

# MARITIME REPORTER

AND  
ENGINEERING NEWS



# FISH EXPO '84

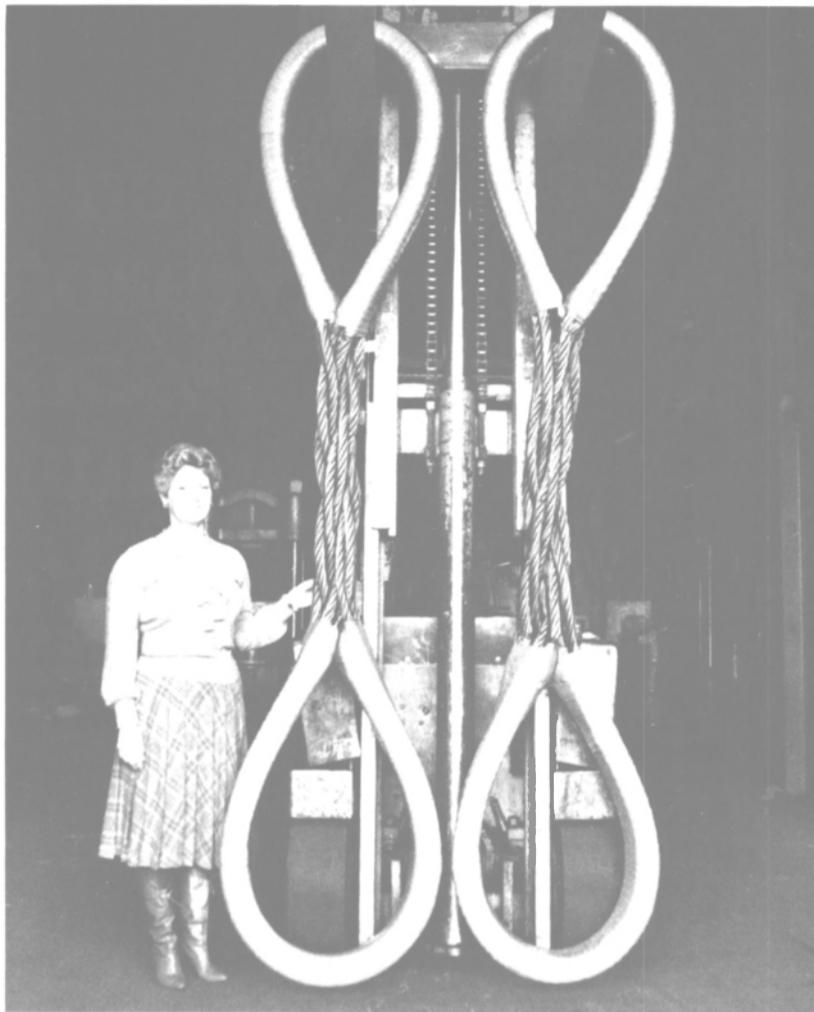
The 'Act II' Built By Atlantic Marine

**Deck Machinery**  
**— A Review —**  
(SEE PAGE 4)

**Fish Expo '84**  
**— A Preview —**  
(SEE PAGE 4)

**OCTOBER 1, 1984**

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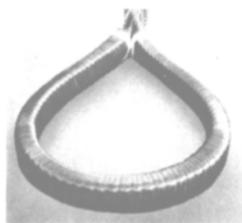
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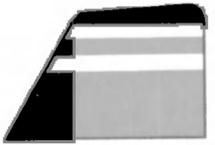
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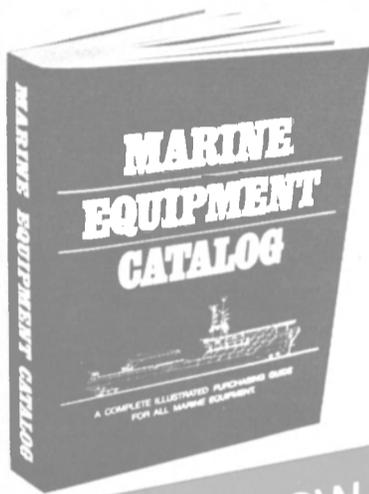
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**ON THE  
COVER**

**Fish-Expo '84  
PAGE 18**

**Deck Machinery  
& Cargo Handling Equipment  
—A Review—  
PAGE 28**

**Marinette Awarded  
\$24-Million Navy Contract  
For Six YP Patrol Craft**

Marinette Marine Corporation of Marinette, Wisc., has been awarded a \$24,218,084 firm-fixed-price Navy contract to build six 108-foot wooden yard patrol craft (YP). The Naval Sea Systems Command, Washington, is the contracting activity (N00019-81-C-0113).

**Gibbs & Cox Awarded  
\$30.5-Million Contract  
For Design Agent Services**

Gibbs & Cox Inc. naval architects and marine engineers headquartered in New York City, has been awarded a \$30,518,837 cost-plus-fixed-fee Navy contract involving class design agent services for the Oliver Hazard Perry (FFG-7) Class guided-missile frigate construction program. The Naval Sea Systems Command, Washington, is the contracting activity (N00024-84-C-2142).

**Meyer Werft Lays  
Keel For Cruise Liner**

The keel for a 35,000-grt cruise liner was recently laid at Meyer Werft in Papenburg.

The ship was ordered by the ship-owners Home Lines Inc. of Panama who have been in the cruise liner business for many years. After delivery, which is scheduled for the spring of 1986, the 670-foot-long by 95-foot-wide newbuilding—Yard 610—is to be employed in the Bermuda-New York trade, as well as in the Caribbean Sea. The vessel is built also for worldwide trade. Two 16,200-hp B&W diesel engines will give the 1,260 passenger cruise vessel a speed of 22.50 knots.

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## SOFEC Gets \$3.5-Million Navy Contract For Single Point Mooring System

SOFEC Incorporated of Houston has been awarded a \$3,471,000 firm-fixed-price Navy contract for one Single Anchor Leg Mooring (SALM) type of single-point mooring. Work will be performed in Houston (56 percent), Orange, Texas (33 percent), and Warren, Ohio (11 percent). The Naval Sea Systems Command, Washington, is the contracting activity (N00024-84-C-2243).

## Hagglunds Increases Its Offshore Market Interests

AB Hagglunds & Soner in Ornskoldsvik, Sweden, has recently acquired a majority interest in the Liden Group of Lidkoping, Sweden. The Liden Group develops, manufactures, and markets drives, controls, and brake systems for winches and diving equipment intended primarily for marine and offshore applications. Its main customers are offshore operators requiring North Sea approval for their equipment.

Hagglunds has been increasing its involvement in the offshore market in recent years, and the products and capability of the Liden Group thus forms an important complement to Hagglunds' overall offshore capacity.

The Liden Group will continue to operate as an independent company under its own management. The acquisition by Hagglunds will strengthen the cooperation that has been close between the two companies for many years.

For further information on Hagglunds,

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## TECO Transport Signs Export Coal Contract With Freeman United

James K. Taggart, president of Tampa-based TECO Transport & Trade Corporation, has announced the signing of a long-term agreement with Freeman United Coal Mining Company of Chicago to supply river transport, ground storage, and coal-loading services for two million tons of U.S. steam coal destined for Ireland during a seven-year period.

Financial terms of the agreement were not disclosed, but Mr. Taggart said that the initial year of the contract calls for a minimum of 110,000 tons, 220,000 the second year, and 330,000 tons for each of the remaining five years.

Source of the coal will be Freeman United's Fidelity Mine near DuQuoin, Ill. It will be moved by rail to a dock on the Mississippi south of St. Louis, where it will be loaded on barges operated by Mid-South Towing Company, a TECO subsidiary. Mid-South will deliver the coal to the Davant, La., transloading terminal of Electro-Coal Transfer Corporation, another TECO company.

In addition to Mid-South and Electro-Coal, TECO Transport companies include Gulfcoast Transit, an oceangoing tug/barge fleet that carries coal and other bulk products between U.S. Gulf Coast ports, Tampa, and Central and South America.

Freeman United is a division of Material Service Corporation, a Chicago-based subsidiary of General Dynamics.

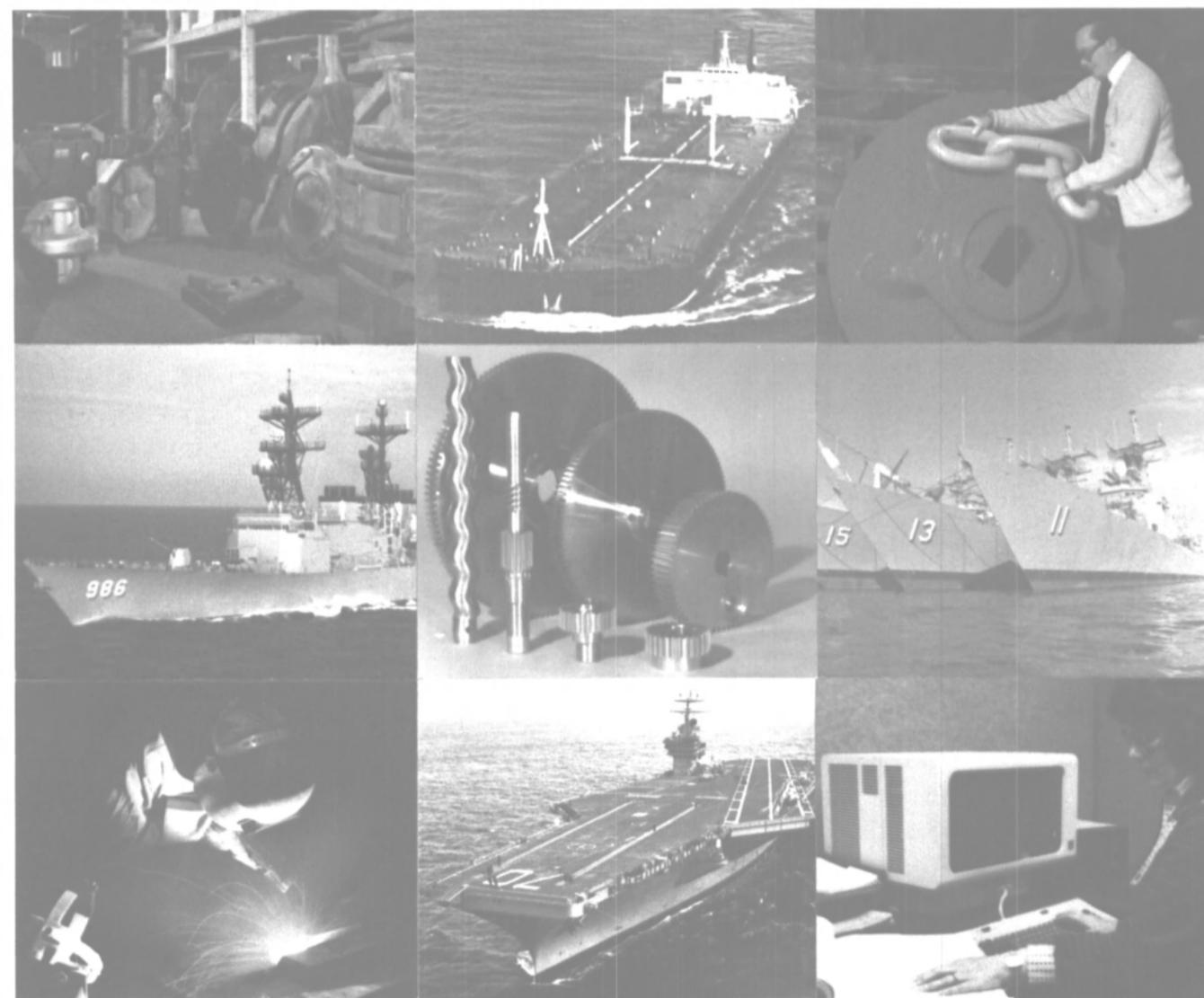
## MarAd Awards \$239,160 Contract To General Engineering

The Maritime Administration has awarded a \$239,160 contract to General Engineering & Machine Works, Inc., 840 Harrison Street, San Francisco, Calif., to prepare the general cargo vessels American Racer and

American Reliance for temporary lay-up.

General Engineering will install a dehumidification system, close drain piping systems, clean tanks, boilers and condensers, and blank interior sea connections in each vessel.

The work will be performed at MarAd's National Defense Reserve Fleet at Suisun Bay, Calif., and is scheduled to be completed in 60 days.



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## 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

## AAPA Moves Headquarters To Arlington, Virginia

After 35 years of operations in downtown Washington, D.C., the American Association of Port Authorities has relocated its headquarters to Alexandria, Va., a port city located directly across the Potomac River from the nation's capital.

The 6,000-square-foot office building is a part of the new Bed-

ford Place development project located near the Washington area rapid rail transit station in Alexandria. AAPA purchased the property last October prior to the beginning of construction. The purchase culminated a two-year study of the Association's long-term space needs and its financial options in providing for those needs. **W. Gregory Halpin**, AAPA's chairman-elect, directed the office space planning committee.

AAPA founded in 1912, represents virtually all the public port authorities of the U.S., and the major port agencies of Canada, Mexico, Central America, and the Caribbean area nations. From 1912 to 1949 the Association's headquarters were in New Orleans.

## Unique Conversion Job Completed By LEEVAC

The completion by LEEVAC Shipyards of a one-of-a-kind, highly specialized vessel conversion for Cal Dive International (CDI), a worldwide full-service oilfield diving contractor, was announced recently by **Jerry Bostic**, president of LEEVAC Corporation. LEEVAC's Jennings, La., shipyard was selected by CDI to convert a 190-foot supply vessel to a diving support craft.

Designed for saturation diving at depths to 1,000 feet for prolonged periods of time, this vessel is said to be the only one of its kind operating in the Gulf of Mexico, according to **Jerry Reuhl**, CDI general manager, domestic group. Features of the conversion include a midship moon pool through which the diving bell is lowered, and a totally enclosed operations system. Because all equipment is located below deck, there is an open deck area of approximately 80 by 30 feet, allowing for additional offshore support services. To accomplish this, hull tanks were converted to machinery and operations spaces.

## Renk Founds Joint Venture Company In South Africa

Zahnradfabrik Renk AG of Augsburg, West Germany, and Sandock-Austral Ltd. have been cooperating in South Africa for more than a decade in the production of special-purpose gear units for the local market. Now this partnership has been extended by the foundation of a new company, Renk-South Africa (Pty.) Ltd.

Renk AG will hold 51 percent and Sandock-Austral 49 percent of the shares in the new corporation. At the same time, Renk-South Africa takes over 26 percent of the shares of Gear Ratio Engineering (Pty.) Ltd. belonging to the Sandock-Austral Group. Gear Ratio specializes in technically sophisticated installations and has also been the basis for Sandock's activities in the production of vehicle transmissions and axles during the past 15 years.

For further information on Renk AG and Renk-South Africa,

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# This is no place to settle for second best.

No shipyard in the world has a prouder reputation for productivity and quality workmanship than the Bath Iron Works in Bath, Maine. For 100 years, the words "Bath-built" have been the hallmark of excellence in the shipbuilding industry. When the U.S. Navy needed an advanced new guided missile frigate, BIW was called on to design and build its prototype. Since then, Bath has built 21 of them, each delivered ahead of schedule and under budget.

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"Radios are critical to many aspects of our operation here," said John Ludwig, Manager of Tool Rooms and Maintenance Inventories. "All of our outdoor cranes are directed by radio. GE Phoenix™-SX Mobile Radios help us make sure the job gets done right. And GE hand-held radios keep our key people in touch at all times."

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Of course, you may not have vital defense contract deadlines to meet every day. But if communications are an important part of your business, it's nice to know there's one company that's delivering quality products at affordable prices. General Electric.

### Call On General Electric.

For more information on the Phoenix-SX Mobile Radio, or any other General Electric mobile communications product, phone toll-free: **1-800-GE-12345**. (In Virginia, Alaska and Hawaii, call collect: 804-528-7643.) Or write General Electric, Mobile Communications Division, Lynchburg, Virginia 24502.



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**Seaward Supplies 53 Fenders  
For Conoco's Hutton TLP**

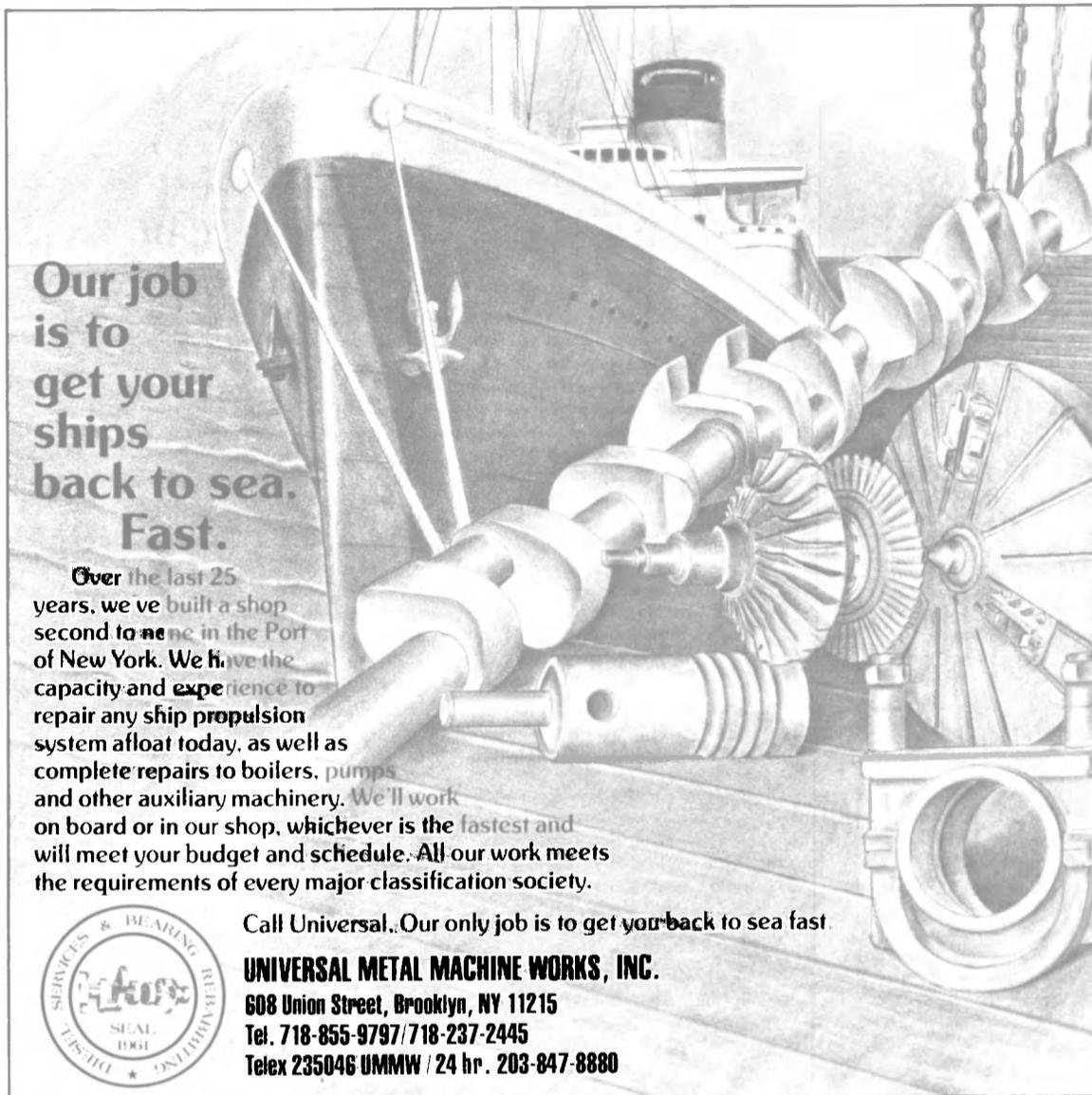
Seaward International's Sea Cushion® and Sea Guard fenders recently played a vital role in the mating operation of the Conoco-operated Hutton Tension Leg Platform (TLP) in Scotland's Moray Firth.

Seaward supplied 53 of its foam-filled fenders for this innovative offshore oil platform. The fenders met Conoco's requirements for a fender system designed for rapid installation, reconfiguration and removal. The fenders were each approximately 8 feet in diameter and 16 feet long.

The steel superstructure of the Hutton TLP was built in two sections. The upper 18,000-ton integrated deck supports drilling and production equipment and housing. The lower, 300- by 315-foot, 27,000-ton hull includes six 200-foot high columns linked by pontoons. Seaward's fenders were linked around the six columns to protect them from impact during the mating operation. Seaward's fenders were selected for their high energy absorption capability with low reaction pressure and for their design which would not damage the TLP paint system.

The new platform is tethered to the seabed of the Hutton Oilfield beneath the North Sea about 90 miles northeast of the Shetland Islands by tubular steel mooring lines held under constant tension. The first oil flowed in August from this platform. The Hutton field is expected to produce about 200 million barrels of oil over its 20-year life. This field could have been developed with conventional structures, but the Conoco group decided to test the TLP concept in water within saturation diving depth to allow monitoring of the seabed mountings and tensioned cables.

Since the fenders supplied to Conoco were needed for the mating operation only, they are currently available from Seaward International at a reduced cost. **Circle 76 on Reader Service Card**



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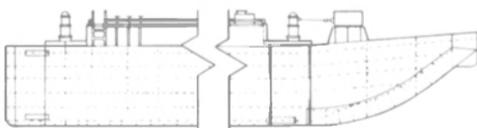
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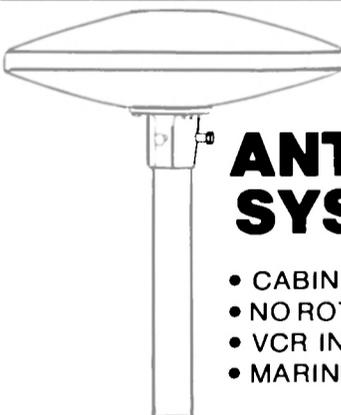


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The 96-foot tug Columbia shown above was doubled in horsepower with the installation of two new 1,270-hp Stork-Werkspoor engines.

## Shaver Re-Engines Tug Columbia With Stork-Werkspoor Diesels

Shaver Transportation Company of Portland, Ore., kept the 149.5 gtd tug Columbia in the Stork-Werkspoor family when it repowered the vessel to keep pace with the ever larger ships at the Port of Portland.

The firm replaced two RHO 218K SWDiesel engines, each developing 700 hp at 720 rpm, with two 1983-model 6FHD 240 six-cylinder Stork-Werkspoor engines. These engines deliver a total of 2,540 hp at 900 rpm in the 96-foot vessel.

The engines were sold by SWDiesel Gulf, Inc., the U.S. subsidiary of the Dutch diesel company through

the West Coast office recently established by **Charles Garman** in Seattle, Wash.

**Mike Boschero**, Shaver port engineer, estimated that the Columbia's original Stork engines—one of the few installations of the Dutch diesel on the Columbia/Snake River system for the last 15 years—had operated for some 75,000 to 80,000 hours.

For more information about installing Stork-Werkspoor engines in new vessels or using the engines for repowering with fuel efficient plants,

Circle 58 on Reader Service Card

## First Of Ten Sister Log Carriers Delivered By Mitsui's Tamano Yard

Designed for transport of logs, the 41,545-dwt bulk carrier Sanko Stork (shown below) was delivered recently by the Tamano yard of Mitsui Engineering & Shipbuilding Company (MES) to the Jade Corporation of Liberia for charter to Sanko Line. She is the first of 10 sister ships ordered from MES by the same owner, and incorporates many energy-saving features, including the fuel-efficient Mitsui/B&W 6L60MCE diesel main engine with a maximum continuous output of 8,420 bhp at 102 rpm. Maximum trial speed was 15.67 knots.

Four 25-ton cranes serve the five cargo holds, which are fitted with electrohydraulic, folding-type hatch covers that provide large hatch openings to facilitate cargo handling. A cargo loading computer provides calculation of the trim and stresses on the hull.

A Mitsui integrated duct propeller improves propulsion efficiency and reduces fuel costs. Self-polishing antifouling coating on the hull provides long-term surface smoothness and results in further fuel savings.

Bunkering to the double-bottom fuel oil tank is achieved through a gravity process utilizing a deep fuel tank on the starboard side of the engine room. This effectively prevents overflow from the air pipe of the double bottom fuel tank.

Electronics include a collision-avoidance unit and a satellite communications system.

The Sanko Stork has an overall length of 600 feet, beam of 100 feet, depth of 52 feet, and full-load draft of 36 feet. Cargo hold capacity (grain) is 51,026 cubic meters.



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## Lykes Orders Two More Containerships In Japan At Cost Of \$76 Million

Lykes Bros. Steamship Company of New Orleans recently awarded contracts for the construction of two additional 2,500-TEU containerships to be built in Japan. These vessels, costing some \$38 million each, will be identical to four others to be built for Lykes by a joint venture of Mitsubishi Heavy Industries and Mitsui Engineering and Shipbuilding under contracts signed in July of this year that contained options for two additional vessels.

Lykes had been negotiating with the Harland & Wolff yard in Belfast for the two additional ships, but have announced that H&W was unable to guarantee 1986 deliveries. The Japanese yards—each will build three of the ships—have assured Lykes that all six of the diesel-powered ships will be completed in 1986 as required by the contracts.

Main propulsion will be provided by a low-speed Mitsui/B&W 9L80MCE diesel engine having a

maximum continuous rating of 28,800 bhp at 83 rpm. The 21-knot service speed will be attained operating the engines at 25,500 bhp at 79.9 rpm.

Though these ships will be built without U.S. Government CDS and operated without ODS, they will fly the American flag and be manned with American crews. Lykes president **W. James Amoss** stated earlier that his company has reached agreement with the four seagoing unions involved for manning scales that compare favorably with those of most foreign-flag containerships operating in the transpacific trade where the six new Lykes ships will be deployed.

## Rockwell Awarded Navy Contract Worth \$3.3 Million For Maintenance Work

Rockwell International, Collins International Service Company, Richardson, Texas, has been awarded a \$3,288,731 firm-fixed-price Navy contract for operation and maintenance of naval shore-based communications equipment

and facilities. Work will be performed in Hawaii (60 percent), Guam (35 percent), and Diego Garcia (5 percent). The Naval Regional Contracting Center, Washington, D.C., is the contracting activity (N00600-84-C-2101).

## First Mitsui/Hatlapa Ram Type Steering Gear Completed

Under a licensing agreement with Hatlapa Uetersener Maschinenfabrik GmbH of West Germany, the first Mitsui/Hatlapa electro-hydraulic, ram-type steering gear for commercial use was completed recently at the Takatori Manufacturing Company in Kobe, Japan, a subsidiary of Mitsui Engineering & Shipbuilding. The agreement, signed in February this year, covers manufacture and marketing of these steering gears by MES.

MES has been producing Mitsui/AEG rotary vane type steering gears under an earlier licensing agreement concluded in 1962 with Allgemeine

Elektricitats Gesellschaft (AEG-Telefunken). Now, with the addition of the Mitsui/Hatlapa gear to its product line, MSE is in a better position to meet the diversified needs of its customers.

The six first Mitsui/Hatlapa steering gears will be installed in 26,000-dwt bulk carriers that will be constructed at the MES Tamamo Works for Sumitomo Corporation.

For further information on the Mitsui/Hatlapa gears,

Circle 70 on Reader Service Card

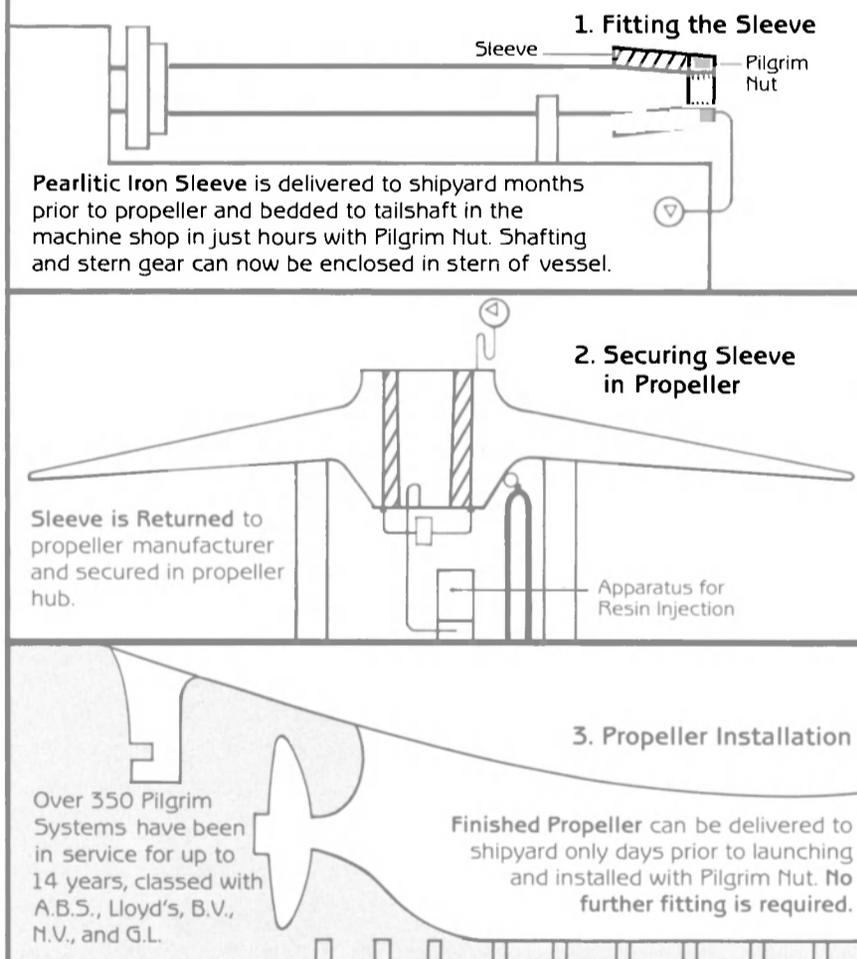
## Boston Shipbuilding Gets \$5.6-Million Navy Contract To Overhaul ADR Drydock

Boston Shipbuilding Corporation of East Boston, Mass., has been awarded a firm-fixed-price Navy contract for the overhaul of the auxiliary floating drydock USS Waterford (ADR-5). The Supervisor of Shipbuilding, Conversion and Repair, Groton, Conn., is the contracting activity (N00024-84-H-0003).

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## International Ship Structure Symposium '84

Arlington, Va.—October 15-16

The International Ship Structure Symposium '84 (SSS 84) will be held October 15-16 at the Sheraton National Hotel in Arlington, Va. Sponsored jointly by the interagency Ship Structure Committee and The Society of Naval Architects and Marine Engineers, this is the fourth in a series of symposia sponsored by these two organizations. The first three were the highly successful Ship Structure Symposium in 1975, the Ship Vibration Symposium in 1978, and the Extreme Loads Response Symposium in 1981.

The Ship Structure Committee is the standing U.S. interagency committee charged with conducting a research program to improve the design, materials, and construction of ships and marine structures. The member agencies are the Coast Guard, the Naval Sea Systems Command, the Military Sealift Command, the Maritime Administration, the American Bureau of Shipping, and the Minerals Management Service.

The purpose of SSS 84 is to bring together representatives of the maritime community, including shipowners, operators, builders, designers, researchers, government, and classification societies to discuss recent developments in ship structural design. The program will cover a range of topics including load definition, reliability, ice-capable tankers, ultimate strength, CAD/CAM tools, fracture mechanics, corrosion fatigue, and productivity. In recent

years there has been considerable state-of-the-art improvement in these areas, and as always, there remains much to be accomplished. It is timely that the available technology be exposed and discussed in an open forum.

The preregistration fee is \$170 per person; registration at the symposium will be \$190. This covers admittance to all technical sessions as well as a reception on Sunday evening, October 14, coffee during the technical sessions, luncheons on Monday and Tuesday, and the reception/banquet on Monday evening. The fee also covers a bound copy of the symposium papers and a second bound volume of the discussions after the symposium.

The main speaker at the banquet will be **RADM William M. (Mike) Benkert**, USCG (Ret.), who has had and continues to have a colorful career in various positions within the maritime community. SSS 84 is being dedicated to Professor Emeritus **J. Harvey Evans**, Massachusetts Institute of Technology, who has spent many years teaching, writing on, and researching the structure of ships. He will speak at Monday's luncheon.

### TECHNICAL PROGRAM

Monday, October 15

Welcome by **John S. Spencer**, SSS 84 general chairman, chief, Structures and Loadline Section,

U.S. Coast Guard; **RADM Clyde T. Lusk Jr.**, USCG (Ret.), chairman, Ship Structure Committee; and **C. Larry French**, president, SNAME, chairman, National Steel and Shipbuilding Company.

### Session I

Moderator: **S.G. Stiansen**, American Bureau of Shipping.

"A Review of Ship Structure Committee Activities 1975-84," by **LCDR D.B. Anderson**, USCG; **J.B. O'Brien**, Department of the Navy; and **R.W. Rumke**, National Academy of Sciences.

"A Time-Domain Simulation Method for Ship Motion and Load Prediction," by **Paul R. Van Mater**, **Julio G. Giannotti**, and **James C. Oliver III**, Gianotti and Associates, Inc.

### Session II

Moderator: **P.M. Palermo**, Department of the Navy.

"An Approximate Method for Estimating the Collapse of a Ship's Hull in Preliminary Design," by **Dr. J.C. Adamchak**, David Taylor Naval Ship Research and Development Center.

"Models for the Design of Damage-Tolerant Structural Systems," by **J. Shupe**, Prof. **F. Mistree**, and Prof. **R.H. Allen**, University of Houston.

### Session III

Moderator: **J.B. Gregory**, Minerals Management Service.

"Reliability of Structural Systems," by Prof. **A.H. Ang**, University of Illinois, and Prof. **R.M. Bennett**, University of Tennessee. "Hull Girder Reliability," by **Dr. G.**

### SCHEDULE OF EVENTS

Sunday, October 14

6:00-8:00 pm—Early Bird Registration and Reception

Monday, October 15

8:00 am-6:00 pm—Registration  
8:30 am—Welcome and Introduction

8:45 am—Session I  
10:45 am—Session II  
12:15 pm—Luncheon  
1:45 pm—Session III  
3:45 pm—Session IV  
5:30 pm—Cash Bar  
7:00 pm—Banquet

Tuesday, October 16

8:00 am-3:00 pm—Registration  
8:00 am—Session V  
10:45 am—Session VI  
12:15—Luncheon  
1:30 pm—Session VII  
3:45 pm—Adjournment

All sessions except luncheons will be held in the South Ballroom.

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### Session IV

Moderator: **CAPT A.E. Henn**, USCG.

"Fracture Mechanics Based Assessment of Fatigue Reliability in Ship Structures," by **Dr. A. Thayamballi**, **Dr. Y.K. Chen**, and **Dr. D. Liu**, American Bureau of Shipping. "Long-Term Corrosion Fatigue of Welded Marine Steels," by **Dr. O.H. Burnside** and **Dr. S.J. Hudak Jr.**, Southwest Research Institute.

(continued on page 12)

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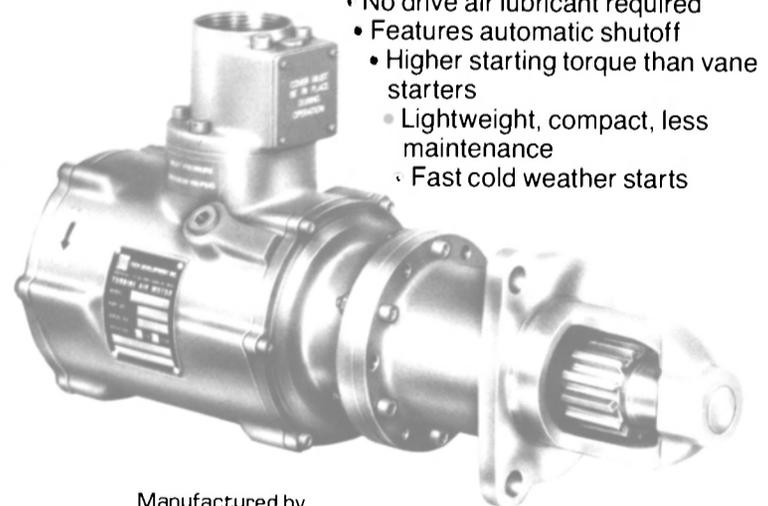
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## Ship Structure Symposium

(continued from page 10)

Tuesday, October 16

### Session V

Moderator: **W.M. Hannan**, American Bureau of Shipping.

"Structural Design Criteria for Ice-Capable Tankers," by **S. Karve**

and **C. Manoudakis**, Brian Watt Associates, Inc.

"Environmental Loading for Design of Oceanic Structures," by **Dr. J.S. Mercier**, Conoco, Inc.

"Environmental Data for Design of Marine Vehicles," by **W.T. Lee** and **Mrs. S. Bales**, David Taylor Naval Ship Research and Development Center.

### Session VI

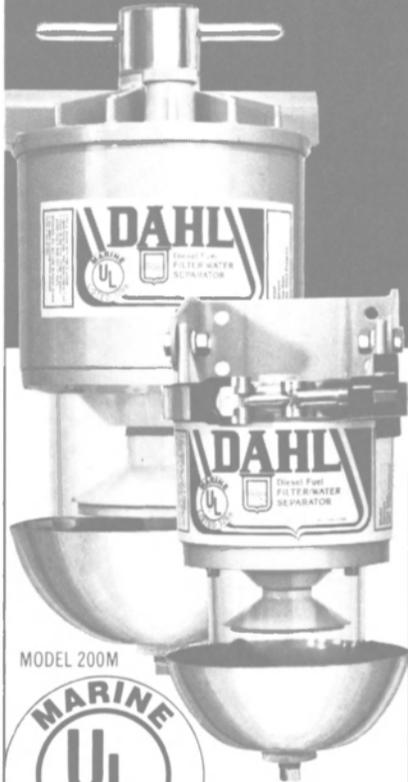
Moderator: **T.W. Pross**, Maritime Administration.

"National Research Council Study of Productivity Improvement in U.S. Naval Shipbuilding," by **C.A. Bookman**, National Research Council.

"Integrating CAD-CAM Tools in the Design and Construction of Ships and Offshore Structures," by: **J.F. Bailliot**, Chantiers du Nord et de la Mediterranee; **D. Fnifter**, Institut de Recherches de la Construction Navale; and Prof. **H.A. Kamel**, University of Arizona.

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## Session VII

Moderator: **T.W. Allen**, Department of the Navy.

"Rupture Analysis of Ship Plating due to Hydrodynamic Wave Impact," by Prof. **T. Wierzbicki**, Prof. **C. Chryssostomidis**, and **C. Wiernicki**, Massachusetts Institute of Technology.

"Simplified Buckling Strength Criteria for Plates Subjected to Biaxial Compression and Lateral Pressure," by **E. Steen** and Dr. **S. Valsgard**, A/S Veritec, Oslo.

"Comparison of Experimental and Predicted Collapse Pressures for Stiffened Cylindrical Shells," by Dr. **M. Moussouros**, Naval Surface Weapons Center.

### SYMPOSIUM COMMITTEE

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## Grandi Motori Merged With State-Owned Italian Yards

In a restructuring of Italy's major marine industries, Grandi Motori Trieste, the country's largest marine and industrial engine manufacturer, has been merged with seven Italian state-owned shipyards into a new company named Fincantieri-Cantieri Navali Italiana S.p.A.

The merger involves Italcantieri, Italy's largest merchant shipbuilding group, and Cantieri Navali Riuniti of Genoa, a yard engaged mainly in warship building and ship repairs. The newly formed company inherits all legal rights and obligations of the previous companies, and will operate from a central office at 1 Via Genova, Trieste.

All correspondence relating to Grandi Motori Trieste should be addressed to Fincantieri SPA-G.M.T. Division Grandi Motori, Bagnoli Della Rosandra 334, Trieste, Italy, where the company's head office and plant is established. Telephone (3940-8991) and telex (460274) numbers remain unchanged.

## Brown & Root Announces Corporate Reorganization

A new corporate organization structure for the land, marine and administrative operations of Brown & Root, Inc., Houston, Texas, has been announced by president **T. Louis Austin Jr.**

Under the reorganization, Brown & Root, Inc. will operate as a holding company, managing its interest in its various subsidiary companies. The various operations of the company will be divided into three separate corporate structures.

Marine operations, both domestic and international, will be performed by Brown & Root International, Inc.

(BRINT). **B.E. Stallworth** presently executive vice president, Marine Operations of Brown & Root, Inc., will serve as president of the new company. North Sea and Middle East operations will continue under existing subsidiary companies.

Land-based operations in the United States will be performed through Brown & Root Engineering and Construction, Inc. (BREC), with **Jack. T. Gossett** serving as

president. Currently, he is executive vice president, Land Operations, for Brown & Root Inc. Where possible, land-based international operations will be performed through a Panamanian subsidiary of BREC to be called Brown & Root Engineering & Construction International, Inc.

Many of the support services which previously have been provided by Brown & Root, Inc., will be provided in the future by another new subsidiary to be known as

Brown & Root Services, Inc. (BRSI). **D.E. Warfield**, currently executive vice president, Finance and Administration, Brown & Root, Inc., has been named president.

Implementation of this reorganization will be carried out over several months and will require the routine transfer of most officers and employees of the present organization to one of the new companies with some remaining on the staff of Brown & Root, Inc.

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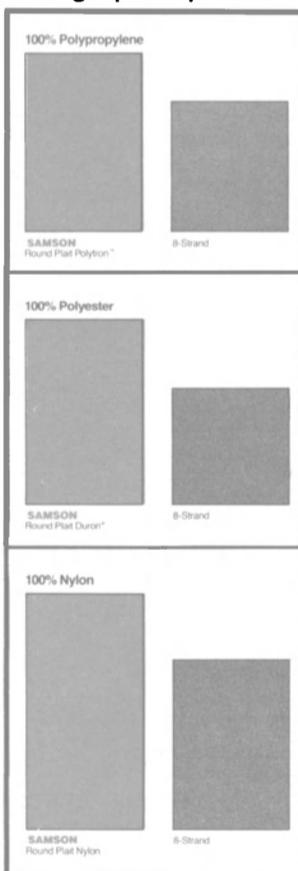
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## Hunter Sheridan Named President Of Global Marine Development Inc.

Global Marine Inc., Houston, Texas, announced that **E. Hunter Sheridan** has been named president of its products development subsidiary, Global Marine Development Inc.

Mr. Sheridan's previous posi-

tion was vice president, drilling for Applied Drilling Technology Inc. (ADTI), another subsidiary of Global Marine Inc., which is the leading provider of turnkey drilling services to the offshore oil and gas industry.

Prior to joining ADTI in 1982, Mr. Sheridan served for two years as president, Eagle Offshore Drilling Services; three years as president, Baylor Company; and prior to that in various management capaci-

ties for SEDCO, INC., and Penrod Drilling Company.

Global Marine Development Inc., formerly of Irvine, Calif., relocated to Houston in July of this year and is based at 777 North Eldridge, Houston, Texas. GMDI's most recent innovation, a Concrete Island Drilling System, recently began its initial three-year contract in the Alaskan Beaufort Sea. The contract is expected to generate more than

\$100 million in revenues for Global Marine over the three-year period.

Global Marine is a major international offshore drilling contractor with interests in oil and gas exploration and other energy-related activities.

## Alfa-Laval Promotes Spitzer To Division VP

**Robert E. Wiltz**, senior vice president and general manager of Alfa-Laval's Industrial Group, recently announced that **Kirk E. Spitzer**, general manager of the Thermal Group, has been promoted to divisional vice president.

Mr. Spitzer's responsibilities as head of the thermal division focus on marketing thermal components, including plate and spiral heat exchangers that are used in chemical and petro-chemical processing, and in heating-ventilating/air conditioning applications.

Prior to joining Alfa-Laval, Mr. Spitzer served as general sales manager for the Air Correction Division of Universal Oil Products, Inc. a subsidiary of the Signal Cos., California.

He is a graduate of Virginia Polytechnic Institute, with a BS in industrial engineering. He is active in the American Institute of Iron and Steel Engineering and the Air Pollution Control Association.

Alfa-Laval, Inc. and related U.S. units with \$160 million in sales, form one of the largest components of the worldwide Alfa-Laval Group which is based in Sweden.

Among the product areas in which it is a world leader are high speed separators; compact heat exchangers; maritime fuel, water and power plant systems; milking machines and dairy farm automation, and turnkey milk and food processing plants.

## Smith Berger Marine Appoints Rasmussen Co. Northwest Distributor

Smith Berger Marine, Inc., has announced the appointment of the Rasmussen Co., Inc., as its Northwest Marine Equipment Distributor, according to **James L. Montgomery**, president.

The Rasmussen Co., a leading distributor of marine, logging and construction equipment, will be the exclusive distributor in the states of Alaska, Oregon and Washington.

Smith Berger Marine Inc., for the last 50 years has been specializing in the design and manufacturing of fairleaders, shipboard anchoring systems for all types of marine vessels, drilling rigs and barges, towing hardware for tow boats and offshore work boats.

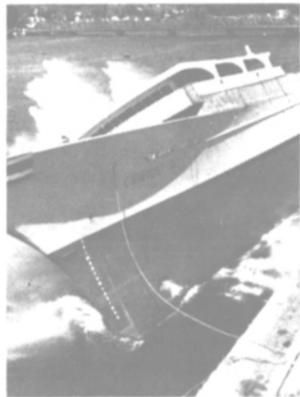
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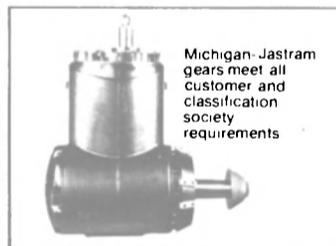
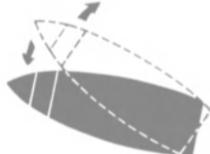


Photo, courtesy of Peterson Builders Inc.

**Michigan-Jastram Thrusters are delivered with the gearcase and propeller completely installed. To further ease installation, Michigan-Jastram Bow Thrusters can be delivered with full length tunnels. Once installed in the hull, elemental connections to the thruster's prime mover completes installation. The bow thruster gear and propeller can be removed for service within the tunnel.**

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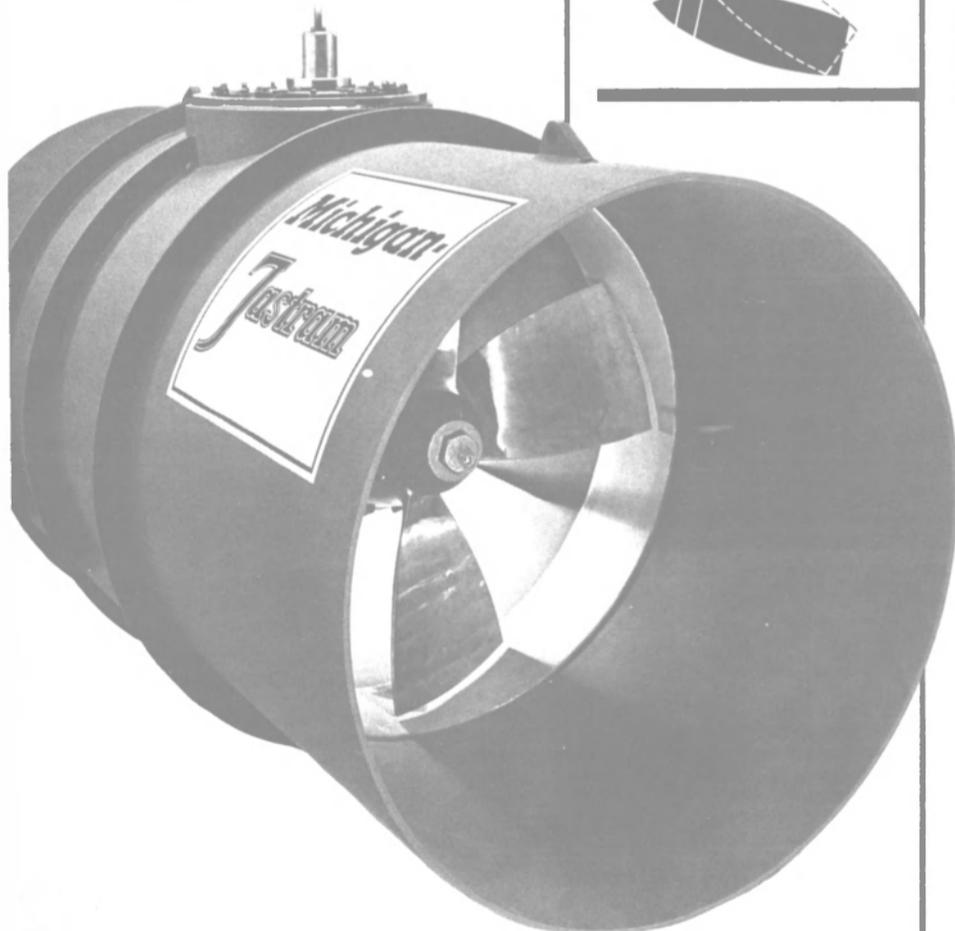
**Whether your ship is running at slow speed, with minimal rudder response; being handled by a tug-boat; or maintaining its station, generating transverse thrust helps to attain maximum maneuverability. Therefore, for optimum safety and handling capability, Michigan-Jastram Bow Thrusters are a sound, logical investment.**



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## Derecktor Yard Lays Keel For USCG Cutter

The keel for the U.S. Coast Guard cutter Thetis (WMEC-910) was laid recently at the Robert E. Derecktor shipyard in Middletown, R.I. She is the sixth vessel in a series of nine 270-foot, medium-endurance cutters being constructed at the Derecktor facility. Powered by twin 3,600-bhp ALCO diesel engines driving Escher-Wyss controllable-pitch propellers through English Electric reduction gears, the new cutters are designed for multi-mission duties including search rescue, law enforcement, marine environmental protection, and military preparedness. The vessels will be fitted with sensors to detect, identify, and track vessels at long range, and will have helicopter decks to increase their range and versatility.

## SOFEC Awarded Contract To Build SALM Oil Import Terminal In Japan

SOFEC, Inc. of Houston, together with partner Mitsui Ocean Development and Engineering Company (MODEC), has been awarded a contract to design, construct, and install a SALM (Single Anchor Leg Mooring) oil import terminal near Fukui, Japan. The unit will be installed in water 150 feet deep, and will be designed to accommodate tankers of up to 300,000 dwt. Completion is scheduled for May 1986.

This facility will be similar to a SALM that was designed, built, and installed by SOFEC/MODEC at Mutsu-Ogawara, Japan, in the summer of 1983.

For further information on SOFEC's Single Anchor Leg Mooring oil import terminal,

Circle 73 on Reader Service Card

## NSF Offers Literature Describing Its Activities And Testing Programs

The National Sanitation Foundation (NSF), Ann Arbor, Mich., an independent nonprofit organization of scientists, engineers, technicians, educators, and analysts serving government, industry, and consumers in achieving solutions to problems relating to public health and the environment, has made available a 16-page pamphlet titled "Facts About NSF."

Illustrated with black-and-white photographs and drawings, the publication answers questions commonly raised about NSF, and serves to provide a ready reference to anyone concerned or interested in NSF and its many and varied activities. It also provides an insight into the philosophy and methodology of the Foundation, along with a review of current programs and activities.

For further information and a free copy of "Facts About NSF,"

Circle 74 on Reader Service Card

## MMS (UK) Ltd. Appoints John Gregory As Managing Director

Marine Management Systems (UK) Ltd. has named **John D. Gregory** as managing director.

Prior to joining Marine Management Systems, Mr. Gregory was a director of Turnkey and Applied Computer Systems, Ltd. Where he

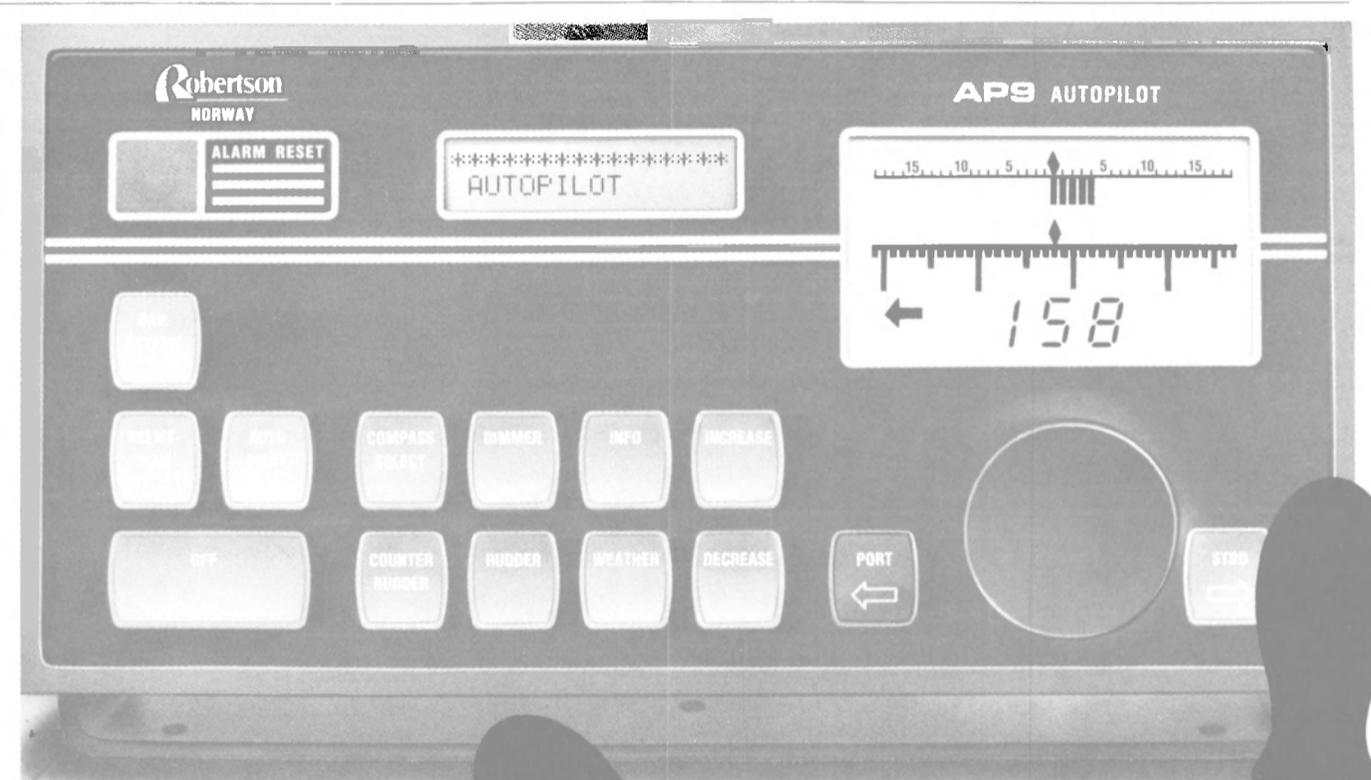
was responsible for development and marketing of shipping systems for marine and air transportation.

MMS (UK) Ltd. is a wholly owned subsidiary of Marine Management Systems, Inc. in the United States, and also acts as the London arm of Maritime Data Network (MARDATA), a partnership including MMS, Lloyd's Register of shipping and Lloyd's of London Press.

Marine Management Systems is a

leading supplier of computerized information systems for the international maritime community, providing both shipboard and shoreside computer systems. MARDATA is an online database service providing worldwide access to essential shipping information via international communications networks.

In London, MMS (UK) offices are located at 26/30 Artillery Lane, Bishopsgate, London E1 7 LX.



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Just about any medium or large vessel can benefit from the AP9. Course, system status and user-selected operating mode are clearly shown on two crisp LCD's. The AP9 has such standard features as built-in interfaces for magnetic compass, any brand gyrocompass, and any NMEA-compatible Loran C/satnav receiver. Backlighted pushbuttons control all operating functions. However, the familiar rotary knob is retained for easy course selection. Other conveniences include a complete range of options to tailor the AP9 to the specific requirements of any class of commercial vessel or large yacht.

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Furuno announces a new family of modest cost, high performance radars that combine the most advanced technical features with traditional Furuno quality and reliability.

The Furuno FR-800D Digiscan radars have a high brightness,

steady picture 12 inch CRT; range scales from ¼ to 36, 48 or 72 nautical miles; output power to 10 kw; antenna lengths from 3 to 8 feet; plus a whole variety of standard built-ins like variable pulselength and PRF's, sea and rain clutter controls, interference rejector, target plot with six selectable intervals, dual variable range markers, dual electronic bearing lines, adjustable sector and range guard zone with alarm, universal 10.2-40 VDC power supply.

Furuno's custom hybrid microwave IC circuitry lets the equipment perform like other radars needing twice the output power, while reducing routine maintenance requirements. The Digiscan advantage is the way signal processing is done.

Most existing digital, or "raster-scan," radars use single-level quantization. That is, the returning echo is either present or not present, either "on" or "off". Where the tar-

get is weak, or there is heavy precipitation or high seas, there's a chance that important targets may not quite reach a level that is recognized as "present" on the radar. Even seemingly solid targets like a harbor entrance through a breakwater cannot be seen because of "holes" on the screen caused by the system not being sure of whether or not a target is there.

Furuno's Digiscan system recognizes several levels of target return—weak, medium, strong—even in heavy weather. This produces an exceptionally clear radar presentation with all the brightness and picture steadiness one could want.

For literature containing full information on Furuno's Digiscan Radars,

Circle 69 on Reader Service Card

**Northern New England  
ASNE Announces New  
Officers For 84-85 Season**

The Northern New England Section of the American Society of Naval Engineers has announced its slate of officers for the forthcoming 1984-85 season as follows: chairman, Cdr. **John B. Cavender, USN**; vice chairman, Capt. **Rodney K. Watterson, USN**; treasurer, **Gerald J. Gouveia**; secretary, **Terry K. Hardy**; councilman (3 years), Capt. **John A. Culver, USNR**; councilman (2 years), Cdr. **Norman K. Berge, USN (Ret.)**; councilman (1 year), **Philip V. Johnson**.

**Rolls-Royce Gets Contract  
For Gas Turbines  
To Power Dutch Frigates**

A contract worth about \$17 million was signed recently in the Netherlands between Rolls-Royce and the Dutch shipbuilder Royal Shelde for the supply of Marine Spey gas turbines to be manufactured at Rolls-Royce's Coventry, England, plant. The engines are for a new class of multipurpose (M) frigates for the Royal Netherlands Navy.

The contract follows an announcement made earlier this year by the British and Dutch Defense Procurement Ministers of an Anglo/Dutch agreement to order Marine Spey units to power the M frigate. Since 1972, Rolls-Royce has supplied 56 marine gas turbines for installation in 14 Royal Netherlands Navy frigates and destroyers, as well as others for corvettes and frigates exported from Holland to Greece and Indonesia. This latest order increases the number of Marine Speys ordered by British, Japanese, and Dutch navies, for five classes of warships, to a total of 57.

The Marine Spey is Rolls-Royce's latest marine gas turbine engine, following the highly successful Olympus and Tyne units. It develops 24,000 hp, with a thermal efficiency of 37 percent.

For additional information on Rolls-Royce gas turbines,

Circle 67 on Reader Service Card

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THE SELF-CLEANING CENTRIFUGE  
Mitsubishi's Compact and Economical  
SJ-700 & SJ-700S will Solve Your  
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Model	Oil	Diesel Oil	Hydraulic Oil	Lube Oil (Detergent)
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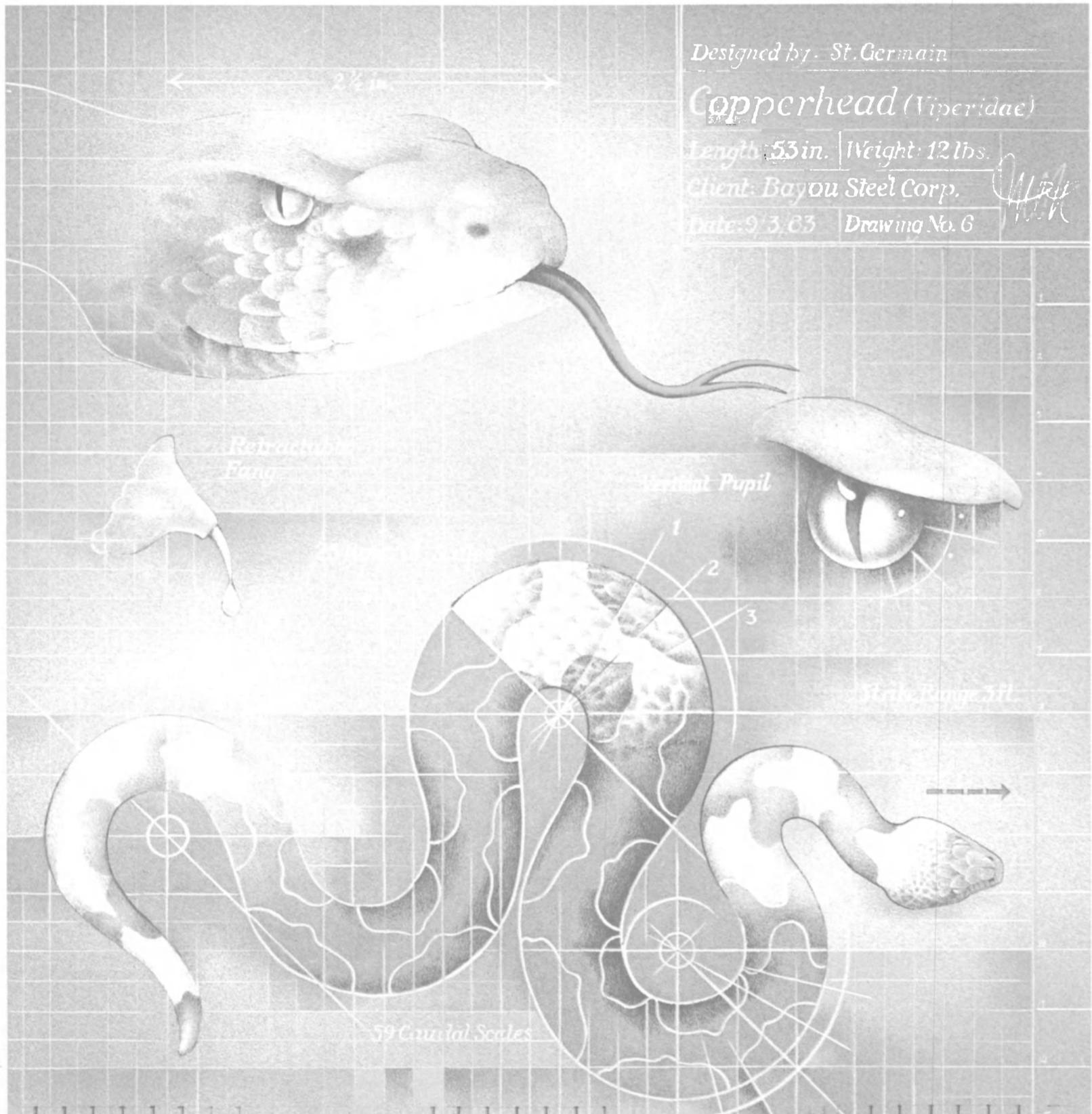
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# FISH EXPO '84

October 17-20—Boston, Massachusetts

Fish Expo '84, projected to have more than 450 companies exhibiting their equipment and products and some 10,000 commercial fishing industry buyers attending, will be held October 17-20 in Boston's Hynes Veterans Auditorium. Now in its 18th year, Fish Expo is the world's largest commercial fishing show in terms of both companies exhibiting and attendance.

The Fish Expo show alternates between Boston and Seattle annual-

ly, and has proven itself to be an effective sales tool for fishing industry suppliers. As **Lew VanDeMark**, marketing manager for Seattle-based MARCO explained, product exposure remains a top priority for exhibitors. "Our primary goal is to show our products to customers old and new; sales inevitably result, as the show's atmosphere promotes on-the-spot buying," he said.

Such buying at the last Boston show totaled \$26 million that, when added to post-show sales of \$166 million from contacts made at the show, boosted total sales resulting from Fish Expo '82 to \$192 million.

Boston's Fish Expo attracts exhibitors and attendees nationally, as

well as 151 foreign exhibiting companies from 17 countries. Many companies use trade shows as a platform for new product introductions, and Fish Expo '84 is no exception. More than 50 companies are planning to get the best possible exposure for their new products, and it is estimated that more than 150 will be introduced this year.

With the large number of new product introductions, the show will provide fishermen and processors with the greatest variety of fishing gear and processing equipment available anywhere. This accounts for the Fish Expo '84 theme of "One Stop Shopping."

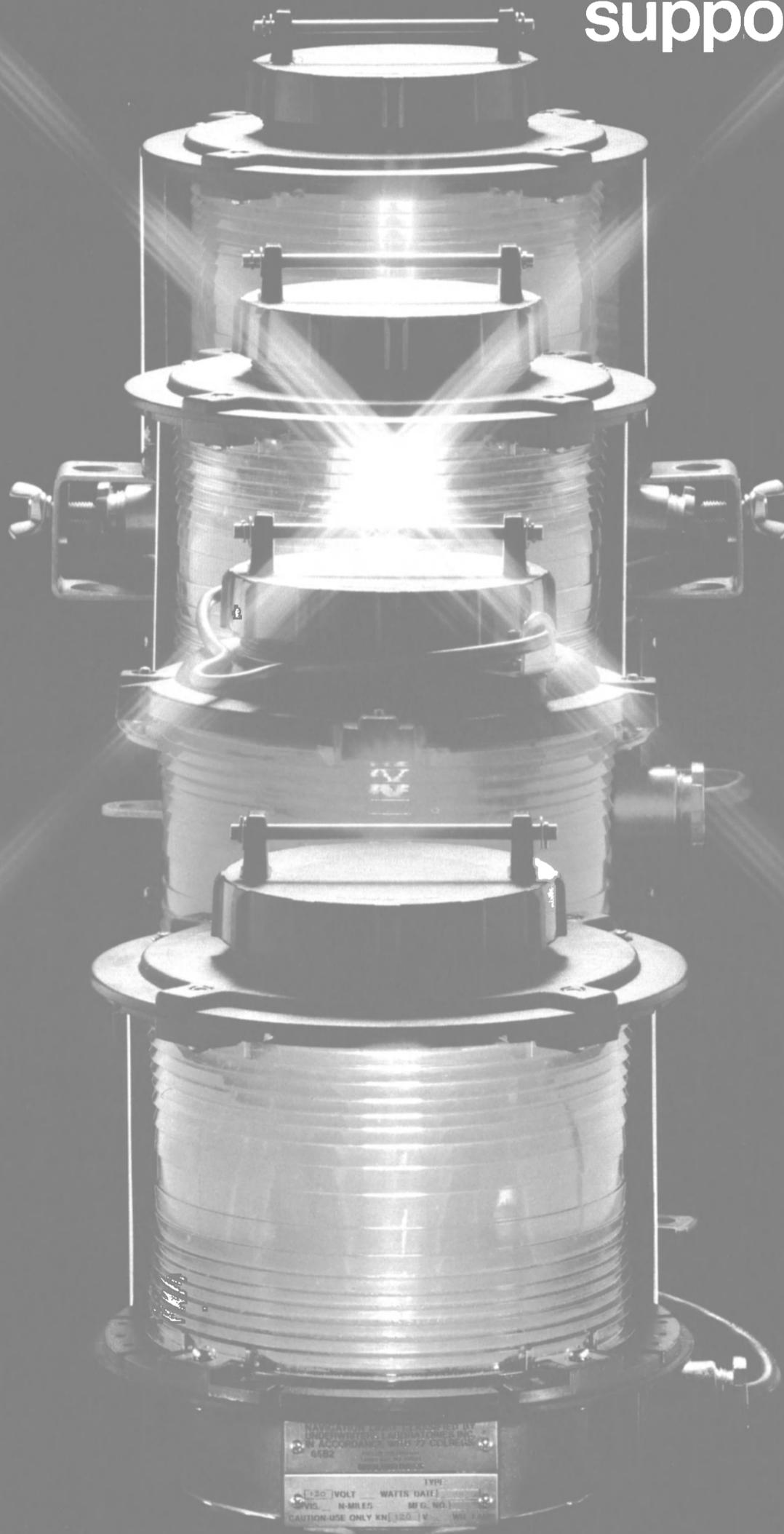
How can busy fishermen stay informed about the trends in their

constantly changing industry? This year, Fish Expo will make this task easier with a variety of seminars, films, and exhibitor presentations. The seminar panels will consist of many of the industry's prominent processors, fishermen, and restaurant owners and operators, as well as government and private agency officials who will contribute valuable information about timely topics in the industry.

The organizers of this year's seminar series want fishermen to walk away with a new awareness of the industry's current problems and the necessary education and information to help solve them. Attendees will learn about new fishing tech-  
(continued on page 21)

**Photo**—The Pescador VII is a 108 foot sardine purse seiner, the final vessel in a seven-boat series built for Banpesca of Mexico; designed and built by Marco Seattle.

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



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

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

#### **An unbroken list of benefits.**

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

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

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

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

#### **See the light.**

Start saving money. Get the Long Life Lite at your local Russellstoll Marine distributor, or call your Russellstoll representative.

Midland-Ross Corporation  
**Russellstoll Division**  
530 W. Mt. Pleasant Avenue  
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Phone: 201/992-8400  
Telex: 13-8403

## MIDLAND ROSS

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# New Mobilgard® 450 means reduced engine wear and cleaner engines now...and in the future.

Mobilgard 450\* A fourth generation marine diesel engine oil with a 13.5 TBN! Acid neutralization has never been higher, so engine wear has never been lower and engines have never been cleaner.

What's more, Mobilgard 450 has superior alkalinity retention, higher detergent/dispersant qualities, is extremely stable at high temperatures, and exceeds API-CD performance. Result: money saved in parts, maintenance, scheduled downtime, and overall operating costs. And that's right now. Today!

But what about tomorrow? Those tugs, towboats and ferries, with their advanced, high-output diesel engines, are destined for continuous tough duty. What if you have to go to fuels with higher sulfur content?

Look at the chart and relax: continued high-protection performance, far and above that provided by third generation oils, even with the dirtiest fuels. And we're talking experience... not experiments. Mobilgard 450 has logged more than a million engine operating hours worldwide, with results persuasive enough to encourage a growing number of equipment builder endorsements.

Shouldn't you put Mobilgard 450 in your picture, starting now? Call the Mobil Information Center: **1-800-634-3100.**

We'll send you additional information PLUS a reproduction of this original watercolor.

\*Available east of the Rockies

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PERFORMANCE ADVANTAGE				
Mobilgard 450 versus Third Generation Lubricants				
DIESEL FUEL SULFUR LEVEL	0.3%	0.7%	1.4%	2.0%
Engine Cleanliness	+60%	+65%	+70%	+75%
Wear Protection	+50%	+60%	+75%	+85%
Alkalinity Retention	+50%	+60%	+80%	+95%
Insolubles Control	+40%	+50%	+60%	+70%
Oil Life	+50%	+75%	+85%	+90%
Filter Life	+50%	+60%	+70%	+80%

If we can't save you money, we don't deserve your business.

## Mobil



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### Fish Expo

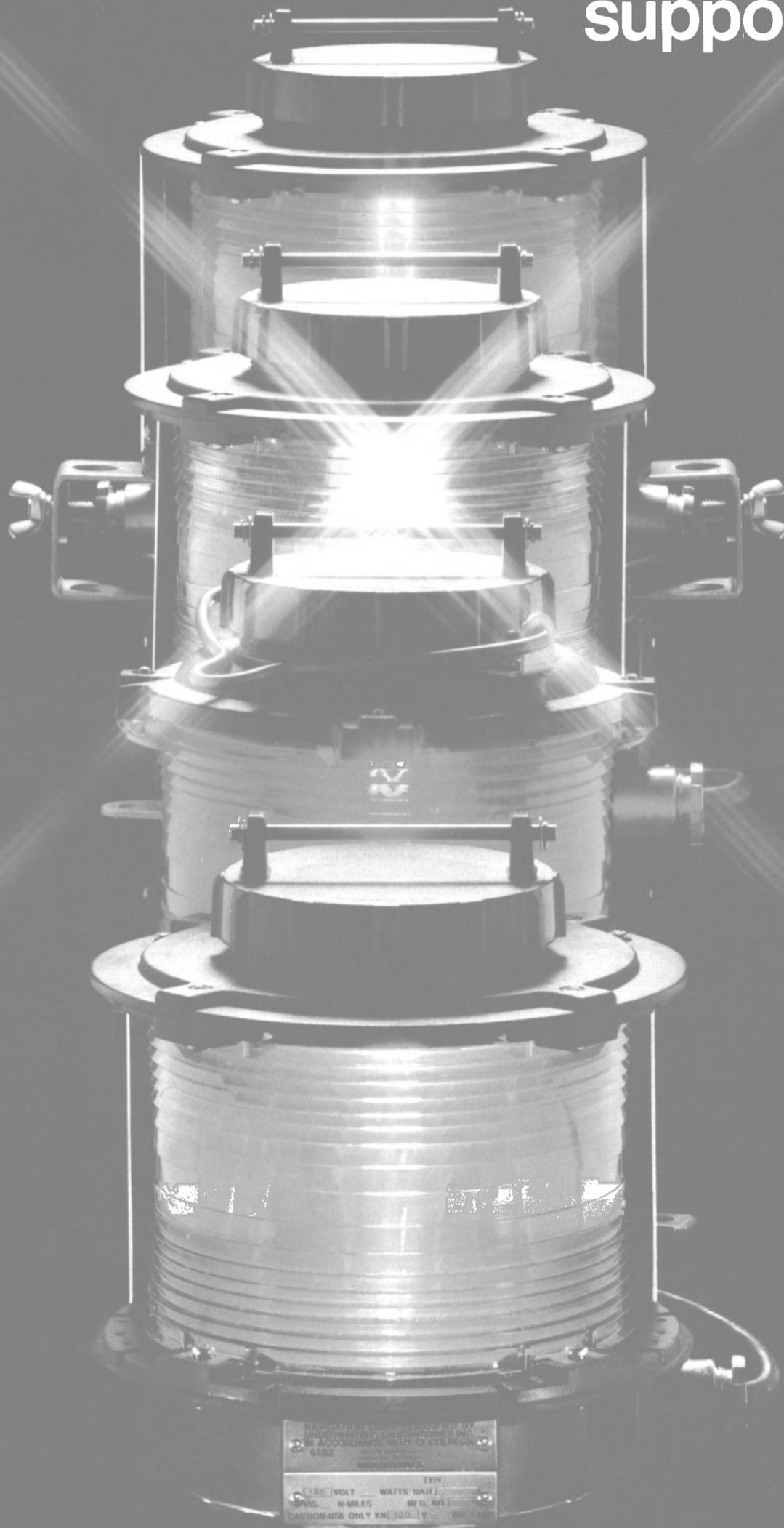
(continued from page 21)

Panelists: **Daniel Arnold**, executive director, Massachusetts Inshore Draggermen's Association; **David**

coping with the competition from recreational fishermen. Speakers: **Zeke Grader**, executive

and growing role in the fishing industry. Their work, why they chose

# The Long Life Lite from Russellstoll. Because we don't think lamps are supposed to break.



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Alkalinity Retention	+40%	+50%	+60%	+70%
Insolubles Control	+50%	+75%	+85%	+90%
Oil Life	+50%	+60%	+70%	+80%
Filter Life				

**If we can't save you money, we don't deserve your business.**

# Mobil®



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Maritime Reporter/Engineering News



## Fish Expo

(continued from page 18)

niques being developed as well as the political action required to move the industry ahead.

The seminars are free of charge to all Fish Expo attendees. Admission to the show is free to all who pre-register; registration will be \$5 at the door.

### SEMINAR PROGRAM

#### Wednesday, October 17

9:00-10:30 am—"Getting the Most from Your Color Sounder." A simulator and large screen will be used to provide instruction in the fine points of using color sounders.

Speakers: **Duncan Amos**, Marine Advisory Service, University of Rhode Island; and **Nathan Roundy**, president, American Pioneer, Inc.

10:45-12:15—"How To Lobby Effectively." Representatives from political organizations, government, and industry will explain how individual fishermen and their associations can affect fisheries legislation. Speakers: **William Gordon**, assistant administrator, National Marine Fisheries Service; **Zeke Grader**, executive director, Pacific Coast Federation of Fishermen's Associations; **William Palombo**, Atlantic Offshore Fishermen's Association; **Jeffrey Pike**, U.S. Representative **Gerry E. Studd's** (D-Mass.) office, fisherman; **Larry Simns**, president, Maryland Waterman's Association; and **Roy Tate**, executive director, Massachusetts Lobstermen's Association.

1:00-2:30 pm—"What's Ahead for Lobster Stocks?" Biologists and fishermen will present their points of view on the condition of inshore and offshore lobster stocks and the implications.

2:45-4:15 pm—"Are Joint Ventures Good for You?" Panel members will discuss the positive and negative impacts that joint ventures have on fishermen, processors, and the resource.

Panelists: **Jerry Abrams**, Fresh Water Fish Corporation; **Alan Guimond**, Stonington Seafood Products; **Richard Gutting**, vice president-government relations, National Fisheries Institute; **Philip McSweeney**, Eastern Long Island

Trawlers; and **Richard Schaefer**, acting regional director, National Marine Fisheries Service.

#### Thursday, October 18

9:00-10:30 am—"Coping with Canadian Imports." The International Trade Commission has been studying the ability of New England fishermen to compete with their Canadian counterparts. Regardless of the study's findings, the problem won't go away. The panel will discuss constructive alternatives for dealing with the competition.

Moderator: **James Wilson**, Department of Economics, University of Maine.

Panelists: **Stephen Crutchfield**, Department of Resource Economics, University of Rhode Island; **Ian Hamilton**, Bay State Lobster Company; and **James Salisbury**, Maine Fishermen's Cooperative Association.

10:45-12:15—"Making Sense of Weather Charts." A short course in reading facsimile weather and oceanographic charts will provide an understanding of how this information can help to fish more effectively and safely.

Speakers: **Gef Flimlin**, New Jersey Sea Grant Extension; **Duncan Amos**, Division of Marine Resources, University of Rhode Island; and **Jean Auciello**, National Weather Service.

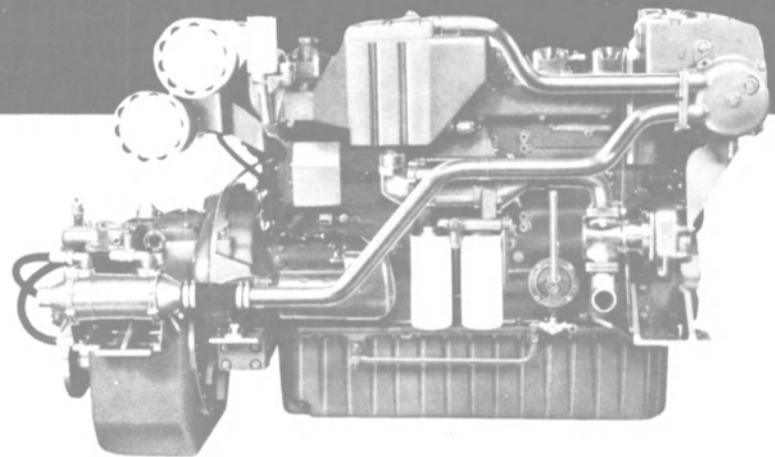
1:00-2:30 pm—"Washington, D.C. Update," a wide-ranging discussion on national issues of importance to fishermen. **Lucy Sloan**, National Federation of Fishermen, will coordinate the discussion among a variety of invited audience members.

2:45-4:15 pm—"Quality Fish Does Pay: Case Studies." Fishermen who are providing high-quality fish and buyers who are paying a premium for them will discuss their experiences and how they can be duplicated.

Moderator: **John Sackton**, program coordinator, New England Fisheries Development Foundation. Panelists: **George Berkowitz**, Legal Seafoods; **Michael Foley**, M.F. Foley, Inc.; **Cameron McLellan**, fisherman; **Frank Mirarchi**, fisherman; **John Norton**, Cozy Harbor Seafoods; **James Ostergard**, fisherman; and **James Salisbury**, Maine Fishermen's Cooperative Association.

(continued on page 22)

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Installation costs can be kept down since a Volvo Diesel comes off the production line as a marine work engine, ready to go into a boat. The uncomplicated engine design and a generous number of power take offs allow you to fit extra equipment (compressors, bilge pumps, hydraulic pumps, etc.) easier.

Easy maintenance features can help you lower your operating costs. Since the Volvo Diesel was built as a marine diesel, you'll find easy accessibility for cleaning, repair or replacement. And if you're in need of parts or service you have a well developed network of Volvo representatives, independent distributors and dealers in North America and 120 other countries backing you up.

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Continuous flywheel power			Specific fuel consumption* at 270 kW, 1800 r/min	
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See us at Boston Commercial Fish Expo, October 17-20 — Booth 524

## Fish Expo

(continued from page 21)

Friday, October 19

9:00-10:30 am—"Is the Inshore Fisherman an Endangered Species?" Panel members will look at the problems facing the inshore fisherman and discuss possible solutions.

Panelists: **Daniel Arnold**, executive director, Massachusetts Inshore Draggermen's Association; **David Horan**, admiralty lawyer; **Robert Jones**, executive director, Southeastern Fisheries Association; and **Larry Simms**, president, Maryland Waterman's Association.

10:45-12:15—"Dealing with Anglers in the Inshore Fisheries." Industry members will relate their successes and failures in

coping with the competition from recreational fishermen.

Speakers: **Zeke Grader**, executive director, Pacific Coast Federation of Fishermen's Associations; **Arnold Leo**, East Hampton Town Baymen's Association; **Pat Pace**, Pace Fish Company; and a representative from the Organized Fishermen of Florida.

1:00-2:30 pm—"Women in the Fisheries." Women have a diverse

and growing role in the fishing industry. Their work, why they chose it, and how they are achieving their goals will be discussed.

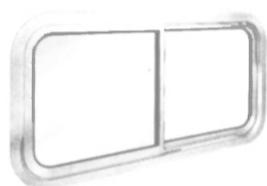
2:45-4:15—"Tuning Up Your Trawl Gear." Scale models and visual aids will illustrate modifications and adjustments that can maximize the efficiency of trawl gear.

Speakers: **Duncan Amos**, Marine Advisory Service, University of Rhode Island; and **Cliff Goudey**, fisheries engineer, Sea Grant Program, Massachusetts Institute of Technology.

For further information and registration details on Fish Expo '84, contact **Jonathan Stamell**, general manager, National Fisherman Expositions, 5 Milk Street, Portland, Maine 04112; telephone (207) 772-3005.

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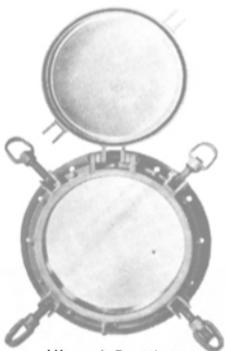
Crank-Operated Window



Window Wiper and Fixed Window



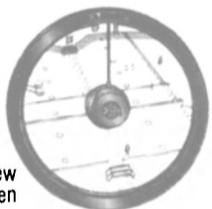
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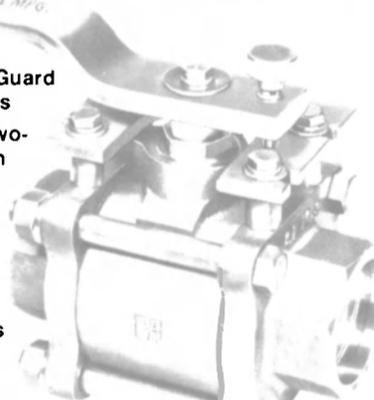
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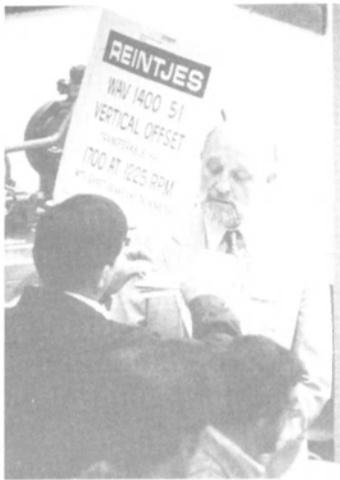
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BARCO CORP.  
BAYBANK  
BELL DETROIT DIESEL  
BENDER SHIPBUILDING  
BLACKADAR INSURANCE AGENCY  
BLANCKE MARINE SERVICES  
BOMAR  
BOOTHBAY COMMUNICATIONS  
BOSS MANUFACTURING COMPANY  
BOSTITCH, DIV. OF TEXTRON INC.  
BOSTON MARKET EQUIPMENT



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 BRAILSFORD ASSOCIATES  
 BRDR. MARKUSSEN  
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 EQUIPMENT ASSOCIATION  
 BROOKLINE MACHINE COMPANY  
 BROWNELL & COMPANY  
 BUCKHORN MATERIAL HANDLING GROUP  
 C-TECH LTD.  
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 GOVERNMENT OF CANADA  
 CAPE DORY TRAWLERS  
 CAPE FISHERMEN'S SUPPLY  
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 HATHAWAY MACHINERY COMPANY  
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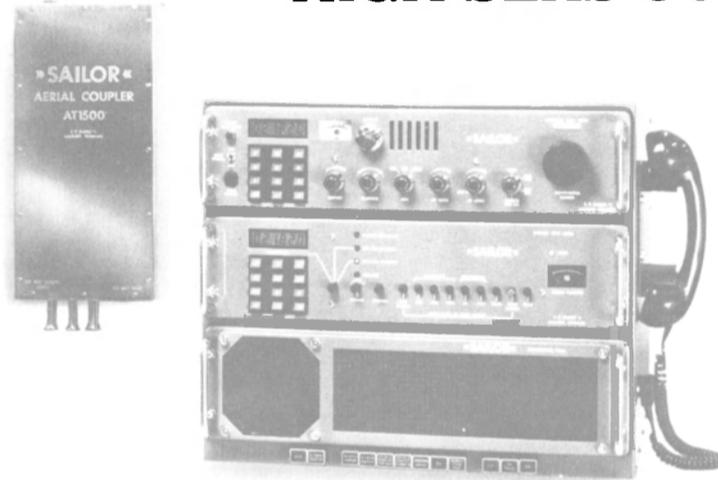
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 H&H PROPELLER SHOP  
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 HARVEY HUBBELL  
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 (continued on page 24)

## HIGH SEAS COMMUNICATIONS

**You can build a little  
 or a lot.**

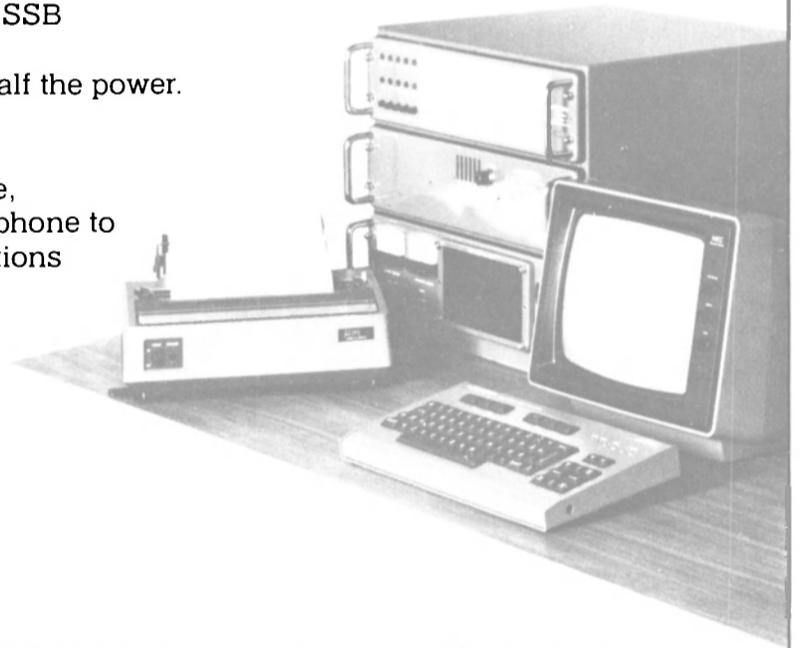
When it comes right down to  
 the most communications for  
 your dollar, it becomes very  
 hard to beat a system from  
 Radio-Holland.

One reason is that we are  
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 communications equipment and  
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Another is that we can deliver  
 this gear at prices you just can't ignore.  
 Like, for example, a full 400 watt SSB  
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 much as you'd expect to pay for half the power.

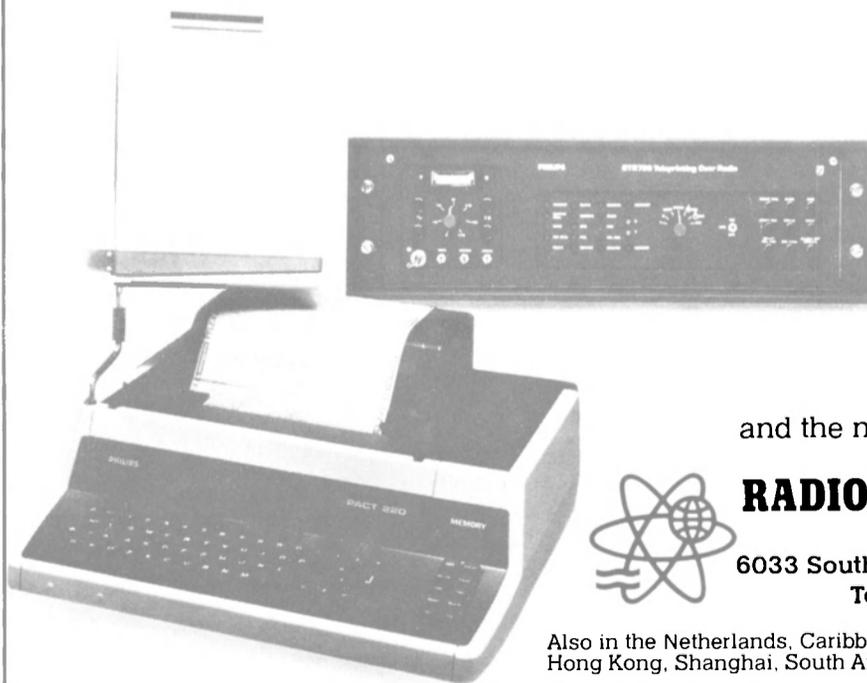
Another reason is modularity.  
 With our extensive equipment line,  
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 systems desired. Add telegraphy;  
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Virtually any high seas  
 communication need can  
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And, we support all  
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Send today for complete  
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## Fish Expo

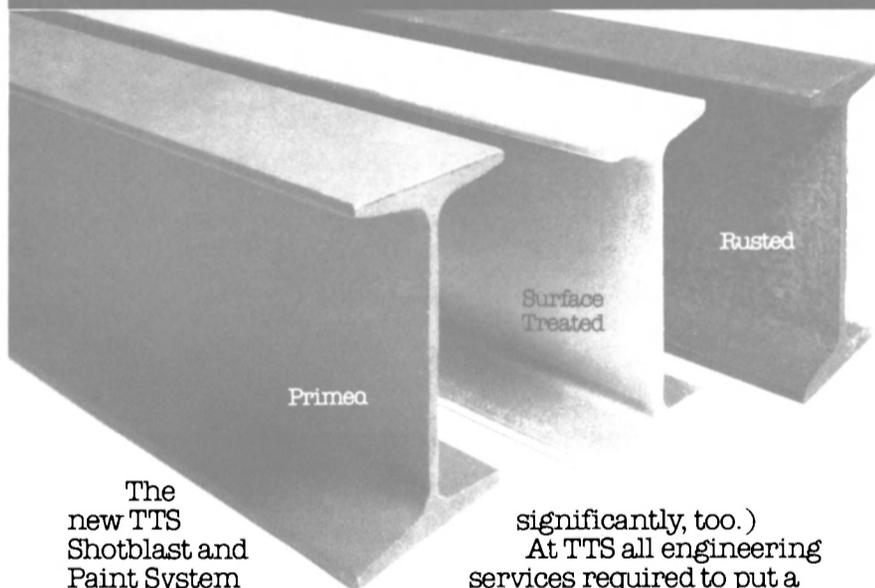
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I.P.M. FISHING GEAR  
IMS MARINE SUPPLY  
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INTECH  
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# TAKE STEEL FROM START TO FINISH FOR 6¢ A SQUARE FOOT.



The new TTS Shotblast and Paint System can reduce your surface treatment costs to only 6¢ a square foot. (That compares with 19¢ or more for conventional manual methods, and 65¢ - \$1.10 for contract work.\*)

TTS doesn't just provide components, but a complete system tailored to your needs based on our long experience in steel mechanical handling and production processing. (In most cases, our expertise and engineered equipment can improve your other plant operations

significantly, too.)

At TTS all engineering services required to put a system into operation are performed at our facility including project management and spare parts recommendations.

Our methods have resulted in fully integrated systems that are now operating successfully around the world. And many of our customers are using their excess capacity to process steel for others at a profit.

For more information, contact TTS at (804) 595-5153.

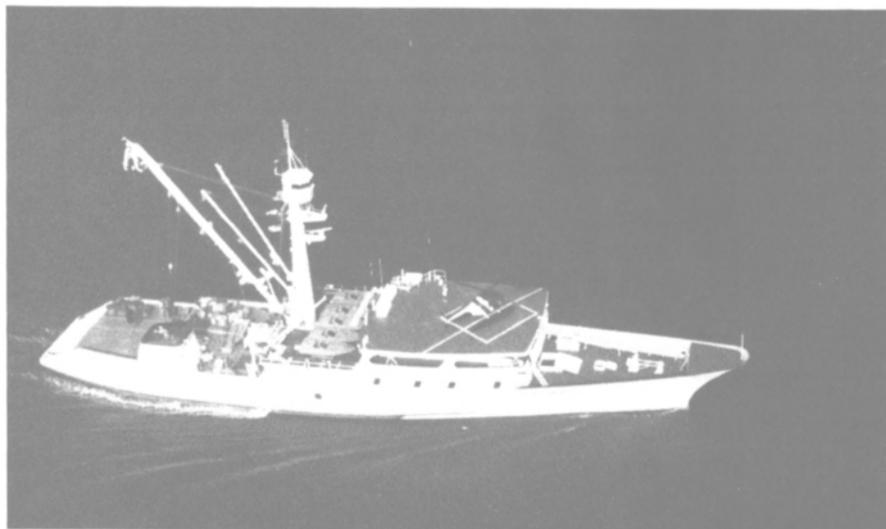
## TTS TOTAL TRANSPORTATION SYSTEMS INC.

813 Forrest Drive, P.O. Box 6127, Newport News, Virginia 23606

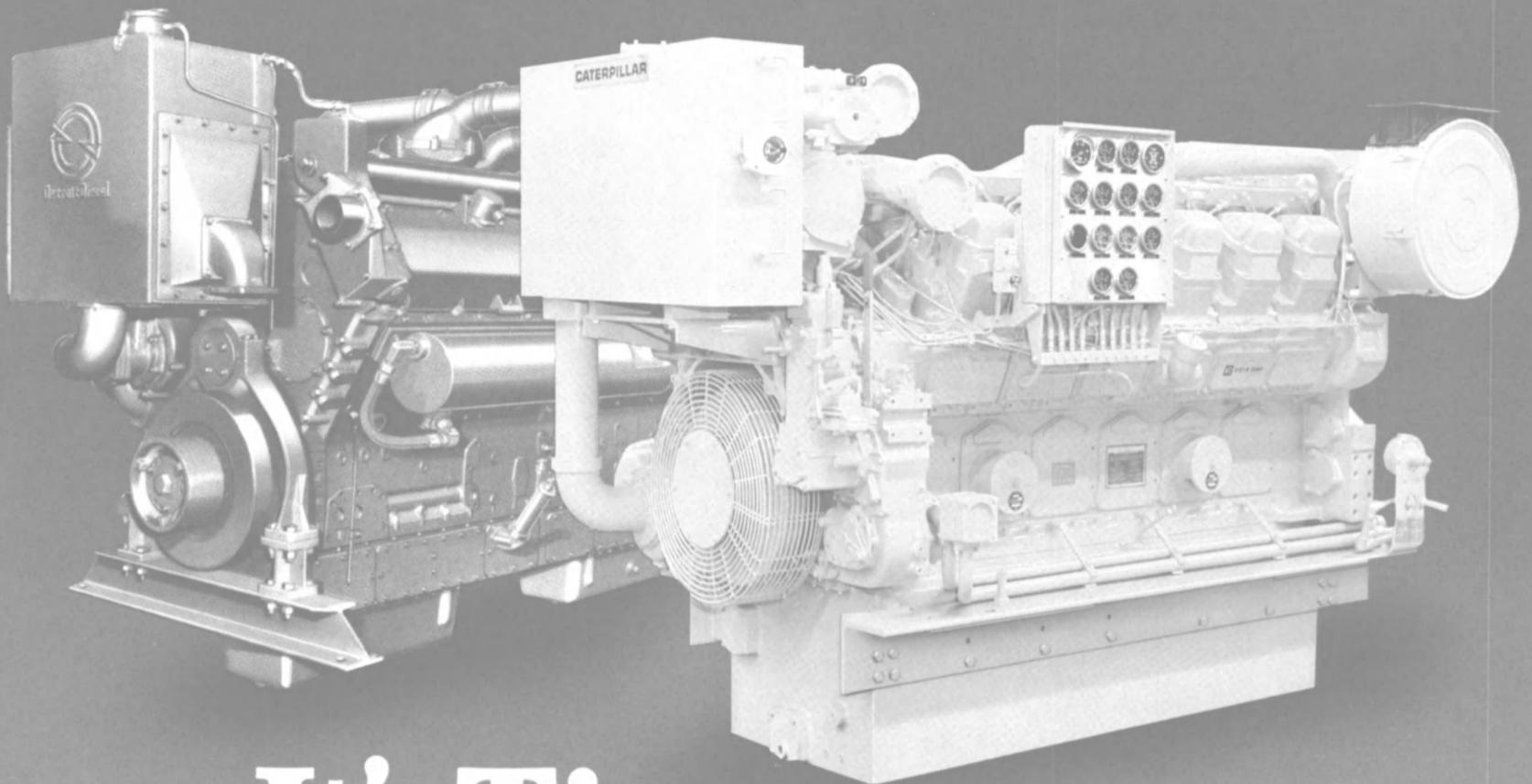
\*Figures based on 1981 Houston, Texas, cost survey. Costs may vary due to local labor and annual steel throughput.



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WASHBURN & DOUGHTY ASSOCIATES  
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FISHERIES  
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WELLINGTON PURITAN  
WESMAR  
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Circle 287 on Reader Service Card



# It's Time to Think Repower.

**Compare power alternatives for operating cost . . . performance. Not tradition . . . not old standards.**

Cat 3500 Series offer unequalled efficiency with no sacrifice in performance. **Compare . . .**

**Fuel efficiency.** Fuel represents up to 90% of an engine's owning and operating cost. So it's easy to understand why the Cat fuel efficiency advantage can save you so much.

Model	Contin- uous shp	rpm	Gallons/ shp-h	Cat Fuel Efficiency Advantage Based on g/shp-h
3508	752	1600	.0522	<b>7.1%</b>
12V-149 NA	675	1800	.0562	
3512	1139	1600	.0505	<b>9.5%</b>
16V-149 T	1145	1800	.0558	
3516*	1504	1600	.0496	

\*No comparable rated Detroit Diesel 149 Series engine. But compare the 3516 with an EMD engine.

**Performance.** Ask someone who has operated both makes. The Cat 3500s with higher cylinder displacement handle the load better and have added punch for superior response.

**Maintenance Ease.** Direct accessibility to critical engine components and maintenance points on

Cat Engines makes inspection and adjustment easy. Fuel and oil filters and lube oil are changed at the same time. On the 3512 and 3516 this maintenance is required only once every 1,000 hours.

**Price.** It may be a surprise . . . the 3500s are very price competitive, even before you total up lifetime owning and operating savings.

**Overhaul expense.** Cat 3508 and 3512 Engines compete in the same performance class as Detroit Diesel models operating with four more cylinders each. So when you overhaul, you'll have fewer parts to replace, lower labor costs.

**The way they're built.** The 3500 Series are heavier than Detroit Diesel 149 Series engines . . . but the extra weight is in critical areas — between cylinders, in the crankshaft — where lighter construction can lead to shorter life and more parts replacement.

Have your Caterpillar Dealer help you make a comparison. He'll start by running a fuel analysis comparing Cat to Detroit Diesel or any other make engines. Then have him provide you an in-depth investment analysis so you know what it costs to own and operate a Caterpillar Engine over its long lifetime.

**Consider your alternatives . . . your decision will be Cat 3500 Series.**

Materials and specifications subject to change without notice.



Caterpillar, Cat and  are Trademarks of Caterpillar Tractor Co.

Circle 115 on Reader Service Card

## Miller Named Deputy Director-Marine Engineering At M. Rosenblatt & Son

Amos Baki, vice president and manager of the M. Rosenblatt & Son, Inc. Washington Area Office, has announced the appointment of **Robert R. Miller** as deputy director of marine engineering. He will be responsible for implementing a recently awarded contract for engineering and technical support to the

Auxiliary Systems Subgroup of the NAVSEA Ship Design and Engineering Directorate.

Since joining Rosenblatt in 1976 as a senior marine engineer, Mr. Miller has provided support for major ship design projects and progressed to manager of the machinery division. His previous 22 years of Naval experience included conception and establishment of the Navy's Pollution Abatement Program for forces afloat, chief engineer of an aircraft carrier, submarine and

destroyer duty, and other surface ship assignments.

## New Bulletin On Baskets And Screens Available From Hayward

Hayward Industrial Products, Inc., Elizabeth, N.J., a leading manufacturer of pipeline strainers, has published a new technical bulletin on strainer baskets and screens. Entitled "The Heart of a Hayward

Strainer is the Basket or Screen," this 8-page bulletin will assist engineers and end users in selecting the best strainer and basket/screen for their particular application.

The bulletin reviews the various types of strainers and their applications. It also describes the different perforated sheet and wire mesh available along with the construction features of different baskets/screens.

Persons involved in specifying or buying pipeline strainers will find this new Hayward bulletin extremely helpful and informative.

For a copy of the new bulletin,

Circle 75 on Reader Service Card

## Jordan Lieb Joins Marine Coatings As Vice President

John Arbizzani, president of Marine Coatings, Inc., recently announced that **Jordan Lieb** has joined the company as vice president. He was formerly with Atlantic Sandblasting and Coatings, Inc. as manager of sales and estimating. Prior to that he worked at Tampa Shipyards as a senior ship repair estimator, and as an estimator and production ship superintendent at Maryland Shipbuilding and Drydock Company.

Mr. Lieb brings with him the ship repair experience to assist in the coordination between the shipyards and the sandblasting contractor, which will minimize conflict of work areas and expedite job completion.

Marine Coatings has offices in Mobile and Jacksonville. The company has completed 65 percent of all Military Sealift Command tank linings during the past three years. It is also experienced in commercial tank linings, bulk carrier cargo hold work, offshore oil rigs, and exterior hull and superstructure coating.

## Falk Granted Exclusive US Sales And Manufacturing Rights For Renk Drives

The Falk Corporation and Zahnradfabrik Renk of Augsburg, West Germany, have signed a license agreement that grants Falk the exclusive sales and manufacturing rights in the U.S., Canada, and Mexico for Renk Marine Reversing Gear Drives.

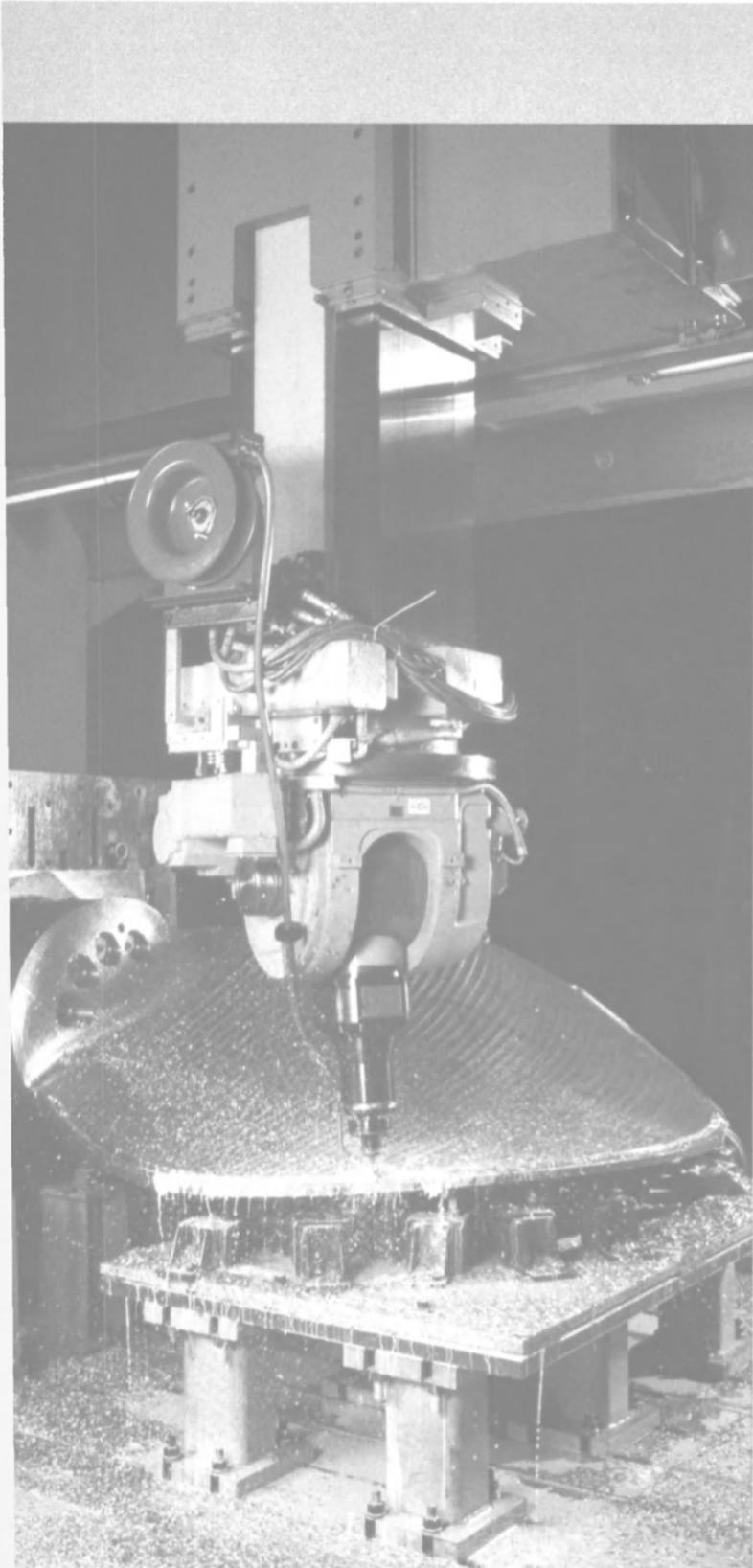
These drives, which will be offered in addition to the line of marine drives traditionally offered by Falk, are said to incorporate state-of-the-art technology, including multiple disc hydraulic clutches.

The agreement may be expanded in the future to include other types of Renk enclosed drives, according to Falk management.

The Falk Corporation, a subsidiary of Sundstrand Corporation, is a leading producer of standard and custom gear drives and flexible couplings.

Renk is a subsidiary of GHH (Gutehoffnungshutte), one of the largest engineering groups in Europe, and is known worldwide for its special-purpose marine propulsion gears.

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# 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

# Are there two the same?



Probably not. But climate control systems from Flakt can handle any extreme and any air treatment job you could imagine, whether shipboard or offshore, North or South, hot or cold. Flakt systems provide air conditioning, ventilation and air distribution on more than 4500 ships, in over 50% of the fixed platforms and in a number of rigs in the North Sea; plus many other platforms and rigs all around the world.

To handle that sort of variety and demand you need the products, the know-how and the back-up. And Flakt has it. With the backing of the world's largest research and development organization devoted entirely to air treatment and climate control systems, Flakt is certain to be able to provide the solution to your ship or offshore HVAC requirements.

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Marine

FLAKT AB, MARINE DIVISION, P.O. BOX 8862, S-402 72 GOTHENBURG, SWEDEN. PHONE INT + 46 31 22 20 60. TELEX 2540 FLAKTG S.



# DECK MACHINERY / CARGO HANDLING EQUIPMENT

—A Review—

*Faster turnaround in port means increased profits for all vessel operators. To meet that need, designers and manufacturers of cargo handling equipment and access and stowage systems continue to improve their products and to introduce new, more efficient cargo gear and deck machinery.*

*The editors of MR/EN asked the manufacturers of cargo-handling and other deck machinery and fittings to tell us about their product lines and their latest developments. The review that follows is based upon the replies we had received at press time.*

*Literature describing all of the equipment featured in this review is available free of charge from the manufacturers.*

## FOR MORE INFORMATION

If you wish to receive additional information and literature on any of the companies and products featured in this article, circle the appropriate number(s) on the Reader Service Card in the back of this issue. If you wish to receive information from all of the suppliers mentioned in this review,

Circle 11 on Reader Service Card

## AMHOIST

Amhoist, American Hoist & Derrick Company of St. Paul, Minn., has announced the recent sale of a 3,000-ton-capacity revolving crane to Jardine Offshore Contractors, Inc. This order will add more than \$9 million to Amhoist revenues during the next 18 months. The Model M-3000 crane will be totally designed by Amhoist, and is destined for mounting on what will be the world's largest combination pipe-lay and crane barge of monohull design.

**Robert H. Nassau**, president and CEO of the St. Paul Company, feels that this and other recent orders for offshore revolving cranes indicate a turning point in the demand for energy-related heavy

equipment.

"We believe that as the search for oil moves into deeper and more remote waters, there should be even greater demand for large-scale, custom-engineered systems of this kind. We anticipate that the market will be entering an expansion phase again in 1986 or 1987, and that Amhoist will be participating in a number of multimillion-dollar projects in the years to come," he said.

The M-3000 crane will have a boom 315 feet long, and a revolving bearing base 78 feet in diameter. Approximate dimensions of the barge, tentatively named Arran by Singapore-based Jardine Corporation, will be 540 feet long, 160 feet wide, and 34 feet deep. Also included in the Jardine order is a conventional American 165-ton-capacity crawler crane for use on the deck of the barge.

Amhoist designs and builds standard marine cranes in capacities from 30 to 3,000 tons, and bigger sizes can be custom-engineered for specific applications. Products range from huge barge- and ship-

mounted revolvers to the Sea Horse pedestral crane for materials handling on offshore oil rigs. Amhoist also manufactures American stiffleg derricks in many sizes and configurations for use on ships, barges, and platforms.

For more information,

Circle 12 on Reader Service Card

## APPLETON MARINE

Appleton Machine Company's Marine Division in Appleton, Wisc., designs and manufactures a wide range of marine cranes, winches, and deck machinery that meet the requirements of the U.S. Coast Guard and the major classification societies.

The electro-hydraulic, self-contained winches have line pulls of up to 140,000 pounds at infinitely variable speeds. They can operate as automatic constant-tension units or can be switched to manual control as required. Both modes can be achieved at the winch or in a central control room. The winches provide

**Photo**—Heavy lift cargo carrier Happy Buccaneer is fitted with two Blohm + Voss 550-ton Heavy Lift Mastcranes.

greater flexibility in that both the line pull and line speed are variable from zero to maximum in any combination.

Appleton has also added hydrographic launch and recovery systems to its extensive product line, which includes offshore mooring and anchor windlasses, oceanographic winches, deck fittings, knuckleboom cranes, diving support winches, and mooring systems control consoles.

For further information,

Circle 14 on Reader Service Card

## ASEA

ASEA, Inc. of White Plains, N.Y., markets its Optitrim system that is designed to help plan cargo loading, fuel oil and fresh water bunkering, and the correct positioning of ballast in order to obtain maximum fuel savings. The company reports that this system will increase operating efficiency substantially, reduce costs, and pay for itself in less than a year.

The Optitrim indicates the most efficient mode of operation at every speed and load condition, showing basic optimum and actual figures. It can calculate cargo in each hold, in percent, volume, or weight. The unit provides optimum trim calculations when the estimated average speed is used as input. It then calculates the optimum trim for the mean draft and presents the optimum fuel savings in tons per day when the ship is retrimmed to its optimum.

The operator can shift cargo from one hold to another and immediately read off the differences in fuel savings by doing so. Every factor that affects the trim is taken into consideration.

For further information and a free color brochure,

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## BEEBE

Beebe International, Inc. of Seattle recently introduced its S-Core spark- and corrosion-resistant line of manual chain hoists and trolleys. This product line is said to provide maximum protection in corrosive or explosive atmospheres—hazards that are commonly found in marine environments and applications.

Two types of S-Core hoists are available, one with an exclusive copper plating process applied to the hooks and trolley wheels, and another utilizing solid bronze components in the same areas. The load chain is nickel-diffused, greatly adding to the life and spark-resistance of the overall unit.

Beebe has developed these special hoists well beyond the traditionally available capacities, and can now offer hoists from ¼ to 15 tons as standard and up to 50 tons on special order.

Beebe also offers a series of high-capacity chain hoists that represent an important advance in the air-powered hoist field. These hoists range in capacities from 10 to 50 tons, and are powered by radial-piston air motors that provide increased reliability and longer life.

Primary applications for this hoist include blowout preventer handling systems for the drilling industry and individual hook mount units for the shipbuilding and ship repair industries.

For further information on Beebe products,

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## BLOHM + VOSS

What is said to be the most powerful heavy lift ship in the world, the

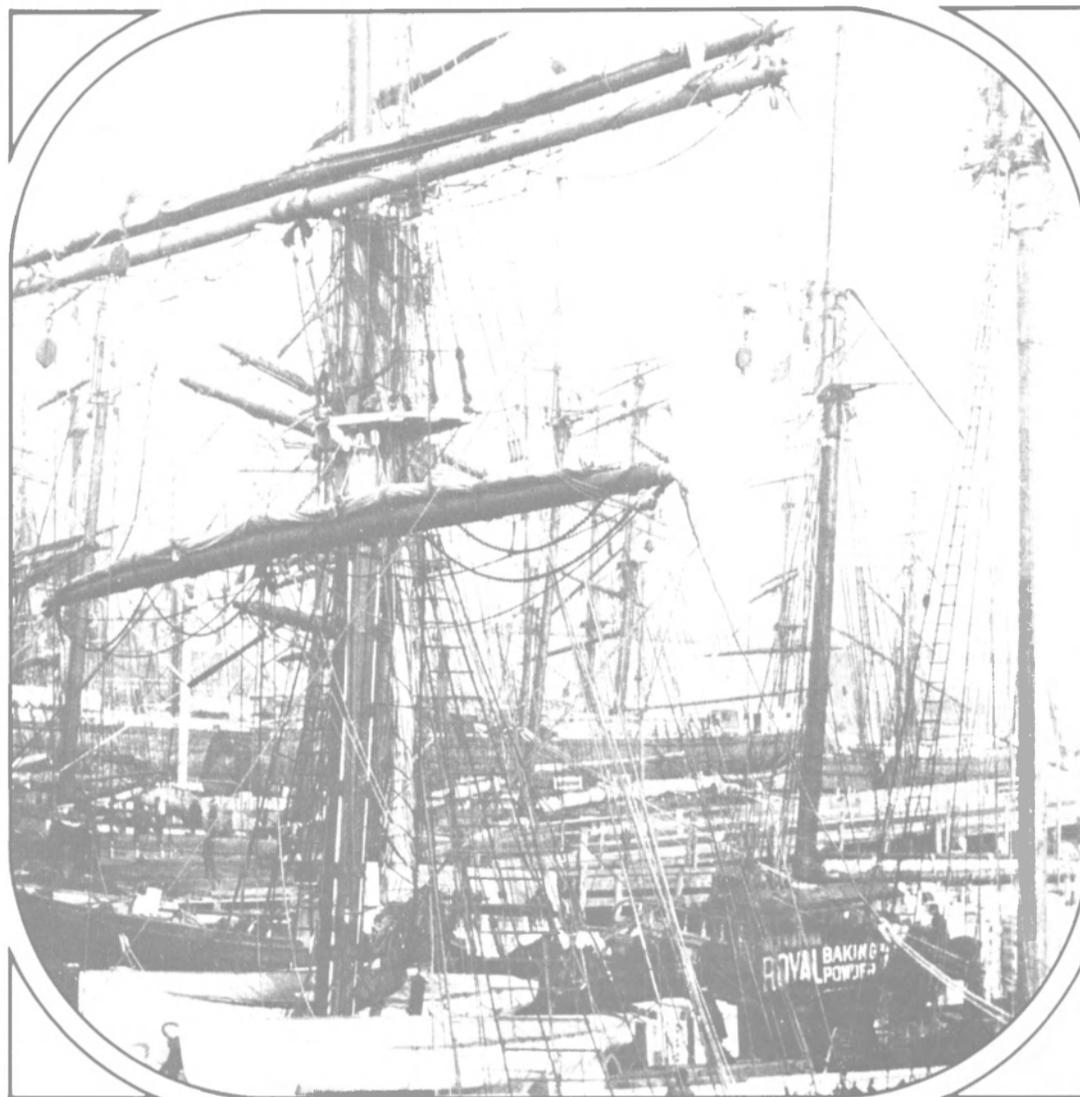
Happy Buccaneer, was delivered recently by the Innoshima yard of Hitachi Zosen Corporation in Japan. Built for Mammoet Transport (Nedlloyd) of the Netherlands, the vessel is equipped with two Heavy Lift Mastcranes (HLM), a new development of Blohm + Voss of Hamburg, West Germany. Each crane has a lifting capacity of 550 tons, and operated in tandem they can lift loads of 1,100 tons at an outreach of 35 meters (about 115 feet).

Unlike conventional cranes, the derrick of the HLM type slews

around a fixed mast. Because of this design, the mast diameter as well as the diameter of the slewing bearing can be relatively small, thereby reducing the deck space required.

The HLM's design and its arrangement at the starboard side of the ship makes it possible to provide a continuous and very wide hatch opening for bulky heavy lifts. At sea the derricks will be lashed in a nearly vertical position, permitting the carriage of bulky deck cargoes.

For handling light cargo and for (continued on page 30)



## AMERICAN

*Since the days of iron men and wooden ships*

There have been enormous changes in rope technology since we started in 1889, but American has remained the leader in research and development.

We have products available in every material, natural and synthetic, as well as virtually every type of construction. But

the important thing is that we are constantly providing new and improved products to meet shipping industry needs.

Like low snap back rope that saves lives and reduces injuries. Or like special lock line that makes life a little easier on the inland waterways.

Send for our complete catalog of rope and cordage products.

We'll show you how to be the iron man of today.



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## Deck Machinery

(Blohm + Voss—continued)  
rigging the hook on the slings for heavy lifts, a trolley is arranged at one side of the derrick. Its capacity is 25 tons, and it can operate in all topping angles of the derrick.

For additional information on the HLM units,

Circle 17 on Reader Service Card

## BRADEN WINCH

Braden Winch Company of Broken Arrow, Okla., is now marketing its second generation of planetary hoists. Designated the CH Series, they have capacities from 15,000 to 23,000 pounds and are offered with four motor options—three single-speed motors and the Braden two-speed motor. The motors have improved starting efficiencies to 84 percent, and the two-speed unit can

be shifted on the fly.

The following features have been incorporated in CH Series: lower minimum motor speeds—200 rpm for the single-speed motors and 150 rpm for the two-speed motor; anti-friction bearings throughout, which improve the hoists' starting efficiency (less motor) to 93 percent; longer life; longer duty cycle; smoother spooling; reduced noise level; improved brake valve stability; improved brake clutch assembly; and

faster line speeds.

The accessibility of motor bolts, brake discs, wire rope anchor, and fill, level, and drain plugs makes the CH Series hoists easier to service and maintain. Maximum interchangeability of parts results in lower parts inventory to service all hoists in the series.

For more information on Braden hoists,

Circle 18 on Reader Service Card

## JERED BROWN BROS.

Jered Brown Brothers is a major supplier of deck machinery and other marine equipment worldwide. Products include anchor windlasses and capstans, non-magnetic mine-sweeper deck machinery, cranes, steering gears, elevator systems, main thrust bearings, and line shaft bearings. Jered equipment is specified on FFG 7, CG 47, LSD 41, LHD 1, MCM 1, T-AO 187, T-5, and CVN Class vessels and many other commercial ships.

In addition to providing equipment on new ship construction, Jered provides spare parts and maintenance on deck machinery in service. Jered has engineering drawings and parts for equipment manufactured by American Engineering, C.H. Wheeler, Baldwin-Lima-Hamilton, and Jered Industries.

For additional information,

Circle 31 on Reader Service Card

## CATERPILLAR

Caterpillar has introduced the V925 lift truck designed to meet the needs of the worldwide container-handling industry. The V925 has 75,000 pounds of capacity when equipped with a container-handling spreader for moving and stacking fully loaded 20- to 40-foot containers at dockside, rail yards, and transfer terminals. It is the largest in the Caterpillar Lift Truck product line.

Among the V925's special features is the oil disc brake system. The multiple disc design provides significantly more braking surface than standard shoe-type or dry caliper disc brakes. The result is excellent response and extended brake life, up to 15,000 hours under continuous operation. Dual 21:00 by 35 drive tires and single 18:00 by 33 steer tires, the largest offered in the industry for this size class, provide a large contact area and low ground pressure for long life.

The V925's Cat planetary power shift transmission—currently used in large Cat wheel loaders—has four speeds forward and reverse for the varying conditions required in con-

# Whatever Your Mission, Alden Weather Chart Recorders Offer Options In Size But Not In Quality.

Alden Electronics produces the world's most extensive line of weather map recorders and weather satellite systems. It's a line developed to satisfy the needs of any user.

Alden systems are aboard the largest tankers, military vessels of many nations, oceanographic research ships in virtually every ocean, and oil platforms inshore and off. But they are also in use among fishing fleets, coast guards and other commercial interests—even individual yachtsmen.

That's because Alden offers more receiver features and a complete range of models that allow each user to select the optimum unit. Our larger systems, for example, provide direct satellite receiving capability which is not available from other manufacturers.

Alden weather facsimile systems are used by more than 80 different governments, and many of their broadcasts are made with Alden facsimile transmitters. So, you can be certain that every one of our receivers is properly designed and fully reliable.

All these systems utilize Alfax electrosensitive paper for the sharpest and most easily-read charts. And both the equipment and paper are sold and serviced worldwide.

For complete information on the system that's right for you, contact Alden Electronics, 115 Washington Street, Westborough, MA 01581 (617) 366-8851.

## ALDEN ELECTRONICS

Shipboard Satellite System: Hemispheric pictures from the 4 geostationary weather satellites; enhanced visible and infrared pictures from orbiting satellites.

Series 9271M: Full size 18" charts and

Series 9519: Full-size 18" weather charts, plus orbiting and geostationary satellite data with analog-digital signal processing and image enhancement.



## Deck Machinery

Crosby Group—continued inches. The sheaves are an ideal choice for original equipment in self-unloading systems and as replacements.

McKissick sheaves are forged from controlled quality 1035 carbon steel which provides excellent welding and flame hardening characteristics. All incoming steel is tested by chemical and spectrographic methods to insure consistently high quality.

Steel sheaves have excellent flexi-

cializes in custom designed blocks to any specification, oil field blocks, crane and hook blocks, overhaul balls, swivel hooks, and snatch blocks, as well as many other products. Western manufacturers sheaves and sleeves, wood and steel blocks, and cargo blocks and fittings, just part of its extensive product line. National's product line includes steel swaging sleeves, duplex sleeves, swage buttons and furrules, as well as swaging presses in capacities from 500 to 3,000 tons.

For a copy of the Crosby catalog,

Circle 22 on Reader Service Card

ULCC you will find Pusnes steam deck machinery. Looking closer at the windlass on any of these large tankers you will notice up to 1,000-hp disc brakes used to drop the anchors under finger tip control. Visit a semisubmersible on a drilling station and you will find Pusnes mooring systems for chain, chain-wire combo, or all-wire and moored in depths up to 3,500 feet. Systems for greater depths and hostile environments are under development today.

Pusnes also manufactures mooring equipment for smaller coastal ships, barges, tugboats, off-shore

Pusnes is part of "SUBTECH" Norway, a firm developing complete diving systems which employ diving bells, underwater vehicles, bell winch systems, divers gas recovery systems, external life support systems, and the "Hyperbaric" saturated divers lifeboat. Concern for offshore personnel resulted in the development of "Pudes," the controlled extendable protected gangway for dry evacuation.

Pusnes has a joint venture company in Japan, Nippon-Pusnes, and both are represented in the U.S. by EMMI Corporation, of Flemington, N.J.

greater flexibility in that both the line pull and line speed are variable from zero to maximum in any combination.

Appleton has also added hydrographic launch and recovery systems to its extensive product line, which includes offshore mooring and anchor windlasses, oceanographic winches, deck fittings, knuckle-boom cranes, diving support winches, and mooring systems control consoles.

For further information,

Circle 14 on Reader Service Card

## ASEA

ASEA, Inc. of White Plains, N.Y., markets its Optitrim system that is designed to help plan cargo loading, fuel oil and fresh water bunkering, and the correct positioning of ballast in order to obtain maximum fuel savings. The company reports that this system will increase operating efficiency substantially, reduce costs, and pay for itself in less than a year.

The Optitrim indicates the most efficient mode of operation at every speed and load condition, showing basic optimum and actual figures. It can calculate cargo in each hold, in percent, volume, or weight. The unit provides optimum trim calculations when the estimated average speed is used as input. It then calculates the optimum trim for the mean draft and presents the optimum fuel savings in tons per day when the ship is retrimmed to its optimum.

The operator can shift cargo from one hold to another and immediately read off the differences in fuel savings by doing so. Every factor that affects the trim is taken into consideration.

For further information and a free color brochure,

Circle 15 on Reader Service Card

## BEEBE

Beebe International, Inc. of Seattle recently introduced its S-Core spark- and corrosion-resistant line of manual chain hoists and trolleys. This product line is said to provide maximum protection in corrosive or explosive atmospheres—hazards that are commonly found in marine environments and applications.

Two types of S-Core hoists are available, one with an exclusive copper plating process applied to the hooks and trolley wheels, and another utilizing solid bronze components in the same areas. The load chain is nickel-diffused, greatly adding to the life and spark-resistance of the overall unit.

Beebe has developed these special hoists well beyond the traditionally available capacities, and can now offer hoists from ¼ to 15 tons as standard and up to 50 tons on special order.

Beebe also offers a series of high-capacity chain hoists that represent an important advance in the air-powered hoist field. These hoists range in capacities from 10 to 50 tons, and are powered by radial-piston air motors that provide increased reliability and longer life.

Primary applications for this hoist include blowout preventer handling systems for the drilling industry and individual hook mount units for the shipbuilding and ship repair industries.

For further information on Beebe products,

Circle 16 on Reader Service Card

## BLOHM + VOSS

What is said to be the most powerful heavy lift ship in the world, the

Happy Buccaneer, was delivered recently by the Innoshima yard of Hitachi Zosen Corporation in Japan. Built for Mammoet Transport (Nedlloyd) of the Netherlands, the vessel is equipped with two Heavy Lift Mastcranes (HLM), a new development of Blohm + Voss of Hamburg, West Germany. Each crane has a lifting capacity of 550 tons, and operated in tandem they can lift loads of 1,100 tons at an outreach of 35 meters (about 115 feet).

Unlike conventional cranes, the derrick of the HLM type slews

around a fixed mast. Because of this design, the mast diameter as well as the diameter of the slewing bearing can be relatively small, thereby reducing the deck space required.

The HLM's design and its arrangement at the starboard side of the ship makes it possible to provide a continuous and very wide hatch opening for bulky heavy lifts. At sea the derricks will be lashed in a nearly vertical position, permitting the carriage of bulky deck cargoes.

For handling light cargo and for (continued on page 30)



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Circle 23E on Reader Service Card

## Deck Machinery

(Blohm + Voss—continued)  
rigging the hook on the slings for heavy lifts, a trolley is arranged at one side of the derrick. Its capacity is 25 tons, and it can operate in all topping angles of the derrick.

For additional information on the HLM units,

Circle 17 on Reader Service Card

## BRADEN WINCH

Braden Winch Company of Broken Arrow, Okla., is now marketing its second generation of planetary hoists. Designated the CH Series, they have capacities from 15,000 to 23,000 pounds and are offered with four motor options—three single-speed motors and the Braden two-speed motor. The motors have improved starting efficiencies to 84 percent, and the two-speed unit can

be shifted on the fly.

The following features have been incorporated in CH Series: lower minimum motor speeds—200 rpm for the single-speed motors and 150 rpm for the two-speed motor; anti-friction bearings throughout, which improve the hoists' starting efficiency (less motor) to 93 percent; longer life; longer duty cycle; smoother spooling; reduced noise level; improved brake valve stability; improved brake clutch assembly; and

faster line speeds.

The accessibility of motor bolts, brake discs, wire rope anchor, and fill, level, and drain plugs makes the CH Series hoists easier to service and maintain. Maximum interchangeability of parts results in lower parts inventory to service all hoists in the series.

For more information on Braden hoists,

Circle 18 on Reader Service Card

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Circle 31 on Reader Service Card

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The V925's Cat planetary power shift transmission—currently used in large Cat wheel loaders—has four speeds forward and reverse for the varying conditions required in container handling. The transmission can be shifted at speeds up to 5 mph without potential damage or shortened life. Another feature is an integral steer axle/counterweight. The entire rear section oscillates about the main frame, providing low rear profile for superior visibility and lateral stability.

The V925 cab, with pilot-operated hydraulic controls, provides for operator comfort and high performance under full work demands and extended shifts. The cab is center-

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ALDEN ELECTRONICS

Shipboard Satellite System: Hemispheric pictures from the 4 geostationary weather satellites; enhanced visible and infrared pictures from orbiting satellites

Series 9271M: Full size 18" charts and pictures from a compact, 4-speed, moderately-priced commercial unit.

Marinefax III: Can be used with any stable HF radio receiver more compact than a briefcase, yet delivers sharp 11" charts

Marinefax IV: The smallest system with integrated tully-synthesized HF radio built-in.

Series 9519: Full-size 18" weather charts, plus orbiting and geostationary satellite data with analog-digital signal processing and image enhancement.



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Circle 208 on Reader Service Card

mounted for optimum visibility front, rear, and sides.

For further information on Cat lift trucks,

Circle 19 on Reader Service Card

### CLYDE

Clyde of Duluth, Minn., a unit of AMCA International Corporation, has redesigned its popular line of medium-capacity winches, the frame 4 through frame 8 series, achieving greatly improved performance ratings in anchor/mooring services.

This winch series spools wire in 3/8- through 1 1/4-inch diameter and exceeds first layer stall pulls in excess of 50,000 pounds. The winches may be powered by diesel or gasoline engines, or electric or electrohydraulic motors. They are available as single-drum units, or as two-, three-, or four-drum units in water-fall configurations. For effective corrosion resistance, the winches are prime coated with inorganic zinc paint, with a finish coat of marine epoxy enamel.

The available free literature on

Clyde frame 4 through frame 8 winches includes data on wire rope sizes, drum dimensions, spooling capacities, drum clutch and brake specifications, as well as dimensional drawings and typical performance data for anchor/mooring service.

These Clyde winches are available throughout the U.S. from Hydraulic Power Systems, Inc. of Kansas City, Mo. In addition, HPS handles Clyde barge movers and car pullers, and offers full service in every phase of the business—sales, rentals, parts, and service.

For further information and literature,

Circle 20 on Reader Service Card

### CONMACO

Amcon air-controlled hoists are an exclusive with Conmaco, Inc. of Kansas City, Kan. The flagship of the line is the Amcon 6250, which handles up to 12,000 feet of 3-inch wire rope.

Also new to the 7-hoist Amcon lineup is the Amcon 150. This versa-

tile hoist will handle wire rope up to 1-inch and delivers up to 35,000 pounds of line pull. It has proved itself to be well-suited for anchor-handling applications on small vessels and supply boats, or for mooring small barges on inland waterways.

Conmaco also recently introduced a line of deck-mounted fairleaders, each with the rugged construction to withstand the breaking strength of indicated wire rope. Bearings in the barrel and sheaves are engineered for long life and dependability, even under rapid or severe changes of lead.

New to the Amcon line of winches is the 20C hydraulic winch with a line pull of up to 40,000 pounds (1-inch wire rope) and spooling capacity of 1,434 feet. An important feature of this winch is that each drum is fitted with a friction clutch allowing the drums to "free wheel" independently.

In addition to a full line of air-controlled winches, fairleads, deck guide sheaves, and chain handling equipment, Conmaco also offers rental, sales, and service on hydrau-

lic continuous pull machines with CPL as high as 1.5 million pounds.

For further information,

Circle 21 on Reader Service Card

### CROSBY GROUP

A 180-page, full-color catalog is available from The Crosby Group, a Division of Amhoist, which is comprised of Laughlin®, Lebus®, McKissick, National, and Western. The companies manufacture every conceivable kind of fittings and accessories for deck machinery, cargo handling and other applications, including forged fittings, hooks, blocks, sheaves, pulleys, load binders, chain, etc. The catalog describes all of the products of all divisions in full detail with photos, detailed drawings, all measurements, and full specification charts.

McKissick products, a division of the Crosby Group in Tulsa, Okla., now has new roll forged sheaves available in the most complete range of sizes from 12 through 72 (continued on page 32)

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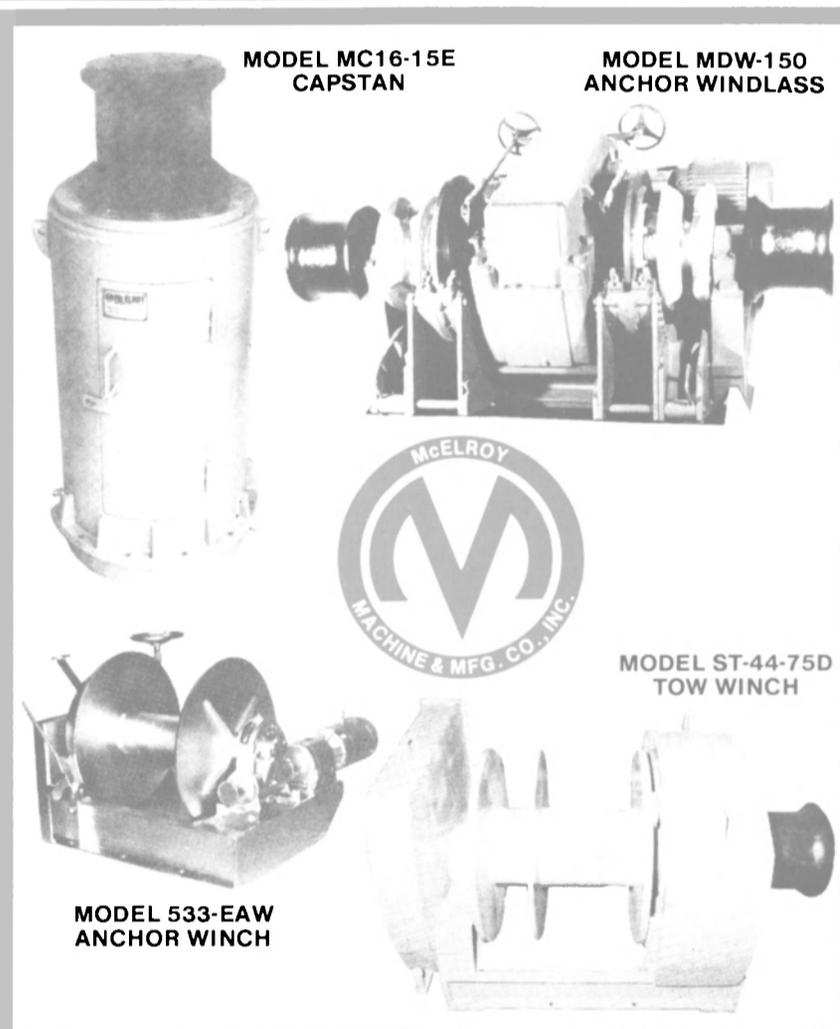
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McElroy's line of deck equipment includes machinery used on supply boats, tugs, barges, rigs, and ships. In addition to McElroy's quality line of winches, windlasses, and capstans, McElroy stands ready to engineer, design, and quickly deliver any type of deck machinery your requirements call for. Count on McElroy for your next deck machinery requirements. Parts and services are available upon request.

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## Deck Machinery

Crosby Group—continued inches. The sheaves are an ideal choice for original equipment in self-unloading systems and as replacements.

McKissick sheaves are forged from controlled quality 1035 carbon steel which provides excellent welding and flame hardening characteristics. All incoming steel is tested by chemical and spectrographic methods to insure consistently high quality.

Steel sheaves have excellent flexibility when choosing bearings and also provide better cold weather properties than nylon sheaves.

Crosby links and rings are manufactured in a complete line of sizes and types for almost any application, with working load limits from 1,600 to 232,500 pounds.

Lebus products include lever and ratchet type load binders, grab hooks and tail chains, snatch blocks, and hook latch kits. McKissick spe-

cializes in custom designed blocks to any specification, oil field blocks, crane and hook blocks, overhaul balls, swivel hooks, and snatch blocks, as well as many other products. Western manufacturers sheaves and sleeves, wood and steel blocks, and cargo blocks and fittings, just part of its extensive product line. National's product line includes steel swaging sleeves, duplex sleeves, swage buttons and ferrules, as well as swaging presses in capacities from 500 to 3,000 tons.

For a copy of the Crosby catalog,

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### EMMI-PUSNES

Pusnes was founded in 1875 as a shipyard and started deck machinery production in 1890.

Today, Pusnes is one of the few companies in the world concentrating on the development and manufacture of all types of deck machinery for mooring systems used on a broad range of floating equipment. When you board a 540,000-dwt

ULCC you will find Pusnes steam deck machinery. Looking closer at the windlass on any of these large tankers you will notice up to 1,000-hp disc brakes used to drop the anchors under finger tip control. Visit a semisubmersible on a drilling station and you will find Pusnes mooring systems for chain, chain-wire combo, or all-wire and moored in depths up to 3,500 feet. Systems for greater depths and hostile environments are under development today.

Pusnes also manufactures mooring equipment for smaller coastal ships, barges, tugboats, off-shore supply boats, pipe-laying barges, and similar vessels.

Minimum crew and safety are Pusnes trademarks. The unique roto-bollard for mooring rope handling is a typical innovation.

Mooring systems for chain, cable, and rope employ steam, electric, or hydraulic drives. The equipment can be local or remotely controlled and, when necessary, the mooring forces constantly monitored.

Pusnes is part of "SUBTECH" Norway, a firm developing complete diving systems which employ diving bells, underwater vehicles, bell winch systems, divers gas recovery systems, external life support systems, and the "Hyperbaric" saturated divers lifeboat. Concern for offshore personnel resulted in the development of "Pudes," the controlled extendable protected gangway for dry evacuation.

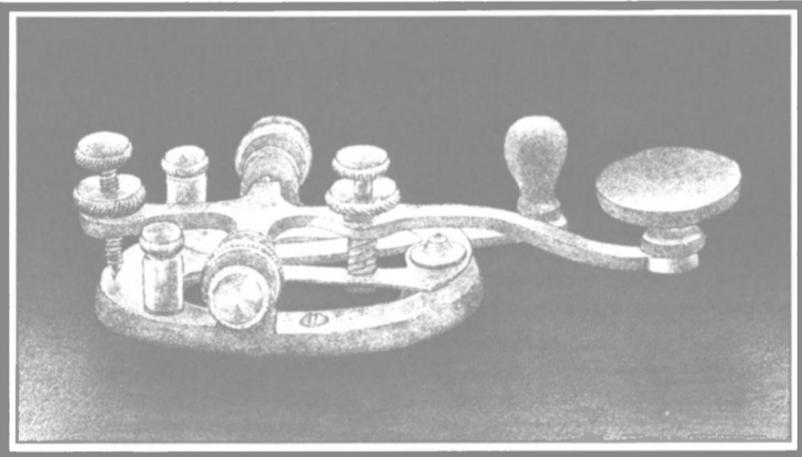
Pusnes has a joint venture company in Japan, Nippon-Pusnes, and both are represented in the U.S. by EMMI Corporation, of Flemington, N.J.

For further information,

Circle 23 on Reader Service Card

### GEARMATIC

Gearmatic Company of New Westminster, B.C., Canada, a division of Paccar of Canada, Ltd., has pioneered many new features in hydraulic winch design such as planetary gearing, totally enclosed construction, automatic breaking, sin-



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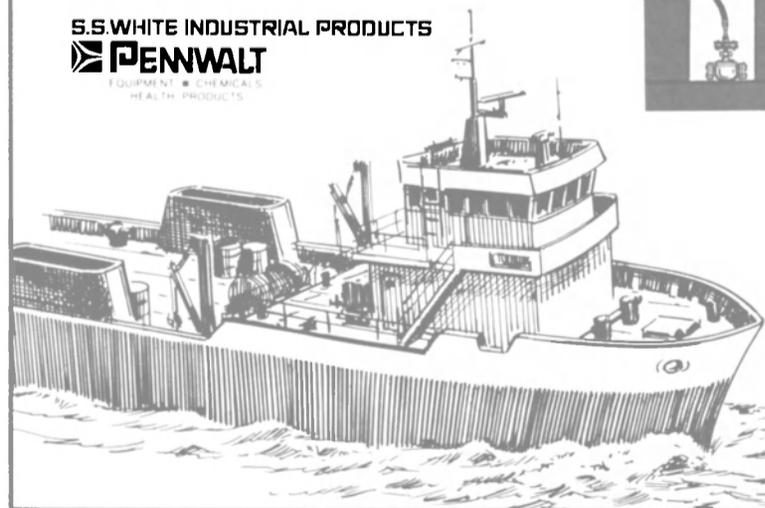
And big savings.

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



Circle 223 on Reader Service Card

gle lever control, mechanical two-speed, and free fall.

Every Gearmatic hydraulic winch and hydraulic drive is virtually custom-built to meet specific performance needs, based on proven modular designs and assembled at the factory from a wide selection of optional features. Representatives of the range of offerings is Gearmatic's model 54 three-speed hydraulic planetary hoist. The model 54 provides speed and flexibility in operation without sacrificing the qualities of simplicity, dependability, and long-life that are hallmarks of Gearmatic.

The model 54 features line pulls up to 56,000 pounds, line speeds of up to 474 fpm, a three-speed power shift, gear changes that can be made under load and with the cable drum in motion, built-in automatic safety brake, and the complete drive train totally enclosed, sealed, and running in oil. Options include various cable drum sizes, hydraulic motors, gear ratios, and Gearmatic's free-fall capability.

The model 54 is a result of Gearmatic engineers sophisticated testing both in the lab and in the field that proves out new designs, refines production models, and develops new applications for many industries—including fishing, off-shore exploration, oil and gas pipeline, marine, and dock installations.

Gearmatic hydraulic winches and drives are sold and serviced throughout the U.S., Canada, and worldwide through a network of distributors convenient to maritime centers. They offer technical assistance, service, and parts.

For additional information,

Circle 25 on Reader Service Card

## FMC

A 22-page full-color guide describing Link-Belt's crane and excavator line is being offered by FMC of Bannockburn, Ill.

The guide discusses FMC's crane operations, engineering and research programs, and the manufacturing and testing programs for structures and components. Within each of eight categories of Link-Belt cranes, such as pedestal mounted hydraulic offshore cranes, is a model number and specifications. The specifications include capacity stated in tons and metric tons; capacity at 50-foot radius; maximum crane boom; main drum line pull/line speed for three speeds; and overall length, width, and working weight.

FMC has added a 33-ton (29.93 mt) capacity API-65 to its Seahawk series of Link-Belt® hydraulic offshore cranes. The lightweight 25,000-pound API-65 is specially designed to perform all the material, equipment, and personnel lifting required on offshore oil production platforms and drilling rigs, and meets API-2C (1982) specifications.

The API-65 features pin-connected components that permit fast modular erection and easy maintenance. The heaviest component weighs just 7,200 pounds. The compact design features a 7-foot 7-inch

tailswing with onboard engine and cab, and an overall height of 14 feet 7 inches reducible to 8 feet.

A maximum API rating of 34,200 pounds is achieved with a 50-foot boom at 30-degree radius, best in its class. Superior load handling speed is provided by a matched engine, 3-section pump and winch combination that develops 300-450-fpm maximum line speed with 12,600-pounds maximum line pull on main or auxiliary drums. A horsepower limiter prevents engine stalling due

to excessive loads.

For a copy of the guide and further information,

Circle 24 on Reader Service Card

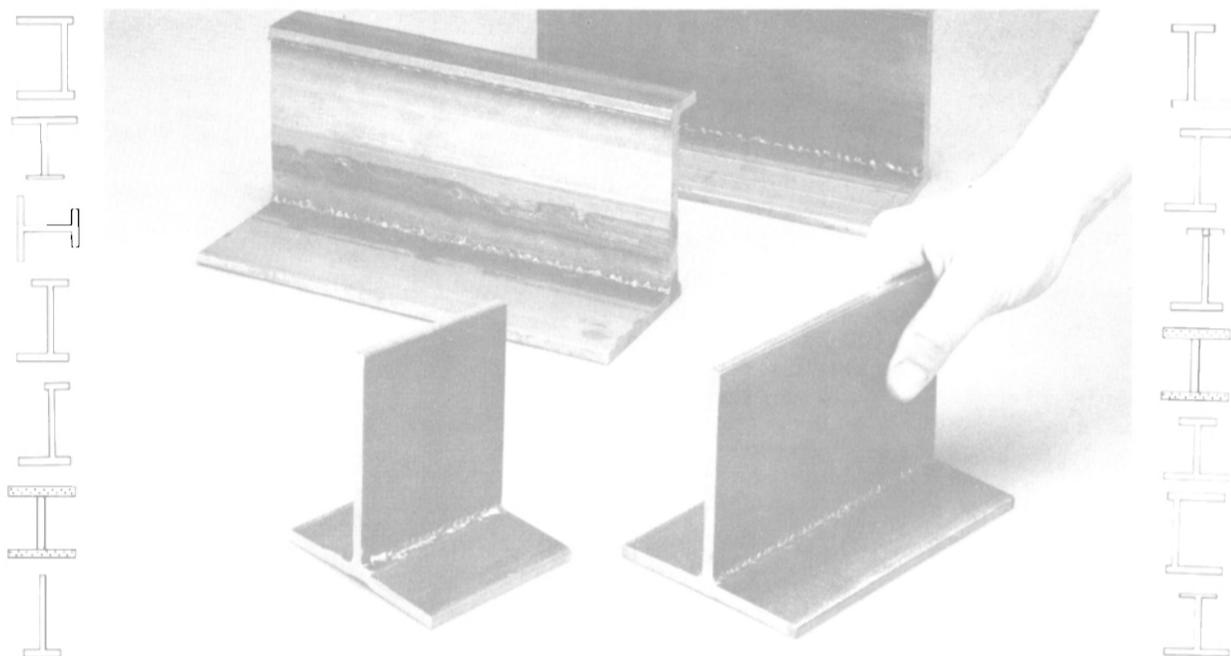
## HAGGLUNDS

The low-speed, high-torque camring motor first introduced by AB Hagglunds & Soner of Sweden more than 25 years ago has had considerable impact on marine and indus-

trial drive applications. This is because it closely meets several important requirements such as high starting torque, easy speed regulation, inherent overload protection, suitability for direct drive thus eliminating gears, compactness, low weight-to-torque ratio, and the ability to withstand the worst marine and industrial environments with little or no maintenance.

Besides winch drives of many kinds, these advantages are of (continued on page 34)

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## WBC Custom-Welded Sections Beat Hot-Rolled Beams Six Ways.

### 1. Custom Sections

It's no longer necessary to restrict your beam designs to standard handbook WF sections. Special offset "T" or "Z" sections like these are easily produced by Welded Beam Company to suit your exact geometry, loading, and length requirements. You can even use dissimilar steels for web and flanges.

### 2. Reduced Fabricating Cost

Since WBC "CustomBeams" are fabricated exactly to your requirements, labor and scrap from cutting up standard WF beams to suit the job is eliminated.

### 3. Stronger

High Frequency welding produces a true forge weld as strong as the parent metal with no filler metal or cast structure. And, you can specify HSLA steels up to 80,000 psi yield for all or part of the beam providing greater load-carrying capability in a smaller, lighter beam.

### 4. Easier Assembly

Draft angles are nonexistent for WBC HF-welded beams. So flanges are flat and edges are square, simplifying fit-up at assembly. Also, beams can be delivered to exact customer lengths saving on splicing or cutting on-site.

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WELDED BEAM COMPANY

Circle 22 on Reader Service Card

## Deck Machinery

(Hagglunds—continued)  
course very attractive in deck cranes. A major commitment to hydraulic deck cranes is one of the features of the current U.S. Navy program to strengthen the Rapid Deployment Force (RDF) of the Mili-

tary Sealift Command. Hagglund hydraulic cranes are being installed on all 21 of the sophisticated RO/RO-LO/LO vessels in the RDF program—a total of 99 units.

The RDF program comprises 13 Maritime Prepositioning Ships (MPS) and eight Fast Logistic Ships (T-AKR), the latter being the 33-knot SL-7 containerships purchased by the Navy from Sea-Land in 1982

and being converted by Avondale Shipyards, National Steel and Shipbuilding, and Pennsylvania Shipbuilding. Four of the eight former SL-7s have already been delivered to the Navy. Each of the T-AKRs have one twin 35-ton crane and one twin 50-ton crane.

Of the Maritime Prepositioning Ships, the five being converted by Bethlehem Steel for Maersk Line

will each have one twin 36-ton crane and two twin 30-ton cranes, the three being converted by NASSCO for Waterman Line will have one twin 50-ton crane and one twin 35-ton crane per ship, and the five new buildings for General Dynamics under construction at its Quincy yard will each have two twin 39-ton cranes and one single 39-ton crane.

These Hagglund cranes will be capable of combination operation to handle loads up to 100 tons under a single coordinated control. The requirement to be able to work cargo safely under open-sea conditions was a special feature of these contracts. Deliveries of these cranes are reported to be proceeding to the full satisfaction of the shipyards involved.

For additional information,

Circle 26 on Reader Service Card  
**HIAB**

HIAB Cranes & Loaders, Inc. of York Pa., offers five models of its well-known hydraulic deck cranes.

Features and capabilities of HIAB Sea Cranes include ease of operation, light weight, maneuverability, load control and precision placement, compactness, low operating height, horizontal outreach and load carrying capacity, and corrosion resistant construction.

Trim and compact in design, they do not require guide ropes, cables or hand-operated winches to handle. They take up little space and can be mounted anywhere on a boat deck. HIAB cranes are easily operated by one man using positive, direct hydraulic controls. The crane's movements are fast and smooth due to the high-pressure hydraulic system.

On smaller boats, the lightweight feature permits a bigger cargo payload. The cranes have a flexible elbow between the main boom and outer boom, and a telescoping extension boom. (The cranes rotate up to 410 degrees on some models.) These features provide exceptional maneuverability and the capability for lifting heavy loads close in or at maximum horizontal reaches. Outer booms provide a firm, rigid support for the cargo hook. In conjunction with the flexible elbow, this provides steady load control and the ability to precisely spot the load. The cranes fold down into a compact configuration with a low center of gravity that will not affect vessel stability and provides more cargo space on the deck.

HIAB hydraulic cranes are specifically manufactured for maritime use. Protection against sea and salt corrosion is ensured by the extensive use of galvanized components, waterproof fittings, nickel chrome-plated boom cylinders, and special marine coatings.

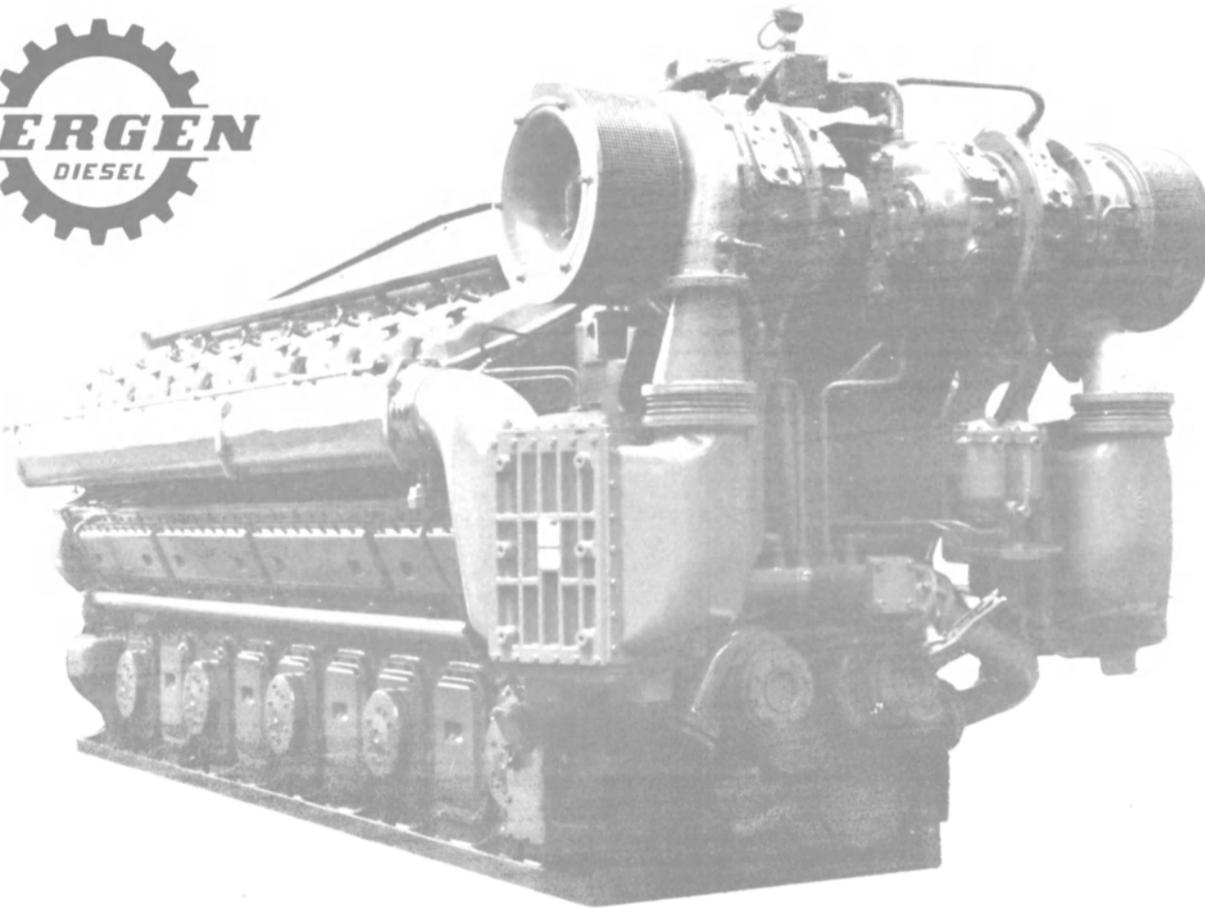
For further information,

Circle 27 on Reader Service Card  
**HYDE PRODUCTS**

Hyde Products, Inc. is a leading supplier of ship deck machinery and steering gears, serving the marine industry since 1865. Originally founded as the Hyde Windlass Company in Bath, Maine, today the

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company is headquartered in Cleveland.

Equipment manufactured includes steering gears, steering systems, vertical and horizontal anchor windlasses, constant-tension mooring winches, cargo winches, special-purpose winches, capstans, mooring chocks, vacuum and compressor systems, and oil/water separators. While Hyde has a standard product line, custom-designed machinery is its specialty.

During the past three years, Hyde has delivered a series of steering systems and windlasses to the South Korean Navy. The contract was for the design and manufacture of steering systems, rudder angle indicating systems, and vertical anchor windlasses for Navy corvettes (KCX) and frigates (KFX) being built in South Korea. The anchor windlasses are single wildcat vertical types powered by multispeed electric motors through triple reduction gearing. These units feature a low above-deck profile, with the speed reducer, motor, brake, clutch, and controls below deck, protected from the environment.

The corvette steering gears are of the basic two-cylinder link type, but the power and control units are a significant departure from the conventional steering system. Through the innovative application of modern electronic and fluid power technology, many of the traditional intricate and cumbersome mechanical components have been eliminated. The net result has been a significant reduction in cost and weight, without the sacrifice of operational performance or reliability.

Hyde recently received orders for the first of two new classes of vessels to be built in Korea. The company will build an anti-magnetic anchor windlass for a Mine Hunting Craft (MHC) and the steering gear, anchor windlass, and capstan for a Police Corvette. These two new contracts bring the total of Korean-built vessels supplied with Hyde equipment to 19. Negotiations are currently under way for additional KCX vessels to be delivered in 1985.

For additional information,

Circle 28 on Reader Service Card

## A.C. HOYLE

The A.C. Hoyle Company of Iron Mountain, Mich., has been a major supplier of deck machinery to the marine industry for nearly a quarter of a century. The company offers a complete line of deck equipment including anchor windlasses, constant-tension mooring winches, mooring winches, topping and vang winches, towing winches, fairleads, chocks, and bits to both the naval and commercial marine markets.

Though equipment can be built to numerous standard designs, Hoyle specializes in custom building to customer specifications. Company personnel are available to assist customers from preliminary design states through final design, installation, and testing. Major considerations are given to providing the best equipment available to meet the customer's requirements and at affordable and competitive prices.

Winches, windlasses, capstans, and cranes are available with all-electric, electro-hydraulic, hydraulic, static dc, or diesel drives. All deck equipment, including fittings,

are available in conventional steel construction as well as stainless-steel and aluminum.

For additional information,

Circle 29 on Reader Service Card

## INTERCON

Intercontinental Engineering-Manufacturing Corporation (INTERCON) of Kansas City, Mo., has recently added to its existing product line of large towing and mooring winches a series of smaller waterfall configuration mooring winches.

The new series of winches are intended for the requirements of barge and supply vessel mooring needs in the construction and oil field markets. Power source options include diesel, hydraulic, and electric—all designed specifically for the offshore environment. The winch series will handle mooring lines ranging from 1½ inch diameter thru 1¾ inch diameter. The units are available for lease or immediate purchase.

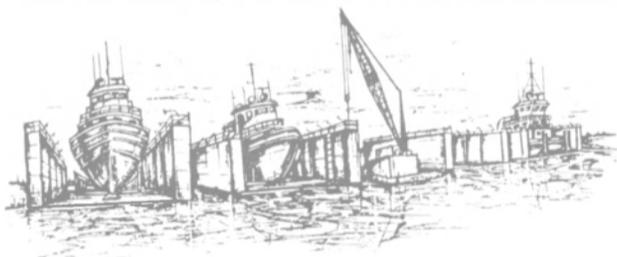
For further information,

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(continued on page 38)

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**3500 Ton Dock**  
200' x 100'  
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### HISTORY

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

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

### GENERAL SERVICES

Air control mechanics  
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Piping and plumbing repairs  
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Complete machine shop service  
A.B.S. approved for stainless steel  
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### Four Dry Docks:

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

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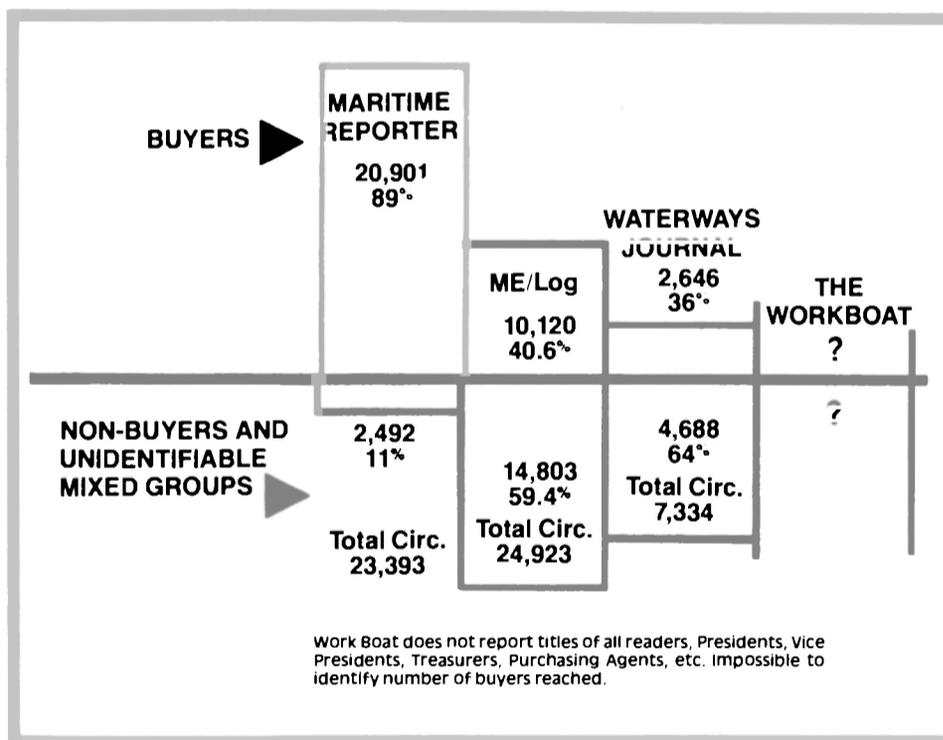
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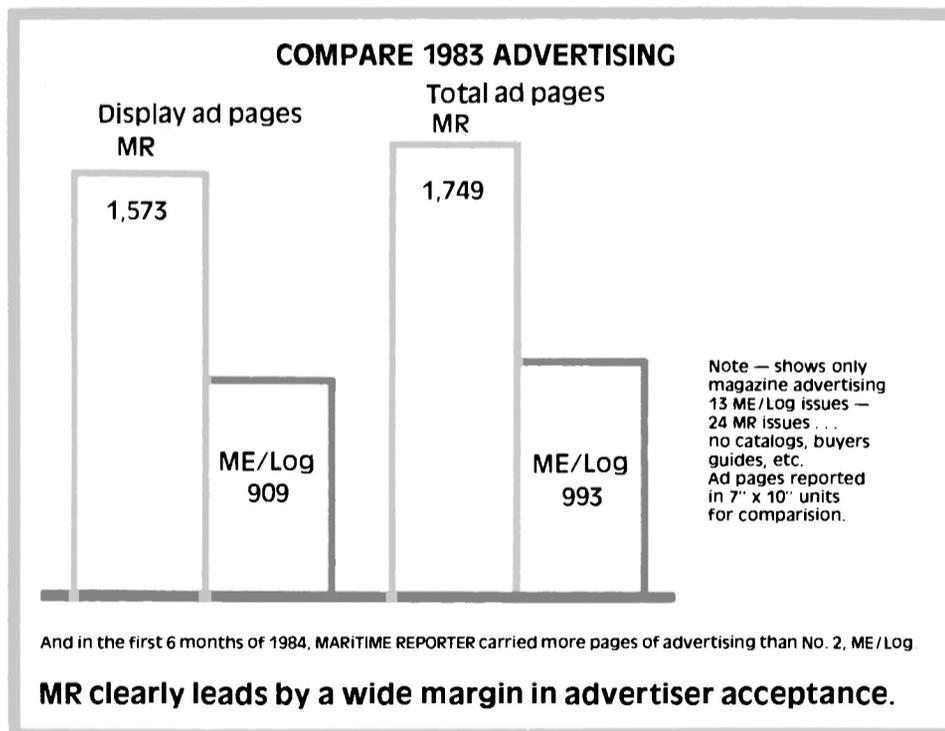
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October 1, 1984



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## Deck Machinery

(continued from page 35)  
**KOCKS CRANE/  
 SALZGITTER GROUP**

Having established itself as a designer and constructor of container cranes for seaports, the Kocks Crane and Marine Company (KCM) of Pittsburgh, Pa., has concluded an agreement with one of the Salzgitter Group of companies for supplying all of its bulk materials handling products for the U.S. market. The new venture will be identified as Salzgitter-Kocks Bulk Systems and will operate as a division of KCM.

Market areas being looked at are seaports, inland terminals, utilities, and general bulk commodities terminals including cement and grain industries. The company's diverse product line includes every conceivable material handling and storage system . . . pneumatics, belt conveyors, mining, ship loading/unloading, indoor storage, and stacking and reclaiming.

Other equipment available from

Salzgitter-Kocks includes a complete line of bulk handling equipment including stackers, stacker-reclaimers, scraper reclaimers, clamshell, pneumatic, continuous ship and barge unloaders, buckets, grabs, and coal blending systems. The company has expertise in the handling and processing of lignite, coal, potash, cement, alumina, silica, phosphate, and other commodities. Design, supply, and construction is available for equipment and facilities.

For additional information,

Circle 32 on Reader Service Card  
**LAKE SHORE**

Among the noteworthy applications of deck cranes from Lake Shore, Inc., Iron Mountain, Mich., were the cranes installed on the Moore McCormack Lines ship conversion performed by American Ship Building, Tampa, Fla., and Lorain, Ohio Divisions. These cranes, rated at 40 metric tons at 65.5 feet radius, are all-electric, utilizing solid state SCR-controlled General Electric D.C. drives. They have both wide boom tips and tagline winches

to reduce load pendulation and were manufactured in Iron Mountain under license from Clarke Chapman Marine—U.K. The first shipset of three cranes was designed and delivered in less than 12 months.

In addition, Lake Shore designs and manufactures a full line of deck machinery, including mooring, cargo, hose, topping, anchor handling, and traction winches; anchor windlasses, life-boat davits; and cranes for cargo handling, hose and stores handling for ocean, Great Lakes, offshore or Navy applications. Types of drive systems supplied include hydraulic, electro-hydraulic, diesel, static D.C., wound roto A.C., and variable frequency A.C.

Lake Shore specializes in custom designed machinery to meet customer specifications.

For additional information,

Circle 33 on Reader Service Card  
**MacGREGOR-NAVIRE  
 INTERNATIONAL**

Formed following the acquisition of MacGregor International by Kone Oy, of Finland, which already

owned Navire Cargo Gear International, this new company is a major force in the area of cargo access equipment and systems.

Both partners have developed numerous designs of specialized equipment including, in the area of deck machinery, all manner of hatch covers. The range of covers designed vary from units for the largest bulk, OBO, and ore/oil carriers down to the smallest inland waterway vessel.

Recent innovations for folding covers on medium sized vessels have included the self-engaging auto cleat and the gravity cover. The self-engaging auto cleat system uses angular interlocks, or wedges, on the cover side/coaming and at the cross joints to form the cleats. It has been incorporated in the "Direct Pull," "Foldtite," and "Foldlink" cover designs.

The recent entry into service of Atlantic Container Line's container-roll-on/roll-off (CONRO) vessel Atlantic Companion also marked the introduction of the first full outfit of MacGregor-Navire's StackCell weatherdeck cell guide system. The new ship was built by Kockums for

**CABLE \$AVER**

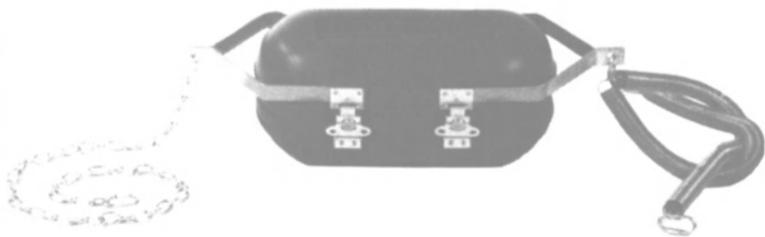
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Circle 210 on Reader Service Card



### ARCTIC SALVOR CHOOSES BERGER SELF-ALIGNING FAIRLEADERS

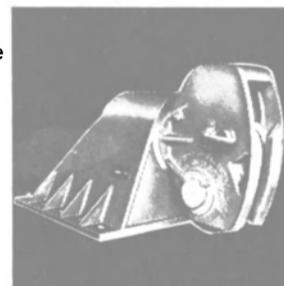
As a rescue vessel, the Arctic Salvor faces many different operational problems.

It is no wonder that the Arctic Salvor is equipped with Berger Fairleaders. The exclusive, positive self-aligning features of the Berger Fairleaders are the Arctic Salvor's guarantee against tangled and damaged lines.

The Berger deck-mounted Fairleaders are designed to with-

stand the breaking strength of the wire rope at a 90° angle to the Fairleader.

Berger's self-aligning, balanced head Fairleaders have been the choice — "Tops in Lasting Values" — for over 50 years in many different types of marine applications. Make a Berger Fairleader your choice; it's the best you can buy! Call Smith Berger at their new headquarters today.



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Circle 231 on Reader Service Card

Maritime Reporter/Engineering News

the account of Transatlantic AB, one of the three Swedish partners in the ACL consortium.

MacGregor-Navire lists the advantages of the new StackCell system as follows:

- Increased number of fully loaded containers that can be loaded in one stack.
- Wide flexibility in container stowing distribution.
- No loose lashing, twist locks, or joining cones required.
- Elimination of any manual lashing.
- Risk of accidents minimized.
- No need for checking or re-tightening of lashing during sea voyage.
- Quicker placing or "spotting" of containers.
- Handling operations can start without any preparation or unlash-ing work.
- No waiting for intermediate lash-ing or work after completion.
- Easy and safe access to reefer containers.

These considerable advantages have been achieved after much preliminary design work and prototype testing carried out by the efforts and expertise of ACL, TransConsultants, and MacGregor-Navire.

The most obvious vessel that would gain maximum advantage from weatherdeck cell guides is the fully cellular containership. Other applications envisaged by MacGregor-Navire include the feeder ship, the bulk/container carrier, the open bulk carrier, and the whole spectrum of CONRO, RO/RO, and RO-LO designs.

For further information on the StackCell system,

Circle 34 on Reader Service Card

## MARATHON LETOURNEAU

Marathon LeTourneau Company introduced a new line of marine pedestal cranes with solid-state electronics at the Offshore Technology Conference last year. The three new cranes are the 50-ton-capacity PCM-120SS, the 55-ton PCM-220SS, and the 75-ton PCM-350SS. All three can be with standard and optional features that can tailor the cranes to perform all lifting requirements for materials, equipment, and personnel on offshore drilling and production platforms.

These cranes have a single ac power source rather than a motor/generator arrangement; microprocessors control power flow to all drive motors. As each electric motor is individually and precisely controlled by solid-state technology, the new cranes function with a high degree of efficiency, offer faster lifting speeds with loads, and feature smoothness of operation. The solid-state controls also provide precise control of current flow, voltage, and operating temperatures. These features translate into extended service life and minimum maintenance for motors, gears, and other moving parts.

Electrical power requirements are the same for the three units: standard commercial, 600-volt, 60-Hertz, 3-phase, 500-amp external

supply. An integrated, solid-state silicon controlled rectifier provides dc power to each drive system. Peak power requirement under maximum load, dual function, 20-minute continuous duty with dc dynamic braking is 250 kva at 0.7 power factor.

The power system for all three cranes consists of Marathon LeTourneau N-7 dc electric motors with N drivers for hoist and lifting functions. A D-10 electric motor with #5 gearbox provides power for

crane swing. Remote control is standard, with controls terminating at a spring-centered, infinitely variable potentiometer controller located at the operator's station. These cranes can be supplied with an operator's cab as an option.

For more information,

Circle 35 on Reader Service Card  
**McELROY MACHINE**

McElroy Machine and Mfg. Co.,

Inc. of Biloxi, Miss., began furnishing deck machinery to the offshore workboat industry in early 1980. The company now has three very successful years and has machinery working in all parts of the world.

The latest additions to McElroy's standard line of anchor windlasses, anchor winches, capstans, and towing winches is a line of self-contained electrohydraulic tuggers and a line of stern rollers. The hydraulic (continued on page 40)



# TOMORROW'S SHIPBUILDING TECHNOLOGY TODAY

Shipyards of the future will probably utilize shiplift and land transfer systems, such as this one at Todd's Los Angeles Division, rather than floating dry docks or shipways.

This high technology facility, permits the performance of construction or repair work on five ships simultaneously. Additionally, computer aided design and computer aided manufacturing (CAD/CAM), as well as on-line robotic welding are an integral part of Todd's shipbuilding expertise. Indeed, today Todd is a cost-efficient, high technology company uniquely qualified to meet future naval and maritime needs.

Todd is committed to providing the best service possible to the U. S. Navy, as well as our commercial customers, and is unquestionably a "Yes, we can do it!" company.



## Todd Shipyards Corporation

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Telephone: (212) 668-4700 Cable: "Robin" New York  
LOS ANGELES/SAN FRANCISCO/SEATTLE/NEW ORLEANS/GALVESTON

## Deck Machinery

McElroy—continued tigger is manufactured in a 5-ton line pull model and a 10-ton model. A 15-ton and 20-ton model are on the drawing boards for the future.

The stern rollers are manufactured as a standard model or a heavy-duty model. Custom sizes are also available upon request.

Some of the latest installations have been hydraulic tuggers aboard the last Nicor Boat built at Moss

Point Marine in Escatawpa, Miss., anchor windlasses for the Gulf Fleet boats being built at St. Louis Ship, and the Gulf Fleet boats being built at Quality Shipyards in Houma, La.

Additionally, McElroy Machine furnished the capstan and vertical capstan/windlasses for the split hopper dredge built at Southern Shipbuilding, Slidell, La., and the vertical capstans for the landing craft built by Champion Swiftships of Pass Christian, Miss.

McElroy Machine has a complete

engineering and design department to assist with special or custom specifications and machinery.

For additional information,

Circle 36 on Reader Service Card

## MARCO

In addition to improvements made to existing products, Marco of Seattle introduced three new pieces of fishing deck machinery recently. First was a new aluminum longline drum, used in a variety of longline

fisheries on both coasts of the U.S. and Canada, as well as in other areas of the world. The hydraulically powered drum features gear drive that makes it powerful enough that no secondary hauler is required. The new unit also features a diamond-screw levelwind and a unique de-clutching motor and adjustable drag brake to control freewheeling speed.

Marco's San Diego-based subsidiary, Campbell Industries, recently introduced a long-needed product for the world's high-seas tuna purse seine fisheries. Its new purse block for large superseiners is larger and yet 50 percent lighter, at 210 pounds (95 kg), than any other block of its capacity (20T/18mt).

This new, stronger block features a spring-loaded grease reservoir to automatically maintain lubrication under load, eliminating the problem of bearing failure due to inadequate lubrication. The design also handles 1-inch (25-mm) connecting links through its throat, which are necessary to handle the heavier loads on 7/8-inch (22-mm) purse lines with 1-inch center piece.

The most recent introduction by Marco was its unique line of FoamFlo fish pumping systems. Designed to meet the particular needs of the salmon and herring fisheries, the FoamFlo was developed with its chief goal being fish quality. The challenge has been to develop a pump that could handle great quantities of product, and yet treat both small and large species without damage. With its unique combination of injected water and air creating flow, FoamFlo answers this important challenge.

For further information on Marco products,

Circle 37 on Reader Service Card

## MARKEY MACHINERY

With work vessel construction continuing to be slow, the challenge to maintain quality standards in the face of extremely competitive pricing remains intense. Markey Machinery Company (MMCO) of Seattle has supplied the oceanographic community with several research winches during the past year, with the focus being on the ac-SCR-dc drive systems with 50- and 75-hp output ratings. As an alternative to the variable-displacement hydraulic systems, these dc drives are proving to be energy-efficient, quiet, highly tunable, and clean, as well as providing a side speed range and excellent control.

An entire new generation of very large winches and rig anchor chain windlasses is looming as the energy industries move into deeper water where present units and their equipment are marginal or overmatched. Anchor-handling wires of 2-1/2-, 2-3/4-, and 3-inch diameters with scopes of 3,500 to 5,000 feet are being seriously considered. Barrel-layer line pulls of from 500,000 to 750,000 pounds are required in order to offer enough working pull farther up the drum stack. Much more critical than the hoisting service is the machinery and control necessary to safely lower up to four anchors into

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We also produce a full line of Foam-Filled Fenders.



- Highly stable mooring & marking buoys.
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- Optional mooring attachments and marker lights available
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When you go to sea, you need a lifeline you can always trust. Under all circumstances. With no exceptions.

That's why the Harris RF-230M HF-SSB synthesized transceiver belongs on your boat. It's built to the same exacting standards of quality and convenience that have made its military counterpart standard equipment for combat use. And its reputation for reliability is backed up by sales: more than 5,000 units sold worldwide for land and maritime use.

The quality starts with power: a full 125 watts, available through as many as 96 preset channels. Banded automatic servo tuning directs the output through the antenna coupler, and constantly adjusts to changing conditions. Whether you're one mile or one thousand miles from shore, you're never out of touch.

**THE HARRIS  
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BECAUSE  
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IS NOT  
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Electronically Alterable Read Only Memory (EAROM) allows the RF-230M to be programmed internally, on the spot—with no crystals to change!

You'll find convenience designed into every feature of the RF-230M. Compact modular construction and completely solid-state design conserve your valuable cabin space. Simple, easy-to-read controls—with features like thumb wheel frequency selection, dimmer controls and back-lighted indicators—make operation easy.

Find out more about the RF-230M and its full line of accessories. Write or call us: HARRIS CORPORATION, RF Communications Group, 1680 University Avenue, Rochester, New York 14610 U.S.A., Tel: 716-244-5830. Telex: 978-464.



**HARRIS**

For your information, our name is Harris.

Circle 215 on Reader Service Card

thousands of feet of water at high speeds.

Well beyond the capability of band or disc braking systems, this duty calls for one or more of the water-cooled retarder units with pumps and heat exchangers to handle several hundred gallons per minute of fresh water. Increasing sophistication in instrumentation, alarms, and "set-point" automatic override systems will be required.

Handling rig chains with these large combination machines is facilitated by the newly patented MMCO Multi-Cat that provides six-pocket wildcats with readily replaceable inserts to accept a range of chain sizes. The vessel can operate with a variety of chains without major wildcat changeout.

Practical winch-powering systems include the 300- to 600-bhp diesel engines with torque-converter transmissions, and the 500- to 1,000-hp electrical SCR-dc drives—particularly appropriate aboard the SCR-propelled vessels. This class of machinery is so large and heavy that each unit will have to be laid out to suit the deck space for a particular vessel.

As electronics establishes that it can stand the marine environment for extended periods of years, many more applications will be seen, such as remote anchor dropping on barge windlasses, servo-controlled research winches, and greater levels of safety back-ups on the deep-water anchor-handling machines. Deck machinery remains an endeavor where new requirements, new arrangements, and new capabilities prevent efforts at standardization from taking greater hold.

For additional information,

Circle 38 on Reader Service Card

### NABRICO

An all-new electric winch designed for long life, easy maintenance and dependable service and an "easy-to-get-off" cast utility twist lock flush hatch are among the latest developments from Nashville Bridge Company (NABRICO) of Nashville, Tenn.

The electric winch is designed for use on towboats or for any sort of intermittent winching operation requiring a large holding capacity. It has a 10-ton pulling capacity and a 40-ton holding capacity.

An oversized brake ensures that the NABRICO winch will hold its rated capacity of 40-tons. And a back-up mechanical locking paw can be used to hold the rated capacity in case of brake failure. The NABRICO electric winch has a free-wheeling feature to allow faster cable pull out. Ball bearings on the highspeed shaft and the precision machining of the side plates and shafts add to the overall efficiency of operation and life of the electric winch.

The winch is powered by a 5-hp motor. It requires only a simple power lead connection to begin operation. All necessary controls are supplied by NABRICO with the winch. In addition, the company stocks all replacement parts to ensure customers minimal down time should any repairs become neces-

sary on the electric winch.

The new cast twist lock flush hatch is designed especially for use by companies involved in the transportation of solid materials, such as rock and gravel or coal. Suitable for any hopper or deck barge application, the cast hatch is sturdy, durable and easy to maintain. Its simple twist lock operation ensures that the hatch will remain easy-to-get-on-and-off for many years.

With plants in Nashville and Ashland City, Tenn., Nashville Bridge

Company is a major supplier of marine deck hardware to the entire marine industry. The company pioneered in the design and construction of much of the modern equipment used on rivers today.

For additional information,

Circle 39 on Reader Service Card

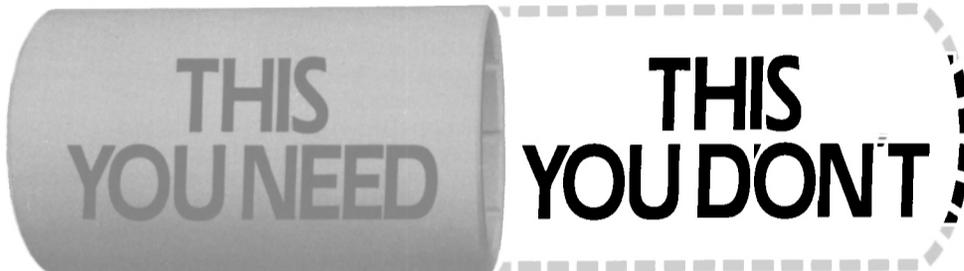
### NATIONAL CRANE

National Crane's pedestal-mounted cranes are cost-efficient

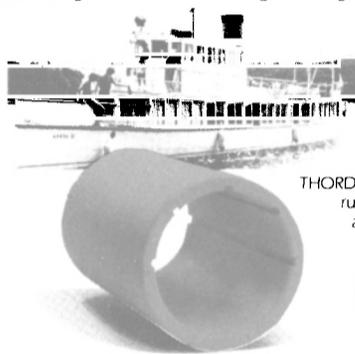
lifting systems for shipboard, dockside, and other marine uses. A wide selection of boom lengths and capacities are available from the 28-foot reach and 10,700-pound capabilities of the Marine 200 to the 75-foot length and 34,000-pound maximum capacity of the 800.

A new addition to National's already popular line of marine equipment is the 400, a medium-duty crane with lighter boom sections and increased capacity.

(continued on page 42)



For years, boat operators all over the world believed that a longer shaft bearing meant a better shaft bearing. But not any more. Not since the new Thordon COMPAC bearing proved that the right combination of bearing material, groove design, and length/diameter ratio can save time and money for every vessel on the water.



We started with the toughest, most silent running bearing material available: THORDON SXL. Up against rubber or other non-metallics, orange THORDON SXL leads the field in dry running ability, resistance to oil and installation ease.

Then we redesigned the grooves, actually using half as many as normal, providing an improved hydrodynamic layer of water between the bearing and the shaft surface.

Finally, we made the most dramatic change of all. We shortened the bearing length by almost half. And guess what? The new Thordon COMPAC bearing actually worked better than the normal full-length bearing. How much better? This much.

The new Thordon COMPAC installs faster... is more tolerant of misalignment... requires less torque and horsepower drag... and still lasts as long or longer than regular bearings!

If you're serious about cutting your vessel's repair costs while improving performance and reducing noise, take a look at the shaft bearing design of the future — the new Thordon COMPAC.



**COMPAC**  
LESS IS MORE



WAUKESHA BEARINGS CORPORATION

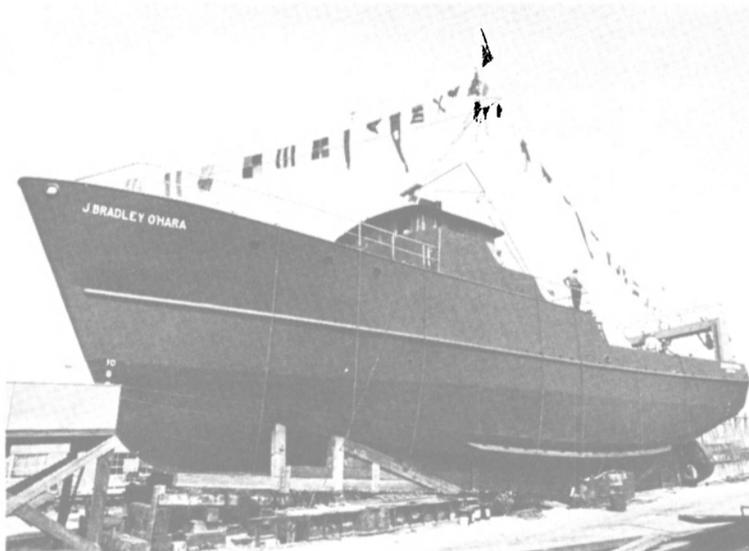
P.O. Box 798 Waukesha, Wisconsin 53187 U.S.A. Telephone: (414) 547-3381/Telex: 26759

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Circle 241 on Reader Service Card

## JAKOBSON SHIPYARD

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Circle 218 on Reader Service Card

## Deck Machinery

National Crane—continued

Each crane from the Waverly, Neb.-based company is built to rigid specifications and strict quality control standards for years of profitable service in harsh marine environments. National Crane booms are built stronger and lighter with box-section construction of high-strength, low alloy steel to handle heavy loads. The sequential extension of the telescoping boom sections interlock for strength and long reach, up to 75 feet. All cranes are fully marine conditioned by a process that includes sand blasting of all external surfaces, an inorganic zinc primer coat, followed by paint and covered with a durable chlorinated rubber topcoat. National turret drives are specifically engineered for fast, smooth controlled slewing and minimum maintenance.

Four models of telescoping marine cranes are available to job-match the best crane for particular lifting needs.

The Marine 200 is an inexpensive, shorter radius machine for use on smaller boats and barges, in general purpose dockside and terminal work, and on offshore platforms. The 200 is ideally suited for many jobs where larger capacity cranes prove inefficient, while still providing the workhorse capabilities of a reach up to 28 feet and maximum capacity of 10,700 pounds.

The National 400 and 600 series provide increased reach and capacity for bigger jobs with maximum reaches of 55- and 56-feet, and load capacities of 16,000 and 25,000 pounds, respectively.

National's 800 series offers some uniqueness in marine applications because of its four-section hydraulic extension capabilities up to 75 feet and 34,000-pound capacity. Heavy-duty construction and tough planetary drive rotation mean more work-time and less down-time, even under extreme duty.

For additional information,

Circle 40 on Reader Service Card

## NATIONAL SUPPLY

A cargo-handling barge designed to accept a National Supply Company continuous lift jacking system enables the operator to readily convert the barge into a stable platform for loading and unloading. The barge uses a rack-and-pinion jacking system originally developed by National for offshore drilling and production platforms.

With the legs jacked up, the barge retains its mobility and can be easily towed between sites. Once in location, the barge is jacked up to create a stable platform at various deck levels. The jacking system, which has a smooth, continuous lifting movement, uses an arrangement of horizontally opposed pairs of pinions that provide positive engagement with a precision-cut, double-sided rack.

The National jacking system has been used in 18 different rig designs

and is offered by more than 30 shipyards around the world. Literature available from National contains specifications for various unit arrangements, tensile properties for its components, and a description of other features, including push-button control operation and various safety features.

Individual leg control is accomplished at a central console, where the operator can operate all legs individually or simultaneously, with mixed hull-up and hull-down operations. Each climbing pinion has an individual gear motor and gear train drive, with each motor having an electromagnetic-released, spring-set, fail-safe multi-disc brake.

For further information and a copy of the literature,

Circle 41 on Reader Service Card

## NAUTILUS CRANE

Nautilus Crane & Equipment Company has a modern 50,000 square-foot plant for the manufacture of high-speed cranes for shipboard and offshore drilling and production rigs. The acceptance of the Nautilus hydraulic crane designs since the company was founded in 1973 has been excellent.

Used on drilling rigs, production platforms, jackups, workboats and ships, Nautilus cranes are designed to handle loads from 2 to 100 tons. Features include telescoping or straight booms, hydraulic diesel or electric power, and a variety of mounting and boom length options.

The Metairie, La.-based company is owned by Beckwith Machinery Company, a Caterpillar dealer serving the northwest Pennsylvania and West Virginia area from Pittsburgh.

Nautilus points out that their present manufacturing facilities occupy eight times the manufacturing space of the previous plant. The

present facilities include a CAD/CAM system for computer-aided engineering design and manufacturing.

The system provides faster crane deliveries and the ability to more easily adopt design features to special requirements. Nautilus also uses a computer to analyze a crane design to determine its ability to withstand forces it encounters in severe environments. It can take into account the effect of high winds and seas on the crane and select or modify a design to satisfy the requirements.

The new Nautilus 100-ton lattice boom crane has a structural design that aids in transforming loads to the foundation. Other features of the crane include a new type winch which has multiple braking modes, a cylindrical designed pedestal, and a small tail swing working radius.

For additional information,

Circle 42 on Reader Service Card

## PACECO/O&K

In the fall of 1982, O&K Orenstein & Koppel AG of West Germany, and Paceco, Inc., a subsidiary of the Fruehauf Corporation and one of the world's leading manufacturers of container handling cranes, agreed to cooperate in engineering and manufacturing in the U.S.

Among the products involved is the new O&K-designed double-jointed deck crane that is capable of handling cargoes—particularly containers—twice as fast as conventional deck cranes.

In addition to faster operation and greater precision, particular design emphasis was placed on improving the operator's field of vision and to reducing the overall height of the cranes to improve vision from the bridge.

The new O&K deck cranes guide the cargo loads with short pendu-

lum movements that are absolutely horizontal as on a quay-mounted bridge. The movement is also on selectable lines transverse to the ship while the jib point turntable automatically retains its direction parallel to the longitudinal axis of the ship.

By manual control, the crane operator can additionally bring the jib point turntable into any position. The operator's cabin, always traveling above the load, is attached under the articulated jib and, owing to ideal vision, makes it possible for the operator to handle cargo hatches or containers without assistance to guide it.

The cranes are designed with good accessibility to the machinery, electrical and/or hydraulic equipment accommodated in the jibs. The smooth surfaces of the structure provide for easy and trouble-free maintenance. Hydraulic pipes and equipment are arranged in such a way that all oil-carrying components are located inside the individual crane assembly groups.

Crane types include the BEH with electrohydraulic drive with three phase squirrel cage rotor motors, hydraulic variable displacement pumps, closed circuits, electrical controls. The crane type BEE features all-electric drive, static transformers and DC motors.

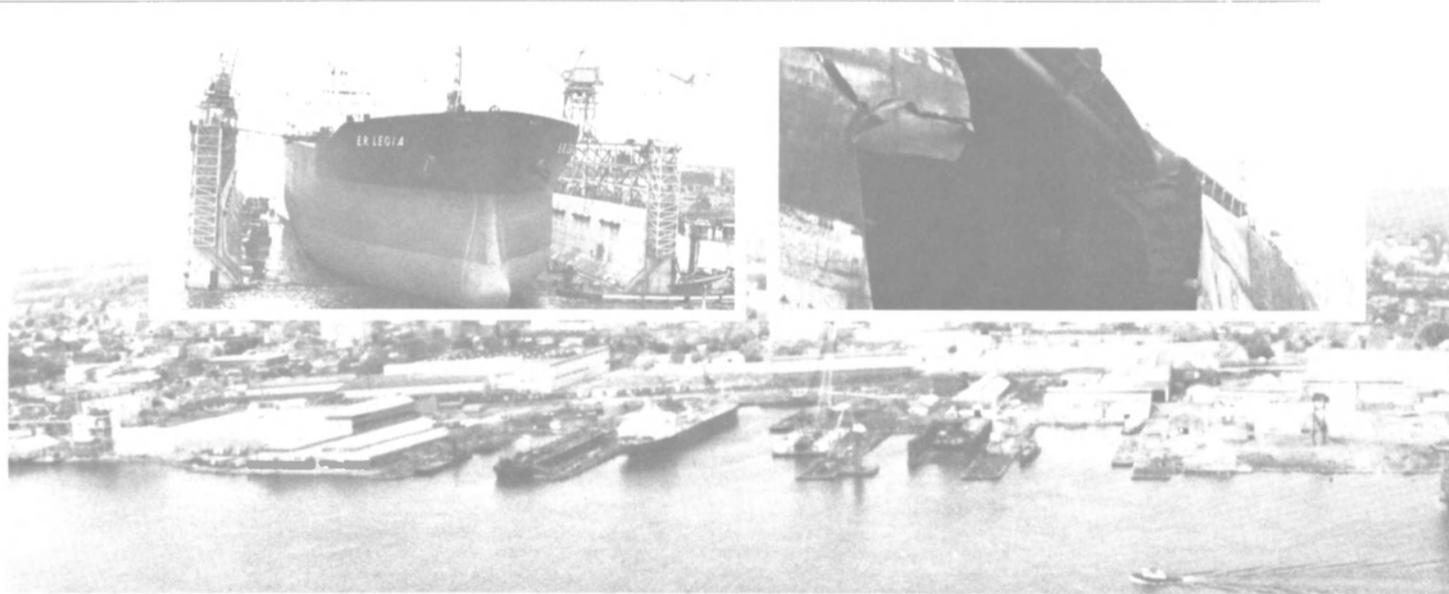
The cranes will be manufactured at Paceco's newly expanded computer integrated facility located on deep water near Gulfport, Miss.

For additional information,

Circle 43 on Reader Service Card

## PETTIBONE

Pettibone Corporation of Chicago manufactures a full line of pedestal-mounted Marine Krones for use on docks and offshore platforms, as well as on shipboard. Capacities range from 5 to 100 tons. Hydraul-



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We have 200 acres for shipbuilding and repair. The largest floating dry dock on the U.S. Atlantic Coast—196 feet between wing-walls, with a lifting capacity of 70,000 long tons. Six deepwater piers totaling over 3900 feet in length. Two 250-ton, three 70-ton and the largest floating crane in the U.S. with an 800-ton capacity.

With our shops and equipment, we can build ships as large as 400,000 deadweight tons and we can repair ships as small as 100 tons. We are experienced in slow-speed diesel engines and we're uniquely capable at jumboizing ships. Our work-force works three shifts and delivers its ships on time and on budget.

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

cally extendible knuckleboom and fixed booms, both box and lattice, are available. With special features such as inorganic paint to withstand salt-laden, corrosive environments, they are built to provide years of trouble-free service.

Pettibone has been building and improving cranes for the marine industry since 1964, so built-in features are the result of more than 20 years of design work. Today, as part of a continuing research and development program, the company has a list simulator for safety testing of cranes manufactured for shipboard applications.

The Solus vessel *Tengar*, one of a fleet that services Royal Dutch Shell offshore drilling platforms in the South China Sea off the coast of Borneo, is equipped with a model 40 PMP Pettibone Marine Krane. Mounted on the main deck forward of the hatch, the 40 PMP provides needed reach with a 110-foot boom and 360-degree rotation. Its remote power pack is installed below deck, and controls are within easy reach of the operator, whose cab provides full view of the work area. Like all Pettibone pedestal cranes, the PMP 40 is available with American Bureau of Shipping certification.

For additional information,

Circle 44 on Reader Service Card

### RAYTHEON OCEAN SYSTEMS

Raytheon Ocean Systems Company of East Providence, R.I., manufactures the LOADMAX® multi-point digital loading computer that is designed to aid ships' officers in planning safe, optimum vessel loading. The front panel display of the desk-top unit is readily configured for any type ship. Information on draft, stability, and hull stresses for any loading condition can be calculated quickly and accurately.

Several models are available according to need. The Loadmax 100 computer performs draft, shear force, and bending moment calculations only, and is intended for carriers where stability computations may not be required.

The model 200 unit performs stability calculations, as well as those for draft and hull strength. Special programs are available for LNG and LPG ships, integrated tug/barge units, and containerships.

The Loadmax 300 computer provides for cargo specific gravity entry, cargo volume entry with automatic conversion to weight, and automatic variable VCG and free surface corrections for carrying levels in cargo, ballast, and fuel oil tanks.

For integrated tug/barge systems, the Raytheon computer can provide calculations for tug alone, barge alone, and tug/barge joined.

For further information and a free brochure,

Circle 45 on Reader Service Card

### REEL-O-MATIC

Reel-O-Matic Systems Inc., of Wrightsville, Pa., offers a variety of machinery to the marine industry. One of the most popular pieces of equipment is the series CPD or custom power drum. This unit is constructed of a fabricated steel drum mounted in bearings with various drive styles available. These machines are built to customer requirements for size and capacity.

The CPD is designed primarily for storage and winching of cables and lines in marine usage.

A special weather-proofing package for shipboard environment is also available. This package includes stainless steel shafting, totally enclosed motors and controls, sealed bearings, and galvanized undercoating with rubberized paint.

These same corrosion-preventive measures can be applied to any of Reel-O-Matic's equipment that have applications throughout the marine industry.

Another frequently used piece of equipment is the RS/VS series of shafted stationary coiling and reeling machines. These units can be bolted or welded to the deck of a ship to pull any flexible material onto a reel or coil. The RS/VS is offered with various drive configurations to suit any particular need.

Reel-O-Matic's HJ/KVS series mobile reeling and coiling machine also is often used aboard ship because it has all of the outstanding features of the RS/VS and, in addition, it is mobile. A configuration of locking wheels and swivel casters allows this machine to be easily moved from job to job.

For further information,

Circle 46 on Reader Service Card

### SCHOELLHORN-ALBRECHT

The Schoellhorn-Albrecht Division of St. Louis Ship manufactures the 1824 family of deck capstans that have been in service for more than 40 years. These capstans have fully normalized and stress-relieved cast steel barrels and right-angle worm gear housing. They are driven through a structural-frame-mounted, spur-gear-reduced, right-angled worm gear drive. The worm drive operates in a continuous oil bath, and the bronze bushings have pressurized grease fittings.

Primary power is provided by a 30-hp marine electric motor fitted with a 120-percent torque capacity magnetic disc brake.

The 1824 capstan is designed to provide 10,000 pounds of pull at 55 feet per minute, and 20,000 pounds at 28 fpm. Ultimate pull is 55,000 pounds, with an ultimate static holding capacity of 100,000 pounds.

Other deck capstans with barrels of 14 to 24 inches, driven electrically, pneumatically, or hydraulically, are available. Also featured in a new brochure available from Schoellhorn is a smaller, totally redesigned capstan/carpuller. These surface-mounted units, designed for less severe marine and industrial applications, are available with operating capacity from 5,000 to 15,000 pounds at 30/50 feet per minute.

For further information and a free copy of the brochure,

Circle 47 on Reader Service Card

### SMATCO

The SMATCO, Inc. Division of TBW Industries of Houma, La., supplied complete shipsets of Norwinch low-pressure hydraulic deck equipment for two anchor-handling/tug/supply vessels built by Halter Marine for Penrod Drilling of Dallas. The two 225-foot, 12,280-bhp vessels are being used primarily for long-distance towing of semi-submersible rigs, and other towing and anchor-handling tasks.

The Kodiak I and Kodiak II are each equipped with one 4S-250-2T 250-ton waterfall hydraulic anchor-handling/towing winch. This unit is powered by four Norwinch low-pressure hydraulic motors, and is arranged to enable either of the drums to provide full pulling power. Both drums can provide half pulling power simultaneously, and they can be operated independently of each other in either direction of rotation.

This system gives the advantage of allowing a controlled maximum load on the lines, preset by the operator. The winch is also equipped with a Norwinch high-power, hydraulic dynamic braking system, which provides control of speed and pull.

Also on board is a type S-50-1T 30-ton hydraulic anchor winch type bow windlass. This unit is powered by one Norwinch low-pressure hydraulic motor, and consists of a declutchable drum, a declutchable cable lifter for 38-mm chain, and two fixed warping heads. The vessels also have two hydraulic tugger winches, type MV-12. In addition, each vessel has two hydraulic capstans, type C-9.

For additional information,

Circle 48 on Reader Service Card

### SMITH BERGER MARINE

Smith Berger Marine Inc. of Seattle is well known for its line of durable marine fairleaders that are designed and built to withstand the rigors of the marine environment. The line features heavy one-piece, machined steel sheaves that are mounted on heavy-duty bearings.

Smith Berger fairleaders are self-aligning and self-balancing, which provides positive seating when used in any line tension and with any lead direction.

The company's staff provides individual service and prides itself in providing deck machinery that

(continued on page 44)



## to turn your ship around in a hurry.

be gone again on schedule. With Pennsylvania Shipbuilding you'll get no false promises or lame excuses.

We have the facilities to handle several ships at once. So you never have to wait.

Our guarantee holds for all sizes and types of ships. We can dock a 400,000-ton tanker and a 5000-ton barge at the same time. We even use our 800-ton floating crane to lift tugs and small barges directly on to blocks set up

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Circle 14 on Reader Service Card

## Deck Machinery

Smith Berger—continued meets any special requirements of each customer.

For additional information,

Circle 49 on Reader Service Card

### STANSPEC

The Stanspec Corporation of

Cleveland, designers and manufacturers of materials-handling equipment, offers a line of standard and custom-built Rightway™ deck winches. These winches are manufactured to customer specifications from interchangeable, standard components. Capacities of the units range from 500 to 50,000 pounds, with electric air, gasoline, or hydraulic power available.

Among the standard features of the Stanspec winches are totally enclosed motors, safety brake, precision gearing, free-spooling drum, and an all-steel fabricated base. Optional features include an electric motor brake and a torque limiter switch.

For further information and free catalogs,

Circle 50 on Reader Service Card

## SUPERIOR • LIDGERWOOD • MUNDY

Lidgerwood Manufacturing Company of New York, was established in 1873 as a continuation of the Speedwell Iron Works of Morristown, N.J. From its standard hoisting equipment, Lidgerwood evolved marine winches.

These were produced extensively for steam power and later were adapted to electric applications. Capstans, anchor windlasses, and marine winches still continue to be a source of pride to Lidgerwood, which has definitely stood the test of time.

The company offers a full range of well-illustrated literature that details the capabilities, special features, and specifications of its line of marine equipment. Included are marine equipment such as integrated barge moving systems; cap-pullers; capstans; steam hoists; trawling winches; towing winches; mooring bits and winches; cargo winches; gasoline, diesel, or electric hoists; anchor hoists; crane, dock, hatch cover, and dredge hoists, and windlasses.

For further information and free literature,

Circle 51 on Reader Service Card

## TIMBERLAND

Timberland Equipment Limited of Woodstock, Ontario, now offers a Canadian-built choice in mooring and anchoring systems with a wide range of winches that will handle up to 2½-inch wire rope.

Timberland has designed and manufactured powered winches for more than 25 years for the construction, mining, and marine industries. Recently they have expanded the product line to serve a wider range of winch applications for mooring, anchoring, and positioning of service vessels.

For additional information,

Circle 52 on Reader Service Card

## UNIT CRANE

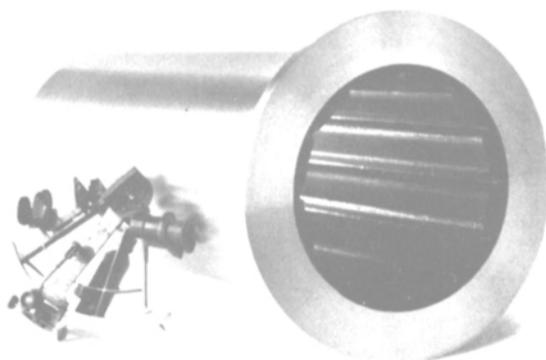
Unit Crane & Shovel Corporation of New Berlin, Wisc., manufactures a series of hydraulic Unit Mariner pedestal-mounted marine cranes that meet 1983 American Petroleum Institute specifications covering off-shore cranes.

The latest Mariner line offers lift capacities of 27,000, 36,000, and 55,000 pounds, with basic boom lengths at a 30-foot radius. Modular assembly is said to provide fast assembly and easily accessible servicing. A variety of hydraulic winches is available to meet specific load capacities and line speed requirements.

An exclusive Power Demand hydraulic system, powered by diesel or electric prime movers, automatically matches hydraulic working

(continued on page 46)

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**Stay on course:  
If it doesn't say BFGoodrich,  
it's not a Cutless® brand bearing.**

There are lots of water-lubricated shaft bearings. But the only one that's earned the right to be called a Cutless brand bearing is made by BFGoodrich.

In fact, that good old water-lubricated Cutless brand bearing is better than ever. Its exclusive "Water Wedge" channels, molded from a tough, specially-formulated BFGoodrich resilient rubber, wash away dirt and abrasive particles. And

any water—fresh, salt, even sand-filled—will lubricate the Cutless brand bearing.

You'll find Cutless brand bearings in yards and marine stores around the world in a full range of shaft diameters and load capacities.

So uphold a seagoing tradition: Set your course for Cutless brand bearings. Only from BFGoodrich.

For a quick solution to a specific bearing problem, call 216-733-9955.



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Circle 235 on Reader Service Card

See our New Products  
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In marine radar, the Furuno name is synonymous with quality, performance and reliability. A strong statement? Maybe, but that's exactly the award we have received every year since 1976 from the people who sell and service every brand of marine electronics available in the U.S.—the dealer and technician members of the National Marine Electronics Association. In fact, Furuno has won a total of 27 NMEA product excellence awards since 1971.

And we have a radar for just about any application or budget, yacht or commercial. Screen sizes from seven to fourteen inches, peak power to 25kW, antennas to eight feet. We have monochrome displays that are bright, crisp and easy to use.

We have color displays that show target echo strength in four different colors. We even have a system that shows the radar picture and electronic video navigation plot on one screen in full color.

You simply can't go wrong with Furuno radars. See them all, plus our complete range of other marine electronic products, at any of more than 200 authorized dealer outlets all over the U.S., or write for our full color catalog.

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**Choice of the**  
**Professionals**



## Deck Machinery

Unit Crane—continued pressures and horsepower to load requirements. Deck configurations include remote or onboard power, walk-around control, or fully enclosed cab.

For further information and free literature,

Circle 53 on Reader Service Card

## WASHINGTON CHAIN

A new machine from Washington Chain & Supply Inc. of Seattle offers an easy, hydraulically powered method for wire rope socketing. Marketed under the name Cab-L-Mate, the machine provides a one-man process for positioning wire rope into a socket.

The machine is offered in two ver-

sions. Model 101 accommodates wire rope up to 2 inches thick and operates with dies in ¼-inch increments. The larger model 201 handles wire rope from 2 to 4¼ inches; dies for the 201 are made to special order only. Both machines are hydraulically operated with manual control valves.

For additional information,

Circle 54 on Reader Service Card

## WASHINGTON CRANES

Washington Cranes of Seattle, a division of Ederer, Inc., offers a new generation of revolving cranes said to have increased reliability, lower maintenance, and more efficient operation due to the greatest possible capacity for a given size.

Typical of the line is the 150-ton revolver installed at Todd's Seattle yard. Advanced design concepts incorporated in that crane include Ederer dc adjustable voltage controls for all motions, all-electric operation, and a high-efficiency operator's cab. The crane has all independent hoists, each with its own solid-state control.

All gearing is in totally enclosed oil baths, and all hoist machinery is gear-driven. These new cranes have unique travel trucks, with each drive motor driving one wheel. This design allows increased load on existing tracks. The diesel generator house is located over the portal to isolate noise, lower the center of gravity, and improve accessibility.

The main hook lifting capacity of the Todd crane is 150 tons at a 55-foot radius, and 50 tons at 120 feet. The auxiliary hook lifts 15 tons at all radii from 61 to 210 feet. Main hook speed is 12 feet per minute, auxiliary is 100 fpm. The boom can be fully elevated from the fully lowered position in three minutes. Power is supplied by an onboard 685-bhp diesel generator set.

For more information,

Circle 55 on Reader Service Card

## WILDEN PUMP

Wilden Pump & Engineering Company of Colton, Calif., manufactures an air-operated, positive displacement pump designed to handle very thick and very abrasive materials. The heart of the pump is its unique air valve that shifts the air supply to both diaphragms alternately with complete reliability under all conditions of head and flow. With no electrical connections, the pump is abrasion resistant, self-priming, submersible, and has variable volume/pressure and simple clamp band construction.

Up to 90 percent solids and more than 250-foot heads are no problem for the Wilden pump, as the double diaphragm design cuts velocity in the unit to half total discharge velocity. The most abrasive slurries are handled with ease, as there are no seals and no metal-to-metal contact.

Volume is infinitely variable by controlling the air flow to the pump, from a few gallons per minute to more than 14,000 gallons per hour. No pressure relief valve is required, and the pump can run dry indefinitely without damage.

Wilden pumps are available with wetted parts in aluminum, cast iron, stainless steel, and Hastelloy C; non-wetted parts are aluminum or cast iron. Elastomers are neoprene, Buna N, Nordel, Viton, or Teflon.

For further information on Wilden pumps,

Circle 56 on Reader Service Card

# BUNKERING



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The Energy People

Marine Fuels, Fuel Oils, Gasoline and Bulk Lubricants

Circle 183 on Reader Service Card



## Marine Insurance. If it's Greek to your company, you could be in for a big surprise.

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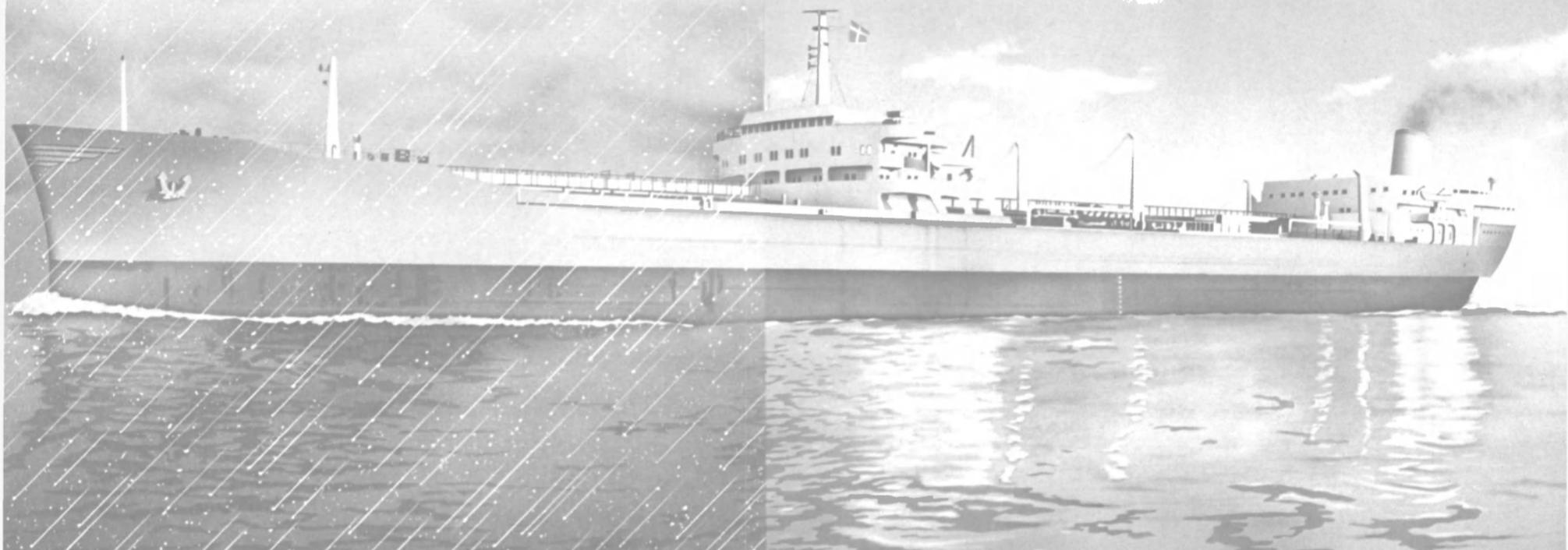
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## Steven Wolgamot Named Executive VP Of Two Operating Companies



Steven Wolgamot

Steven Wolgamot has been named executive vice president of Waterways Transportation and Trading Company and Maritime Transportation and Trading Company, Twin Cities, Minn.-based barge and marine equipment companies.

Mr. Wolgamot was formerly assistant to the president of Twin City Barge, Inc. An attorney, he has practiced law with the firm of Dorsey and Whitney of Minneapolis.

He was graduated from the Webb Institute of Naval Architecture and the Law School of the University of Minnesota.

Waterways Transportation and Trading Company manages river barges used in the United States inland waterways. Marine Transportation and Trading Company oversees the management of marine equipment operating between United States ports in the Gulf of Mexico and on the eastern seaboard.

## First Sulzer RTA84 Engine Successfully Started

The first Sulzer RTA84 engine, a six-cylinder model, is now undergoing test-bed trials at Mitsubishi's Kobe engine works. Started in August, it has already run successfully at full load and is now going through a series of optimization trials.

As the largest bore size in the RTA series, the RTA84 offers remarkable fuel economy through the combination of extremely low fuel consumption and very low propeller speeds, down to 65 rev/min minimum. Covering a power range of 7280-39 720 kw (9,920-54,000 bhp), it is particularly attractive for the very large ore/bulk carriers now being ordered. Further orders have already been received to power large containerhips and VLCCs.

The 6RTA84 now being tested has a maximum continuous contract rating of 12,555 kw (17,070 bhp) at 70 rev/min and is to be installed in a 155,000-dwt ore/bulk carrier building at Mitsubishi's Nagasaki shipyard for Shinwa Kaiun and Nippo Kisen.

Circle 77 on Reader Service Card

## LEEVAC Announces Three Personnel Appointments

Personnel changes at LEEVAC Shipyards in Jennings, La., were an-

nounced recently by Jerry Bostic, president of LEEVAC Corporation

Bob Burlet, formerly involved with sales and marketing for the shipyard, has been named marketing manager for LEEVAC Corporation, responsible for all divisions including the shipyard, LEEVAC Marine Transportation, and LEEVAC Petroleum.

Charles Burrell, a 16-year veteran with the company, has been appointed sales manager for the

shipyard. His background with the corporation includes service with the Marine Transportation unit and, most recently, new business development for the entire corporation.

Phil Jowers has been appointed to a sales position for the shipyard. Prior to joining LEEVAC, he had shipyard sales, management, and operations experience with a variety of companies including Sea-Level and Offshore Logistics.

## Atlantic Marine Awarded \$4-Million Navy Contract For Three Patrol Boats

Atlantic Marine Inc. of Ft. George Island, Fla., has been awarded a \$4,155,414 Navy firm-fixed-price contract to build three 68-foot Sea Spectre MK-IV patrol boats. The Naval Sea Systems Command, Washington, is the contracting activity (N00024-84-C-2122).

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## MarAd Seeking RO/ROs For Ready Reserve Force Fleet

The U.S. Maritime Administration, on behalf of the Navy, has issued a request for proposals (RFP) for the acquisition of roll-on/roll-off vessels with a high military utility for the Ready Reserve Force (RRF). A similar RFP earlier this year

invited owners of U.S.-built, U.S.-flag ships of several types (including RO/ROs) to submit proposals to MarAd.

RO/ROs are the only class of merchant ships sought in the latest RFP. Ships offered under this invitation must be documented under the U.S. flag and meet other specific requirements upon delivery, but "need not possess U.S. coastwise trading privileges." Therefore, they

need not necessarily have been constructed in the U.S.

The Ready Reserve Force is a special group of merchant ships in the National Defense Reserve Fleet that is maintained by MarAd, with funds provided by the Navy, in a state of five- to 10-day readiness to meet sealift requirements of the U.S. armed services in any contingency. There are currently 36 vessels—34

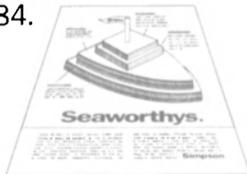
general cargo ships and two tankers—in the RRF.

As a result of the first RFPs, the Navy has chosen a total of 19 break-bulk freighters offered by two U.S. steamship companies at a total cost of about \$30 million. These ships are scheduled to be brought into the RRF by November 30 this year.

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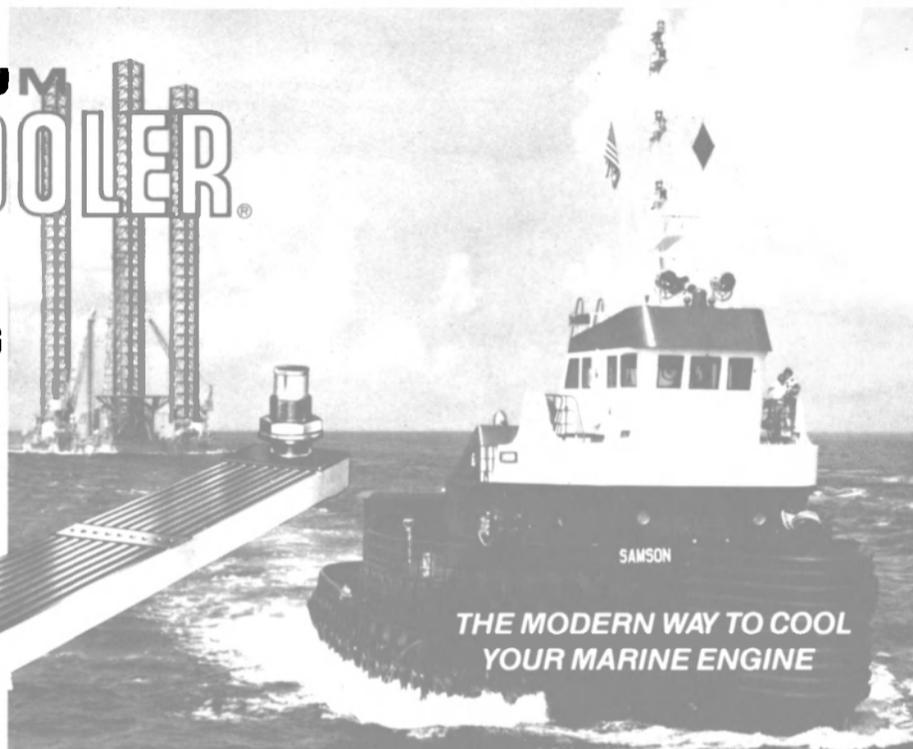
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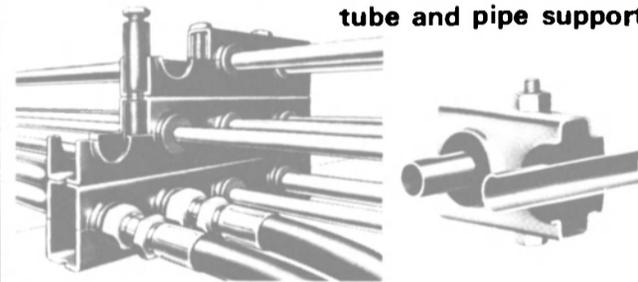
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Circle 171 on Reader Service Card



## MARCO Seattle Delivers The 'Nene' —Second Vessel For Hawaiian Islands

MARCO Seattle recently delivered its second vessel to the Hawaiian Islands, this one a 64-foot steel work boat named Nene (shown above). Built for Uaukewai Diving, Salvage and Fishing Co. of Honolulu, the new vessel is named for the now-rare wild goose that is the state bird of Hawaii.

Uaukewai president **Jimmy Smith** points out that the Nene is not a tug, but rather a specialized workboat with a specific mission. She is designed for use in the petroleum industry as a mooring assist, diving, and emergency standby vessel to be stationed at an offshore oil terminal at Barbers Point, five miles off the island of Oahu.

The Nene is 64 feet 3 inches long with a beam of 21 feet and a depth of 8 feet. She is powered by a pair of GM 12V71 diesels with a combined 800 horsepower, driving Coolidge 42-inch four-blade bronze propellers through Twin Disc marine gears. Auxiliary power is provided by two Nissan diesels coupled to 20-kw Lima generators. Hydraulic power comes from a MARCO Hydraulic Pump Drive connected to the starboard main engine. The switchboard and electrical system were provided by Harris Electric, and the engine controls by Mathers.

Deck machinery aboard the Nene consists of a 22-ton hydraulic winch built by Lentec of Canada.

Below her raised pilothouse, the Nene boasts some very comfortable and thoughtfully laid-out accommodations, including a complete galley, dinette area, and berthing for a crew of three. In keeping with her working environment, the new boat's interior is fully air-conditioned.

Electronics and navigational aids aboard include radar and two VHF radios by Raytheon, a Northern SSB radio, a Ross depth sounder, a Furuno satellite navigation system, a Wagner Mk 4 autopilot and compass, and a Raytheon three-station intercom system.

Uaukewai Diving, Salvage and Fishing Co.'s new vessel was delivered in July, after which Mr. **Smith** and his crew took her to San Francisco before making the eight-day voyage to Honolulu.

For more information on workboat construction at MARCO,

Circle 10 on Reader Service Card

## 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

## Maritech Relocates Its Corporate Headquarters

The corporate headquarters of Maritech, Incorporated has been moved to Arlington, Mass., following more than a decade in Belmont, Mass. The new address is 1072 Massachusetts Avenue, Arlington, Mass. 02174; telephone (new) (617) 641-2780; telex 95-1875.

Founded in 1967, Maritech provides specialized analytical and experimental consulting services to various sectors of the marine industry that are involved in the design, construction, and operation of marine vehicles.

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## Marine Section Of NSC Sets Annual Convention Oct. 15-17 In Chicago

Richard L. Fox, general chairman of the Marine Section of the National Safety Council, recently announced that the annual conference and convention of the maritime industry group—the 67th since it was formed as part of NSC in 1917—will be held at the Palmer House Hotel in Chicago on October 15-17, 1984.

He said that more than 20 specialists in shoreside and vessel safety will address the meeting and include key spokesmen for stevedoring industry management who will deal with the issue of safety in waterfront contract collective bargaining between labor and management. Details of the program, the speakers and topics are as follows.

**Monday, October 15** (Barge and Towing/Great Lakes Division—Joint Session). Barge and Towing will be presided over by **Vincent Wynne**, safety director of M/G Transport Services, Inc. of Cincinnati. Speaking on "Shipboard Drug

Abuse—What to Look for!" will be **Harold C. Patin**, president of Drug Education Associates, Inc. of Metairie, La. The session on the Great Lakes will be headed by **Edward Stadnicar**, safety supervisor of the Columbia Transportation Division of the Oglebay Norton Company of Cleveland. The speaker, **Thomas O. Murphy**, a partner in the Cleveland law firm of Thompson, Hine and Flory, will discuss "Casualty Investigation—Coast Guard and Mariner."

**Monday, October 15** (Dry Cargo and Tank Division—Joint Session). Capt. **John V. Caffrey**, manager of marine safety for Mobil Oil Corp. of New York, will preside over the tank ship segment. Two speakers will discuss "Fleet Contingency Planning for Marine Casualties." They are **F.M. Belinske**, safety manager and group insurance coordinator for Stolt Nielsen of Greenwich, Conn., and **Ann Hayward Rooney**, scientific support coordinator of the National Oceanic and Atmospheric Administration at Virginia Beach, Va. Capt. **Lawrence A. Wolff**, of Marine Transport Lines, Inc. of New York, will

lead the Dry Cargo session. The speaker, Dr. **Robert F. Russell**, professor of ships medicine at the Maine Maritime Academy in Castine, will discuss "Alcohol Abuse."

**Tuesday, October 16** (Stevedoring Session)—This segment will be presided over by **William C. DuComb**, corporate safety director for Lavino Shipping Company of Philadelphia. The speakers are **William Detweiler**, president of the Steamship Trade Association of Baltimore and president of the coastwide collective bargaining group known as the Council of North Atlantic Shipping Associations, and **Don T. Huey**, assistant safety director of the West Gulf Maritime Association of Houston. Mr. **Detweiler** will talk on "Employee Relations & Safety—Should Safety and Health Regulations be Part of a Collective Bargaining Agreement?" Mr. **Huey** will discuss "The Effectiveness of Safety and Health Regulations in a Collective Bargaining Agreement."

**Tuesday, October 16** (United States Coast Guard). This session will be led by Capt. **Ronald C. Pickup**, Chief in the Office of Mer-

chant Marine Safety of the U.S. Coast Guard Headquarters in Washington, D.C.

Following opening comments by Rear Adm. **A.M. Denielson**, Commander of the Ninth Coast Guard District in Cleveland, the segment will have four speakers. They are **Donald Kerlin** of the Marine Technical & Hazardous Materials Division of the Coast Guard, who will speak on the "Intergovernmental Maritime Organization—What it is, How it Works, Latest Developments"; Comdr. **James R. Townley** of the Planning Staff of the U.S. Coast Guard Headquarters, who will discuss the "Coast Guard Marine Inspector Training Qualification Program"; Comdr. **A.V. Arcchi** of the Office of Command Control and Communications at Coast Guard Headquarters, who will speak about satellite equipment under the subject "COSPAS/SAR-SAT—Demonstration & Evaluation Results of the First Year in the U.S."; and Super Chief **L.J. McPolin** in the office of the Commander of the 11th Coast Guard District in Long Beach, Calif., who

(continued on page 54)

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## Marine Section—NSC Annual Convention

(continued from page 52)

will speak on "Marine Firefighting."

**Tuesday, October 16** (Vidmar Presentation)—The final program session on audiovisual material will be headed by **Elizabeth V. Stephens**, vice president of Ships' Operational Safety, Inc. of Port Washington, N.Y.

In announcing the Marine Section Program, general chairman **Fox** noted that the group is holding its convention in conjunction with the NSC's Safety Congress and Exposition, which has taken place in Chicago annually since 1912.

The Marine Section is the largest group in the United States maritime industry devoted to safety. As one of 28 industrial segments of the National Safety Council, it coordinates and helps disseminate information

in the marine industry field through meetings, publications, training programs, films and other means.

Organizations participating in its activities include American Institute of Merchant Shipping, American Institute of Marine Underwriters, Lake Carriers' Association, National Cargo Bureau, New York Maritime Association, New York Shipping Association, Pacific Maritime Association, Shipbuilders Council of America, American Wa-

terways Operators, Inc., the Maritime Administration of the U.S. Department of Transportation, Military Sealift Command of the Department of Defense, and the U.S. Coast Guard.

## Henschel Promotes

### John Carter To VP-Advanced Programs



John R. Carter

**George U. Curry**, president of Henschel Corporation, a unit of General Signal, Newburyport, Mass., has announced the promotion of **John R. Carter** to vice president—advanced programs.

Mr. Carter has held a succession of engineering positions at Henschel since 1960. His most recent position was director of advanced programs.

He has an Electrical Engineering degree from Lowell Technological Institute. He is a member of ASNE and SNAME, and is a member of The Marine Transportation Committee of IEEE. He is also a member of the Society of Automotive Engineers and serves on its Aerospace and Avionics subcommittee AE-9C on Fiberoptic Data Buses; and serves on the Marine Systems and Technology Committee of the American Institute of Aeronautics and Astronautics.

Henschel Corporation is a recognized leader in the design, development and manufacture of the ship control and interior communication equipment and systems.

## Goodyear Offers New 30-Page Book On Hydraulic Components

Goodyear, Akron, Ohio, is offering a 30-page booklet to help its fluid power customers interchange Anchor Swan part numbers to Goodyear's line of Instacouple hydraulic hose components.

Goodyear acquired the hydraulic hose coupling and assembly business of Anchor Swan Corporation last year. A Goodyear subsidiary, Hose Couplings Manufacturing, Inc., produces metal fittings for the company's line of hydraulic and industrial hose, as well as complete hydraulic hose assemblies.

HCFI operates manufacturing facilities in Menominee, Mich. and Dixon, Ill.

The booklet lists 1,347 part numbers with easy-to-read charts for adapters, couplings, hose, spring guards and other parts.

In addition to the Anchor-to-Goodyear interchange, the booklet has a Goodyear-to-Anchor interchange.

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## Kori Will Continue Building Amphibious Vehicles At Port Of Iberia Site

Construction of amphibious tracked vehicles will be continued at the Port of Iberia, La., following the recent completion of a \$4-million order for the People's Republic of

China. Cheryl Wilson, president of the Kori Corporation of Lafayette, La., has announced that, following shipment of 32 specially designed vehicles to China, her company will continue to manufacture similar models at its leased waterfront plant in New Iberia.

The vehicles, mounted on twin steel pontoons and driven by two heavy-duty tractor diesels, will be

used by the Chinese Government to search for oil and gas in the mainland's eastern swamplands. They have been equipped to carry seismic instruments, shallow drilling gear, supplies, and geophysical crews.

In addition to the new Kori plant's favorable waterfront location just off the Gulf Intracoastal Waterway about midway between New Orleans and Houston, the

availability of skilled workers was a major factor in the company's decision to remain in New Iberia, where it has been since March this year.

## International Maritime Auction To Be Held In Las Vegas December 3-5

Marine and auction marketing professionals have combined their talents to present the first of its kind international auction sale of oceangoing vessels and other maritime-related equipment.

The International Maritime Auction, scheduled for December 3-5, 1984 in Las Vegas, Nev., will include all types of offshore and inland marine equipment including drillships, drilling rigs and equipment, tugs, supply vessels, crewboats, and all kinds of barges, floating drydocks, fish and shrimp boats, airplanes and helicopters, and more.

For further information and a free color brochure with specifications and photographs of listed equipment, contact general manager **Dick Egle**, International Maritime Auction, P.O. Box 92, Mathews, La. 70375-0092; telephone (504) 532-6611.

## Defnet Named Marketing Vice President For Manitowoc Engineering



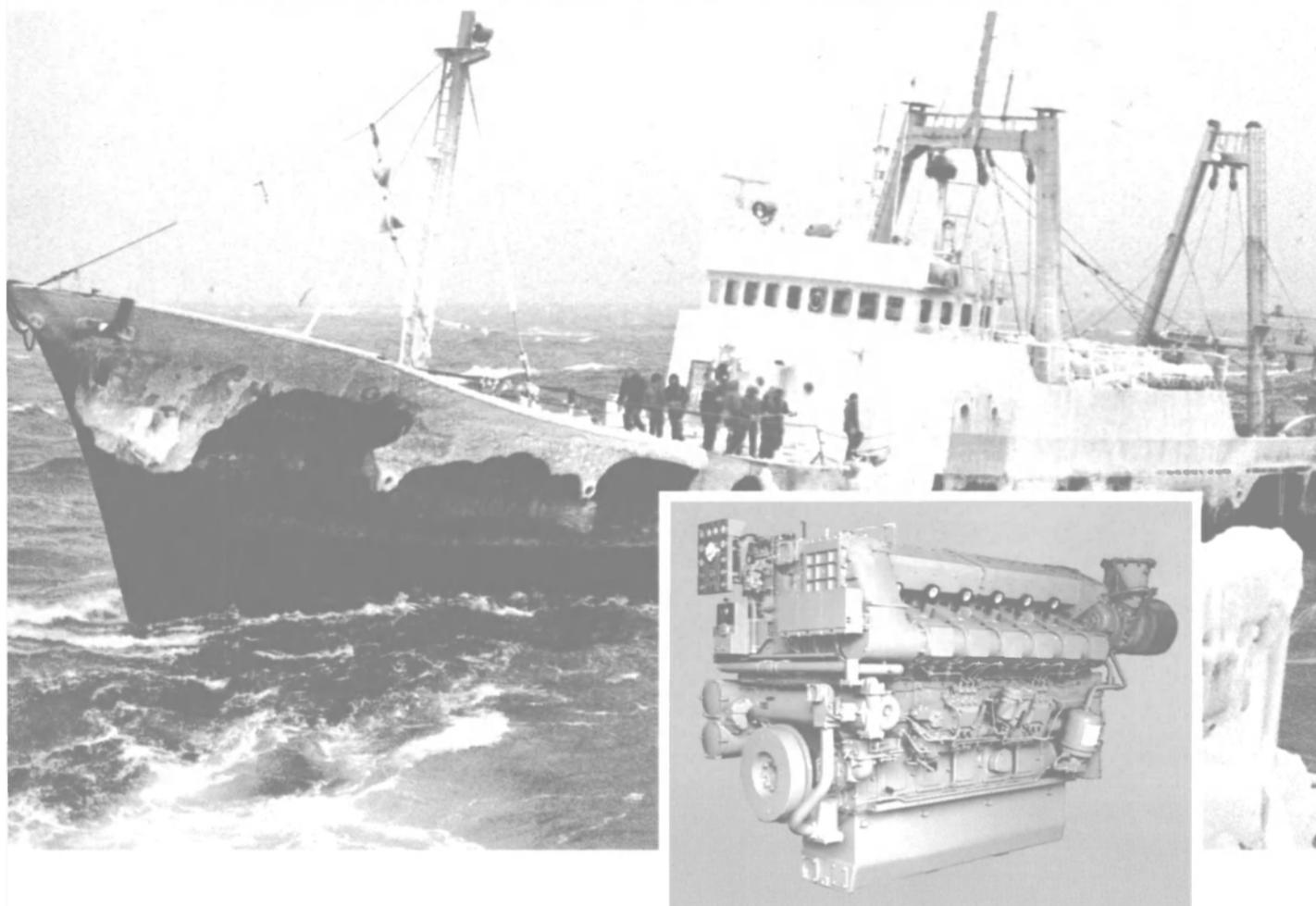
Dexter Defnet

**Ralph Helm**, president and chief operating officer of The Manitowoc Company, Inc. of Manitowoc, Wisc., has announced the promotion of **Dexter Defnet** to vice president-marketing of the Manitowoc Engineering Company. Since joining the firm in 1983, he has served as director of marketing.

Mr. Defnet will administer both domestic and international crane and excavator sales, contract products and technical services, parts sales, pricing, and estimating. He has an industrial engineering degree from Stout State University, and more than 20 years of marketing and engineering experience in off-highway industrial equipment, construction machinery, and related industries.

Manitowoc Engineering, a division of The Manitowoc Company, designs and manufactures a complete line of cranes and excavators that are marketed through the company's worldwide distributor organization.

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## O'Hara Named Corporate Director Of Industrial Relations For Todd

Todd Shipyards Corporation has announced the appointment of **John B. O'Hara** as corporate director of industrial relations. Formerly vice president-industrial relations for Todd's subsidiary, Todd Pacific Shipyards Corporation, Mr. O'Hara will now be responsible for all industrial relations policies on a corporate-wide basis, including San Francisco, Galveston, and Houston, as well as the Los Angeles and Seattle Divisions of Todd Pacific. He will report directly to Todd president **Hans K. Schaefer**.

Todd Shipyards Corporation, the nation's largest independent shipbuilding and ship repair company, operates shipyards in or near Seattle, San Francisco, Los Angeles, Galveston, and New Orleans.

## Chiedo Appointed Grain Freight Sales Manager For Dravo Mechling

Dravo Mechling Corporation, the barge line subsidiary of Dravo Corporation, has announced the appointment of **Joseph B. Chiedo** as manager, grain freight sales. Previously associated as a commodity broker and merchandiser with several grain trading and transportation firms in the St. Louis area, he will have overall responsibility for grain-related matters as a member of Dravo Mechling's headquarters staff in New Orleans.

Mr. Chiedo is a graduate of the University of Missouri, and is active in a number professional and trade organizations, including the St. Louis Milling and Grain Club.

## Houston Ship Repair Gets Contract From MarAd

The Maritime Administration has awarded an \$823,088 contract to Houston Ship Repair, Inc., 16201 Wood Drive, Channelview, Texas, for topside repairs of the Pioneer Contractor, a Ready Reserve Force vessel.

The repairs will permit the ship to meet American Bureau of Shipping and U.S. Coast Guard standards. They include major repairs to the hatch covers, foscle and stern deck plates and boiler refractory.

The work will be performed in Orange, Texas, and is scheduled to be completed in 80 days.

## Computer Helps With Cargo Load Monitoring And Business Management

American Hydromath Company of Germantown, N.Y., is the producer of LOADOSCOPE GP, a desktop general-purpose computer programmed to meet the needs of the marine industry in ship's cargo loading and business management, both shoreside and shipboard.

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stability (GM and GM Req.) and tabular summaries of load conditions.

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lists and identifies all inputs and outputs. By combining experience in ship's operations and naval architecture, cargo planning programs are available to specific ship's characteristics for all vessel types, including containerships, tankers, bulk carriers, RO/ROs, LNG/LPG ships, tug/barge, etc.

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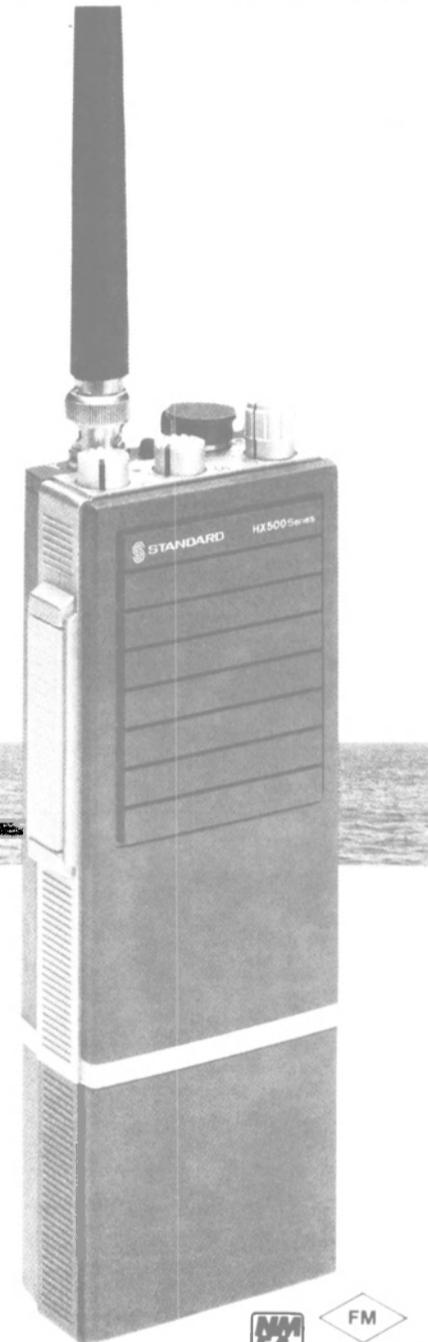
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tions or locations require it. HX500U UHF model features **2 watts** RF power.

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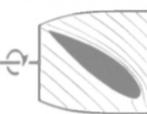
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## Eastern Marine Yard Launches Ferryboat For Lake Champlain

Eastern Marine Inc. of Panama City, Fla., recently launched a ferryboat being built for the Lake Champlain Transportation Company of Burlington, Vt. The vessel has an overall length of 180 feet, beam of 43 feet, and design draft of 8 feet 2 inches.

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**NMEA Appoints  
Riva Schwartz  
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Riva Schwartz

Riva G. Schwartz of the Robertson Autopilot Division of Kongsberg North America Inc. has been appointed regional director of the North Central East and N.Y. Metroplex region of the NMEA, National Marine Electronics Association, serving commercial and recreational marine markets.

Anyone desiring information on the NMEA organization may contact Ms. Schwartz, c/o Robertson Division of Kongsberg N.A. Inc., 400 Oser Avenue, Hauppauge, N.Y. 11788.

**AG "Weser" Yard Changes  
Name To Seebeckwerft AG**

Following the last meeting of the board of shareholders and the closing of its Bremen shipyard, AG "Weser" has decided to abandon that name. As the Bremerhaven Yard of the former AG "Weser" has been well known for many years as Seebeckwerft, it has been decided to maintain future shipbuilding and repairing activities under the name Seebeckwerft AG. The company is

registered in Bremerhaven, and the association with the Krupp Group remains unchanged.

Richard Klattenberg, president of Curaship Marine Agencies, Inc. at 26 Broadway, New York City, has announced that the firm will continue as the West German yard's exclusive agent in the U.S. for ship repairs and conversions.

For further information on Seebeckwerft,

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**Waukesha And Guascor  
Enter Agreement For  
New Diesel Series**

Waukesha Engine Division, Dresser Industries, Inc., Waukesha, Wisc., has entered into technology purchase, development, and transfer agreements with Guascor, S.A., a diesel engine manufacturer based in Zumaia, Spain. The announcement was made by B.R. Stuart, president of Waukesha Engine, and Jose Maria Gutierrez Ascunce, president and director general of Guascor.

The Guascor F series, a 152 by 165-mm bore and stroke diesel, will become the basis for the new engine family, to be produced and marketed by both organizations. Four diesel models will be jointly developed to cover the 450 to 1,200-horsepower range at 1,800 rpm. At present, six-cylinder diesel engines are already in production at Guascor's Zumaia facility.

Waukesha will also undertake development of a parallel family of natural gas engines producing 360 to 1,000 hp, also at 1,800 rpm.

The new engine series will be marketed worldwide by Waukesha

and Guascor, concentrating on their respective traditional markets. Principal applications are power generation, oil and gas equipment including drilling rigs and gas compressors; also marine propulsion and ships service power.

Waukesha Engine services the worldwide petroleum, marine and power generation markets with a broad line of diesel and gas prime movers and generator sets from 50 to 5,000 hp.

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**Benton Appointed Vice  
President-Finance For  
Southeastern Maritime**

Herbert N. Baker Jr., president of Southeastern Maritime Company of Savannah, Ga., has announced the promotion of John R. Benton Jr. to vice president-finance. He joined the firm in 1969 and most recently served as controller.

**Unidynamics/St. Louis  
Offers 24-Page Brochure**

Unidynamics/St. Louis, Inc., a wholly owned subsidiary of UMC Industries, Inc., is offering a 24-page color brochure that gives an overview of the company, its growing facilities, capabilities, products, and organization.

The publication first presents a message from its president, who through the slogan "Our Strength Is Our People" emphasizes the impor-

tance of selecting outstanding performers and encouraging them to reach their full potential. This is followed by a definition of what the company is, a description of its facilities and capabilities, and a thorough discussion of its three operating divisions: the Defense Systems Division, Elevator Systems Division, and the Petro-Electronics Division.

The text of the brochure is arranged for quick-and-easy reading, with a generous supply of color photos and drawings to serve as complement.

The back cover features a Navy flag that flies over the headquarters of Unidynamics/St. Louis. The flag symbolizes the AEGIS Shipbuilders Award given to the company for meeting tight deadlines, staying within budget, and maintaining superior quality standards. Unidynamics is a major supplier of equipment for the Navy's high priority AEGIS Guided Missile Cruiser construction program.

For a copy of the brochure and further literature,

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**Hyundai Awarded Contract  
To Build Two Container  
Carriers For Neptune Orient**

Hyundai Heavy Industries Company, Ltd. of South Korea was recently awarded a newbuilding contract by Neptune Orient Lines Ltd. of Singapore for two 2,970-TEU containerships, with an option for two additional vessels.

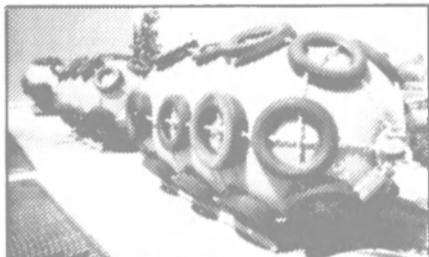
The containerships will be powered by Hyundai/Sulzer 7RTA84 diesel engines developing 31,500 bhp at 90 rpm, providing a service speed of 21.7 knots. They will be 800 feet long, with a beam of 105.6 feet and depth of 70.2 feet; scantling draft will be 41 feet.

To be built to Lloyd's Register of Shipping classification, the ships will be registered in Singapore. Delivery is scheduled for the last quarter of 1985 and the first quarter of 1986.

**Bollinger Repair Division  
Receives NSC Award**

The Lockport (La.) Marine Repair Division of Bollinger Shipyards recently received a President's Citation from the National Safety Council for having an outstanding safety record among U.S. shipyards for 1983. The division compiled a total of 140,663 man-hours without a lost time doctor case.

Key Bollinger employees responsible for this remarkable safety record included: Keith Adams, project engineer; Norman Adams, assistant superintendent; Larry Bonvillain, foreman; John Bourgeois, foreman; Milton Griffin, safety directory; Brad Knight, project engineer; Rodney Landry, foreman; Andy Peters, superintendent; Essay Thibodaux, foreman; and Mike Toups, divisional vice president and marine repair coordinator.

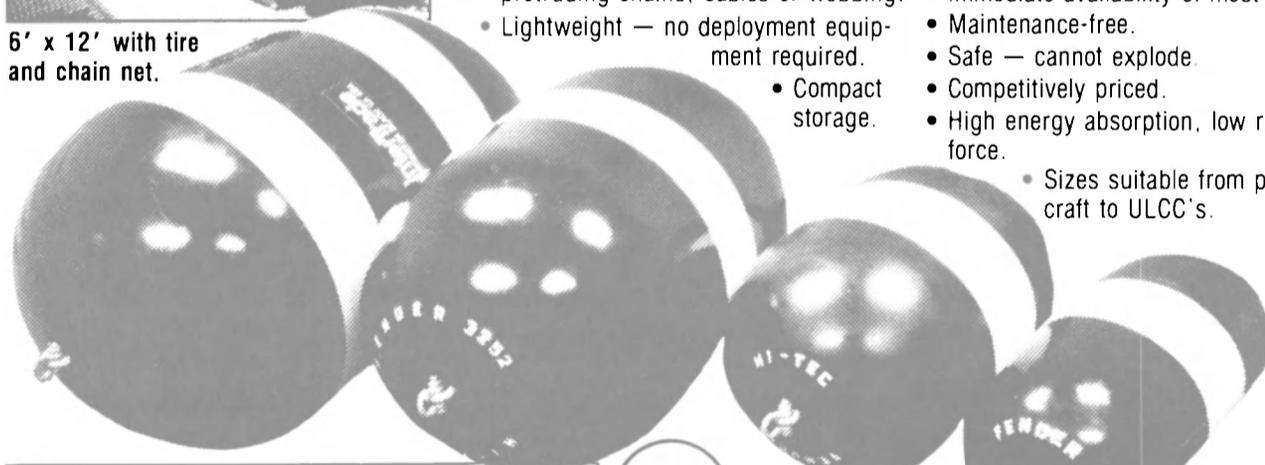


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## Shipbuilding Standards Committee Of ASTM To Meet December 12-14

Colonial Williamsburg, Va., is the site for the December 12-14, 1984 meeting of the ASTM Committee F-25 on Shipbuilding. The committee's 10 technical standards writing subcommittees, ranging from standards for marine paints and coat-

ings to outfitting, will conduct their semi-annual technical sessions.

These technical subcommittees are currently in the process of developing more than 100 shipbuilding standards for use in Naval and commercial shipbuilding programs. In addition to these regular technical sessions, RADM C.T. Lusk, chief of the U.S. Coast Guard's Office of Merchant Marine Safety, will address the full committee on the use

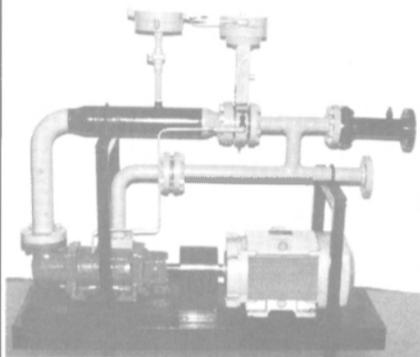
of standards by the USCG at a session on December 13.

ASTM Committee F-25 is composed of professionals from all sections of the maritime industry, including shipyards, government and regulatory agencies, design agents, and suppliers.

Anyone interested in participating in the activities of Committee F-25 is invited to attend the Wil-

liamsburg meeting. For further information contact: **William Hulse**, Committee F-25 manager, ASTM, 1916 Race Street, Philadelphia, Pa. 19103; or **Thomas O'Toole**, committee F-25 secretary, Bath Iron Works, 700 Washington Street, Bath, Maine 04530. Their respective telephone numbers are (215) 299-5507 and (207) 443-3311, extension 2943.

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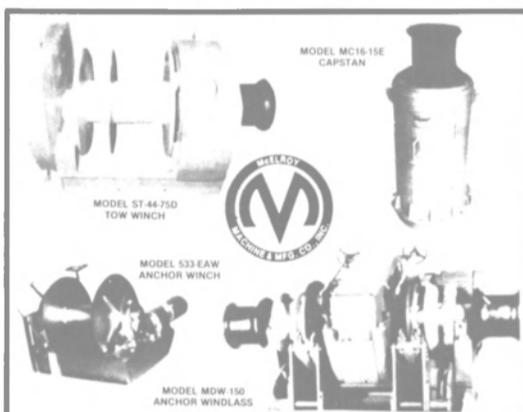
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Circle 219 on Reader Service Card

## Bethlehem Licenses DLI For Vibration Measurement And Analysis System

Bethlehem International Engineering Corporation BIEC, a subsidiary of Bethlehem Steel Corporation, has signed a licensing agreement with DLI Engineering Corporation of Bainbridge Island, Wash., providing DLI with the technology for a Bethlehem-developed vibration measurement and analysis system.

The system, known as Computerized Vibration Analysis (CVA), permits the monitoring of critical rotating machinery as a means of predicting possible breakdowns. It can also be used to evaluate new equipment, eliminating costly interruptions in startup programs.

Licenses for the technology were first offered by BIEC in January this year. To date, the company has licensed seven firms in the U.S. and abroad for the use of the CVA technology.

The system consists of a lightweight, portable, battery-operated data collection unit and an automated, desktop graphics computer system that uses Bethlehem-developed software programs. These pro-

grams develop a "vibration signature" for each of a piece of machinery's three axes—horizontal, vertical, and axial. In addition, trend plots may be produced for balance, alignment, overall vibration, and the condition of bearings, gears, and blades.

For additional information on the CVA technology,

Circle 66 on Reader Service Card

## Bulk/Container Vessels Report Released By MarAd

The Maritime Administration has released a research report, "A Market Assessment of U.S.-Flag Bulk/Container Vessels," which provides information on suitable combination bulk/container vessel designs, their operating characteristics and capital costs, as well as an evaluation of these vessel prototypes in a diverse range of trades.

The study, prepared under contract by Temple, Barker and Sloane, Inc., C.R. Cushing & Co., Inc., and Data Resources, Inc., clearly defined methodology together with analytical tools and data needed to conduct independent evaluation of bulk/container vessels.

# BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of **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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Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470

Thomson-Gordon Limited, 3225 Mainway, Burlington, Ontario, Canada L7M 1A6

Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

## BLASTING—Cleaning—Equipment

Apache Equipment, Inc., 10690 Shadow Wood Dr., Suite 112, Houston, TX 77043

Aqua-Dyne Inc., 2208 Karbach St., Houston, TX 77092

Atlantic Sandblasting & Coatings, Inc., 2700 Guy Verger Blvd., Tampa, FL 33605

Aurand, 1270 Ellis St., Cincinnati, OH 45223

Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989

Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England

CLEMCO, P.O. Box 7680, San Francisco, CA 94120

E.I. DuPont de Nemours & Co., Inc., Starblast Division, Room X39186, Wilmington, DE 19898

## BOILERS

B&D Marine and Industrial Boilers, Inc., P.O. Box 5702, North Charleston, SC 29406

Combustion Engineering, Inc., Windsor, CT 06095

Forney Engineering Co., P.O. Box 189, Addison, TX 75001

Foster Wheeler Boiler Corp., 110 S. Orange Ave., Livingston, NJ 07039

## BOILER CLEANING

Asea Stal, 525 Executive Blvd., Elmsford, NY 10523-1296

## BROKERS

S. Danoff U.S.A. Ltd., 2050 Coral Way, Miami, FL 33145

Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, LA 70153

ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401

## BRONZES—COMMEMORATIVE

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

## BUNKERING SERVICE

Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152

Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022

National Marine Service Inc. (Transport Div.), 1750 Brentwood Blvd., St. Louis, MO 63144

## CARGO HANDLING EQUIPMENT

MacGregor-Navire International, Box 8991, S-402 74 Göteborg, Sweden

MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016

## CHOCKING SYSTEMS

Palmer Products Inc., P.O. Box 8, Worcester, PA 19490

Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, PA 18936

## CLOSURES—Marine

Cornell-Carr Co. Inc., 63 Main St., Monro, CT 06468

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

## COMPUTERIZED INFORMATION SYSTEMS

Marine Management Systems, Inc., 102 Hamilton Ave., Stamford, CT 06902

Maritime Data Network, Ltd., 102 Hamilton Ave., Stamford, CT 06902

## CONDENSERS

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

## CONTROL SYSTEMS—Monitoring

American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

Argo Marine, 140 Franklin St., New York, NY 10013

ASEA, Inc., 4 New King St., White Plains, NY 10604

Autronica Marine USA, 280 Industrial Pkwy., Northvale, NJ 07647

Barringer Research, 304 Carlingview Dr., Rexdale, Ontario, Canada M9W 5G2

Biospherics Inc., 4928 Wyaconda Rd., Rockville, MD 20852

Bowmar/All, Inc., 531 Main St., Acton, MA 01720

Cooper Energy Services, Mount Vernon, OH 43050

Louis C. Eitzen Co., P.O. Box 1210, Glenwood Springs, CO 81602

Ergon, Inc., P.O. Drawer 1639, Jackson, MS 39205

Failsafe Motor/Generator Protector, Marine Safe Electronics Ltd., 101 Jardin Dr., Unit 24/25, Concord, Ontario, Canada L4K 1B6

Grumman Aerospace, 111 Stewart Ave., Bethpage, NY 11714

ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202

Indikon Corp., 26 New St., Cambridge, MA 02138

Kongsberg North America Inc., 400 Oser Ave., Hauppauge, NY 11738

Leslie Co., 401 Jefferson Rd., Parsippany, NJ 07054

Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

Maritime Protection A/S, Box 100, N-4620 Vagsbygd, Norway

Megasystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33431

Nav-Vue, Inc., P.O. Box 1175, Huntsville, TX 77340

Offshore Technology Corp., 578 Enterprise St., Escondido, CA 92025

Pandel Instruments Inc., 2100 N. Hwy. 360, Grand Prairie, TX 75050

Propulsion Systems, Inc., 21213 76 Ave., Kent, WA 98032

Seaworthy Systems Inc., 36 Main Street, Essex, CT 06426

Teleflex Inc., 771 First Ave., King of Prussia, PA 19406

Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

Valmet Automation A.S., P.O. Box 130, N-3430, Spikkestad, Norway

## COUPLINGS

SKF Steel, 201 Tower Lane, P.O. Box 745, Avon, CT 06001

## CRANES—HOISTS—DERRICKS—WHIRLEYS

Appleton Marine, P.O. Box 2339, Appleton, WI 54913  
ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523  
HIAB Cranes & Loaders Inc., R.D. 22 Interchange Place, York, PA 17404  
Machinexport, 35 Mosfilmovskaya Ul., 117330 Moscow, U.S.S.R.  
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235  
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

## 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

## ELECTRICAL EQUIPMENT

Jergens Inc., 19520 Nottingham Rd., Cleveland, OH 44110

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, Hoffert 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-Beard, P.O. Box 31115, Shreveport, LA 71130

## FANS—VENTILATORS—BLOWERS

American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

Gaylord 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—Dack & 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

Ferrous 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-Beard, 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

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

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

Del Gaudio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607

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

Megadoor Inc., 441 Lexington Ave., Suite 903, New York, NY 10017

Walz & Krenzer, Inc., 400 Tralold 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

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. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
 J.F. Stroschein Associates, 666 Old Country Rd., Garden City, NY 11530  
 Richard R. Taubler, Inc., 610 Carriage La., Dover, DE 19901  
 Timsco, 622 Azalea Road, Mobile, AL 36609  
 Tracor Hydronautics, 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 Bond 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 Vopenfabrikk, 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  
 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 Communicatins, 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 77701  
 Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001  
 Gulf Oil, New York District Sales Office (Domestic), 433 Hackensack Avenue, Hackensack, NJ 07601  
 Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022  
 Mobil Oil Corp., 150 East 42 Street, New York, NY 10017  
 Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 10017

#### OIL/WATER SEPARATORS

Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024  
 Biospherics Incorporated, 5001 Forbes Blvd., Lanham, MD 20801  
 Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989  
 Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England  
 Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647  
 Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307  
 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  
 Devoe Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207  
 Drew Ameroid Marine, One Drew Chemical Plaza, Boonton, NJ 07005  
 E.I. DuPont De Nemours & Co., Inc. Nemours Bldg., Rm. N-2504-2, Wilmington, DE 19898  
 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  
 Jaegle Paint Co., Inc., 1912 Darby Rd., Havertown, PA 19083  
 Jotun Marine Coatings Inc., 840 Key Hwy., Baltimore, MD 21230  
 Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650

Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470  
 Palmer Products Inc., P.O. Box 8, Worcester, PA 19490  
 Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203

Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143  
 Sermatech International, 4401 SermeTel Dr., Moss Point, MS 39563

**PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings**  
 Amermarine International, P.O. Box 9205, Dundalk, MD 21222  
 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

Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043  
 Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150  
 Bergen Diesel Inc., 2110-10 Service Rd., Kenner, LA 70062  
 Bird-Johnson Company, 110 Norfolk St., Walpole, MA 02081  
 Bombardier, 1051 Dickson, Montreal, Quebec, Canada H1N 2H7  
 Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
 Capitol Gears, 349 N. Hamline Ave., St. Paul, MN 55104  
 Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629  
 Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227  
 Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511

Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520  
 Combustion Engineering, Inc., Windsor, CT 06095  
 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  
 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 Koppens Way, Chesapeake, VA 23323  
 M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Høleby, Denmark  
 MTU of North America, One E. Putnam Ave., Greenwich, CT 06830; 10450 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City, LA 70203; 180 Nickerson St., Seattle, WA 98109; 1730 Lynn St., Arlington, VA 22209

MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046  
 Mapeco Products, Inc., 20 Vesey St., New York, NY 10007  
 Maritime Industries Ltd., 6307 Laurel St., Burnaby, B.C., Canada V5B 3B3  
 Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507  
 National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037

North American Marine Jet P.O. Box 1232 Benton, AR 72015  
 Omnitruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670  
 Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054  
 Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201

Propulsion Systems, Inc., 12123 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  
 Turbine Specialties, Inc., P.O. Box 207, West State Street Road, Salina, KS 67401  
 Turbine Specialties/Gulf Coast, Inc., 1900 Industrial Blvd., Harvey, LA 70058

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  
 Galar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway

Marine Moisture Control Co., Inc., 60 Inip Dr., Inwood, L.I., 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-Joist Corp., P.O. Box 60, Boise, ID 83704

#### SCUTTLES/MANHOLES

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

#### SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081  
 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  
 Arsenalo 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, Valparaiso, 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  
 Bath Iron Works Corp., 700 Washington St., Bath, ME 04530  
 Bay Shipbuilding Corp., 605 North 3rd Ave., Sturgeon Bay, WI 52435  
 Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601  
 Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
 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

Cantieri Navali Riuniti, Via Cipro, 11, 16100 Geneva, Italy  
 Carrington Slipways Pty. Ltd., Old Punt 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  
 Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, MA 02725  
 Golden Marine Co., Inc., 60 Van Brunt St., Brooklyn, NY 11231  
 HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219  
 Halter Marine, Inc., P.O. Box 29266, New Orleans, LA 70189  
 Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan  
 Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong

Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, Korea  
 Jakobson Shipyard Inc., P.O. Box 329, Oyster Bay, NY 11771  
 Jeffboat Inc., Jeffersonville, Ind. 47130  
 Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409

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 Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134

M.A.N. GHK Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany  
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 Marinette Maine Corporation, Marinette, WI 54143  
 Mitsubishi Heavy Industries, Ltd., 5-1, Marunochi 2-chome, Chiyoda-ku, Tokyo, 100 Japan

MonArk Boat Co., P.O. Box 210, Monticello, AR 71655  
 Moran Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077  
 Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552  
 Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202  
 National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048

National Steel & Shipbuilding Corp., San Diego, CA 92112  
 Nautilus Surveys Inc., 10822 Sageleaf Lane, Houston, TX 77089  
 Neorion Shipyards Syros Ltd., Syros, Greece—U.S.A. Agents: Keppel Marine Agencies Inc., 26 Broadway, New York, NY 10004, 6420 Richmond Ave., Houston, TX 77057

Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607  
 Pennsylvania Shipbuilding, P.O. Box 442, Chester, PA 19016  
 Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22  
 Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905  
 Rauma-Repola, 26100 Rauma 10, Finland

Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea  
 St. Louis Ship, 611 East Marceau St., St. Louis, MO 63111  
 Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113  
 Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601  
 Thomas Marine, 37 Bransford St., Patchogue, NY 11772

Todd Shipyards Corp., 1 State St. Plaza, New York, NY 10004  
 Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316  
 Vanguard Services, P.O. Drawer A, New Johnsonville, TN 37134  
 Verolme Estaleiros Reunidos Do Brasil S.A., Rua Buenos Aires, 68, Rio de Janeiro—RJ—Brazil

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Frank Jeffrey & Assoc., 5201 Westbank Exp., Suite 206, Marrero, LA 70073  
M.A. Stream Associates, Inc., 400 Second Ave. W., Seattle, WA 98119

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Gamlen Marine Division, 375 Allwood Rd., Clifton, NY 07013  
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McAllister Bros., Inc., 17 Battery Pl., New York, NY 10004  
McDonough Marine Service, P.O. Box 26206, New Orleans, LA  
Midland Affiliated Co., 580 Walnut St., Cincinnati, OH 45201  
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, NY 10048  
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Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696  
Pittsburgh Brass Manufacturing, Sandy Hill Rd., R.D. 6 Box 387-A, Irwin, PA 15642  
Stockham Valves & Fittings, box 10326, Birmingham, AL 35202  
Tate Temco, Inc. 1941 Lansdowne Road, Baltimore, MD 21227  
Union Flonetics, P.O. Box 459, Clinton, PA 15026  
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, NH 07928  
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186  
S.S. White Industrial Products, 151 Old New Brunswick Rd., Piscataway, NJ 08854  
William E. Williams Valve Corporation, 38-52 Review Avenue, Long Island City, NY 11101  
Zidell Explorations, Inc., (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

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Drew Chemical Corporation, One Drew Chemical Plaza, Bonton, NJ 07005  
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Marine Moisture Control, 60 Inip Dr., Inwood, NY 11696  
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Schoellhorn Albrecht, Div. of St. Louis Ship, 3460 So. Broadway, St. Louis, MO 63118  
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Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055  
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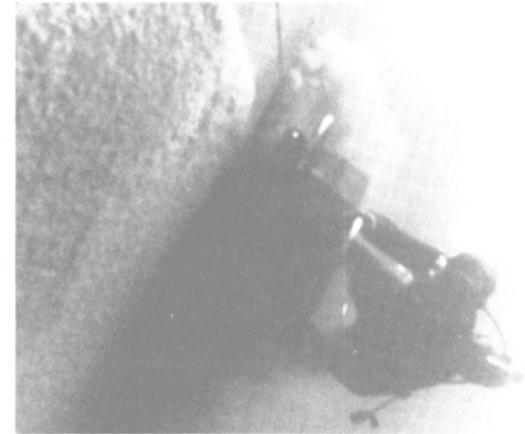
**WIRE ROPE—Slings**  
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A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747  
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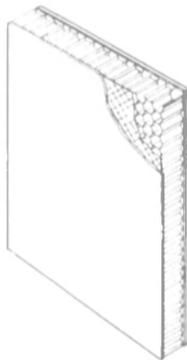


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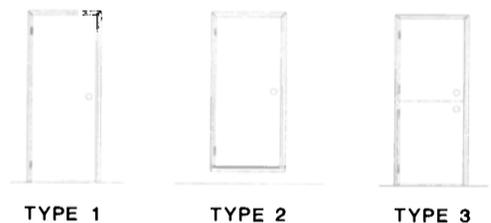
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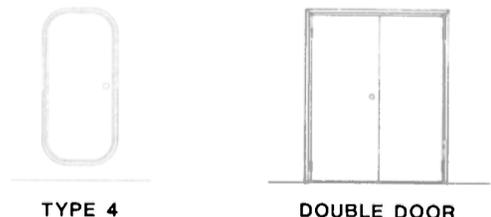
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# GASTECH 84

The 10th International LNG/LPG Conference & Exhibition  
RAI Congress & Exhibition Centre Amsterdam November 6-9, 1984

FINAL  
PROGRAMME

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PROGRAMME

## Session 1 WORLD GAS SUPPLIES

*Chairman:* G.H.B. Verberg, Director-General for Energy, Ministry of Economic Affairs, The Hague

**Natural gas supplies in the world energy market** A. Groens, President, NV Nederlandse Gasunie, The Netherlands

**World gas reserves and availability** J.T. Jensen, Jensen Associates Inc., USA

**The West European gas gamble — an oligopoly versus a monopsony** Ø. Noreng, Institute of Energy Policy, Norway

**LNG pricing: past, present and future** G.D. Carameros Jr., International Gas Development Corporation (IGDC) B.V., USA

**Offshore gas utilisation in Norway, Argentina and Malaysia** W. Prewo, Deutsche Anlagen Leasing Service GmbH, and F.W. Heierhoff, Wirtschaftsvereinigung Industrielle Meerestechnik e.V., Germany

**Gastech Welcome Party in the RAI Halls for all delegates and exhibitors**

## Session 2 LPG PRODUCTION AND TRADE

*Co-Chairmen:* Dr. Y. Yousfi, Deputy General Manager, Sontrach, Algeria and M.D. Tusiani, Chairman, Poten and Partners, Inc., New York, USA

### Speakers

**Pricing issues — LPG versus refined products** A.H. Al Roumi, Executive Assistant Managing Director Sales, Eastern Hemisphere, Kuwait Petroleum Corporation, Kuwait

**Trends in gas shipping arrangements** D.J. Bibby, Chairman, Bibby Bros. & Co, UK

**European gas terminals and inland distribution system** J.H. de Sola, Managing Director Supply and Trading, Shell Nederland Verkoopmaatschappij, The Netherlands

**Prospects for LPG imports by less-developed countries** J.B. Jamerson, President, Northern Liquid Fuels International Ltd., Houston, USA

**Prospects for LPG as an industrial fuel in Japan** T. Nakazawa, Deputy General Manager, Overseas Operations Department, Idemitsu Kosan Co., Ltd., Tokyo

**Marketing channels for North Sea LPG** J.E. Sandvik, Senior Vice President, Refining and Marketing, Statoil, Norway

**The value of LPG as ethylene feedstock** T.H. Walthie, Director, Feedstock Supply, Dow Chemical Europe SA, Switzerland

### Panellists

**O. Shaban**, Manager, International Trade Division, General Petroleum and Mineral Organisation, (Petromin), Saudi Arabia

**E. Al-Mutawa**, Acting Head, Marketing and Transportation, Qatar General Petroleum Corporation, Qatar

**F. Anderiz Gebrian**, Director, LPG Supply Department, Butano, S.A., Spain

**J.L. Dupay**, Vice President, LPG Trading, Contichem Division of Continental Grain Co., USA

**M.K. Faïd**, Manager, Gas Exports, Sontrach, Algeria

**S. Hamada**, LPG Coordinator, Gas Department, Mitsubishi Corporation, Tokyo

**M.C. Hoare**, Manager, LPG, BP Gas Limited, London

**B.W. Kim**, President, Jungwoo Energy Co., Ltd., Korea

**M. Martinez Kahn**, Manager, LPG and Petroleum Product Exports, Petroleos Mexicanos, Mexico

**D. McCoy**, LPG Manager, Exxon International Company, USA

**H. Monteiro da Silva Porto**, Deputy General Manager, Petroleum Products, Petroleo Brasileiro S.A., Brazil

**K.J. Vaughan**, General Manager, LPG Trading and Land Pipelines, British National Oil Corporation, London

**Cocktail Buffet Reception for all registered Delegates and Spouses, sponsored by Poten & Partners, New York and London. Admission by invitation only.**

## Session 3 SAFETY AND TRAINING

*Chairman:* D.R. Tucker, Consultant, UK

**A safety review of ships for liquefied gases and future legislative needs** D.S. Aldwinckle and D. McLean, Lloyd's Register of Shipping, London

**A review of the developments in LNG storage safety as reflected by risk assessments** D.A. Jones, Health & Safety Executive, London

**The filling limitations of cargo tanks — a review of the IMO Gas Carrier Code requirements** M. Bockenbauer, Germanischer Lloyd, Germany

**On-board operations and safety training for liquefied gas tanker personnel** G.B. Angas, College of Nautical Studies, Warsash, UK

**Safety in the design of gas terminals** A. Valk, Comprimo BV, Amsterdam and R. Sylvester-Evans, Cremer & Warner Ltd., London

**Operation and maintenance safety audit for an existing liquefied natural gas export facility** S.E. Dale and P.A. Croce, Arthur D. Little Inc., USA

**An independent hazard and operability audit during the design and construction of a major natural gas liquids facility** J.G. Sellers and C.J. Luck, Arthur D. Little Ltd., & M.F. Pantony, Health and Safety Executive, London

**Rapid assessment of the consequences of LPG releases** M. Considine and G.C. Grint, UKAEA, Safety and Reliability Directorate, UK

## Session 4 TRANSPORTATION, TECHNOLOGY & OPERATIONS

*Chairmen:* R.J. Lakey, Robert J. Lakey & Associates Inc., Houston, USA and R.C. Ffooks, Consultant, London

**An up-date on the activities of the Society of International Gas Tanker and Terminal Operators Ltd.** M.P. Holdsworth, SIGTTO, Bermuda

**The interdependence of plant, port, shipping and customers' facilities in an LNG scheme** D.B. Jenkin, Shell International Gas Ltd., and P. Singleton & C.C. Woodward, Shell International Petroleum Co. Ltd., London

**Gas transportation from Northern Norway: a presentation of possible options** J. Bakke, Moss Rosenberg Verft A.S., and R.F. Schrader & G.A. Amundsen, Kvaerner Engineering A.S., Norway

**IHI SPB LNG carrier-fatigue strength, quality control and recent design development** A. Ando et al, Ishikawajima-Harima H.I., Tokyo

**A 30 000m<sup>3</sup> semi-pressurised ethylene carrier** H. Backhaus and R. Olschlager, LGA Gastechnik GmbH, Germany

**Optimisation of LPG carrier design and its influence on long-term operating costs** V. Puklavac, Liquid Gas International Ingenieurgesellschaft mbH, and D.P. Lindenau, Lindenau Shipyard, Germany

**The prediction of sloshing pressure in prismatic tanks of LNG carriers** T. Tanaka and N. Umekawa, Nippon Kokan KK, Tsu Research Laboratory, Japan

**Trends in NGL recovery from natural and associated gases** C. Collins, Davy McKee (London) Ltd., London and R.J.J. Chen & D.G. Elliot, DM International Inc., Houston, USA

**Fuel cost optimisation in LNG transport** M. Godin, Chantiers de l'Atlantique and J. Tessier, Chantiers du Nord et de la Mediterranee, France

**A new generation of LNG carriers based on a proven cargo containment system** P. Jean and M. Bourgeois, Gaz-Transport, Paris

**Refrigerated LPG loading/unloading system using a CALM buoy** J.M. Chauvin & J.M. Simon, Entreprise d'Equipments Mecaniques et Hydrauliques, and E. Bonjour, Compagnie Française des Petroles, France

**LPG carriers at Nord Mediterranee — experience and new trends** J. Buret and Y. Hervé, Chantiers du Nord et de la Mediterranee, France

**On the structural details of gas tankers** P.-J. Latreille, Bureau Veritas, France

## Session 5 COMMERCIAL DOCUMENTATION & CONTRACTS

*Chairman:* J.M. Soesan Consultant, UK

**LPG spot price assessment — bulk market NWE & Mediterranean** K. Potter, Consultant, UK

**LNG contracts in a period of energy surplus** G.B. Greenwald, Arent, Fox, Kintner, Plotkin & Kahn, USA

**A general outline of shipping and trading documents needed for the international LPG market** H. Vallery-Masson, Naftomar Shipping & Trading Co., Paris

**The gentle art of broking** F. Baudu, Petromar S.A. (BRS), Paris

## Session 6 LIQUEFIED GAS TERMINALS AND STORAGE

*Chairman: (morning session)* A. Pastuhov, AVP Corporation, Newbury Port, Mass., USA

**Dynamic load attenuation for double-wall tanks** R.A. Vater, Pittsburgh-Des-Moines, USA

**A new method of applying protective insulation to the inside of the outer wall of double-walled installations for cryogenic storage** R. Krause, G + H Montage GmbH, Germany

**Experimental dynamic compaction of Perlite insulation** T. Kaups, CBI Industries Inc., USA

**Ultrasonic testing of the wall-to-bottom weld in a nickel steel storage tank** J.P. Capdevielle and A. Goy, Gaz de France, Paris

**An experimental study on the behaviour of the outer concrete wall of a double-wall LNG storage facility under extreme thermal loads** S.R. Speidel, Bilfinger + Berger Bau, Germany

**The planning and building of Antwerp Gas Terminal** M.S. McKinney, UER International Ltd., London and J. Oerlemans, Transol Holding BV, Netherlands

**Design and construction of the Port Botany, Australia LPG/butane import terminal** G.M. Howell and M. Schuller, PDM-Johns Perry Pty Ltd., South Perth, Australia

*Chairman: (afternoon session)* W. Brumshagen, LGA Gastechnik GmbH, Germany

**Design of an in-ground storage tank for refrigerated propane** Y. Sugawara and K. Minegishi, Tokyo Gas Company, Tokyo

**Internal pressure equalising system for liquefied hydrocarbon storage tanks** T.J. Marchaz, Preload Technology Inc., USA

**A concrete storage barge — results of a large-scale offshore model test** E. Flüggén, LGA Gastechnik GmbH, and M. Nüssbaumer and K. Reuter, Ed. Zühlín AG, Germany

**Calibrating accurate level gauges in partly filled LNG/LPG tanks. The transfer calibrator** R.L. Blanchard, The Arlby Company, and A.E. Sherburne, The Foxboro Co., USA

**Verification of polyurethane foam insulation reliability** M. Huther, P. Anslot and M. Zehri, Bureau Veritas, Paris

**Vapour recovery from liquid hydrocarbon storage tanks** C.A. Durr, M.W. Kellogg, Houston TX, & F.H.L. van Laerhoven, Kellogg Continental B.V., Amsterdam

**A new concept for large and safe LPG storage terminals** P. Morand and J. Claude, Technigaz, Maurepas, France and A. Herbretau, Compagnie Française des Petroles, Paris

## Session 7 GASES AS TRANSPORTATION FUELS

*Chairman:* T.J. Joyce, T. Joyce Associates, USA

**European automotive LPG — prospects for growth** W.C.F. Arnold, UER International Ltd., London

**Propane as a transportation fuel and its effect on demand in the United States** S.A. Vogel, Synergy Gas Corporation, USA

**Ford's experience with gaseous fuels** J.M. Lapetz and R.J. Nichols, Ford Motor Company, USA

**Canadian prospects for natural gas-fuelled vehicles** J.S. Heenan, Transportation Energy Division, Ministry of Mines, Energy and Resources, Canada

**Marketing natural gas as an alternative automotive fuel in New Zealand** A. Veart, Auckland Gas Co. Ltd., New Zealand

## REGISTRATION FORM

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Registration Fee: £320 per person [or equivalent in other currencies]. Fee covers attendance at all sessions, 3 luncheons, cocktail parties, preprints of papers and conference documentation, etc.

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DURING THE 92<sup>nd</sup> ANNUAL MEETING OF THE  
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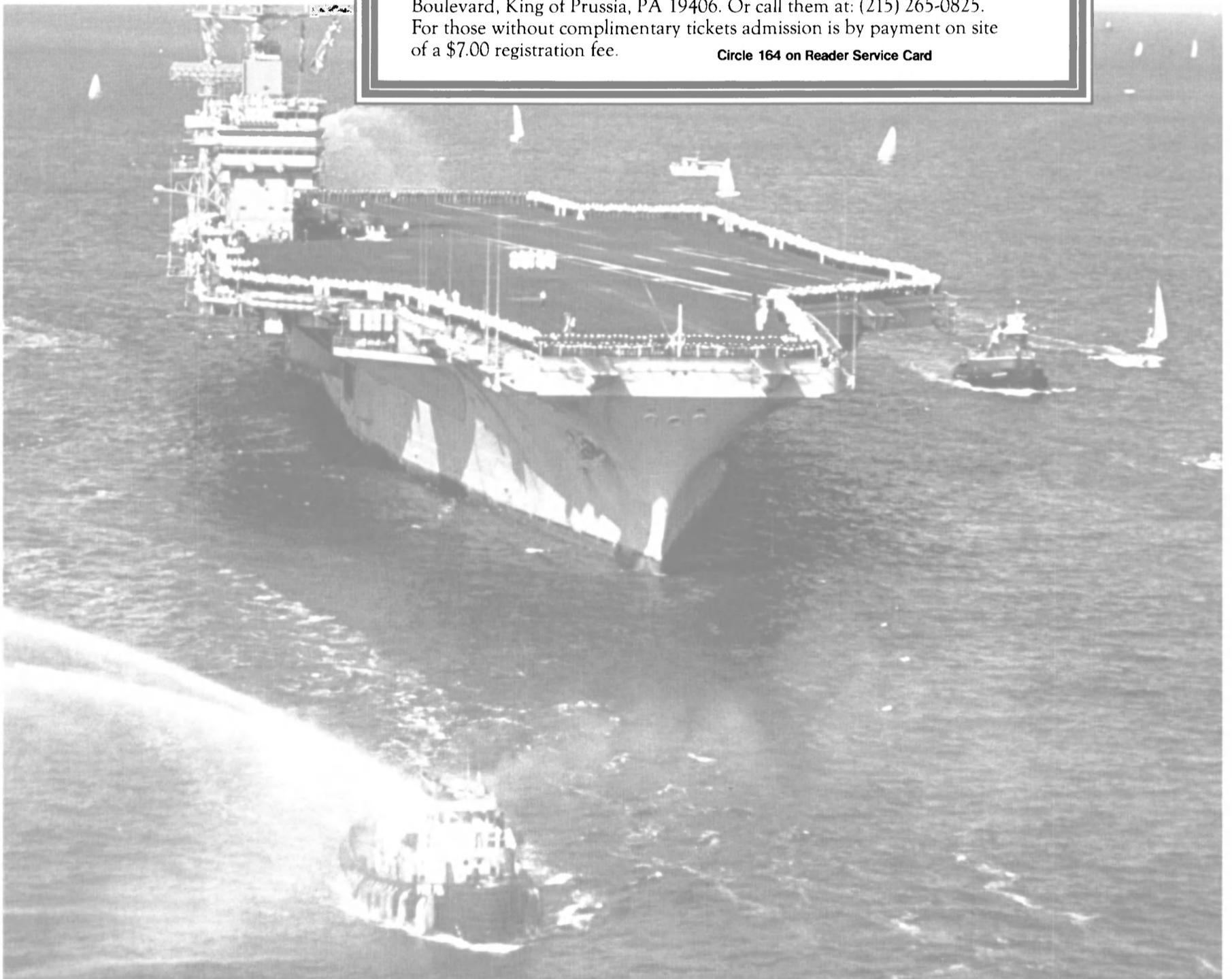
**SHOW HOURS:**

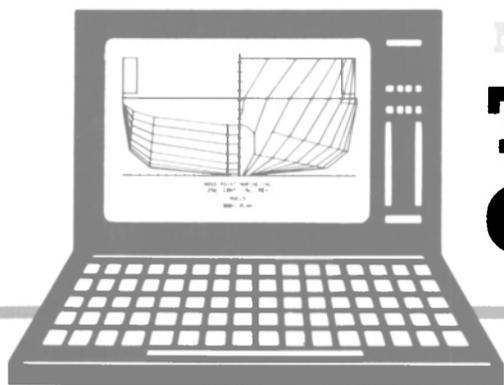
November 7-2 pm to 6 pm, November 8-10 am to 6 pm, November 9-10 am to 4 pm

Perhaps you were one of the 3,145 attendees who were present at the second International Maritime Exposition. If so, we invite you aboard again. If you were not, welcome aboard, too. The Society of Naval Architects and Marine Engineers (SNAME) will soon be taking on attendees for the third International Maritime Exposition. This vital annual event is scheduled for November 7-9, during the Society's Annual Meeting, a consistently excellent two-day technical program.

The previous show attracted 143 exhibitors who displayed and demonstrated a myriad of marine products ranging from anchors to sophisticated computerized design, control, and manufacturing systems. The 1984 event promises to be even larger and more diversified. That applies to the audience too. As before, the Exposition is open to SNAME members and non-members alike. And is free to anyone 18 years of age or over upon presentation of a complimentary ticket. Complimentary tickets may be obtained by writing to: Reber-Friel Co., Exposition Managers, 216 Goddard Boulevard, King of Prussia, PA 19406. Or call them at: (215) 265-0825. For those without complimentary tickets admission is by payment on site of a \$7.00 registration fee.

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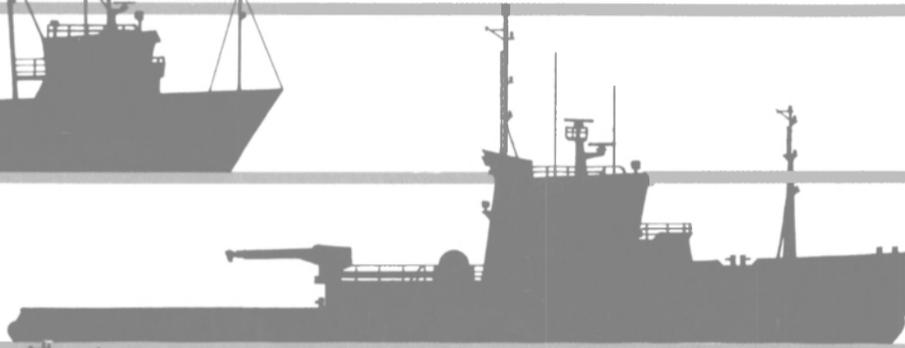
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150' Tug



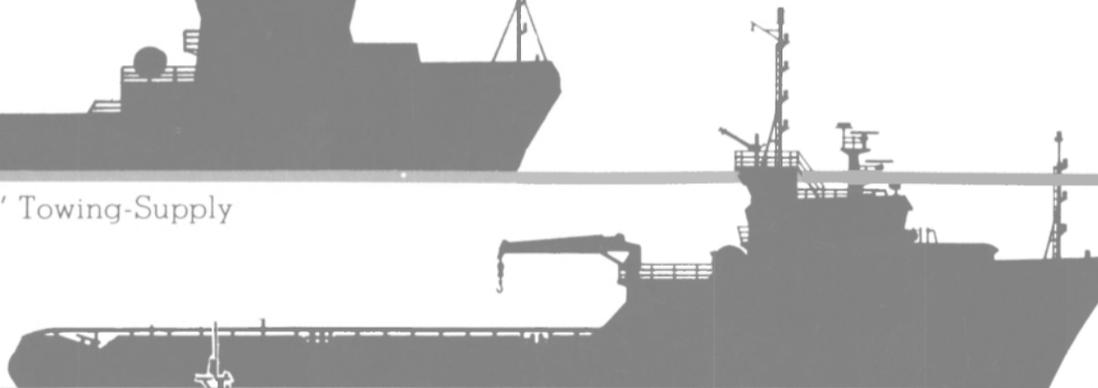
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