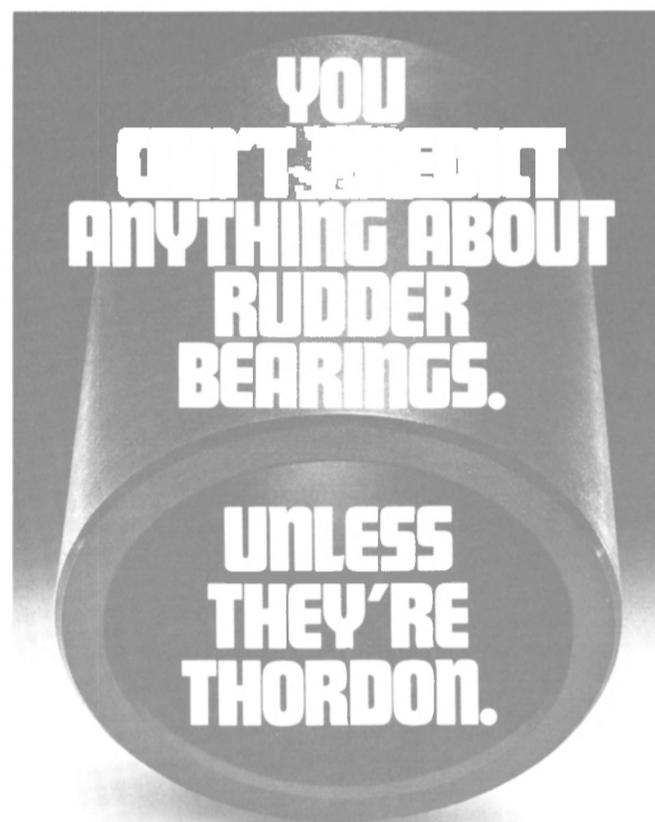
Portsmouth  
Lemuel D. Foxwell  
(804) 396-7664/7768  
SUPSHIP, Conversion & Repair, USN  
(Code 410), P.O. Box 215  
Portsmouth, VA 23705

### WASHINGTON

Seattle  
James L. Rancipher  
(206) 527-3471  
SUPSHIP, Conversion & Repair, USN  
7500 Sandpoint Way, N.E.  
(Code 425.2)  
Seattle, WA 98115

### WISCONSIN

Sturgeon Bay  
W.J. Komorske  
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SUPSHIP, Conversion & Repair, USN  
(Code 400), 61 North 2nd Ave  
Sturgeon Bay, WI 54235



Impact, abrasives and friction can all be working away at your rudder bearings without you knowing it. Until it's too late.

That's why it's wise to assume that your rudder bearings will always be getting rough treatment. Then you can prepare for it. With Thordon installed.

Whether it's at the pintle, the stock or the steering gear, Thordon delivers better performance than anything else you're using now.

Consider shock-resistance. A sudden impact that would crack a phenolic or deform a bronze bearing has no effect on Thordon. It absorbs the shock and bounces back.

Consider steering torque. It's less with Thordon, thanks to its lower co-efficient of friction.

Consider service. Thordon raw stock is warehoused in 50 countries around the world. So wherever there's a Thordon distributor and a lathe, there's a Thordon rudder bearing.

Cut the odds on premature rudder bearing failure. Get all the facts on Thordon, and start betting on a sure thing.

# Thordon

**IT WORKS HARD. YOU REST EASY.**

WRITE FOR COMPLETE PERFORMANCE DETAILS TO:



WAUKESHA BEARINGS CORPORATION  
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180' to 400'

## Tank and/or Deck

230' to 400'

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D.W.T. 1600 L.T.

## Drydocks

1000 and 2000 T.

# INLAND UNITS

## Deck

150' and 180' Series

## Self-Unloading Aggregate

D.W.T. 4000 S.T.

## Water Cranes

25, 100 and 150 T.

## Floating Docks

420' x 58' with or without crane

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Portland, Oregon 97201

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Telex 36-0503 • Cable "Zidell"

# ZIDELL MARINE GROUP

Circle 346 on Reader Service Card



**Cummins Introduces New Premium Grade Lube Oil For Diesel Engines**  
—Literature Available

Premium Blue, a new premium grade 15W-40 diesel engine lube oil from Cummins Engine Company of Columbus, Ind., is now available in the Southeastern states, company

officials reported as they announced a test marketing plan that will result in national distribution of the oil by mid-1985.

This launch is Cummins' first major step in a program to provide operators of diesel engines with a lubricating oil designed specifically to maximize the performance of their engines," said **Don Carver**, product manager-lubricants, and the architect of the Premium Blue

engine oil project.

"The project has resulted in the development of a unique combination of oil base stock, viscosity improvers, detergents, and stabilizing additives to create a premium multigrade oil more than 30 percent better than the typical multigrade oil on the market today," Mr. Carver said.

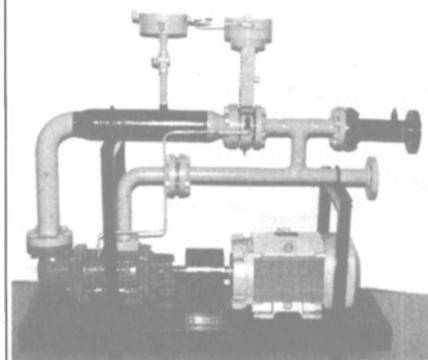
Premium Blue is specially blended to provide cold starting

protection in temperatures as low as -13 F; laboratory tests have shown less oil consumption until overhaul of an engine and up to 30 percent more miles between overhauls as a result of improved lubrication and superior protection against oxidation and wear.

For further information on Premium Blue lube oil,

Circle 20 on Reader Service Card

**WATER IN OIL EMULSIFICATION**



**S/S R & D, Inc.**  
1050 State Street  
Perth Amboy, N.J.  
08862  
(201) 826-1200

This A.B.S. and U.S.C.G. approved unit was designed and patented by Chief Engineer **Dannie B. Hudson**. S/S R & D, Inc. developed and perfected this system.

**Start-Up:** One button, system will adjust to psi and temp.

**Combustion:** the explosion of water droplets creates secondary combustion.

**Excess Air:** is reduced by 1/3. Consequently, stack temp. is reduced 20 to 25°F.

**Vanadium:** secondary combustion eliminates scale. All deposits on water wall tubes are soft.

**Sulphuric Acid:** is reduced by approximately 50%.

**Stack Gas:** O<sub>2</sub> is more compatible to IGS.

**Fuel Additives:** are eliminated.

**Savings:** 2% to 4% in fuel and 2% to 3% in maintenance.

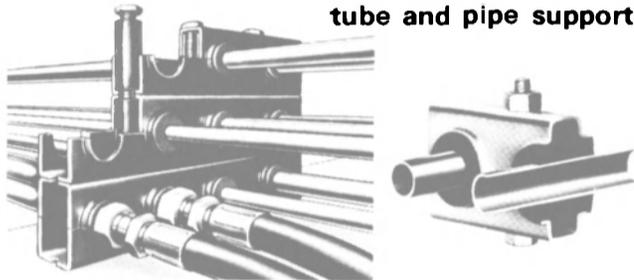
**Track Record:** More than 20 systems: Arco, Amerada Hess, Apex Marine, Exxon, Bay Tankers, Petrofina and National Gypsum.

**Warranty:** One year on material and workmanship.

**Data:** Available on request. S/S R & D, Inc. 1050 State St., Perth Amboy, N.J. 08862 — (201) 826-1200.

Circle 103 on Reader Service Card  
November 1, 1984

**THE MULTI-CLAMP SYSTEM**  
NO SHOCK, NO VIBRATION, LOW NOISE  
tube and pipe support.



Multi-Clamp provides a total system of planning, installing and retaining pipes, hoses and tubing on machine tools, in plants, on process machinery, in vehicles—anywhere line runs are required for hydraulic or pneumatic, cooling, lubrication, refrigeration, fuel, etc.

Supports tube and pipe in singular or multiple rows, and stacks in "Building-Block" type construction.

- Off the shelf delivery in sizes 3/16" thru 6" O.D.
- Provides for simplified installation.

A true "do-it-yourself" system.

OTHER HYDRO-CRAFT ACCESSORIES AVAILABLE INCLUDE

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WEIGHT

MEETS O.S.H.A.  
STANDARDS



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City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

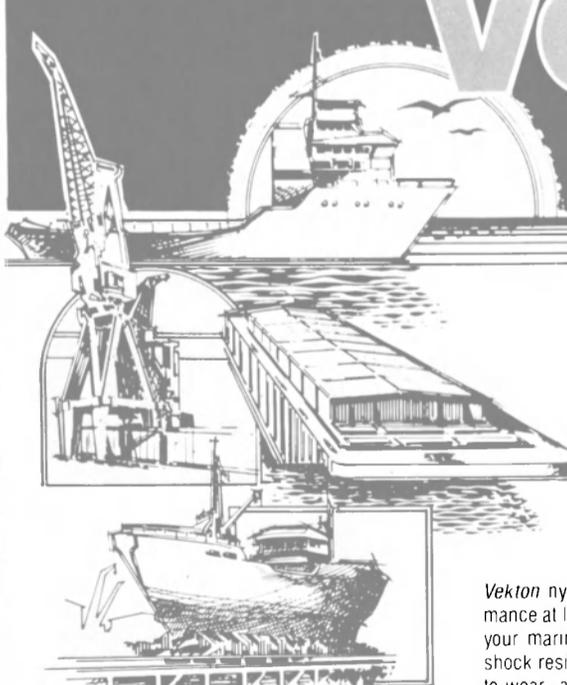
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Circle 114 on Reader Service Card

# Vekton<sup>®</sup>

## Cast Nylon

FOR THE MARINE INDUSTRY



**WORK BOAT APPLICATIONS**

- Carrier Rings
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- Steering Linkage Bearings
- Deck Winch and Capstan Bearings
- Long Shaft Pump Bearings

**CRADLE DOCK APPLICATIONS**

- Rail Bearings
- Wear Plates
- Rollers
- Pulleys

**GANTRY CRANE APPLICATIONS**

- Crane Traverse Gears
- Railway Bearings
- Pulleys
- Cable Wear Plates
- Line Shaft Bearings

**BARGE APPLICATIONS**

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- Long Shaft Pump Bearings

Vekton nylon is a versatile, economical, high performance material. It offers improved performance at lower cost and can be supplied in stock shapes or finished parts. Put Vekton to work in your marine application. Take advantage of its excellent lubricating ability, high impact and shock resistance, light weight (1/8 the weight of bronze), machinability and excellent resistance to wear, abrasion, fatigue and galvanic corrosion.

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Circle 28C on Reader Service Card

## Devoe Marine Announces Management Appointments

Devoe Marine Coatings Co., Louisville, Ky., one of the largest manufacturers of high quality coatings, recently announced the following management appointments.



William Mitchell



Robert H. Osmer

William Mitchell has been appointed vice president, Eastern region. Mr. Mitchell is responsible for all sales and technical service along the Eastern Seaboard. Formerly manager, Eastern region, he brings 34 years of marine manufacturing, technical service, sales and management experience with Devoe Marine to this position. Mr. Mitchell will continue to be

located in Devoe Marine's New York area office in Hoboken, N.J.

Robert H. Osmer has joined Devoe Marine as vice president-marketing. A graduate of the U.S. Merchant Marine Academy and Pepperdine University, where he earned an MBA, Mr. Osmer will have corporate marketing responsibility for Devoe Marine. He has previously held various engineering and management positions within the shipping and coating fields.



Vijay Datta



William H. Rembold

Vijay J. Datta has been appointed technical manager. He will direct the activities of the marine laboratory and will be responsible for new product development and maintenance of product lines. He will also continue in his pres-

ent capacity as quality assurance coordinator between the marine plants and product development laboratory. Mr. Datta has been with Devoe Marine since 1971. He holds a B.S. degree from the Institute of Technology, Delhi, India, and a B.S. and M.S. degree from the Newark College of Engineering, Newark, N.J.

William H. Rembold has been appointed manager of distribution and inventory control, responsible for maintaining and controlling Devoe Marine's worldwide stocks. Mr. Rembold has been with Devoe Marine for 28 years in a variety of increasingly important administrative positions.

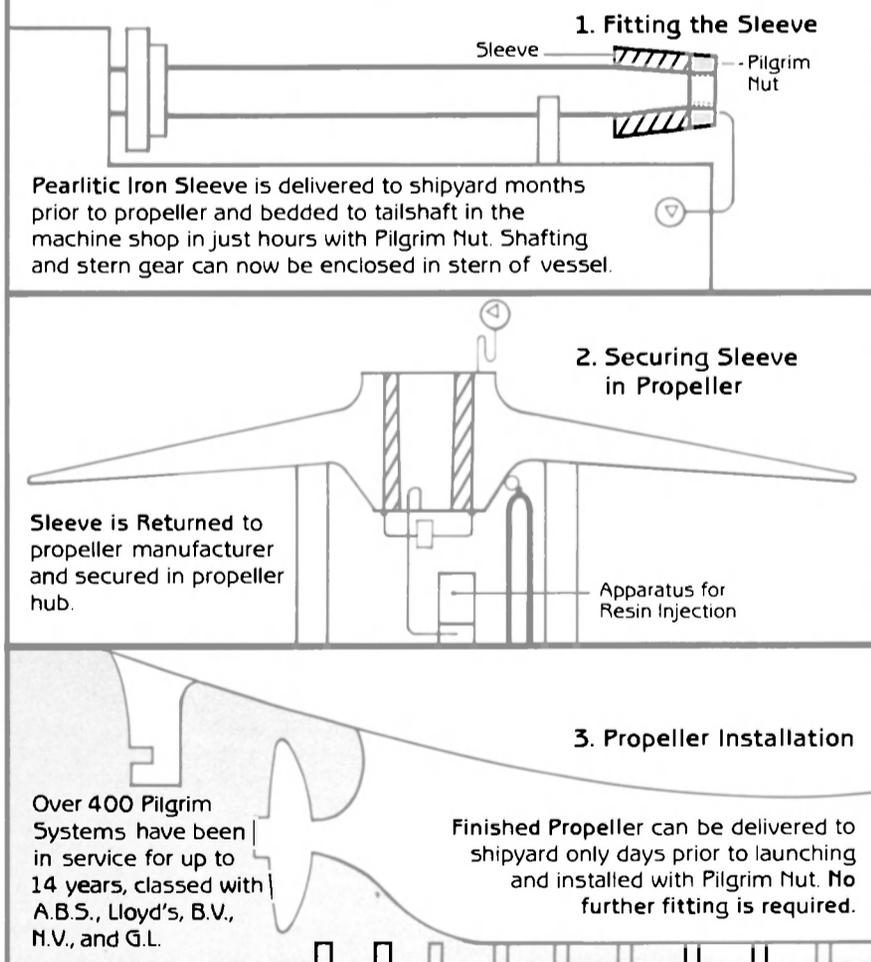
Devoe Marine Coatings Co., a division of Grow Group, Inc., is one of the largest manufacturers of high-performance, high-quality coatings for the marine and offshore industries. With two U.S. manufacturing plants and overseas associates, Devoe Marine is present in major ports throughout the world. Grow Group, Inc. is a worldwide family of companies producing and distributing high technology products for industry and the home.

For more information and free literature on Devoe coatings,

Circle 38 on Reader Service Card

## ADVANCE PRODUCTION SCHEDULES AND LAUNCH DATE With Pilgrim<sup>®</sup> Keyless Propeller System

Late approval of propeller design and model testing will not delay vessel delivery because:



For complete information, contact:



**MAPECO PRODUCTS, INC.**  
20 Vesey Street, New York, N.Y. 10007 U.S.A.  
Tel. 212-732-7863/Telex 12-6075

Circle 314 on Reader Service Card

## MAIN IRON WORKS, INC. REPAIR SERVICE

SERVING TUGS, PUSHERS, TOWBOATS, CREWBOATS, SUPPLY BOATS, INLAND & OFFSHORE BARGES



**3500 Ton Dock**  
200' x 100'  
90' Between Wing Walls

**1500 Ton Dock**  
160' x 80'  
70' Between Wing Walls

**850 Ton Dock**  
60' x 150'  
50' Between Wing Walls

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

### HISTORY

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

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

### GENERAL SERVICES

Air control mechanics  
Electrical repairs, trouble shooting  
Hydraulic mechanics  
Piping and plumbing repairs  
Sandblasting and Painting  
Complete machine shop service  
A B S approved for stainless steel  
Cladding on main shafts  
Complete wood working shop

### Four Dry Docks:

300-Ton Capacity  
850-Ton Capacity  
1500-Ton Capacity  
3500-Ton Capacity completed 1st qtr. 84

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

Located at 50 Mile Marker  
on Intracoastal Waterway  
P.O. Box 1918  
Houma, Louisiana 70361



CONTACT:  
LeRoy Molaison • Henry Brunet  
Otto Hughes • Wayne Piazza  
(504) 876-6302 • (504) 525-4020

### Machine Shop:

Lathes: Capacity in feet — 36 Feet  
Swing in inches — 30 Inches

### Wet Slips:

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

### Shaft Storage Rack:

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

### Inventory:

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

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

### Crane Service:

100 Ton Fixed Stiffleg for Offloading and Loading Supplies

Circle 176 on Reader Service Card

# NEW & REBUILT EQUIPMENT FOR IMMEDIATE DELIVERY

## VALVES

We have in stock the largest quantity of all new valves from 1/2" to 24"; iron, brass, steel. As an example of our low prices, we offer:

- (1) Reconditioned 6", 600#, Jenkins Globe Valve at: \$900.  
Tailshafts available for making rudder stocks, or other use, at 18¢ per pound.
- (2) New 200 square feet steam condensers, all bronze and cupro nickel, priced at \$2,000 each.  
All type of diesel heat exchangers in stock, Ross and Harrison.

## GENERAL ELECTRIC TURBINE ROTORS

We have the largest stock of main turbine and auxiliary turbine rotors in the United States; including:

32,000 HP  
30,000 HP  
28,500 HP  
19,500 HP  
9,300 HP

FOR THE AUXILIARY TURBOGENERATORS:

6-stage 750 KW  
6-stage 600 KW  
5-stage 500 KW  
3-stage 500 KW

FOR THE CARGO PUMPS OR AUXILIARY TURBINE ROTORS WE HAVE:

DR 125  
DP 125  
DR 120  
DP 120  
DP 114

We also have many others including Westinghouse, Worthington, Allis Chalmers and parts for all types of turbogenerators and turbines.

We have a large stock of diesel parts for Brown Boveri superchargers and DeLaval diesel engines.

Two (2) 44,000# Danforth-type Baldt anchors, new, for heavyduty mooring. Price: \$19,000 each.

Twelve (12) Reconditioned Westinghouse type C225 turbines, 575 HP to 1000 HP, 175# steam pressure, 20# exhaust. Equal-to-new; could be used for driving LP cargo pumps or with reduction gear AC generators. Price: \$7,500 each.

## WINCHES

Thirty (30) winches, almost new, American Hoist & Derrick. Twenty (20) 5-tons at 118'; ten (10) 30-tons at 30'. Can be used with DC, AC, hydraulic or diesel drive.

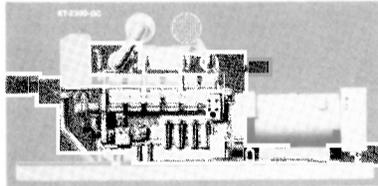
Price: 5-ton, \$2,900 each.  
30-ton, \$5,900 each.

Almost new Wilson stainless steel and steel diesel oil or fuel oil filters. Capacity 50-200 GPM. Can be used for filtering for large diesel engines.

Original price \$9,000.  
Our Price: \$1,800 each.

Fifty (50) Water-tight Doors, Coast Guard approved, unused, 26 x 66 at bargain prices. Other sizes in stock.

## DIESEL GENERATOR SETS



- (2) 700 KW Cummins Model 2300 Diesel Generator Set, 700 KW, 440 V, 3-phase, 60-cycle, 1800 RPM, heat-exchanger cooled, marine type with ABS certificate, equal-to-new, less than half manufacturer's price, built in 1981.
- (1) 2400 HP Fairbanks Morse Model 38D 8 1/2 diesel engine, 12-cylinder direct rotation, built 1969, in excellent condition. Price: \$49,000.
- (1) General Motors 3-71 Diesel Fire Pump, capacity 500 GPM at 125 PSI, all bronze pump, used, in excellent condition. Price: \$4,900.
- (2) Enterprise DSG6 diesel generator sets with 250 KW Elliott generators, 230 V DC, used, in good condition. Price: \$4,900.
- (3) Fairbanks Morse 1000 HP at 900 RPM Model 38D8 1/2, generator drive, used, in excellent condition. Price: \$7,900.

## FOR DIESEL SHIPS:

- (1) Unused 40-50 ton-per-day Serck Model RX50-40 low pressure evaporator, complete with pumps, salinity indicators, dump valves, and spare parts, brand new, at less than 1/2 of original cost, in original boxes, built 1982.



Two (2) New 35-ton pedestal type Whirly ship cranes, manufactured by Appleton in 1979; unused with electric hydraulics, 300 HP 440 V AC motors, rated 35-tons with 56' boom. All controls and motors ABS and CG approved. New Price: \$295,000. OUR Price: \$66,000 each, as is, Jacksonville.

We have in stock all types of T-2 equipment for Westinghouse and General Electric T-2 vessels, including main turbines, shafts, propellers, windlass parts. We welcome your inquiries.

Ten (10) New 2000# Danforth anchors with ABS. Price: \$850 each.

500 Tons mooring chain, used, in good condition, from 1 1/2" to 2 1/2" diameter. Price: 11¢ per pound, FOB New York.

We have dozens of diesel heat exchangers in stock, shell and tube, including (1) 2100 square foot, copper nickel heads and tubes, unused.

## SMALL TURBINES

- (3) Westinghouse Type E125, 700 HP with reduction gear to 1800 RPM, close couple, 550# steam pressure, 20# exhaust, used, in excellent condition. Price: \$5,500 each.
- (2) Direct drive E125 turbine, 150 HP at 400# 1800 RPM. Price: \$3,500 each.
- (1) New Westinghouse E120 turbine, 150 HP at 4000 RPM, 440#.  
Price: \$2,500.
- (2) Coppus 100 HP at 3000 RPM, Type 18.  
Price: \$1,800.
- (2) 800 HP Skinner turbines, 500# steam pressure, Type S-26, with reduction gear to 1800 RPM. (one used and one unused).  
Price: \$5,500 each.

We have in stock dozens of small turbines from 1 HP to 1000 HP.

Twelve (12) High Pressure Ingersol Rand 10ALV cargo, fire or ballast pumps, 3000 GPM at 280' at 1800 RPM. Reconditioned; can be driven by motor, diesel engine or turbine. Price: \$3,6000 each.

## MOTORS

(Reconditioned, equal-to-new)

- (5) 50 HP, 1800 RPM, 440 V AC, General Electric. Price: \$1,2000 each.
- (1) Two-speed, 50/20 HP General Electric 1780/1190 RPM, 440 V, 3-phase, 60-cycle, Frame: 504Z, totally enclosed. Priced: \$1,400.
- (2) Reconditioned Vertical, 125 HP, 585 RPM, Frame: 6335, 440 V, reconditioned, equal-to-new. Price: \$3,500 each.
- (3) Unused, in excellent condition, General Electric 150 HP, 440 V AC, Vertical, explosion-proof motors, 1750 RPM. Price: \$3,500 each.
- (2) 150 HP, 440 V, reduced voltage, General Electric starters. Price: \$1,500 each.
- (1) 300 HP Westinghouse 1750 RPM, rewound, 440 V Cargo Pump motor. Price: \$2,500.
- (3) 200 HP, 440 V, 3-phase, 60-cycle, General Electric, 1800 RPM, drip-proof motors, reconditioned, equal-to-new. Price: \$1,500 each.

## REDUCTION GEARS

We have all sizes of reduction gears in stock among the following:

6000 HP 2-pinion reduction gear manufactured by Farrel Birmingham, unused, 3-units, Input 9000 rpm, Output 400 rpm. The gears in these units are of finest steel and gears could be adapted to any purpose. Weight: 33,000# each. We offer these units at \$18,000 each, FOB Portland, Oregon.

(4) Farrel Birmingham reduction gears, 2-pinion, 2000 HP, 950 rpm Input; 240 rpm Output, complete with coolers and accessories, equal-to-new. Price: \$15,000 each

(6) 700 HP General Electric S234 reduction gears, 5000 rpm - 1800 rpm.

(1) New Skinner reduction gear, 4000 rpm - 1800 rpm, 1100 HP.

Hundreds of other reduction gears in stock 50,000 HP to 10 HP.

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PORTHOLES TO PROPELLERS—ALL EQUIPMENT GUARANTEED  
AT OUR JERSEY CITY WAREHOUSE—210 Henderson St., Jersey City, NJ 07302

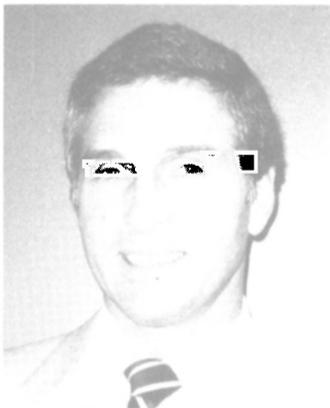
JACKSONVILLE WAREHOUSE—8th & Evergreen St., Jacksonville, Florida

# MARITIME POWER CORPORATION

MAIN OFFICE: 200 HENDERSON STREET, JERSEY CITY, N.J. 07302 (201) 433-0870

TELEX: 620533 MARPOW

## Byrd Named Executive Vice President of IMODCO



Robert C. Byrd

Dr. Robert C. Byrd has been appointed executive vice president of IMODCO, a unit of AMCA International's Marine Division based in Los Angeles. He most recently served as vice president and manager of the Marine Division of Brian Watt Associates, a Houston engineering services company he helped organize. His responsibilities there included floating production sys-

tems and Arctic marine engineering. He also served as chief financial officer and as a company director.

Dr. Byrd was graduated from the U.S. Coast Guard Academy. He holds a PhD in ocean engineering and a master's degree in structural engineering from the University of California at Berkeley, and a master's degree in ocean engineering from the University of Alaska.

## Halter Marine Awarded \$10-Million Contract To Build Two Tugboats

Halter Marine Inc. of New Orleans recently signed a contract valued at more than \$10 million with Otto Candies Inc. to build two 140-foot, triple-screw tugboats, according to Jack Edwards, Halter president. He said this new design is a first in the Gulf of Mexico to utilize azimuth rotating outboard propellers combined with a conventional centerline drive open wheel. He said this design adds tremendous versatility to a tug of this size and

horsepower. Each tug has a total of 5,850 bhp.

The 140-foot by 42-foot forecastle tugs will feature outboard main engines driving two Niigata Z-Pellers ZP-4 with 102-inch-diameter wheels. The centerline engine will drive a 113-inch-diameter conventional open wheel. The propulsion engines will be owner-furnished and they will be channel cooled. The vessel's electrical service will be provided by three 99-kw generators.

## ABS Publishes Its First Guide For Certification Of Thrusters

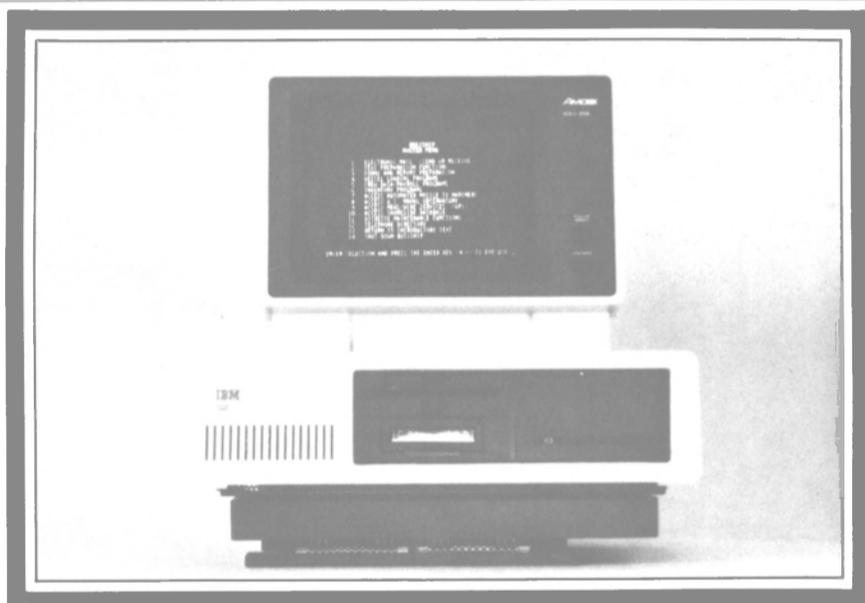
American Bureau of Shipping (ABS) has published the first edition of its "Guide for Certification of Thrusters." The Guide provides for the certification of various thruster systems such as main propulsion thrusters, propulsion assist thrusters, athwartship thrusters, and dynamic positioning thrusters. Compliance with the provisions of

this Guide is required for main propulsion thrusters as a condition of classification, but is optional for the other thrusters.

Requirements in the Guide cover equipment and system design, and apply to thrusters driven by diesel, steam, or gas turbine engines, and electric or hydraulic motors. The Guide requirements cover the tunnel, pod-type and omni-directional type thrusters.

The 30-page Guide contains the following sections on thrusters with various subjects covered on each: conditions of classification; machinery design; prime movers; plans and particulars; propellers; reduction gears; shafts; systems; dynamic positioning machinery; and surveys. A special section, Appendix A contains Guidelines for Type Testing of Control Components. This section covers vibration and functional testing.

Cost of the "Guide for Certification of Thrusters" is \$6 in the U.S. and \$7 elsewhere. Mail orders to: American Bureau of Shipping, Book Order Section, 65 Broadway, New York, N.Y. 10006, or contact local ABS offices.



## Suffering from fleet management problems?

- Effective vessel management even with forced staff reductions
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Check Nav-Com's ship management information system, BUSISHIP.™ It will pay!

All vessel operators are faced with these problems. The more boxes you can check the more you need the BUSISHIP™ system from Nav-Com. Send for our new brochure today.



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## Goltens' Hydraulic G-Pump

THE POWER  
THE ACCURACY  
THE RELIABILITY  
YOU NEED

Tensioning. Jacking. Bolting. Tasks that require great power and extreme accuracy. The G-Pump delivers both. Time after time. Task after task.

Compact and portable, the G-Pump will supply and maintain hydraulic pressure up to 21,300 psi (1,500 kp/cm<sup>2</sup>) with extreme accuracy. When tensioning or bolting the G-Pump can be preset to automatically maintain a specific pressure with an accuracy that is hard to find in a unit of this size.

Every rugged, reliable, precision G-Pump is equipped with a safety valve to prevent accidental overloading. A water resistant, stainless steel model, specially designed for offshore use, is also available.

Get the power, the accuracy, the reliability you need from a hydraulic pump. Get the G-Pump. Its performance under pressure is remarkable!



# Goltens

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Circle 295 on Reader Service Card  
Maritime Reporter/Engineering News

**Michigan Wheel Names Dykstra General Manager Of Grand Rapids Facility**



Charles Dykstra

H.L. VanderMay, president of Michigan Wheel Corporation, has announced the appointment of Charles Dykstra as general manager of Michigan Wheel-Grand Rapids facility.

Mr. Dykstra has been with Michigan Wheel for the past 19 years, and most recently served as vice president of sales and marketing. He is a graduate of Calvin College in Grand Rapids, Mich.

Michigan Wheel is a world leader in propeller manufacture, offering a complete line ranging from three to 96 inches in diameter.

**SKF Steel Introduces New Simplified Coupling —Literature Available**

The Coupling Division of SKF Steel, with headquarters in Avon, Conn., has developed the OKF coupling to fulfill the need for a simplified method of connecting a shaft to a flanged prime mover or gearbox output. This coupling connects a cylindrical shaft without taper or keyway to the output flange, reducing maintenance time and costs, and saving installation problems associated with tapered fits and fitted keyways.

The OKF coupling is similar to the OK shaft coupling that, unlike other rigid couplings available on the marketplace, uses no bolts, nuts, keys, or keyways. Instead, it employs a powerful interference fit to transmit high torque and shock loads—an interference fit that is created without using heat to expand the components.

The design of the OK coupling requires no keyways in the shaft, and enables a 25-percent reduction in shaft diameter to be made with considerable material savings in other components such as bearings and seals. Corresponding weight savings are also realized. Simple fine-turning is all that is required to prepare the shaft.

For additional information and free literature on the OKF,

Circle 29 on Reader Service Card

**Holmatro Offers Brochure Showing Full Product Line**

Holmatro Incorporated, USA, a subsidiary of b.v. Holmatro Industrial Equipment of the Netherlands, has available a free color brochure picturing its complete line of hydraulic and mechanical jacks, air tools, hydraulic rescue equipment, hoists, and air bags.

The Holmatro U.S. office in Severna Park, Md., was established to serve the American and Canadian markets for the sale of the company's hydraulic tools and rescue equipment, lifting equipment, and specific systems for the shipbuilding industry and petrochemical plants. The Holmatro equipment is manufactured by a wholly owned sister company in Holland.

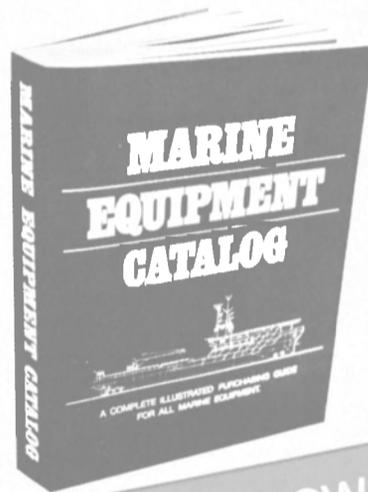
Next to the West European market, the U.S. and Canada are the

most important export markets for Holmatro. In 1983 the turnover increased 75 percent over the previous year. Increases of 50 percent in 1982 and 200 percent in 1981 were achieved in the U.S./Canadian markets. It is expected that this market will take over first place from West Europe within a couple of years.

For further information and a free copy of the Holmatro brochure,

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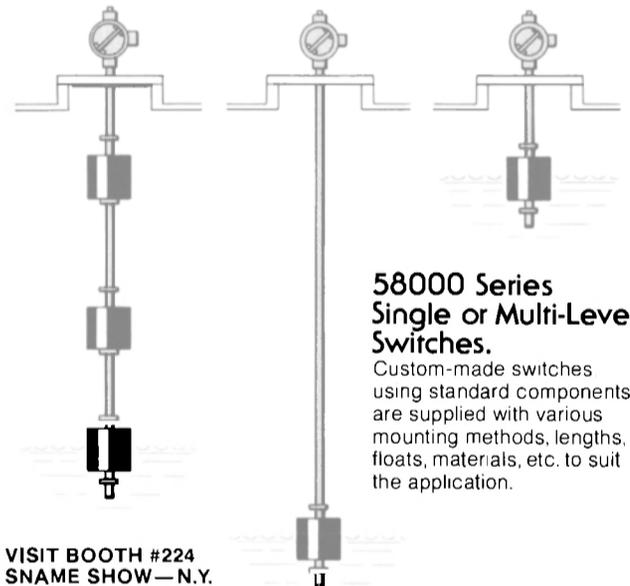
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## Gladding-Hearn Delivers 76-Foot Offshore Lobster Boat

The Seacrest Corporation of Plymouth, Mass., is aware of the importance of a modern, efficient boat in the highly competitive lobstering business. In the past year, Seacrest determined that a new, more functional boat was needed to maintain its position near the forefront of the industry. Since Seacrest strives for quality in all that it does, it turned to the Gladding-Hearn Shipbuilding Corporation of Somerset, Mass., for design and construction of its

new lobster boat. As a Seacrest spokesman commented, "We wanted the best builder for the corporation's first new boat, and Gladding-Hearn's excellent reputation made the difference in our decision."

Launched by Gladding-Hearn in June and dubbed the Endeavour, this 76-foot, all-steel offshore boat (shown above) provides all of the operational efficiencies and crew amenities sought by its owners. The

Endeavour is big enough for comfort and safety, while designed for economy of operation. She measures 22 feet 10 inches abeam and has a draft of 10 feet. A top speed of 11 knots is provided by her Caterpillar 3408 DITA marine engine, which is rated for 420 horsepower at 1,800 rpm. The engine drives a 60-inch diameter, four-bladed Columbian propeller through a Caterpillar 4.48-to-1 reduction gear. Total fuel capacity is approximately 8,700 gallons.

To handle Seacrest's lobster and fish catch, the Endeavour is fitted with three holds. Dual lobster tanks (zinc coated and epoxy-finished) capable of accommodating a total of 23,000 pounds are located aft of the deck house. Aft of the lobster tanks is a 48,000-pound-capacity, Master Bond-covered urethane-foam-insulated fish hold. An aeration system, operating from a XODAR electric drive compressor, infuses filtered air into the lobster tank holding water to maintain the freshness of the catch. A 16-inch Marine Hydraulics pot hauler, fitted with an air-powered line tensioner, and a modified Gearmatic grappling winch complete the Endeavour's principal fishing gear. Vessel outfitting includes complete mooring, navigation, and safety equipment.

The deckhouse features a captain's day room with enclosed head and shower. The foc's'le provides a four-bunk stateroom forward and a single-bunk private stateroom starboard; a completely equipped galley

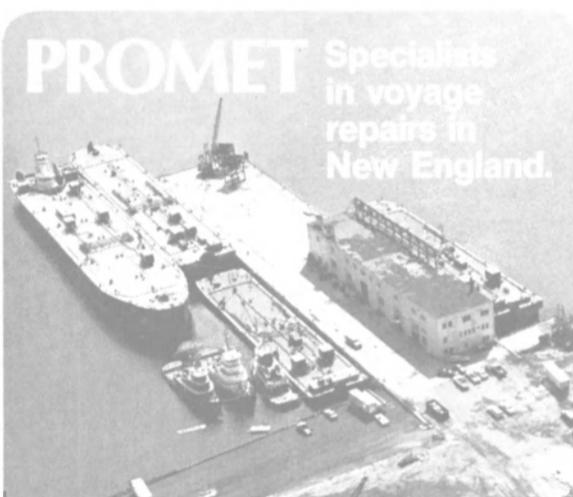
is arranged across the aft bulkhead. All quarters are electrically heated and thermal and noise insulated with combination Soundown foam and fiberglass. A 300-gallon potable water system supplies the galley sink and wash basin; an 1,800 gallon utility water system supplies the shower and engine room sill cock. Each water system has its own 30-gallon hot water tank.

The control console is located starboard in the deckhouse. A 26-inch Edson smooth-rim destroyer wheel controls the Endeavour's single-plate rudder through a yard-built hydraulic steering system. An electronics area and chart table completes the deckhouse furnishing.

## McDonough Gets Contract For Training Ship Work

The Maritime Administration has awarded a \$497,435 contract to McDonough Iron Works of Galveston, Texas, for hull and machinery repairs to the Texas Maritime College training vessel Texas Clipper. The work involves boiler tubes, automated boiler combustion controls, lifeboats, steel work, and other items.

The work, which is required to meet U.S. Coast Guard and American Bureau of Shipping standards, will be performed at the ship's berth at the college in Galveston.



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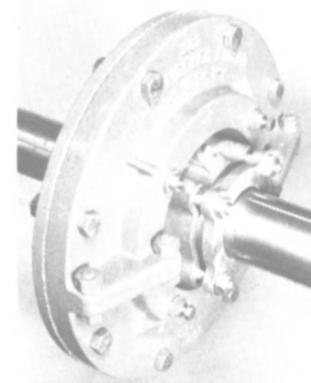
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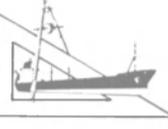
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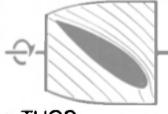
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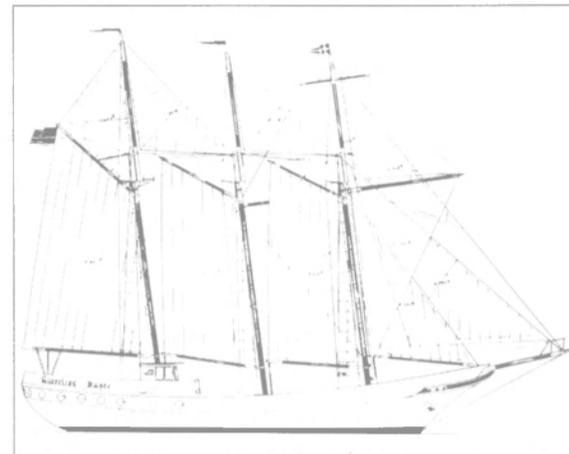
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**Marine Engineers Shipyard Gets  
Contract To Build Schooner**



**Michael Kolesar** of Marine Engineers, Panama City, Fla., recently announced that the company has been awarded a contract by Rover Marine Transport, Inc. of Norfolk to build the three-masted topsail schooner American Rover.

Believed to be the largest sailing ship to be built on the Gulf Coast in more than 50 years, the 110-foot vessel will have a beam of 24 feet, draft of 8½ feet, displacement of 101 tons, and will carry 4,972 square feet of sail. She was designed by naval architect **Walter Merritt**, a leading designer of steel sailing yachts. Rover Marine plans to use the 150-passenger vessel for chartering on Chesapeake Bay in summer months and in South Florida during the winter.

Designed to American Bureau of Shipping and U.S. Coast Guard rules, the American Rover is longitudinally framed with 2½- by ¼-inch steel flat bar on 18-inch centers. Transverse frames are 5- by ⅝-inch flat bars on four-foot centers. Hull plate is ¼-inch and deck plate is ⅝-inch. The vessel will be subdivided by four watertight bulkheads. Some 40 tons of steel ballast will be fitted into her 3- by 3- by 60-foot box keel.

Auxillary propulsion will be provided by two 160-bhp turbocharged diesels. The engines, shafts, and propellers will be mounted "piggy-back" on the center line. This arrangement will allow for use of one engine for low horsepower requirements without the steering difficulties of side-by-side twin screws. Sails will be flown from aluminum masts constructed from 12-inch 6061-T6 schedule 40 pipe. Yards and gaffs will also be 6061-T6 pipe and tubing.



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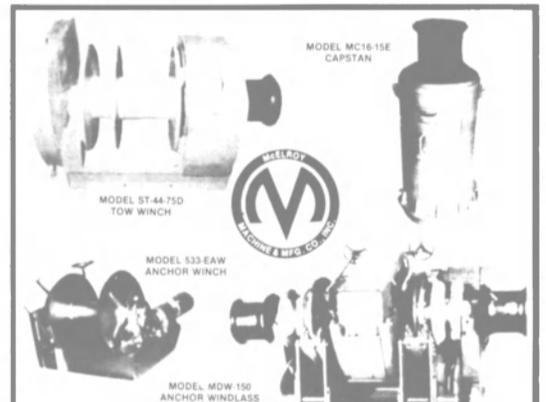
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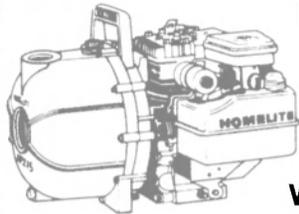
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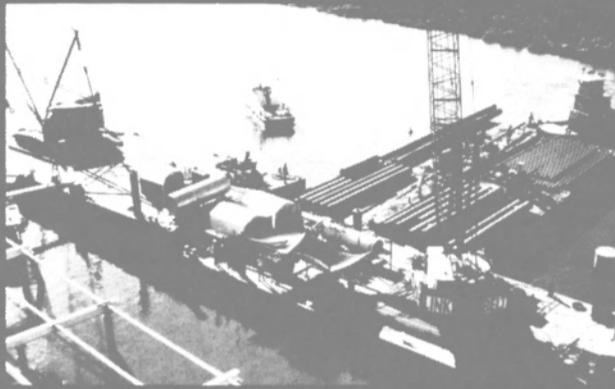
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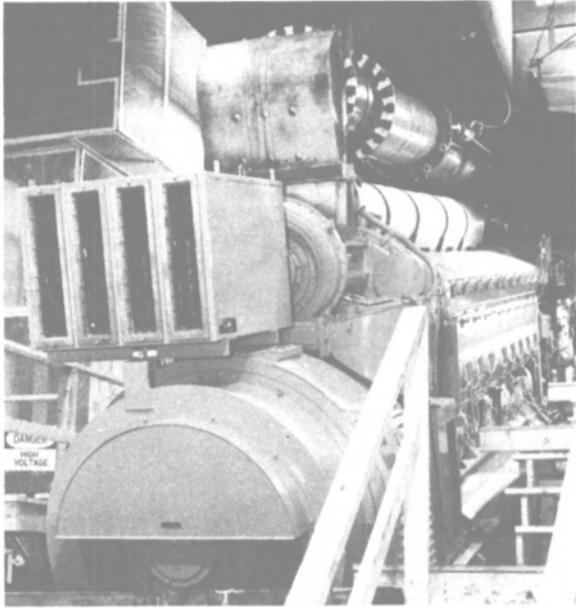
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**GM Engines Pass Offshore Tilt Test—Literature Available**



A General Motors Electro-Motive Division production marine drilling power unit, incorpo-

rating the EMD 20-cylinder diesel engine, has successfully completed the Det norske Veritas (DnV) 15 degree permanent inclination test. The approval of DnV applies to EMD's complete line of 8, 12, 16 and 20-cylinder naturally aspirated and turbocharged diesel engines, as applied to the marine drilling power unit configuration.

The tests were conducted with the EMD 20F9B engine and consisted of 12 hours of running time at full-rated horsepower/speed. Witnessing the test were officials from Det norske Veritas, American Bureau of Shipping and Lloyd's Register of Shipping. The test is mandatory, at present, for generating sets used on offshore rigs and platforms requiring DnV certification.

The means to achieve the DnV 15-degree inclination requirement were based by Electro-Motive on a "total system" design approach; i.e. engine, generator, modular accessory rack, and external lube oil tank mounted on a common base and interfaced, as necessary to provide a power "unit" capable of full-rated output.

During the 12-hour test the engine lube oil pressures and temperatures remained constant. Normal engine start was achieved prior to initiation of each six-hour test and clear exhaust

gasses were observed throughout the entire load testing.

Cooling water pressure and temperature remained constant during the test. After the test was completed, a complete airbox inspection was performed. This included an in-place examination of all pistons and liners. The crankshaft thrust bearing, the crankshaft upper and lower main bearings, the connecting rod upper and lower bearings, the turbocharger compressor thrust bearing, the turbine bearing, and planetary bearings showed only normal wear in polishing upon inspection.

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It is with our deepest regret and sadness that we announce the death of Nils Blok on September 30, 1984.

Mr. Blok served as the first Managing Director of Hempel's U.S.A. and as Chairman of the Board of the North American company until June 1979 and remained on the Board until 1982.

He will be kindly remembered by his friends and colleagues in the marine industry.

Hempel Marine Paint Inc.  
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## Perolin Marine Offers 87 Page Illustrated Tank Cleaning Guide

Perolin Marine has just re-issued its Tank Cleaning Guide to conform to the company's new corporate image.

This guide is a very comprehensive, easy to use manual, used for many years as a vital piece of reference material. The book contains 87 pages divided into five sections.

The Tank Cleaning Guide covers information on cleaning requirements, tank cleaning principles, washing systems and equipment, chemical cleaning methods and procedures, safety, inerting, and stainless steel tanks, etc.

All holders of the Guide are registered on a data bank which ensures new information and bulletins are issued direct to the holder, keeping him up to date and fully informed.

The Perolin Marine Tank Cleaning Guide is available to customers at \$40 including postage.

For further information,

Circle 52 on Reader Service Card

## Flexaust Announces A Major Improvement In Its Product Line

The Flexaust Company, the industry leader in ventilation ducting, announces a major improvement in its product line. Most hoses are now flame retardant and are recognized as having an Underwriter's Laboratories 94 V-O flammability classification.

By using a variety of constructions and materials, Flexaust can offer a permanently flame retardant product designed for use on either temporary service or on board installations involving both positive or negative pressures.

Its unique two ply, triple overlap construction allows unlimited product utilization for moving hot or cold air, removing grit dust, welding fumes or paint vapors. Other products made of a single ply, single overlap construction can be used in positive pressure applications involving dehumidification or paint drying.

Flexaust has over 400 stocking distributors throughout the U.S. and Canada. Prompt shipments can be made from any of its five manufacturing locations nationwide.

For more information,

Circle 75 on Reader Service Card

## Design Manual Available On Teleflex Remote Mechanical Valve Actuator

Features of the remote mechanical valve actuator system (RMVA) manufactured by Teleflex Incorporated of King of Prussia, Pa., include design simplicity, cost effec-

tiveness, high torque, high reliability, and easy installation. Approved by the Naval Sea Systems Command, the RMVA is flexible for simplified routing, with minimum joints and connections and no critical alignment.

The Teleflex RMVA uses three basic assemblies; the operator station and actuator, the cable/conduit system, and the valve station and

actuator. Each group has been designed using a minimum number of parts to increase reliability, reduce weight, and minimize maintenance. Design and installation time have been considered, and many common parts are utilized.

For a free copy of the Design Manual on the Teleflex RMVA,

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# BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of the MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266.

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Seaworthy Systems Inc., 36 Main Street, Essex, CT 06426

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Valmet Automation A.S., P.O. Box 130, N-3430, Spikkestad, Norway

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J.D. Neuhaus, Hebezeuge, D5810, Witten Heven, West Germany

## DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134  
Murdock Engineering Company, P.O. Box 2278, Irving, TX 75061  
Schoellhorn Albrecht, Div. of St. Louis Ship, 3460 So. Broadway, St. Louis, MO 63118

## DECKING—GRATING

Selby, Battersby & Company, 5220 Whiby Ave., Philadelphia, PA 19143

## DIESEL ACCESSORIES—CYLINDER LINERS

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360

Haynes Corporation, P.O. Box 179, Jackson, MI 49204

Illman Jones, 1111 Green Island Rd., American Canyon, CA 94589

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

## DIESEL ENGINE—Spare Parts & Repair

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Granges Repair Service GMBH, U.S. Rep: Field, Wigham and Co., Inc., 200 Middleneck Road South, P.O. Box 2123, Great Neck, NY 11021

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

## ELECTRICAL EQUIPMENT

Jergens Inc., 19520 Nottingham Rd., Cleveland, OH 44110

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

Valad Electric Heating Corporation, 162 Wildey St., Tarrytown, NY 10591

Ward Leonard Electric Co., 31 South St., Mt. Vernon, NY 10550

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

## EMULSIFICATION SYSTEMS

Cleanodan A/S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906

Fire-Brite, Hoffer Manufacturing Co., Inc., 3749 Progress Rd., Norfolk, VA 23502

S/S Research & Development Inc., 1050 State St., Perth Amboy, NJ 08862

## EQUIPMENT—Marine

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080

ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523

Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Thomas Coudon Associates, 6655 Amberton Dr., Baltimore, MD 21227

Fitz-Wright Suits Ltd., 17919 Roan Pl., Surrey, B.C., Canada V3S 5K1

Genstar Stone Products Company, Executive Plaza IV, Hunt Valley, MD 21031

Harvey's Commercial Marine Div., 2505 S. 252nd St., Kent, WA 98032

Imperial Manufacturing Co., P.O. Box 4119, Bremerton, WA 98312

Kearfoot Marine Products, 550 South Fulton Ave., Mount Vernon, NY 10550

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

## EVAPORATORS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201

MECO (Mechanical Equipment Company, Inc.), 861 Carondelet St., New Orleans, LA 70130

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

## FANS—VENTILATORS—BLOWERS

American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

Gaylor Industries, Inc., P.O. Box 558, Wilsonville, OR 97070

Joy Manufacturing Company, 338 So. Broadway, New Philadelphia, OH 44663

Zidell Explorations, 3121 S.W. Moody St., Portland, OR 97201

## FASTENERS

Sales Systems Limited, 7006, 700 Florida Ave., Portsmouth, VA 23707

## FENDERING SYSTEMS—Dock & Vessel

InterTrade Industries, 15301 Transistor Lane, Huntington Beach, CA 92649

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Samson Ocean Systems, Inc., 99 High St., Boston, MA 02110

Seaward International, Inc., 6269 Leesburg Ave., Falls Church, VA 22044

## FILTERS

Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307

Mueller Steam Specialty, P.O. Box 1569, Lumberton, NC 28359

## FINANCING—Leasing

A.G. Becker Paribus Inc., 2 First National Plaza, Chicago, IL 60670

Gulf Western Leasing Corp., 1500 City West Blvd., Suite 300, Houston, TX 77047

Yegen Marine, P.O. Box 25504, Ft. Lauderdale, FL 33320

## FIRE PROTECTION, DETECTION & ALARM SYSTEMS

Gulf Publishing Company Video (Firefighting Videotape), P.O. Box 2608, Houston, TX 77001

Walter Kidde, Walter Kidde Dr., Wake Forest, NC 27586

## FUEL OIL/ADDITIVES—Analysis & Combustion Testing

Ferruss Corporation, 910 108th N.E., P.O. Box 1764, Bellevue, WA 98009

McTigue Industries Inc., 1615 9th Ave., Bohemia, NY 11716

U.S. Borax, 3075 Wilshire Blvd., Los Angeles, CA 90010

## FURNITURE

Bailey Carpenter & Insulation Co., 74 Sullivan Street, Brooklyn, NY 11231

Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

## GALLEY EQUIPMENT

Insinger Machine Co., 6245 State Rd., Philadelphia, PA 19135

## GANGWAYS

Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32960

## HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207

Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

MacGregor-Navire International, Box 8991, S-402 74 Göteborg, Sweden

MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016

Mack Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

## HEAT EXCHANGERS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

American Standard Inc., Heat Transfer Div., Buffalo, NY 14240

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

## HOLD LINERS

Himont U.S.A., Inc., 1313 N. Market St., Wilmington, DE 19894

## HULL CLEANING

Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989

Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England

Gulf International Divers, P.O. Box 1342, Gretna (New Orleans), LA 70052

Pacific Maine Services, TLX: 664540 seaserv, Long Beach, CA 90802

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

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

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

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

## HYDRAULICS

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

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

Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607

Hydra-Dynamics, Inc., 2141 Greenwood Ave., Wilmette, IL 60091

Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

## INERT GAS—Generators—Systems

Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, NJ 07039

Maritime Protection A/S, N. American Agents, American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

## INSULATION—Cloth, Fiberglass

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

Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619

Waco Inc., 5450 Lewis Rd., P.O. Box 836, Sandston, VA 23150-0836

## INSURANCE

Adams & Porter, 510 Bering Dr., Houston, TX 77057-1408

Adams & Porter, 1 World Trade Center, Suite 8433, New York, NY 10048

MGA International, 419 Park Avenue South, New York, NY 10016

United States P&I Agency, Inc., 80 Maiden Lane, New York, NY 10038

## JOINER—Watertight Doors—Paneling

Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729

Bailey Distributors, Inc., 74 Sullivan St., Brooklyn, NY 11231

Masonite Commercial Division, Dover, OH 44622

Megador Inc., 441 Lexington Ave., Suite 903, New York, NY 10017

Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

## KEEL COOKERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

## LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., P.O. Box 2148, Hollywood, FL 33022

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123

Perko Inc., P.O. Box 6400D, Miami, FL 33164

Phoenix Products Company, Inc., 4769 North 27th Street, Milwaukee, WI 53209

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

A-C Brake Co., 308 E. College St., Louisville, KY

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080

Rosan, Inc., 2901 West Coast Hwy., Newport Beach, CA 92663

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

A-C Brake Co., 308 E. College St., Louisville, KY

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080

Rosan, Inc., 2901 West Coast Hwy., Newport Beach, CA 92663

Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201  
 R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073  
 Jantzen Engineering Co., 6655-H Amberton 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  
 Precision Systems Engineering, 8248 Eastgate Dr., Mt. Laurel, NJ 08054  
 M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105  
 Schmahl and 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 & Thomass, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202  
 Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426  
 Seaworthy Engine Systems, 17 Battery Place, New York, NY 10004  
 George G. Sharp, Inc., 100 Church St., New York, NY 10007  
 Simmons Associates, P.O. Box 760, Sarasota, FL 33578  
 R.A. Steam, 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 Avalon Blvd., Wilmington, CA 90744

#### NAVIGATION & COMMUNICATIONS EQUIPMENT

American Hydromath Co., Buckwheat Bridge Rd., Germantown, NY 12526  
 Anschutz & Co., GmbH, Postfach 6040, D-2300 Kiel 14, West Germany  
 Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080  
 CMC Communications Inc., 5479 Jetport Industrial Blvd., Tampa, FL 33614  
 COMSAT World Systems, 950 l'Enfant Plaza, S.W., Suite 6151 Washington, DC 20024  
 Cybernet International, Inc., 7 Powder Horn Dr., Warren, NJ 07060  
 A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway  
 Electro-Nav Inc., 840 Band Street, Elizabeth, NJ 07201  
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
 General Electric Company, Mobile Communications Division, Lynchburg, VA 24502  
 Harris Communicatins (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  
 King Radio Corporation, 400 North Rodgers Rd., Olathe, KS 66062  
 Kongsberg North America Inc., 400 Oser Ave., Hauppauge, NY 11738  
 Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway  
 Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065  
 Lorain Electronics Corp., 2307 Leavitt Rd., Lorain, OH 44052  
 Magnum Distributors Inc., 1000 S. Dixie Hwy. #3, Pompano Beach, FL 33060  
 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  
 Servo Corporation of America, 111 New South Road, Hicksville, NY 11802  
 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 Lopas 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  
 Hyde Products, Inc., 810 Sharon Dr., Westlake, OH 44148  
 Microphor, Inc., P.O. Box 490, Willis, CA 95490  
 Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

#### PAINTS—COATINGS—CORROSION CONTROL

American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111  
 Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754  
 A.W. Chesterton 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  
 Devae 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  
 Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA 94080  
 Glidden Coatings & Resins, Architectural & Maintenance, 925 Euclid Ave., Cleveland, OH 44115  
 Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 2425 Fountainview, Suite 340, Houston, TX 77057; P.O. Box 10265, New Orleans, LA 70181  
 International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083  
 Jatun 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  
 Crawford Fitting Company, 29500 Solon Rd., Solon, OH 44139  
 Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063  
 Knights Piping Inc., 5309 Industrial Rd., Pascagoula, MS 39567  
 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

Simson Timber Co., Third and Franklin, Sheton, WA 98584

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

Armo 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  
 Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
 Capital 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  
 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  
 Golden 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  
 Krupp Mak Diesels, Inc., 4329-33 Di Paolo Center, Glenview, IL 60025  
 Lips Propellers, 3617 Koppers Way, Chesapeake, VA 23323  
 M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Holeby, 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 Vasey 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  
 Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670  
 Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054  
 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  
 Karl Senner, Inc., P.O. Box 10055, New Orleans, LA 70181  
 Skinner Engine Company, P.O. Box 1149, Erie, PA 16512  
 Stewart & Stevenson Services, Inc., P.O. Box 1637, Houston, TX 77251-1637  
 Sulzer Brothers, Dept. 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

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

American Mfg. Co., Inc., Willow Avenue, Honesdale, PA 18431  
 Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008  
 DuPont Co., KEVLAR Aramid Fiber, Room G-15465, Wilmington, DE 19898  
 Samson Ocean Systems, Inc., 99 High Street, Boston, MA 02110  
 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  
 Marine Moisture Control Co., Inc., 60 Inip Dr., Inwood, NY 11696  
 National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105

#### SCAFFOLDING EQUIPMENT—Work Platforms

McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238  
 Trus-Jaist 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  
 Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470

#### SHIPBREAKING—Salvage

The Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202  
 Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217  
 Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

#### SHIPBUILDING EQUIPMENT

Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156  
 Total Transportation System Inc., 813 Forest Dr., Newport News, VA 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

Advanced Technology, Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA 22102  
 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.  
 Astilleros Balboa, S.a., c/o Jackson Marine Corp., 17 Battery Place, New York, NY 10004  
 Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150  
 Both Iron Works Corp., 700 Washington St., Bath, ME 04530  
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 Burmeister & Wain Skibsvaerft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark  
 Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C., Canada

Canferri Navali Riuniti, Via Cipro, 11, 16100 Geneva, Italy  
 Carrington Shipways Pty. Ltd., Old Pump Rd., Tomago NSW Australia 2322  
 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  
 Dravo Marine Equipment Company, Neville Island, Pittsburgh, PA 15225  
 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

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 Golden Marine Co., Inc., 60 Van Brunt St., Brooklyn, NY 11231  
 HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219

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 Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan  
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 Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134

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 Main Iron Works, Inc., P.O. box 1918, Houma, LA 70361  
 Marinette Maine Corporation, Marinette, WI 54143  
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 Moron Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077  
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 Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202

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 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  
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Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747  
I & I Slings Company, 2626 Market Street, Dept. D, Aston, PA 19014

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## Lisnave Will Continue Technical Support To ASRY In Bahrain



The Arab Shipbuilding and Repair Yard (ASRY) in Bahrain (shown above) and Estaleiros Navales de Lisboa (Lisnave) of Portugal recently signed an agreement under which Lisnave will continue to provide technical support to ASRY until 1989. One of the world's largest and most experienced VLCC repair yards, Lisnave was originally chosen both to design and then manage ASRY, the AOPEC-owned repair yard that was inaugurated in 1977.

Cooperation in succeeding years has been close, with Lisnave sending management and technical specialists to ASRY and supervising the training of local technicians, both in Bahrain and Lisbon.

The original concept of a repair yard in the Arabian Gulf to service the many tankers, bulk carriers, container ships, and general cargo vessels trading to the area has been a great success, with occupancy of ASRY's 450,000-dwt drydock always exceeding 83 percent. Technology transfer, one of the primary objectives, has also been achieved. The ASRY work force is reinforced by contract labor from the Far East as well as technicians from Europe in specialist activities, among whom Lisnave provides more than 100 personnel.

The link with Lisnave has enabled ASRY to call on teams of specialists at short notice to work on large repair specifications and thus extend the yard's capabilities, making ASRY technically competitive with larger shipyards in Europe and the Far East. This link will now continue, at least until 1989, and provide a useful base for ASRY's further development in line with shipowners' demands for larger and more complex repairs as docking intervals lengthen and more specialized machinery and equipment is incorporated in new vessel design and development.

## Du Pont Offers Free Brochure On New 'Offshore Maintenance Painting Service' Program

E.I. du Pont de Nemours & Co. (Inc.), Wilmington, Del., is offering a 12-page brochure on the company's new Offshore Maintenance Painting Service (OMPS). The publication, generously illustrated with color photos depicting different phases of the OMPS program, is divided into five sections devoted to various aspects of the program and to Du Pont's Cathodic Protection Services, designed to be integrated with OMPS for total structure protection.

The first section, titled "OMPS: An Overview," points out that offshore production facilities constitute the largest single investment of capital for most large petroleum companies, and protecting that investment by preserving painted surfaces is a complex job that must be done regularly and correctly or significant loss through surface deterioration can result. By applying a **programmed** approach to maintenance painting, Du Pont says they have been able to cut costs by 60 percent over the past 18 years.

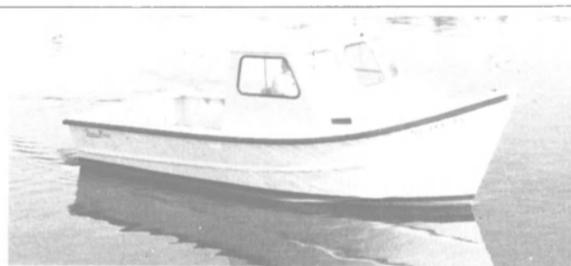
Section two of the brochure discusses Du Pont's assumption of total responsibility for maintenance painting of an offshore facility, and section three is on guaranteed cost control by a step-at-a-time approach: first step, a pre-survey conference to determine the feasibility of the second step, a comprehensive in-depth on-site survey for an accurate, guaranteed cost estimate for long-term, continuous protection, with a predictable budget.

Section four mentions that in keeping with the continuing nature of offshore maintenance painting, major project planning is done a year in advance and updated to fit actual site requirements as work proceeds. On an offshore platform, project coordinators working directly for Du Pont have total responsibility for painting, scheduling, supervision and inspection. This section also contains a summary of OMPS benefits, one of the most important being stable, predictable cost control.

Du Pont offers Cathodic Protection Services for its OMPS clients. The program is designed to be integrated with OMPS for total structure protection, and the final section of the brochure lists the program steps, which include: (1) survey and analysis of existing cathodic protection systems; (2) development of a planned retrofit program to insure optimum cathodic protection; (3) design and engineering of all anodes for retrofitting; (4) total anode installation services and know-how; and (5) continuous monitoring and inspection.

For full information and a free copy of the Offshore Maintenance Painting Service brochure from Du Pont,

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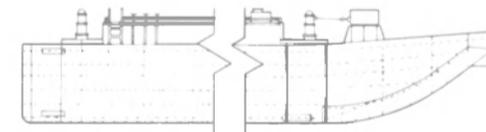
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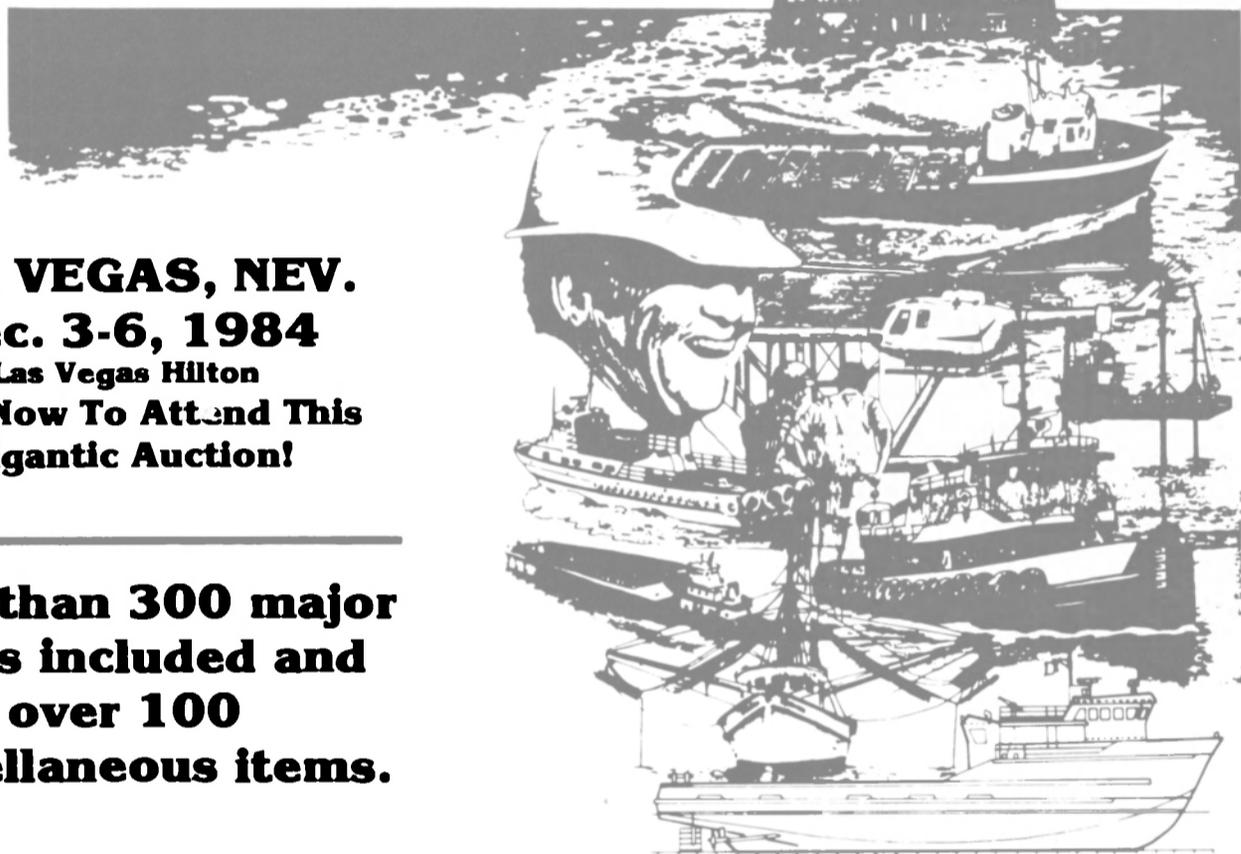
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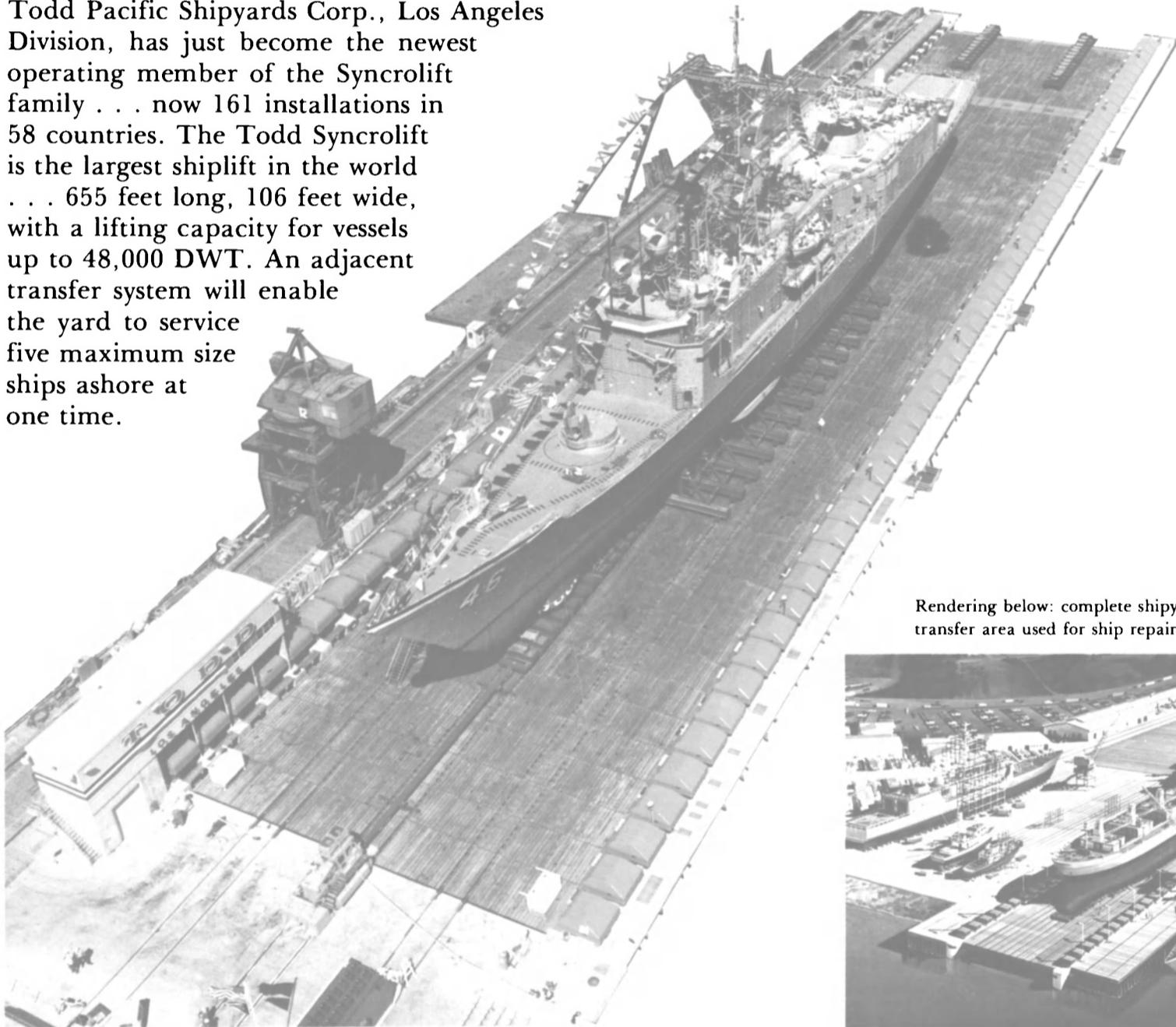
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Photograph above taken March 27, 1984, at Inauguration Ceremony.  
Photo by Joseph Ernest, Todd Pacific Shipyard.

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