

MARITIME REPORTER AND ENGINEERING NEWS



McAllister Inaugurates Jacksonville Service With The New 'Brooks K. McAllister' (Page 4)

NEWPORT NEWS SHIPBUILDING — 100th ANNIVERSARY
POSIDONIA '86
MAY 1986 ISSUE



The International Shipping Exhibition

From 2-7 June 1986 the key executives of the world-wide shipping community will be in Greece for Posidonia, the International Shipping Exhibition.

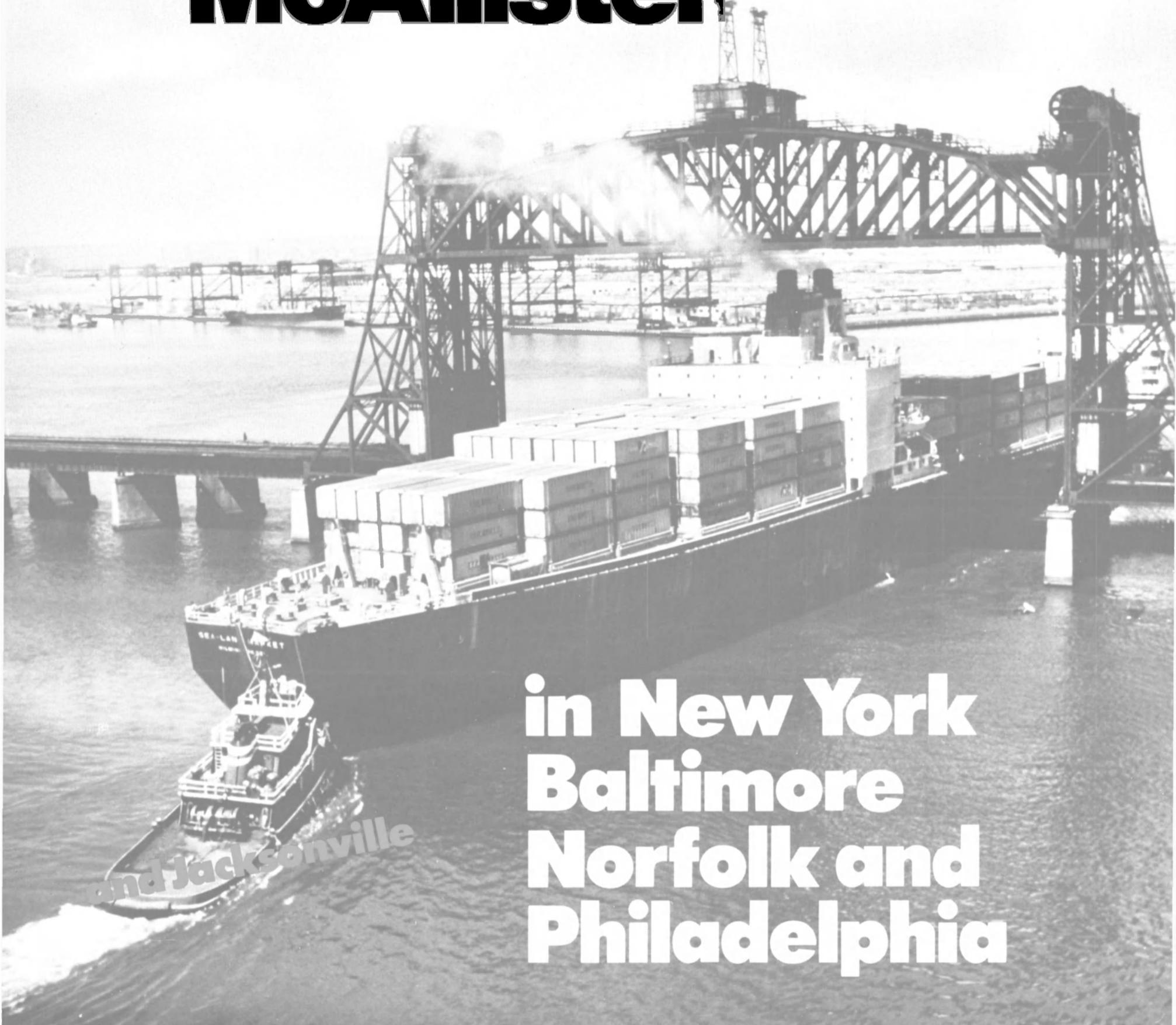
Posidonia is sponsored by the Greek Ministry of Mercantile Marine, The Municipality of Piraeus, the Union of Greek Shipowners, the Greek Chamber of Shipping, the Association of Shipowners of Greek Passenger Ships and the Greek Shipping Cooperation Committee.

For full details contact: Posidonia Exhibitions Ltd.
180 Syngrou Avenue, 176 71 Athens, Greece Tel. (01) 95.94.603, 95.94.625, 95.94.647
Telex: 21 9075 EXPO GR.



*"the regular meeting point
for the leading decision
makers in the shipping
industries of the world"*
Stathis Gourdomichalis
President of the Union
of Greek Shipowners

The biggest call on McAllister



in New York
Baltimore
Norfolk and
Philadelphia

Circle 250 on Reader Service Card

McAllister Brothers Inc. Towing and
Transportation, 17 Battery Place,
New York, N.Y. 10004 (212) 269-3200
Baltimore (301) 547-8678 • Norfolk (804) 627-3651
Philadelphia (215) 922-6200 • San Juan (809) 721-8888
Jacksonville (904) 743-9226

McAllister 

**THE 20TH CENTURY
IS ALMOST OVER.**

**ARE YOU STILL
USING BEARINGS
FROM THE 19TH?**

We don't think you should change to another shaft bearing just because it's new.

We think you should change because it's better.

Over ten years of trials have proven Thordon better than conventional materials — so much better that you can't afford to overlook it on your next refit.

Better than rubber, because Thordon has its own built-in-lubricants — it runs quietly at low speeds and can even run dry for short periods without damage.

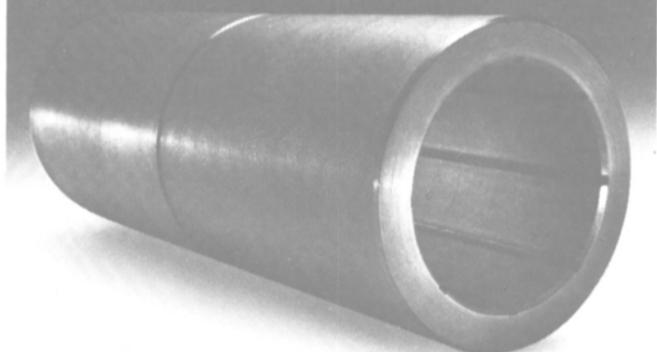
Better than phenolic, because Thordon is abrasion-resistant and doesn't need kid-glove handling during installation or operation. It literally absorbs pounding and keeps on running. Smoothly.

Better than wood in every way. And Thordon raw stock is available for machining to size in over 50 countries around the world.

Get all the facts on Thordon before you make any decision on shaft bearing refits.

Not because it's the most modern bearing material available.

But because it's the best.



Thordon
IT WORKS HARD. YOU REST EASY.

WRITE FOR COMPLETE PERFORMANCE DETAILS TO:



**THOMSON
GORDON
LIMITED**

3225 Mainway, Burlington
Ontario, Canada L7M 1A6
Telephone (416) 335-1440
Telex Number
061-8705

Circle 260 on Reader Service Card

ON THE COVER

McAllister Inaugurates
Jacksonville Service With
Brooks K McAllister
PAGE 24

S.N.A.M.E. Spring Meeting/
STAR Symposium Preview
PAGE 8

Newport News Shipbuilding—
100th Anniversary
—Supplement—
PAGE 29

Posidonia '86 Preview
PAGE 38

Yugoslav Shipbuilding
Report
PAGE 42

Penn Ship Yard Awarded \$4-Million Navy Contract For Work On Frigate

Pennsylvania Shipbuilding Company of Chester, Pa., has been awarded a contract by the Navy to perform repairs and modifications to the guided missile frigate Oliver Hazard Perry (FFG-7) during a Selected Restricted Availability. Valued at more than \$4 million, this contract will require the addition of about 150 people to the Penn Ship work force. The work is to be completed over a four-month period.

Newport News Receives \$10.4-Million Contract For Submarine Work

Newport News Shipbuilding, Newport News, Va., is being awarded a \$10,370,000 firm-fixed-price contract for the post shake-down availability of USS Honolulu (SSN-718). Work will be performed in Newport News, and is expected to be completed in August 1986. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-82-G-2123).

MARITIME REPORTER and Engineering News

Editorial and Executive Offices
118 East 25th Street, New York, NY 10010
(212) 477-6700 • ITT Telex: 424768 MARINTI

Publishers: **JOHN E. O'MALLEY**
CHARLES P. O'MALLEY
Editorial Director: **CHARLES P. O'MALLEY**
Editor: **ROBERT WARE**
Senior Editor: **THOMAS H. PHILLIPS**
Associate Editor: **JOHN SNYDER**
Editorial Coordinator: **LILIAN IRVINE**
International Editor: **ROBIN F. BURNETT, MRINA,**
MNI, London, England
Advertising Sales Director: **JOHN C. O'MALLEY**
Regional Sales Managers: **LISA WILLIAMS**
SHARI L. LINKER
Production Manager: **MARGE SULLIVAN**
Circulation Manager: **M. SOTTILE**

Advertising Circulation and Sales Offices
118 East 25th Street, New York, NY 10010
Telephone (212) 477-6700

REPRESENTATIVES

Holland **MR. TONY KENTER**
Kenter & Co.
P.O. Box 130, 7470 AC Goor, Holland
Telephone: 05470-5005
Telex: 72028

Italy **MR. VITTORIO F. NEGRONE**
Ediconsult Internazionale
Piazza Fontane Marose, 3-16123 Genova, Italy
Telephone: (010) 543.659-268.334-268.513
Telex: 211197 EDINT I

Scandinavia **MR. STEPHAN R. G. ORN**
AB Stephan R. G. Orn
Box 184, S-271 00 Ystad, Sweden
Telephone 0411-184 00
Telex: 33335 Orn S

West Germany **MR. WOLF O. STORCK**
Schiffahrtswerbung Karl-Otto Storck
Stahlwiete 7, 2000 Hamburg 50,
Federal Republic of Germany
Telephone 040/850 0071

United Kingdom **MR. MICHAEL J. DAMSELL**
Euromedia, Ltd.
P.O. Box 122, Haywards Heath
West Sussex RH16 1YF, England
Telephone: 0444-416845

Korea **MR. CHRIS MAENG**
IPR Int'l PR, INC.
Yongsan
P.O. Box 100
Seoul, Korea
Telephone: 273-7765
Telex: MOCNDM K23231

Japan **MR. TOSHIO EGUSA**
Publinetwork, Inc.
Room No. 206 Pegasus Mansion
21-7, Hakusan, Bunkyo-ku, Tokyo 112 Japan
Telephone: 03 (812) 2406
Telex: 02722469 EVERAD J

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

ISSN-0025-3448

No. 6

Volume 48

118 EAST 25th STREET
NEW YORK, N.Y. 10010
(212) 477-6700

Telex: MARINTI 424768

ESTABLISHED 1939

Maritime Reporter / Engineering News is published monthly, except twice a month in January, by Maritime Activity Reports, Inc. Mailed at Second Class Postage Rates at Waterbury, CT 06701 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter / Engineering News, 118 East 25th Street, New York, NY 10010.

Member



Business Publications
Audit of Circulation, Inc.

ALL MATERIAL FOR EDITORIAL CONSIDERATION SHOULD BE ADDRESSED TO ROBERT WARE, EDITOR.

Maritime Reporter/Engineering News

Texaco Signs Globtik Ship Management Contract —Information Available

William R. Cumming, president of Texaco Marine Services, Inc., recently announced that TMSI has signed a ship management agreement with Globtik Tankers London Limited to manage the tankers M/V Brazil Pride and M/V Brazil Glory.

TMSI, a wholly owned subsidiary of Texaco Inc., is a full-service ship management company located in Port Arthur, Texas. The M/V Brazil Pride and M/V Brazil Glory are both 80,000-dwt tankers built in Brazil in 1983 and 1981, respectively, and registered in the Bahamas.

In addition to the new operating agreements, TMSI also operates U.S. and international fleets of oceangoing tankers and coastwise units for Texaco and its subsidiaries, as well as vessels for American Petrofina Incorporated, Saudi International Petroleum Carriers Ltd. and the Nigerian National Petroleum Corporation.

Staffed with a highly professional multinational group of operating and engineering personnel, TMSI is actively seeking additional operating agreements to fully manage additional vessels, both foreign and domestic. TMSI offers shipowners many special services ranging from planned maintenance and inventory control systems to computerized energy conservation programs.

For a free brochure and additional information on Texaco Marine Services, Inc.,

Circle 59 on Reader Service Card

Norsk Pacific And Ocean Marine Services Form Charter Venture

A new vessel chartering venture has been formed on the U.S. West Coast to serve dry bulk and neo-bulk shippers and brokers. Norsk Pacific Steamship Company Ltd. of Walnut Creek, Calif., and Ocean Marine Services of San Pedro have pooled their expertise and now offer shippers and brokers the economy of time- or trip-chartered vessels for their shipping needs.

Ocean Marine will function as an agent for Norsk Pacific, and will be responsible for developing new trades to and from the West Coast of North America for both part and full vessel cargoes. Ocean Marine will then seek out the most economical and compatible vessels that fit the shipper's needs. These vessels will be time-chartered and operated by Norsk Pacific to service the business developed by Ocean Marine.

National AirOil Introduces Portable Burner Ignitor —Literature Available

National AirOil Burner Company, Inc. (NAO), Philadelphia, Pa., a process equipment manufacturer, has introduced the Portable Burner

Ignitor (NPBI). The hand-held unit is used to ignite burners in boilers and process furnaces and is the newest development from NAO.

Safe, easy and inexpensive are features of the NPBI. The unit is safe to operate since direct contact with the flame is avoided. The ignitor is controlled by the operating push button. It is easy to operate. A small disposable propane cylinder is attached to the ignitor handle, then the ignition switch is flipped "on"

and pressed until the ignitor is lit. The unit is also inexpensive. The total cost of the unit is less than \$200, plus \$2 to \$3, the cost of a disposable propane cylinder.

Other advantages of the portable ignitor include durability, long life, lightness, and assorted ignitor lengths. Areas exposed to heat are made of stainless steel for extended life, without affecting the lightweight design. The ignitor weighs less than two pounds, and is avail-

able in three standard lengths—36 inches, 48 inches, and 60 inches.

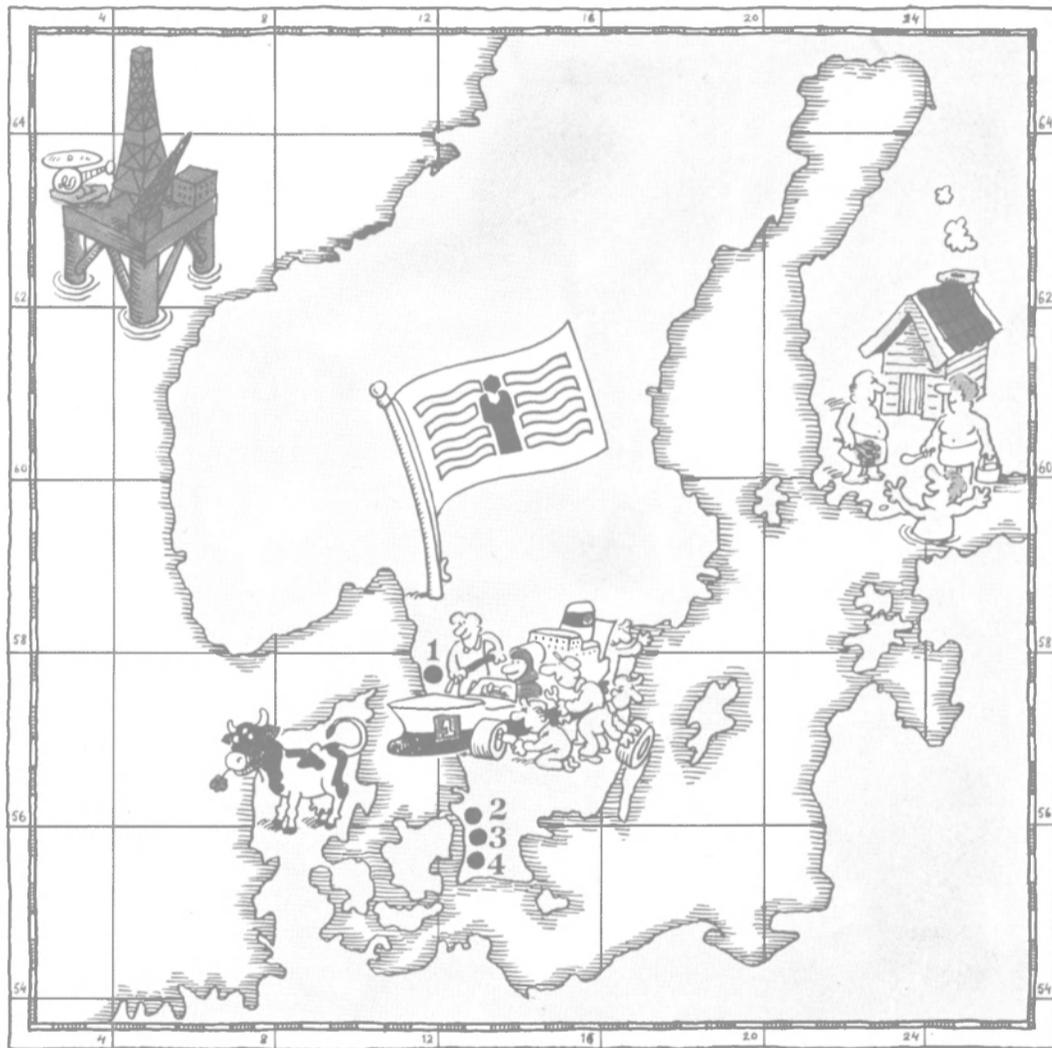
NAO is an internationally known manufacturer of combustion and pollution control equipment since 1912 and maintains offices in Houston, Texas; Tokyo, Japan; Milan, Italy; and London, England, and has agents around the world.

For free literature containing more information about the NAO Portable Burner Ignitor,

Circle 70 on Reader Service Card

When in Nordic Waters come to

REPAIR COUNTRY



Ships only make money for their owners when they are at sea. So time out for necessary visits to the shipyard has got to be kept to a minimum. This naturally places great demands on the yard and the yard's ability to plan ahead. At Cityvarvet we've got our own tactics.

Even before the ship arrives at the yard we get to work finding out exactly what has to be done. Most of the time this means a visit to the ship at sea or in some port of call. After that we can begin

work just as soon as the ship arrives. And we work according to a strict schedule.

Everyone knows exactly what to do. We use the latest techniques and the most advanced procedures. We are a team and we are proud of it — and our team approach has made us famous too!

We have docks in three different Swedish ports that can take ships of up to 250,000 dwt. A tender from Cityvarvet is good in anyone of our yards in Göteborg, Landskrona or Malmö.

The choice is yours. The cost is the same.

YARD SERVICE



1. Cityvarvet

1. Cityvarvet Lindholmen

P.O. Box 8773,
S-402 76 Göteborg, Sweden.
Phone Int +46-31 50 20 00.
Telex 27440.

3. 4. Cityvarvet Oresund

P.O. Box 701,
S-261 27 Landskrona, Sweden.
Phone Int +46 418 240 70.
Telex 72685 OVREPS.

P.O. Box 832,
S-201 80 Malmö, Sweden.
Phone Int +46 40 97 32 07.
Telex 33190.

Gothenburg: 6 docks vessels up to 250,500 tdw.

Landskrona Malmö: 4 docks vessels up to 30,000 tdw.

PORT AND SEAGOING SERVICE.



1. Ciserv

Indiska Oceanen,
Skandiahamnen,
S-417 34 Göteborg, Sweden.
Phone Int +46 31 530320.
Telex 21155.

2. Fartygsmekano

Västra Hamngatan,
S-252 24 Helsingborg, Sweden.
Phone Int +46 42 120295.
Telex 12442.

Circle 108 on Reader Service Card

World Water Systems To Supply Oil Pollution Control System

World Water Systems, Inc. has been selected by Todd Pacific Shipyards Corporation to supply the oil pollution control system for the 378-foot WHEC FRAM (Fleet Rehabilitation and Modernization) Program.

The pollution control system con-

sists of the World Water Systems 44 GPM Heli-Sep Oil Water Separator and related monitoring equipment.

The World Water Systems, Inc., based in Tustin, Calif., with manufacturing facilities in the United Kingdom and Norway, specializes in the manufacturing of pollution control systems for the worldwide marine industries.

For further information,

Circle 88 on Reader Service Card

WILL A FAST OVERHAUL SUPPORT YOUR MISSION?

Contact Transamerica Delaval, Pyramid Pump Division, for quality, cost-effective over- hauls of your turbine-driven FOS and LOS pumps.

Pyramid Pump Division (formerly IMO Pump Division) offers complete overhaul services and OEM parts for FOS and LOS turbine-driven pumps. No one but Pyramid Pump Division can offer these same outstanding repair services:

- **Full-Load Testing** assures performance to specifications prior to sea trial.
- **New Equipment Warranty** for all materials and workmanship.
- **Factory Trained Personnel**, including engineers, designers and metallurgists, know the equipment and all part functions.
- **Expert Inspection** is performed on each individual part, determining whether they should be reworked, reused or replaced. When new components are needed, they are precision manufactured to Pyramid Pump Division specifications.
- **Qualified Field Support** is available for inspection evaluation, removal and reinstallation assistance, shipboard test support, training and troubleshooting.
- **Quality Assurance Personnel** inspect and verify all details of the overhaul process.

Have your FOS and LOS pumps overhauled by the people who know them best, so you can deploy with peace of mind.

Details for specific applications available upon request.

**Transamerica
Delaval**

PYRAMID PUMP DIVISION

P.O. Box 5020
Monroe, NC 28110-0527
(704) 289-6511

Circle 20 on Reader Service Card



Hitachi Zosen Delivers High-Speed Containership To Highness Maritime

The 43,300-dwt containership Hanjin Longbeach (photo), a high-speed, ultra-rationalized vessel, was completed recently by Hitachi Zosen's Innoshima Works and delivered to Highness Maritime S.A. (Panama). The new ship has a capacity of 2,358 TEUs with containers stacked three high on deck. She has a bulbous bow to reduce fuel consumption and a stern bulb to reduce vibration.

Main propulsion is provided by a slow-speed Hitachi/Sulzer 7RTA84

diesel engine with an output of 30,100 bhp at 89 rpm. Trial speed was 24.31 knots. Equipment for saving energy and manpower includes a bow thruster, collision-avoidance radar, and automatic navigation devices.

The Longbeach has an overall length of 734.9 feet, beam of 105.6 feet, and depth of 62.3 feet.

For free literature describing all the services offered by Hitachi,

Circle 18 on Reader Service Card

Moss Point Marine Lays Keel For First Of Two Navy Landing Craft

Moss Point Marine, Inc., Escatawpa, Miss., has laid the keel for the first of two 135-foot landing craft being built for the U.S. Navy.

The recent keel-laying ceremonies were highlighted by speeches from Rep. **Trent Lott** of Mississippi's Fifth Congressional District and Capt. **George Dowell**, the Navy's Supervisor of Shipbuilding in Pascagoula, Miss. Also attending the ceremonies was **John Dane III**, president of Moss Point Marine, Inc.

The \$8.6-million contract calls for completion of the first landing craft utility (LCU-1680) by the first quarter of 1987, with the second following two months later.

Moss Point Marine is also currently building 26 lighter barges for the Navy, 13 of which have already been delivered.

Each of the all-steel, twin-screw landing craft will be capable of car-

rying a cargo of three M-48 tanks and other vehicles or artillery and their associated personnel over a hinged bow ramp directly onto the beach. After a beach landing or loading, the boats will be able to retract from the beach under their own power.

Each LCU will be 134 feet 9 inches in length, with a 29-foot beam, and a molded depth (to the top of bulwark) of 12 feet 6 inches. Displacement at full load is 404 tons. The boats' two Detroit Diesel Allison 12V71TI diesel engines will develop a total of 850 shp and drive the vessels at 11 knots.

Accommodations for a crew of two officers and 12 enlisted men will be provided.

For further information on the services and facilities offered by Moss Point Marine,

Circle 31 on Reader Service Card



Pictured at keel-laying ceremonies for the first of two 135-foot landing craft being built for the U.S. Navy are, left to right: **John Dane III**, president of Moss Point Marine, Capt. **George Dowell**, USN Supervisor of Shipbuilding, Pascagoula, Miss., and Representative **Trent Lott** (D. Miss.). The initial LCU will be completed in the first quarter of 1987, with the second following two months later.

Haggett Chairman Of Shipbuilders Council— Schaefer Is Vice Chairman

At the recent quarterly meeting of the Shipbuilders Council of America, **William E. Haggett**, president and chief executive officer of Bath Iron Works, was reelected chairman of the board of the Shipbuilders Council of America. **Hans K. Schaefer**, president of Todd Shipyards Corporation, was renamed vice chairman; both will serve an additional one-year term.

At the same meeting, the following were elected to the SCA Executive Committee: **Thomas T. Balfour**, General Electric; **Edward J. Campbell**, Newport News Shipbuilding; **William E. Haggett**, BIW; **David H. Klinges**, Bethlehem Steel; **James R. Mellor**, General Dynamics; **John L. Roper III**, Norfolk Shipbuilding; **Gerald St. Pe**, Ingalls Shipbuilding; **Hans K. Schaefer**, Todd Shipyards; **Lawrence A. Smith**, Lockheed Shipbuilding; and **Richard C. Vortmann**, National Steel and Shipbuilding.

Elected as officers for the coming year were: **M. Lee Rice**, president; **W. Patrick Morris**, vice president; **John S. Rivers**, vice president and secretary; **John J. Stocker**, vice president; and **Beverly C. Kendall**, treasurer and special assistant to the president.

Japanese Containership Lines Complete Moves In Port Of Seattle

With the recent announcement of an agreement for Evergreen Line and Japan Line to operate a new joint trans-Pacific service using the Port of Seattle's Terminal 18, specific arrangements have been completed to accommodate all six Japanese containership lines in Seattle, according to Port Director **James D. Dwyer**.

The six Japanese lines—Japan Line, K Line, Mitsui-O.S.K., NYK Line Showa Line, and Y-S Line—together comprising the Port's second largest container customer, are realigning their operations into four joint services that will include four other foreign-flag operators.

K Line will launch a joint service with Mitsui-O.S.K. and EAC Lines in Seattle's Terminal 25. NYK Line and Showa will continue their operations at Terminal 37. Y-S Line will start a new service in conjunction with OOCL and NOL at Terminal 18.

Genstar Awarded Contract To Install Ballast-Crete® In Three Containerships

Genstar Stone Products Company has been awarded a fixed ballast contract by the Bay Shipbuilding Corp. in Sturgeon Bay, Wis. The contract involves the installation of Ballast-Crete®, approximately 4,710

long tons at a minimum density of 200 pcf in each of three container ships being constructed for the Sea-Land Corporation.

Genstar's Ballast-Crete® is engineered to meet the needs of the purchaser within a density range of 40 to 400 pcf. Higher densities are available upon request.

For further literature containing full information,

Circle 38 on Reader Service Card

Seebeckwerft Launches Containership For People's Republic Of China

Seebeckwerft AG in Bremerhaven recently launched a fully cellularized containership that is under construction for China Ocean Shipping Company (COSCO), the state shipping company of the People's Republic. The two companies have

business relationships dating back more than 10 years.

The containership has an overall length of 653.5 feet, beam of 93.2 feet, depth to first deck of 50.7 feet, and summer draft of 35 feet. Propulsion will be provided by an M.A.N.-B&W diesel engine with an output of 9,977 bhp, giving a trial speed of 16.9 knots. The ship will be classed by Germanischer Lloyd.

**OUT TO SEA
DOESN'T HAVE
TO MEAN
OUT OF TOUCH.**

Simply use AT&T High Seas Calling. High Seas Calling lets you conduct business at the helm when your associates or clients are on shore. It works shore to ship too. And a High Seas phone call can average just \$4.98 per minute* for a 10-minute call.

High Seas Calling is very easy to use. It's reliable, using AT&T Operators to service your calls. And it gives you fine quality transmission. So dial 1 800 SEA CALL for further details or for our free brochure. Our toll-free number puts you in touch with ways to keep in touch.

*Federal excise tax of 3% may apply.

AT&T
The right choice.

© 1985 AT&T Communications

Circle 177 on Reader Service Card

**A. L. DON
PILOT LADDERS
the Step
tells
the
Story!**

That A. L. Don name on the step says there are 35 years of product experience in every ladder. So it's no surprise that this is one of the very few SOLAS-IMCO regulation ladders to have been put through the tough testing required for U. S. Coast Guard approval.

In fact, A. L. Don ladders are so safe, we can afford a \$2 million liability policy to back every one!

For immediate delivery worldwide, contact:
A. L. DON CO.
Foot of Dock Street, Matawan NJ 07747
(201)566-5040 Telex: 139374

A division of Steelstran Industries, Inc.

Circle 105 on Reader Service Card

25 HIGH-PERFORMANCE APPLICATIONS FOR THE MARINE INDUSTRY



SHIPBOARD APPLICATIONS FOR...

- **heavy-duty marine coatings**
for hulls, superstructures, propeller shafts; corrosion and nonskid protection.
- **multi-purpose epoxy adhesives**
used extensively on surface ships and subs.
- **resin chocks & resin-fitted bearings**
maintain precise permanent alignment of main propulsion systems and auxiliary equipment; sterntube and rudder bearings.
- **specialty fairing & repair compounds**
for quick repairs to pumps, condensers, tanks, pipes and valves.

#1 Philadelphia Resins Corporation

P. O. Box 454 • Montgomeryville, PA 18936 USA
Telephone (215) 855-8450 Telex 277595

Circle 229 on Reader Service Card

SNAME SPRING MEETING/ STAR SYMPOSIUM

Portland, Oregon—May 21-23

The 11th Spring Meeting/STAR (Ship Technology and Research) Symposium of The Society of Naval Architects and Marine Engineers will be held at the Red Lion Inn/Lloyd Center in Portland, Ore., May 21-23. The theme of this year's symposium is "Looking to the 90s." In keeping with this theme, new ideas and challenges of the next decade will be explored in the technical sessions featuring 21 papers and two panel discussions.

The program is being organized by the host Pacific Northwest Section of the Society. The Steering Committee is chaired by **David Donaldson** and the Technical Program Committee is under **Donald Hudson**.

An entertaining social program will be provided. For early arrivals, a no-host reception with hors d'oeuvres will be held in the Red Lion's Mt. St. Helens Room on Tuesday, May 20, from 6-8 pm. At the President's Reception on May 21 from 6:30 to 8:30, SNAME president **Perry W. Nelson** and Mrs. **Grace Nelson** will greet all registrants and guests in the Mt. Maltonomah Room. The President's Luncheon on May 22 will feature a program of speakers, the presentation of special recognition awards, and an address by **Mr. Nelson**.

The final social event, on May 22 from 6:00 to 10:00 pm, will begin with a salmon bake in a setting overlooking the Willamette River, which flows through the center of Portland, and conclude with a river cruise aboard a sternwheeler that was designed by a SNAME member of the Pacific Northwest Section.

On May 21 the Spouse Program will feature a tour of the City of Portland from 8:45 am to 4:00 pm. This tour is scheduled to visit some of the botanical gardens that are located throughout the city, providing visitors with a good view of why Portland is called the City of Roses. The second tour, on May 22 from 8:30 am to 2:00 pm, is of the Columbia River Gorge, providing views of some of the most spectacular scenery in the Pacific Northwest.

TECHNICAL SESSIONS Wednesday, May 21 Mt. St. Helens Room

9:00 am—"A Simulation Program for Vessel's Maneuvering," by **John C. Daidola, Douglas A. Graham, and Donald C. Tolefson**

This paper discusses the development and application of a deep-ocean maneuvering simulation program created for the purpose of comparing the course-keeping and

energy-consuming characteristics of a wide range of monohull mining vessel hull forms. Given the external environmental and thrust-producing forces, the program solves the linear equation of motion in the time domain, yielding the forces, displacement, and speed of each hull form.

10:00 am—"Feasibility of Marine Transportation of Municipal Sludge," by **Nedret S. Basar and Leon M. Chandras**

This presentation will outline the development of a Static Simulation Computer Program that was developed to analyze, at feasibility levels, the marine transportation option for moving municipal sludge from a shoreside plant to sea. The resultant program enables coastal municipalities to investigate the feasibility of marine surface vessel disposal methods to alternate disposal options.

11:00 am—"Seagoing Hydraulic Hopper Dredges—the Last 60 Years, the Next 15 Years," by **Alan M. Woolley**

This paper outlines the development of seagoing trailing suction hopper dredges over the past 60 years, describes some current designs, and predicts the apparent direction in which these vessels are developing. Improvements in major dredging equipment, propulsion systems, and control systems are described. Also discussed are the impact of environmental constraints, reducing manning, and new dredging requirements.

2:00 pm—"Fishing Vessel Dynamics and Stability," by **Bruce H. Adey, Feng-I Chen, Patrick Eberhardt, and David Winandy**

The authors illustrate results from tests conducted in the natural wind-driven wave environment using a mobile wave-measuring platform, constructed in the form of a miniature semisubmersible drilling platform. Time series, wave directional spectra, vessel response spectra, and attempts at generating responsive amplitude operators are discussed.

3:00 pm—Panel Discussion: "Improved Shipyard Productivity—Zone Operation"

4:30 pm—Panel Discussion: "Obtaining and Administering Future U.S. Navy Shipbuilding and Repair Contracts"

Moderator: **Jack L. Wilskey**
Panelists: **James Beall, Michael J. Franz, and Jerry McMurphy**

Mt. Bachelor Room

9:00 am—"Ship Motions and Stability in Transverse and Longitudinal Seaways," by **A. Allievi, S.M. Calisal, and F. Namiranian**

Motions and capsizing of fishing vessels are investigated experimentally for transverse and longitudinal seaways, involving a North Atlantic deepsea stern trawler and a typical West Coast fishing vessel. Values of heave, roll, and pitch are measured utilizing a computer-controlled wavemaker at a 220-foot-long model basin.

10:00 am—"Ship Stability Safety in Waves," by **Andrew Zborowski**

This paper outlines scientifically based methodology for evaluation of ship intact stability in waves. The methodology is based on consideration of static stability, dynamic effects on static stability, and rolling motion. It assesses the contribution of the methodology and resulting procedure for stability relative to future proposals regarding ship stability standards in waves.

11:00 am—"A Numerical Method of Simulation Three-Dimensional Sloshing," by **Jeffrey T. Dillingham**

This paper describes the problem-solving of water sloshing using a three-dimensional method versus the previously used two-dimensional method. This method is expected to have application in the prediction of the effect of green water on the decks of jackup rigs, heavy-lift vessels, and semisubmersible drilling vessels at the transition draft where the lower hulls are barely awash.

2:00 pm—"Changes Within the U.S. Coast Guard Commercial Vessel Safety Technical Organization," by **Gordon Piche and John Veentjer**

This paper discusses the initiative taken by the USCG in the commercial vessel safety program within the past four to five years, and the resultant success in reducing the manpower intensiveness in this program. The area of technical reviews, where initiatives have shifted some of the workload to third parties, thus reducing former backlogs, is also discussed.

Thursday, May 22 Mt. St. Helens Room

9:00 am—"Deep Ocean Mining: A Technology Developed in the 1970s for Use in the 1990s," by **Raymond Kaufman, John P. Latimer, and Donald C. Tolefson**

This paper presents a general overview of the technology required for successful commercial mining of the deep-ocean manganese, hard mineral module. System discussions will center about ship proportions, maneuverability, propulsion systems for course-keeping, and systems required to support the mining operation such as pipe-handling, main hoists, gimbal structures, and the bending movements involved in the mining operation.

10:00 am—"Damage Criteria for Ship Plating Subjected to Wave Impact Forces," by **Christopher J. Wiernicki**

This paper presents a simple, yet rational analytical method of assessing the damage of an entire stiffened ship panel due to hydrodynamic impact forces. The criteria of ultimate failure of the panel will be formulated to include the plastic collapse and fracture of both the secondary and tertiary structures. A comprehensive casualty damage survey of ship structural failures will be presented in order to identify meaningful extreme loading trends, and to assess the possibility of minimizing these failures without complicating the engineering effort.

SNAME SPRING MEETING PROGRAM AT-A-GLANCE Tuesday, May 20

4:00-8:00 pm—Registration, outside Cascade Ballroom

6:00-8:00 pm—Mt. St. Helens Room

Wednesday, May 21

8:00 am-6:00 pm—Registration

8:45 am-4:00 pm—Portland City Tour

9:00 am-Noon—Technical Sessions

Noon-2:00 pm—Lunch Break

2:00-6:00 pm—Technical Sessions

6:39-8:30 pm—President's Reception, Mt. Maltonomah/Mt. Holiday Rooms

Thursday, May 22

8:00 am-6:00 pm—Registration

8:30 am-2:00 pm—Columbia River Gorge Tour

9:00 am-Noon—Technical Sessions

12:15-2:00 pm—President's Luncheon

2:00-4:00 pm—Technical Sessions

6:00-10:00 pm—Salmon Bake/River Cruise

Friday, May 23

8:00-11:00 am—Registration

9:00-11:30 am—Technical Session

11:00 am—"From Cruiser Car Ferries to Cargo-Carrying Cruisers," by **Markku M. Ranin**

This paper presents a chronological viewpoint of the car ferries/passenger ferry services seen in the European marine service. The old, open-air, no-seating, uncomfortable open sea services are compared with the current level of luxury enjoyed by 6.5 million passengers annually in the ferry service between Finland and Sweden.

2:00 pm—"Determination of Cargo Damage Risk in Barge Collisions Using a Generalized Minorsky Model and Monte Carlo Methods," by **Glenn Bauer, David L. Gray, and Bruce L. Hutchison**

This paper presents a generalization of the Minorsky one-dimensional relationship of energy absorbed and structural damage in ship collisions, developed further by the inclusions of Jones and Van Mater to account for structural resistance up to the point of failure. The resulting model is used to analyze 12,500 randomly generated collision scenarios with a time domain simulation computer program. The results of the analysis are then compared with radioactive material (RAM) cash capabilities in order to

estimate RAM cash damage risks in the navigable waters.

3:00 pm—"Flexural Response of Icebreaking Ships," by **Henry Vaughan**

The design consideration of the hull stresses and loadings due to the initial impulse of ramming ice, and the sagging conditions that exist while the icebreaker is enduring the "beaching phase" of riding up on the ice are discussed. The author

investigates both effects analytically and establishes bounds of magnitude for the establishment of preliminary design rules not available from finite element analysis.

Mt. Bachelor Room

9:00 am—"Reliability and Human Factors in Marine Engineering Systems," by **Howard C. Blanding**

This paper will discuss marine engineering and industrial systems common to the offshore industry

and the application of reliability engineering to such systems. Special attention is given to personal safety, environmental protection, and economic viability.

10:00 am—"A Guide for Ship Structural Inspections," by **Nedret S. Basar and Victor W. Jovino**

It has been found that a need exists for the development of a

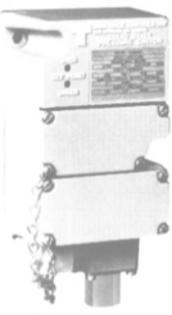
(continued)

High-Quality Components for Marine Applications

Shown are only a few of the hundreds of high-quality marine products available from a single source. Designed for a range of shipboard or offshore applications.

Pressure Switches

Broad choice of electromechanical or solid-state switches to provide shipwide pressure control. Included are diaphragm, bourdon tube and sealed piston types; many are explosion-proof



Unique Sounding Tape Ullage Indicator

Self-contained, battery-powered unit is convenient to use in shipboard and offshore tanks.



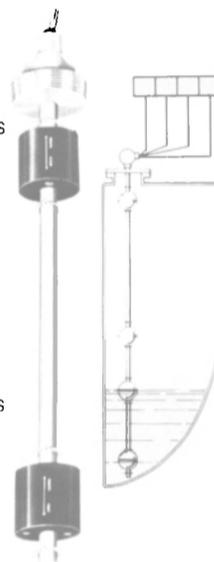
Pressure Transmitters and Transducers

A group of lightweight transmitters and transducers are ideal for monitoring the mechanical health of shipboard machinery and systems and for gauging tank contents. Included are signal conditioned models and vibration versions for monitoring rotating machinery



Single or Multi-Station Level Switches

Ruggedly built for use in liquids from crude to chemicals. Broad choice includes single station with slosh shielding, oil/water interface models, externally mounted styles where access is limited, and multi-station units with up to six stations spaced to suit



SureSite Liquid Level Indicators

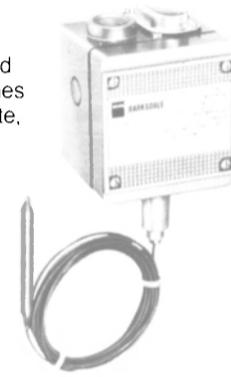
Bi-colored, interlocking magnetic flags change color as float moves with changing liquid levels



Meet requirements of MIL-I-20037B for indirect reading sight glasses. Withstand shock and vibration. Unlike cloudy, breakable sight glasses, these SureSite Indicators are highly visible, accurate and safe. Used with water, oil, or corrosive, flammable or explosive liquids.

Temperature Switches

Local mount or remote bulb and capillary switches provide accurate, high-stability temperature control. Ideal for sensing engine manifold, lube oil and ventilation ducts, salt and fresh water cooling

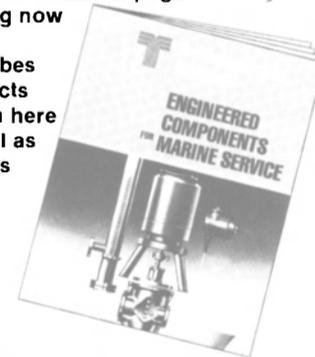


Pumps

Axial Multi-Rotor screw pumps are designed for lube and fuel oil service, fuel transfer and hydraulic service on Naval combatant ships and auxiliary vessels. Flow rates to 1250 GPM and pressures to 3000 PSIG with the lowest noise levels available.



Get your FREE 28-page catalog now which describes products shown here as well as dozens more.



Any of the products in this catalog may be supplied from either location shown. Write for your FREE copy of the new catalog or circle the appropriate reader service number.

Transamerica Delaval

For customers in Europe:

Transamerica Instruments Ltd., Marine Dept.
Lennox Road
Basingstoke, Hampshire RG22 4AW
ENGLAND
Telephone: (0256) 20244.
Telex: 858103 (CECBAS G)
Circle 219 on Reader Service Card

For customers in the U.S. or Far East:

Transamerica Delaval
Cowles Road
Plainville, CT 06062 U.S.A.
(203) 677-1311.
Telex: 99306

Circle 220 on Reader Service Card

Steering Committee

David M. Donaldson, Chairman
Donald K. Beckwith
Edward W. Clendenning
Stephen H. Cox
Ernest E. Gibson
Donald R. Hudson
Robert L. Olson
George D. Riddle

Technical Program Committee

Donald R. Hudson, Chairman
Richard Broad
Richard B. Couch
Thomas R. Dyer
Jacques S. Heyrman
Klemme M. Jones
Ephraim F. Kaufman
Raymond Kaufman
Donald Liu
Alan C. McClure
Eugene H. Spinazola

Social Activities

Robert L. Olson

Registration

Ernest E. Gibson

Hotel Arrangements

Donald K. Beckwith

Fund Raising

Stephen H. Cox

Budget & Finance

David M. Donaldson

Publicity

George D. Riddle

Pacific Northwest Section Officers

Parker C. Emerson, Chairman

Puget Sound Area

Gilbert N. Nilson, Vice Chairman

J. Douglas Dixon, Secy.-Treasurer

Columbia River Area

Stephen H. Cox, Vice Chairman

Ernest E. Gibson, Secy.-Treasurer

British Columbia Area

Gudmunder E. Kristinsson, Vice Chmn.

Kenneth J. Davies, Secy.-Treasurer

SNAME Spring Meeting

(continued)

Comprehensive Guide for Ship Structural Inspection for personnel involved in the design, building, acceptance, and operation of marine vessels. This paper will summarize the results of interviews and surveys conducted throughout the marine community, and will present the

framework of a ship structural inspection guide prepared from the results of the surveys and interviews.

11:00 am—"Evaluation of Micro-Computers: General-Purpose Software for the Accomplishment of Routine NA&ME Tasks," by **Paul F. Koenig**

The author will present an analysis of hardware and software available for the personal computers

used in many homes and offices by the non-computer programmer. He will present an overview of software utilized on IBM-PC and Macintosh computers for finite element analysis, trim, and stability calculations and other areas of general interest to naval architects and marine engineers.

2:00 pm—"Propulsion Shafting Installation and Alignment Proce-

dures," by **J. Cameron McKernan**

This paper is intended to be a guide for engineers and production personnel directly responsible for satisfactory installation of propulsion shafting systems. The method presented utilizes the procedures of utilizing the modeling and actual readings of the bearing reaction loading for determination of alignment accuracies.

3:00 pm—"Medium-Speed Diesels Aboard a Single-Fuel Ship: Selection, Criteria, Operating Profile, and Engine," by **Kenneth Pearce, Jay G. Phelps, Andrew Sinclair, and Thomas Winslow**

This presentation will review original requirements as outlined by the operator; establish the operational profile with detailed analysis of loading and actual fuel used; outline modifications made to the basic engine; support systems for performance enhancement; and summarize with an objective review of requirement completions, excesses or shortcomings of single-fuel main and auxiliary engine systems.

Friday, May 23
**Mt. St. Helens/
Mt. Hood Rooms**

9:00 am—"General Jackson: Historic Features and Modern Standards," by **Robin C. Eng, Paul A. Gow, and James D. Johnson**

This paper will be presented by the team of naval architects/marine engineers that completed the concept design, system design, and construction of Opryland's newest attraction, the paddlewheel passenger vessel General Jackson (delivered last year by Jeffboat, Incorporated). The presentation will focus on the concept and original design criteria that led to the contract drawings, design solutions that allowed the aesthetics of the late 1800s to be upheld while still providing for modern regulations concerning fire safety, and the construction and testing phases that led to almost virtual isolation of the sound stage from the typical noises of the marine environment.

Tidewater Elects

J. Hugh Roff Jr.

To Board Of Directors

Tidewater Inc., New Orleans, La., has elected **J. Hugh Roff Jr.** to the company's board of directors, according to an announcement by Tidewater chairman and chief executive officer **John P. Laborde**.

Mr. Roff is chairman of the board, president and chief executive officer of United Energy Resources, Inc., and chairman of the board and chief executive officer of United Gas Pipe Line Company, both Houston-based.

Mr. Roff is a native of Wewoka, Okla., and a Phi Beta Kappa graduate of the University of Oklahoma and its law school. Prior to becoming chairman of UEP and UGPL, he served as general attorney for American Telephone & Telegraph, N.Y.

BEYOND BRASS!

COMMANDER™

BEARINGS FROM BFGOODRICH TAKE YOU THERE.

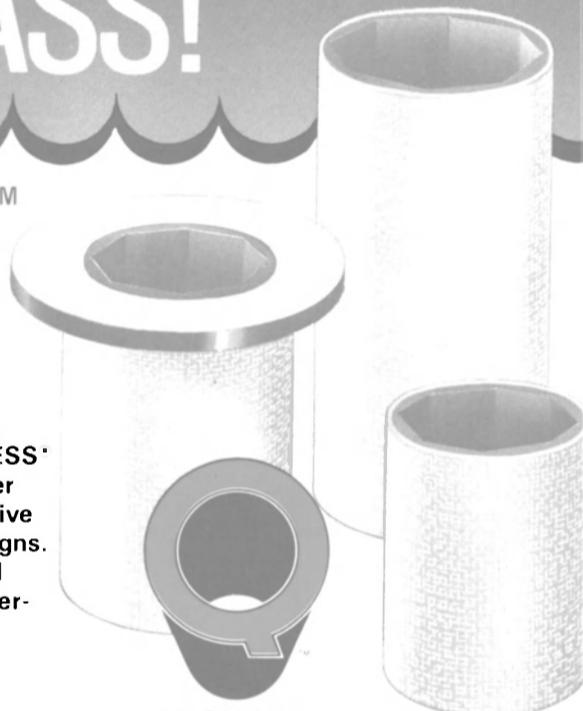
Now, you can get all the benefits of the popular CUTLESS® water-lubricated bearing technology, engineered to higher performance levels. BFGoodrich has developed an exclusive engineered composite shell for both sleeve and flange designs. The CUTLESS COMMANDER delivers the toughness and corrosion resistance you need while weighing up to 70 percent less than a comparable brass shell bearing.

Simplify installation, ease removal and lower your maintenance cost today with the BFGoodrich CUTLESS COMMANDER bearings.

Call or write for more information.

P.O. Box 1415, Akron, Ohio 44309

Telephone: (216) 733-9955 Telex: 986432



LUCIAN Q. MOFFITT, INC.

A subsidiary of BFGoodrich

MR 13010 2 86

Circle 197 on Reader Service Card

INDUSTRIAL INTERCOMS FOR MARINE COMMUNICATIONS



Designed originally to provide U.S. industry with intercoms which would deliver clear, dependable voice communication under the most severe operating conditions. ADCO units have earned wide acceptance in many segments of the marine industry.

Typical installations are aboard ship—bridge to deck or engine room, control center to diving bell—on offshore oil platforms—and throughout repair yards, dry docks, piers and storage areas.

What makes ADCO intercoms different is their ability to perform efficiently regardless of high ambient noise, weather or temperature extremes. Their heavy-duty cast aluminum cases are built to withstand rough usage—and are both weather and corrosion-proof.

Since each unit is a self-contained station which receives, amplifies and transmits the signal, intercom systems can include many stations over very long distances. Installation is simple and practical: each unit plugs into a nearby AC or DC power source, then is connected by ordinary low voltage 2-wire cable.

Phone or write for bulletin outlining complete range of models available.

ATKINSON DYNAMICS

A Division of Guy F. Atkinson Company
Section 6
10 West Orange Avenue
South San Francisco, CA 94080
Phone (415) 583-9845

Circle 125 on Reader Service Card

Economical ORCA Sewage Treatment Systems offer:

Space saving physical/chemical design requires 90% less space than biological systems.

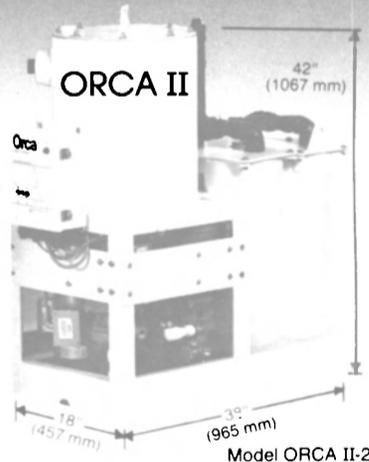
Low installation costs

Simple, automatic operation

Low operating and maintenance costs

Reliable micro-processor control

Quick delivery... 6 standard models



Model	II-12	II-24	II-36	II-165	II-330	II-500
Number people served	12	24	36	165	330	500

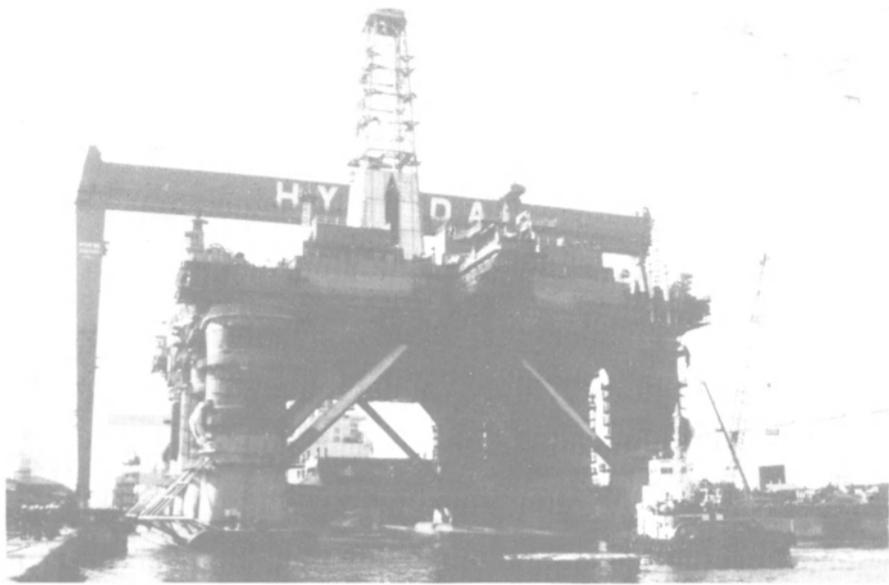
*If low volume flush toilets are used the number of people can be doubled

USCG certified and IMO approved

Call or telex Dick Lambert for technical information, brochures or a quotation on a specific model.

ENVIROVAC INC. 1260 Turret Drive
Rockford, IL 61111 U.S.A.
Telephone 815/654-8300, Telex 257-415 (ENVIROVAC RKD)
Toll Free (USA only) 800-435-6951 (except in IL, HI, AK)

Circle 327 on Reader Service Card



Hyundai Launches Advanced Aker Semisubmersible Drilling Rig

An Aker H-4.2 semisubmersible drilling rig, said to be the first of its kind ever constructed, was launched recently from Drydock No. 1 of Hyundai Heavy Industries' (HHI) Ulsan Shipyard in Korea. The advanced unit, worth about \$75 million, is built to the Aker H-4.2 design and custom-fitted to meet the specific requirements of the Norwegian owner, Norcem Drilling A/S.

The H-4.2 prototype is an evolutionary version of designs developed by Aker Engineering A/S, the Norwegian offshore engineering firm. This drilling rig, named Norjarl (photo), is designed to operate in the North Sea north of the 62nd parallel in waters up to 600 meters (1,968.5 feet) deep.

With dimensions of 361 feet in length, 240 feet in width, and 300 feet in height, the Norjarl is equipped with the latest equipment to drill to about 25,000 feet. Operating draft is 77 feet. Other features include a total operating payload of 4,600 tons, full dynamic positioning, and special winterization measures for efficient year-round operations. In order to prevent ice accretions and to protect piping and equipment from freezing, the lower deck structure is designed with a generally flush underside, with de-icing and anti-icing equipment installed.

Maneuverability of the Norjarl is provided by eight controllable-pitch thrusters, each of 3,800 hp. Power for the full-azimuthing thrusters and the rest of the structure is provided by eight Nohab turbocharged and intercooled diesel engines, each with an output of 4,726 bhp. At full-thrust operation in the open ocean, the rig will reach a top speed of 5-6 knots.

After being outfitted and given final touches, the Norjarl will be delivered to its owner in late June this year.

As the vast majority of the Norjarl's aggregate weight (about 20,000 metric tons) is contributed by steel, fit-up and welding operations are of paramount importance. Using the vast technical knowledge disseminated by Hyundai's Welding and Materials Research Institute and perfected in shipbuilding activities,

HHI has managed to excel in both fit-up and welding on the Norjarl.

S.H. Chung, HHI's director of the Offshore Project Management Office, said: "Such exceptional performance compares very favorably with the top Japanese shipyards, which experience a 90-percent pass-rate for X-rays and other non-destructive testing. (On the Norjarl the pass-rate was 95 percent.) All involved parties are very complimentary about HHI's steel work, and undoubtedly the high quality of welding fabrication work will continue until the conclusion of the project."

The Norjarl has many outstanding features. The mobile offshore drilling unit has a twin-hull design with a total of eight stability columns, a transverse brace arrangement between the columns, and a deck-structured topside. Keeping the rig balanced are two pontoons located below the columns; these floats constitute the lower hull and are subdivided by bulkheads into tanks for ballast water, drill water, and fuel oil. The pontoons also provide the propulsion, functioning like two submarines and guiding and moving the rig to its new locations.

The crew quarters, located across the forward end of the deck structure, provide accommodations for 100 persons in 12 single and 44 double cabins. The Norjarl will be one of the first offshore rigs specially adapted for some female crew members. It has been equipped with separate quarters and segregated saunas. To help prevent "cabin fever" and maintain a high morale, the vessel has an entertainment area that includes a cinema, lounge, gymnasium, audio system, and ping-pong tables.

The Norjarl is the fourth semisubmersible drilling rig constructed by HHI. In 1983, the shipyard delivered three rigs to SEDCO. The Ulsan yard is currently building four rigs, including the Norjarl, all of which were ordered in 1984. Another Aker H-4.2 will be delivered to Transocean Drilling this year, and two rigs for ODECO are scheduled for 1987 delivery.

Future Outlook

The worldwide forecast for off-

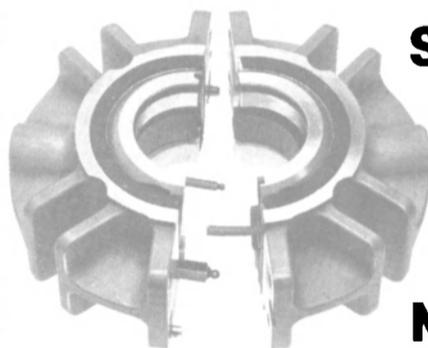
shore drilling is predicting a flat year ahead, primarily due to the steady drop of oil prices in late '85 and early '86. However, HHI's major offshore clients are from the U.S. and Norway, which are expecting to increase their drilling activities—especially if oil prices begin to climb—in both wildcat/appraisal and development wells. Norway's overall activity is forecast to rise by more than two percent to 55 explor-

atory and 41 development wells. A moderate increase of just under one percent to 1,870 wells is projected for U.S. offshore activity as early as next year. All of this means that HHI can anticipate a slight upward trend in the demand for semisubmersibles and offshore platforms.

Hyundai has consolidated its position as an offshore builder. Start-

(continued)

CHESTERTON® SPLIT SEAL for swift sea service



**Split parts...
No pump teardown!
Off-the-shelf!
No engineering!
No sleeve wear!
No price shock!**

Installing a CHESTERTON 221 Split Seal off the shelf is fast. Resealing is even faster; up to four times faster. The CHESTERTON 221 Seal splits to go over the shaft. You don't dismantle the pump. It's like repacking.

Make this no-risk test: Convincing proof is to install your first 221 in a packed pump that is in good mechanical and operating condition and has a split gland. Leave the packing in the stuffing box; it makes a good restriction bushing. Follow the illustrated installation directions. *If it takes longer than half the time normally required to replace a standard seal in the same type pump, return the unused split seal for a full refund.* Your packing is still in and usable. Make the test now. You have nothing to lose and you could simplify your pump maintenance forever. Ask your CHESTERTON Marine Distributor for Split Seal Brochure 73210 or write A.W. CHESTERTON CO., Stoneham, MA 02180 USA. Phone 617-438-7670; Telex 94-9417.

CHESTERTON® PATENT PENDING **SPLIT SEAL**

© A.W. CHESTERTON CO., 1986. All Rights Reserved
Circle 275 on Reader Service Card

S-2E MAR

Hyundai Launches Aker Rig

(continued)

ing its offshore activities in the late 70s, HHI got into full swing with the construction of a semisubmersible derrick barge for J. Ray McDermott & Company. The yard further established its capabilities in the offshore vessel sector with the delivery

of three SEDCO semisubmersibles in 1982 and 1983.

S. H. Hong, vice president of HHI's Offshore Division, stated: "Hyundai is acquiring a global reputation as an offshore builder to be reckoned with when it comes to semisubmersibles."

For further information and free literature on the services and facilities offered by Hyundai,

Circle 16 on Reader Service Card

Free Brochures Offered On New Simrad Seismic And Mapping Systems

Simrad Subsea A/S of Horten, Norway, is offering free literature on their new seismic and mapping systems.

The SIMRAD HPR-309 is the third generation hydroacoustic position reference system designed and

manufactured by Simrad Subsea. The unit performs streamer and air-gun tracking (a feature developed in cooperation with Statoil and Geco). Shell Offshore Inc. recently ordered their second unit from Simrad.

In addition to the literature available on the SIMRAD HPR-309, the company has also published a brochure on the SIMRAD EM-100, a multibeam echo sounder for topographic mapping of the seabed. Operating at 95 kHz and rated for water depths down to 500 meters, this echo sounder has excellent resolution and efficiency for seabed mapping.

For free copies of the brochures and literature being offered by Simrad on the SIMRAD HPR-309 and the SIMRAD EM-100,

Circle 51 on Reader Service Card

Safety on Board and in the Shipyard... Over 100 Years of Sure-Footed Solutions...



American Mason manufactures a complete line of abrasive, non-slip marine products that meet the strict quality and safety standards required by ship building, repair, and conversion operations both commercial and military.



Precision engineered for easy installation and minimum downtime:

- All types of ships ladders and treads
- Deck plates and non-skid deck coating
- Battens, grating, access covers ...and more!

Custom designs are manufactured and tested according to furnished drawings and standard specifications of the US Department of the Navy.

Products are of the highest quality materials and are in compliance with current standard drawing numbers.

American Mason Safety Tread Co.

(617) 452-1041

Outside Mass.

1-(800)-343-0364

71 Wellman Street

Lowell, MA USA 01851



Circle 147 on Reader Service Card

Four Executives At Matson Navigation Assume New Positions

As part of Matson Navigation Company's management development program, four executives have assumed new positions, it was announced by M.S. Wasacz, president.

C. Bradley Mulholland, formerly senior vice president, freight division, is now president of the subsidiary, Matson Terminals, Inc.

Joseph G. LeClair, formerly president of Matson Terminals, Inc., has transferred to Matson Navigation Company as senior vice president, area manager, northern California, in Oakland.

Glenn R. Rogers, formerly vice president, area manager, northern California, is now vice president, area manager, Hawaii, in Honolulu.

Barrick L. Prince, formerly vice president, area manager, Hawaii, is now vice president, freight division, at San Francisco headquarters.

The changes were effective April 1.

Kollmorgen Awarded Over \$30 Million In Contracts For Submarine Periscopes

The Electro-Optical Division of Kollmorgen Corporation received over \$30 million in contracts for submarine periscopes during the month of March.

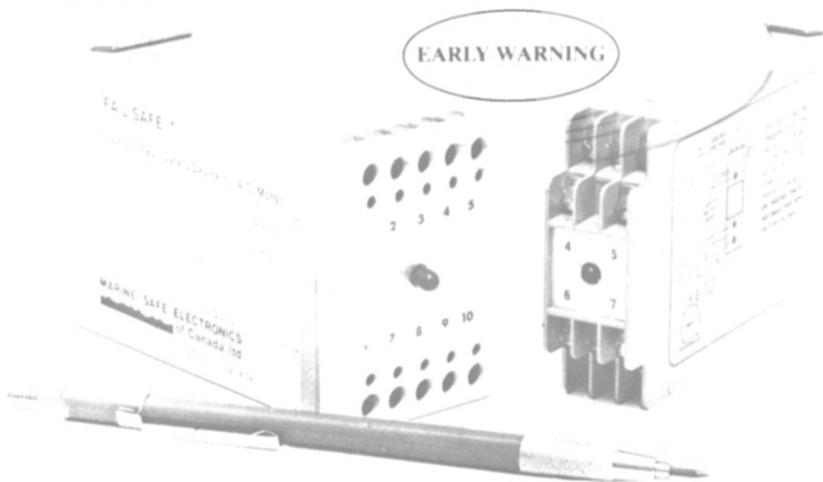
The most recent contract award is an \$11.4-million competitive procurement for submarine periscopes for the U.S. Navy. \$10.6 million will be exercised immediately with an option of \$.8 million to follow within 60 days. Under this contract, the division will produce four complete periscope sets plus spares and ancillary equipment to support the U.S. Navy's Type 18 periscope program.

Earlier in March the division announced to the press, receipt of a contract in excess of \$20 million to produce submarine periscopes for an international customer.

For further literature containing full information on Kollmorgen products and equipment,

Circle 39 on Reader Service Card

WILL YOUR NEXT START BE THE LAST?



Water, dirt, chemicals and assorted debris sabotage motors and generators causing insulation failure, downtime, and costly rewinding and repair.

NO MORE.

Now, an early warning alarm alerts you to the presence of destructive elements. Corrective action can be taken after a quick inspection of your machine. The result - preventative maintenance instead of rewinding and expensive downtime.

Affordable, compact, and easy to install, FAIL-SAFE is a cost-effective investment.

Electrical designers and engineers around the world have made FAIL-SAFE an essential part of their preventative maintenance programs.

Don't delay. Motors and generators are a costly investment that must be protected. Protect your investment now with FAIL-SAFE.

How you benefit

- Eliminates the need for insulation check-ups
- By scheduling overhauls instead of rewinds, you'll save five times as much money
- FAIL-SAFE is an add on device. It's easy to install and does not require modifications to starter enclosures
- 5 years written guarantee
- Prevents burnouts
- Eliminates downtime

For more information and a FREE brochure, call or write:

MARINE SAFE ELECTRONICS
of Canada Ltd

37 Staffern Drive
Concord, Ontario L4K 2X2
Telephone: (416) 738-3744
Telex: 06-964698

Circle 20 on Reader Service Card

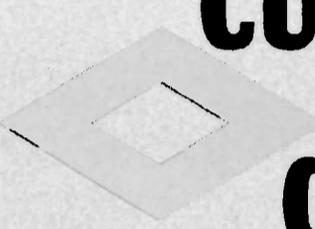
STRENGTH THROUGH EXPERIENCE.

Curtis Bay Towing has been performing — with dependability, safety, and integrity — for better than three quarters of a century.

What does this mean to you?

It means that when you choose Curtis Bay, you get more than just a tug...you get more strength and experience on your side as well.

If you call at the ports of Philadelphia, Baltimore, and Hampton Roads, calling on Curtis Bay for towage services is your best choice.



**CURTIS BAY
TOWING
COMPANY**

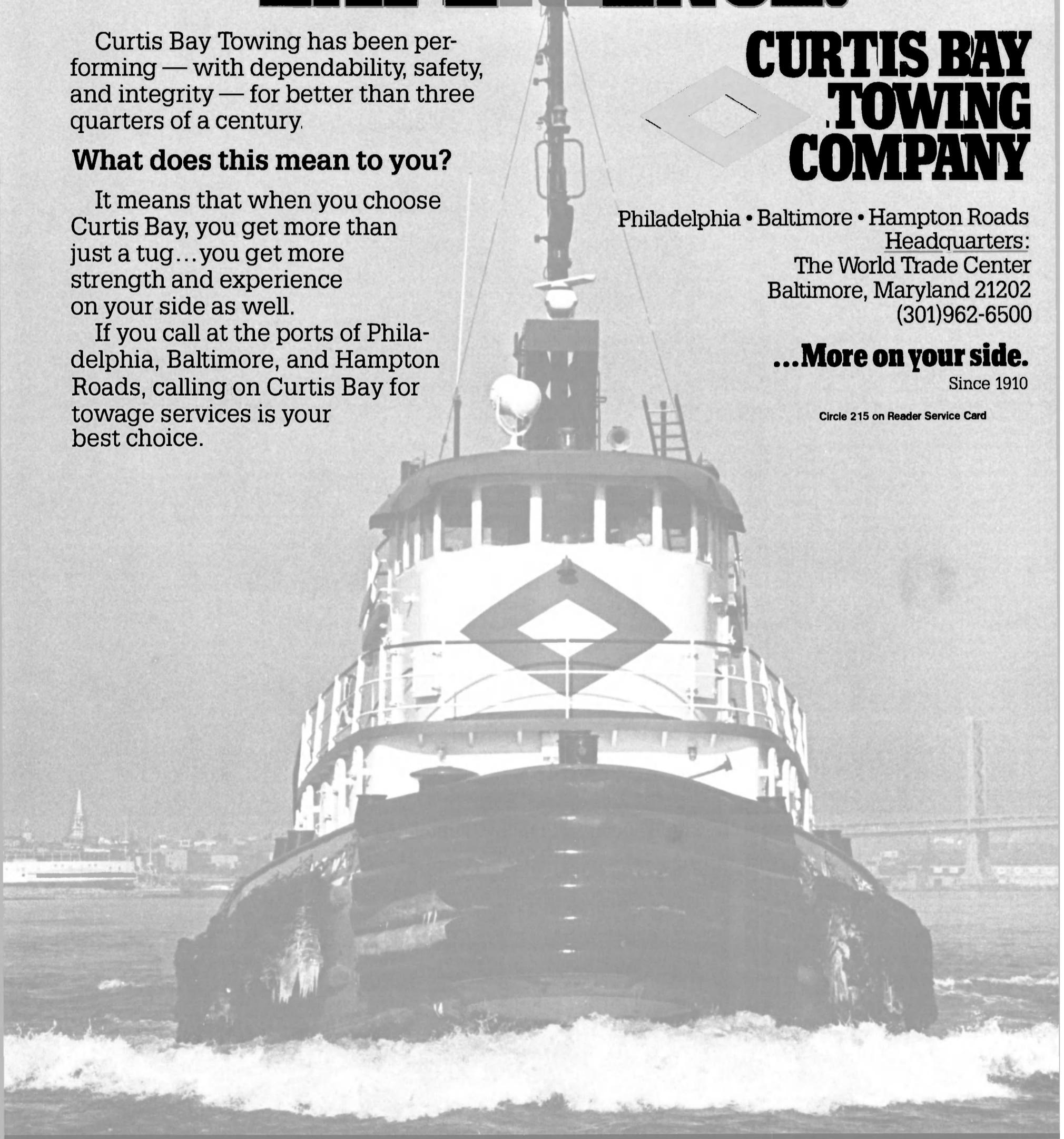
Philadelphia • Baltimore • Hampton Roads

Headquarters:
The World Trade Center
Baltimore, Maryland 21202
(301)962-6500

...More on your side.

Since 1910

Circle 215 on Reader Service Card



ENVISIONS Receives \$3.7-Million Navy Contract From PERA For Ship Work

The Navy Office of Planning and Engineering for Repairs and Alterations (PERA) recently awarded a \$3.7-million contract to Engineering Visions, Inc. (ENVISIONS), for work on combat support ships on the West Coast and throughout the Pacific.

The contract involves some 40 ships homeported on the West Coast and deployed in the Pacific. Underway replenishment, repair and salvage vessels such as tankers, tenders and minesweepers and ammunition ships will be served by ENVISIONS under the contract.

This is the first major contract for the company since the employee-owned firm began competing for Government and Department of Defense small business set-aside contracts last summer.

ENVISIONS, a 300-employee company headquartered in Chula Vista, Calif., has seven offices spreading from the East Coast to Guam.

For further information on the services and facilities offered by ENVISIONS,

Circle 36 on Reader Service Card

Ingersoll-Rand Receives \$10.1-Million Navy Contract For Tow Tractors

Ingersoll-Rand Company, Mining Machinery Group, Bristol, Va., is being awarded a \$10,149,831 firm-fixed-price contract for 189 TA20 tow tractors, 43 TA35 tow tractors and related technical data for various Navy activities (sites unknown) for use in towing shore-based aircraft. Work will be performed in Cedar Bluff, Va., and the expected date of completion is December 1989. This contract was a competitive procurement, with 92 firms solicited and seven offers received. The appropriation level of funds: APN, FY-86, \$10,149,831. The Naval Regional Contracting Center, Philadelphia, Pa., is the contracting activity (N00140-86-C-9547).

Radio-Holland To Distribute Anschuetz Products In U.S. —Literature Available

Radio-Holland recently announced they have obtained exclusive distributorship rights to the Anschuetz Product Line in the U.S. This means that sales and service of Anschuetz products will now be handled through Radio-Holland's branch offices in the USA as well as their nationwide network of authorized dealers.

Joining the Radio-Holland staff

will be **Lee Marcroft**, **Dennis McIntyre**, and **Jim Reed** in the Springfield, N.J., office. **Phil Johnson**, **Chris Beckett** and **Kim Scott** in the Houston, Texas, office, and **Tom Dane** in the New Orleans, La., office.

The list of well-known Anschuetz products includes a full line of marine gyrocompasses, autopilots and steering controls, installed on over 9,000 ships ranging from 500,000-

ton super tankers to 42-foot motor yachts.

Radio-Holland USA, B.V. offices are in the following locations: **New York**—90 Route 22, Springfield, N.J. 07081, (201) 379-2660, telex 132034; **Houston**—6033 South Loop East, Houston, Texas 77033, (713) 649-1048, telex 795428; **Long Beach**—1965 Spring Street, Long Beach, Calif. 90806, (213) 595-0039, telex 181584; **New Orleans**—5515

Pepsi Street, Suite C, Harahan La. 70123, (504) 773-4024, telex 784433; **Mobile**—701A South Conception, Mobile, Ala. 36603, (205) 432-3109, telex 782737; and **Corpus Christi**—3206 Reid Drive No. 12A, Corpus Christi, Texas 78404, (512) 851-9390.

For free literature on Anschuetz products,

Circle 54 on Reader Service Card



READY on the Atlantic Coast.

The Sparrows Point Yard, one of the nation's foremost construction yards, is now ready to repair and maintain your ship—everything from a survey, rebuilding collision damage, to a major conversion.

A new intermediate gate gives the yard's modern basin the flexibility needed for repair work. This gate can be installed at one of two positions, so that the gigantic 200-ft. x 1,200-ft. basin can be divided into sections measuring 300 and

900 ft. long, or 685 and 515 ft. long.

All the yard's world-class fabricating and shop facilities, as well as the skilled trades and crafts people, are ready to work on your ship.

Contact the Sales Department

at Sparrows Point today for a quote and to book your ship:

Phone: (301) 388-7786

Telex: 84-7417 (BETHSCO
BETM)

TWX: 510-651-4796 (BSCO
BETH)

Mail: Sparrows Point, MD 21219

Bethlehem



MARINE CONSTRUCTION GROUP
Beaumont and Port Arthur, Texas, USA
Sparrows Point, Maryland, USA
Republic of Singapore

John Crane Schedules 'Mechanical Maintenance Skills' Seminar Programs

The 1986 schedule of Mechanical Maintenance Skills Development and Improvement Seminars has been announced by John Crane International Sealing Systems. The comprehensive four-day seminars

are conducted at the company's new Mechanical Maintenance Training Center in Arlington Heights, Ill.

Attendance at each seminar program is limited to the first 20 applications, according to **John Cifone**, training director. Attendees are mechanical maintenance personnel from throughout industry as well as military and government specialists.

The schedule of monthly seminars for the remainder of 1986 includes: June 2-5; July 21-24; August 18-21; September 15-18; October 20-23; November 17-20; and December 8-11.

Classroom lectures and audio-visual presentations are augmented by practical demonstrations and "hands-on" experience with equipment installation, disassembly and reassembly.

The seminars are open to anyone directly or indirectly responsible for the design, specification, selection, installation, operation or maintenance of mechanical seals and packings.

Details about registration for the 1986 seminars are available from John Crane sales representatives, or directly from the John Crane Mechanical Maintenance Training Center, 529 West Golf Road, Arlington Heights, Ill. 60005 (phone 312-364-0577).

now" to give your on-time repair.



READY on the Gulf Coast.

Big and powerful, the drydock at Bethlehem's new Sabine Yard can lift most vessels that call at Gulf Coast ports. The drydock can also be configured with its sections linked in two batteries, providing a docking area of 362 x 414 ft., enabling it to lift any mobile offshore drilling unit in the Gulf of Mexico.

America's newest yard, located at Port Arthur, Texas, stands ready to serve all your ship repair and maintenance needs.

Named the Sabine Yard, this facility features one of the largest drydocks in the USA. The

numbers prove the point: a clear docking area of 122 ft. x 829 ft., 30 ft. of water over the blocks, and lifting capacity of 64,000 long tons.

A \$20-million investment, Sabine Yard can now provide all the skilled trades needed for repairs and maintenance in the drydock. And these on-site services are backed up by the fabricating and manufacturing

shops at Bethlehem's nearby Beaumont Yard.

For a prompt quote on your job and to schedule your ship into the Sabine Yard, contact the Estimating Department at Beaumont:
Phone: (409) 838-6821
Telex: 387192 (BETH STLBMT)
Mail: Box 3031, Beaumont, TX 77704

Begley Assigned To Sales Staff At Falk Corporation



John B. Begley

John B. Begley has been assigned to the Houston, Texas district office sales staff of The Falk Corporation, Milwaukee-based subsidiary of Sundstrand Corporation. Falk is a major manufacturer of industrial power transmission machinery.

In his new position, Mr. **Begley** will assist district sales manager **William R. Beard** in serving the company's customers in southern Texas.

Falk's Houston office is located at 11999 Katy Freeway and the zip code is 77079-1603.

Free Brochure Available On Honeywell's 'HydroStar Plus' Acoustic System

A new color brochure from Honeywell's offshore business highlights the new HydroStar Plus, the company's advanced subsea positioning system. The system is based on a field-proven HydroStar design and offers a transponder mode, in addition to responder and pinger modes of operation.

The HydroStar Plus is an ultra-short-baseline acoustic system that provides range, bearing and depth information of subsea positions by use of a single subsea beacon and a single multi-element shipboard transducer.

Honeywell's three-year limited warranty, the first of its kind in the offshore industry, covers the HydroStar Plus control console, hydrophone and hydrophone cable against defective parts and workmanship.

For further information and a free copy of the brochure,

Circle 71 on Reader Service Card

Executive Offices:

Bethlehem Steel Corporation
Marine Construction Group
Bethlehem, PA 18016
Phone: (215) 694-5690
Telex: 84-7417 (BETHSCO BETM)
TWX: 510-651-4796 (BSCOBETH)
Cables: BETHSHIP, Bethlehem, PA

Bailey Supplies Control System For World's Largest Submersible Derrick Barge

The world's largest submersible derrick barge, built by Mitsui Engineering and Shipbuilding Co., Ltd. for McDermott International, Inc., has been equipped with an advanced ballast control system supplied by Bailey Controls.

The Bailey Network 90 microprocessor-based system provides integrated control of ballast pumps and valves as it monitors the list and trim relative to the load on the crane, mooring line tension and feed out, current ballast tank status and wave motion. Network 90 also provides the communication link between the crane safety and dynamic positioning computer systems.

Through three CRT-based Oper-

ator Interface Units, operators are able to control and monitor equipment via real-time interactive graphics, obtain equipment trending and status reports, and alarm summary reports.

Employing an enhanced Multifunction Controller Module, the system can simulate projected barge movement based on actual or anticipated conditions. This procedure is directly applicable to cargo loading

and discharge of tankers as well as general cargo carriers.

The DB 102 barge is equipped with dual revolving cranes with a total lifting capacity of 13,200 short tons, and is designed to work in the world's most severe marine environments such as the North Sea.

The self-propelled DB 102 has complete accommodations, health, and recreational facilities for 750 personnel. These can be expanded to accommodate as many as 1,500 persons in order to meet the most demanding project requirements including lifting, installing and dismantling offshore structures and facilities.

In addition to a 12-point mooring system, the barge possesses a dynamic positioning system and is equipped with six sets of 3,000 horsepower thrusters to ensure stable barge operation.

The 136,709-gross-ton vessel has an overall length of 662 feet, width of 320 feet and height of 162 feet. The twin lower hulls are 505 feet long, 92 feet wide and 44 feet deep. The maximum operating draft is 104 feet and the deck load capacity is 12,000 metric tons. DB 102 has a transit speed of 8 knots.

Bailey Controls is a division of Babcock & Wilcox, and a leading worldwide supplier of instrumentation, controls, and computer systems for power generation, process automation and energy management in the petrochemical, electric utility and process industries.

For further literature containing full information,

Circle 52 on Reader Service Card

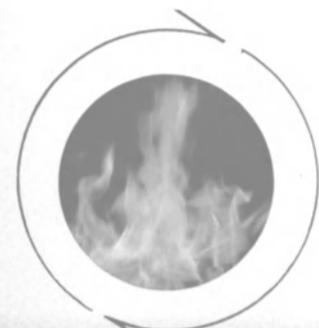
Charlotte Bordelon Named To National Boating Safety Advisory Council

Secretary of Transportation **Elizabeth H. Dole** has appointed **Charlotte Bollinger Bordelon** of Bollinger Machine Shop and Shipyard, Inc. of Lockport, La., a member of the National Boating Safety Advisory Council. The Council was created by Congress in 1971 to advise the Secretary of Transportation and the Commandant of the Coast Guard on matters related to recreational boating safety.

Mrs. **Bordelon** joined the Bollinger Shipyards in 1971 and presently serves as treasurer and a director.

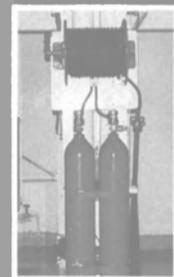
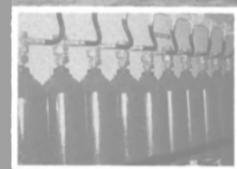
Southwest Marine Awarded \$4.9-Million Navy Contract For Frigate Drydocking

Southwest Marine Incorporated, Terminal Island, Calif., is being awarded a \$4,895,740 firm-fixed-price contract for drydocking and repair of USS Sides (FFG-14). Work will be performed in Terminal Island, and is expected to be completed in June 1986. Two bids were solicited and two offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8222).



WALTER KIDDE Marine Fire Systems Operations . . .

YOUR BEST DEFENSE!



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

WALTER KIDDE THE MARINE FIRE PROTECTION EXPERTS.
Walter Kidde Drive, Wake Forest, N.C. 27587, U.S.A. (919) 556-6811, Telex: 802569 WALKIDDE

Circle 50 on Reader Service Card

Electric Boat Awarded \$1.03-Billion Navy Order For Four Attack Subs

General Dynamics Corporation's Electric Boat division in Groton, Conn., has been awarded a \$1.03-billion Navy contract for the construction of four attack submarines of the Los Angeles Class, the total

number that will be awarded in fiscal 1986.

In the prior fiscal year, the contracts for attack subs were split between Electric Boat (1) and Newport News Shipbuilding (3). While the Navy will continue to seek competitive bids in the submarine program, Electric Boat's bid this year was so far below the next bidder it was decided to award all four attack subs to the single contractor.

Oshima Awarded Contract To Build Car Carrier For Norwegian Owner

Oshima Shipbuilding Company Ltd. in Nagasaki, Japan, has been given an order by Oslo-based I.M. Skaugen A/S for a car carrier with a capacity of 5,500 units. The cost of the ship was not revealed, but recent Japanese contracts for similar

car carriers were in the \$20-30 million range.

The new ship will operate under the Liberian flag, with Norwegian officers and Spanish crewmen. Delivery is scheduled for January 1987.

Skaugen has a 12-year contract to transport cars from the Far East to North America. The company currently operates two car carriers, the Skaubord and the Skaugran, each with a capacity of 3,500 vehicles.

S.P. RADIO GENERAL AGENTS:

ARGENTINE
Oton R. Klein S.A., 1102 Buenos Aires
☎ 362-7770, 362-7357, 361-1260

AUSTRALIA
E. S. Rubin & Co. Pty. Ltd.
Artarmon N.S.W. 2064, ☎ 439-2333

BAHRAIN
Aeradio Technical Services WLL, Manama
☎ 243390

BELGIUM
Antwerp Marine Radio Company N.V.
2000 Antwerp
☎ (03) 2337780, 2336092, 2310487

BRASIL
O.L. Naval Ltda., Rio de Janeiro, ☎ 252-4148

CANADA
Stiles Communications Limited,
Montreal, Quebec H3P 3B9, ☎ (514) 731-6123

CHILE
Equipos Industriales S.A.C.I.
Santiago, ☎ 56-2-6990506

CYPRUS
A. P. Hadjipieros, Limassol, ☎ (051) 63905

EGYPT
Pan-Arab Shipping Co.
Alexandria, ☎ 808601, 808337
Suez Electronics Free Zone Company,
Alexandria, ☎ 806899, 804196

FINLAND
Oy Hedengren AB, 00101 Helsinki 10, ☎ 670211

FRANCE
Avon S.A., 13002 Marseille, ☎ (91) 90 71 71
Compagnie Radio Maritime C.R.M.
75008 Paris, ☎ (1) 42 66 58 96

GABON
Thomson CFS Gabon, Libreville, ☎ 70-01-00

GERMANY
ELNA GmbH
2084 Rellingen/Hamburg, ☎ 04101/3011

GREECE
Elenava Ltd.
104-31 Athens, ☎ 5225894, 5241634

HOLLAND
Radio Holland B.V.
1069 CC Amsterdam, ☎ 020-101972

HONG KONG
Radio Holland B.V., Kwai Chung N.T.
☎ 0-239007

ICELAND
Radiomidun Ltd., Reykjavik, ☎ (91) 23173

INDIA
Elcome Marine Services Private Ltd.
Bombay 400 001, ☎ 260607, 263703

ITALY
Generalmare S.R.L. (Pleasure/Fishing)
16145 Genova, ☎ (010) 369066, 303198
Societa Italiana Radio Marittima S.I.R.M.
(Deep Sea), 00143 Rome, ☎ 5910441

THE IVORY COAST
Compagnie Radio Maritime C.R.M.
Abidjan 01, ☎ (225) 356727

JAPAN
Engineering Equipment Co. Ltd.
Tokyo 105, ☎ 03-572-7071

MALTA
Medcomms Ltd., Gzira, ☎ 35521

MOROCCO
Maroc Aviation
Casablanca, ☎ (212) 241267, (212) 241268

NEW ZEALAND
Cossens & Black Ltd., Dunedin, ☎ 774-215/6

NIGERIA
Netarcomms Nigeria Ltd.
Lagos State, ☎ 870517

NORWAY
Telaeg A/S, 1346 Gjøttum (Oslo), ☎ (02) 541190

PORTUGAL
Representacoes Carvalhal Lda
1200 Lisbon, ☎ 667794, 667710, 660654

QATAR
Eastern Technical Services, Doha, ☎ 441412

SENEGAL
Cie Radio Maritime, Dakar, ☎ (221) 210930

SINGAPORE
Radio Holland B.V.
Singapore 2158, ☎ 65-4673144

SOUTH AFRICA
Marconi Marine (South Africa) (Pty.) Ltd.
Cape Town 8001, ☎ 215860

SPAIN
Nautical Luis Arbulu, S. L.
28016 Madrid, ☎ (91) 457 05 42/457 05 79

SWEDEN
Televerket Radio, 123 86 Farsta
☎ 08/7134500
Navelco Marin & Industri AB
42131 Vastra Frolunda, ☎ 031-490205

TAIWAN R.O.C.
Pei Say Enterprise Co. Ltd.
Taipei, ☎ (02) 503-0048, 502-0032

TUNISIA
Compagnie Tunisienne d'Electronique
Tunis, ☎ 894133

TURKEY
Hilkat Bolulu, Istanbul, ☎ 1434576, 1476221

UNITED ARAB EMIRATES
Elcome International, Dubai, ☎ 471335, 373426

UNITED KINGDOM
S. P. Radio (U.K.) Ltd., Croydon,
Surrey CR9 2XT, ☎ 01-686 5363/4

URUGUAY
Electromarittima Uruguayua Ltda.
Montevideo, ☎ 202386

USA
Radio Holland-USA B.V., Houston, Texas 77033
☎ (713) 649-1048

VENEZUELA
Equipex - Radio Holland S.A.
Caracas, ☎ (02) 910836

YUGOSLAVIA
Belam, Rijeka, ☎ 25-250, 33-313

"SAILOR"

400 WATT AUTOMATIC RADIOTELEX STATION
Unattended reception and transmission of radiotelex messages.

Automatic Radiotelex System

Today several coast radiostations are ready to handle a telex connection direct from the ship to the telex subscriber ashore fully automatically.

SAILOR Automatic Radiotelex Station

With the SAILOR Short Wave Programme 1000/B it is possible to have a fully automatic shipboard radiotelex station,

which complies with the Nordic Mantex regulations and with other requirements for automatic radiotelex systems in.

- marine applications
- land mobile/point to point applications

Outstanding Facilities

Automatic control and scanning facilities.

- Automatic operation
- Unattended radiotelex reception
- Unattended radiotelex transmission.

Reliable and Cost Saving

The SAILOR Automatic Radiotelex Station will not only give a more reliable MF/HF radiotelex system but will also decrease the manpower required due to the automatic operation facilities.

Thanks to the unique module system the equipment is available as an automatic radiotelex station, or combined with an SSB short wave telephony station... or according to customer's specific requirements.



"SAILOR" AUTOMATIC RADIOTELEX
and SSB SHORT WAVE TELEPHONY STATION

S. P. RADIO A/S

DK-9200 AALBORG SV · DENMARK · PHONE INT.: +45 8 18 09 99
TELEX: 69 789 SPRAD DK · TELEFAX INT.: +45 8 18 67 17



Circle 23 on Reader Service Card

"SAILOR"

PSMA Elects Board Of Directors For 1986

—Tavrow Named Chairman

The Pacific Merchant Shipping Association (PMSA) held its 1986 Annual Meeting Luncheon recently at the San Francisco World Trade Club. It provided PMSA members with an opportunity to review the group's activities in the past year and hear the views of Congressman **Edward Zschau** (R-CA) on the

effects of the Gramm-Rudman-Hollings Deficit Reduction Act and the current U.S. trade imbalance.

Founded in 1919 as the Pacific American Steamship Association and rechartered as the Pacific Merchant Shipping Association in 1974, the group's primary function is to monitor the local, state, and federal issues that impact U.S.- and foreign-flag merchant shipping lines operating in the Pacific Basin area. At present, PMSA has a roster of 30 members, divided into four categories:

U.S.-flag carriers (6), foreign-flag carriers (17), associates (3), and tanker membership (4).

The PMSA's 1986 board of directors include: Capt. **Jerry A. Aspland**, ARCO Marine; **G.M. Cople**, Sea-Land Service; **Thomas B. Crowley**, Crowley Maritime; **Fritz L. Hiltzheimer**, United States Lines; **Thomas M. Kelly**, Lykes Bros. Steamship; **Richard L. Tavrow**, American President Lines; **Michael S. Wasacz**, Matson Navigation; **Jack B. Wil-**

liams, Showa Maritime USA; and **Jorgen Withseidelin**, Italian Line, Neptune Orient Lines, and Polynesia Line. Mr. **Tavrow**, who served as the 1985 chairman, was reelected to that office for 1986.

BP Pipelines Names Croxson President

Jeremy P.G. Croxson has been named president of BP Pipelines Inc., and will be located at the company's offices in Rye, N.Y. He previously served as manager, marine and special systems, Pipeline and Terminals Division of BP in London.

He succeeds **John L. Williamson**, who has been named project manager at BP's Group Engineering and Technical Centre in London.

BP Pipelines Inc., headquartered in Rye, is owned by BP North America Inc., and has an undivided one-sixth interest in the Trans Alaska Pipeline System.

Krupp Mak Diesel Relocates Office

Krupp Mak Diesel, Inc., a U.S. subsidiary of Krupp MaK Maschinenbau GmbH—one of the world's largest manufacturers of medium-speed marine diesel engines, is relocating its office.

The new address will be: Krupp Mak Diesel, Inc., 323 Vesta Court, Ridgewood, N.J. 07450, phone (201) 445-6676.

For further information on Krupp Mak's range of fuel efficient diesel engines with outputs from 700 to 1,400 horsepower,

Circle 48 on Reader Service Card

Moran Towing Appoints Kenneth S. Johnson Chief Harbor Dispatcher

Russell G. McVay, vice president of Moran Towing and Transportation Co., Inc., has appointed **Kenneth S. Johnson** as chief harbor dispatcher for the Port of New York and New Jersey.

Mr. **Johnson** is a veteran of 40 years' experience, ashore and afloat, in the tugboat industry in New York Harbor. He started his career in 1946 as a deckhand on the tugs of the Olson Towing Company. When Olson became part of the Moran organization in 1953, he continued on as an able-bodied seaman, crewing on the harbor tugs.

In 1964 Mr. **Johnson** came ashore as a harbor dispatcher at the company's headquarters in Manhattan. Born in Bay Ridge, Brooklyn, Mr. **Johnson** comes from a harbor craft family. His father, **John S. Johnson**, was a captain in the Moran fleet and his son **Eric** carries on the tradition today as a mate on the *Judy Moran*.

Kenneth S. Johnson served overseas in the U.S. Army from 1951 to 1953.

MEYER WERFT

Established 1795

D-2990 Papenburg · P.O. Box 11 20 · Telephone 04961/810 · Telex 27118



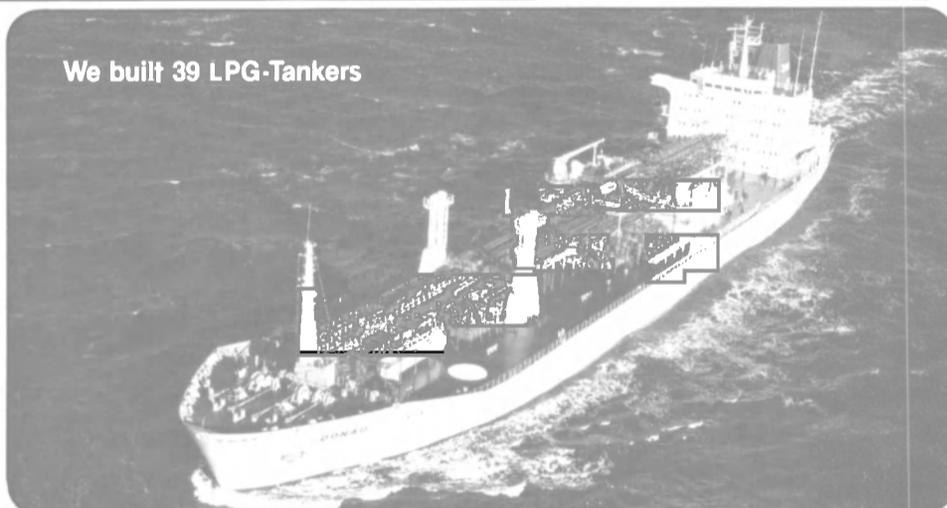
Passenger Ship "KERINCI"

Length o.a.	144.00 m
Breadth	23.40 m
Draught	5.90 m
Deadweight	3,400 t
Tonnage	13,954 GRT
Speed	20 kn
Main engine	2 x 6,250 kW
Passengers total	1,596
Passengers in cabins	1,096

LPG/Chemical/Product Carrier "DONAU"

Length o.a.	183.00 m
Breadth	30.00 m
Height	17.10 m
Draught	11.87 m
Speed	16 kn
Engine	5,440 + 4,080 kW
Deadweight	32,339 t
Tank capacity	30,207 cbm

We built 39 LPG-Tankers



Livestock Carrier for 125.000 Sheep

Length	195.00 m
Breadth	37.10 m
Height	17.80 m
Draught	10.50 m

14 sheep decks, freshwater evaporator 150 to/day, 20-fold air change in cargo hold, automatic fodder plant, automatic drinking water supply, dung removing plant. MS "AL SHUWAIKH" was converted from an oil tanker.

We converted 23 ships to Livestock-Carriers



We build: Cruise Vessels · Passenger Ships · Car- and Passenger Ferries · NH₃/VCM/PO-LPG-Carriers · Chemical Tankers · Ro/Ro-Vessels · Reefers · Heavy Lift-Ships · Livestock-Carriers · all kind of high sophisticated vessels up to a length of 220 m and a breadth of 32 m. High-Pressure Air Compressors · Tank and Alu Constructions · Repairs and Conversions of all types of ships (Drydock: 240 m x 35 m — dividable).

Circle 50 on Reader Service Card

Taylor Diving Receives Contracts From Shell, Mobil —Literature Available

Taylor Diving, Inc., Belle Chasse, La., a Halliburton Company subsidiary, announced the award of two new contracts and the completion of its first Gulf of Mexico underwater project for 1986.

Norman Chambers, president of Taylor, said the diving service contractor has been awarded a "call-out" contract by Shell Offshore, Inc. for the eastern division operating area of the Gulf of Mexico. The contract, extending through April 1987, calls for Taylor to perform certain diving services "on-demand" for Shell during the period of the contract.

An additional contract, calling for structural repairs and maintenance of offshore platforms in the Gulf of Mexico, was awarded Taylor by Mobil Exploration and Producing, Inc.

In addition, Taylor has completed its first project of the year for Brown & Root Marine. Taylor personnel provided support services for a pipeline installation project performed by Brown & Root for the Diamond Shamrock Corporation in the Gulf of Mexico.

For further information and complete detailed literature on the services offered by Taylor Diving,

Circle 46 on Reader Service Card

Zim Names Millard VP Of Operations

Capt. **Yoel Yanai**, senior vice president of operations for Zim-American Israeli Shipping Co., Inc. (ZAISCO), one of the largest steamship companies in the world, announced the appointment of **John W. Millard** as vice president.

Mr. Millard, who has more than 21 years' experience in the transportation industry, is responsible for all marine and terminal operations for Zim in North America. He joined Zim in 1973, most recently serving as assistant vice president of operations.

Zim operates more than 80 vessels calling at over 250 ports worldwide. Zim-American Israeli Shipping Company is the largest of four divisions which comprise Zim Israel Navigation Company.

2-Volume Research Report Now Available On Fuel Efficient Vessel Operations

The Maritime Administration has announced the availability of a two-volume research report, "Micro-Computer Based Part Power Heat Balance Program for Commercial Marine Steam Turbine Propulsion Systems."

Prepared by Seaworthy Systems of Essex, Conn., the program was

Circle 257 on Reader Service Card➤

developed to assist ship operators in fuel-efficient vessel operations. Because of the high cost of fuel, most companies already operate their vessels at slower-than-design speeds. However, through the use of this program, the propulsion system's performance can be tuned to ensure fuel efficient operation at these slower ship speeds.

The program was developed to operate on an IBM Personal Computer and can be used for all steam propelled vessels that are currently operating in the U.S.-flag fleet.

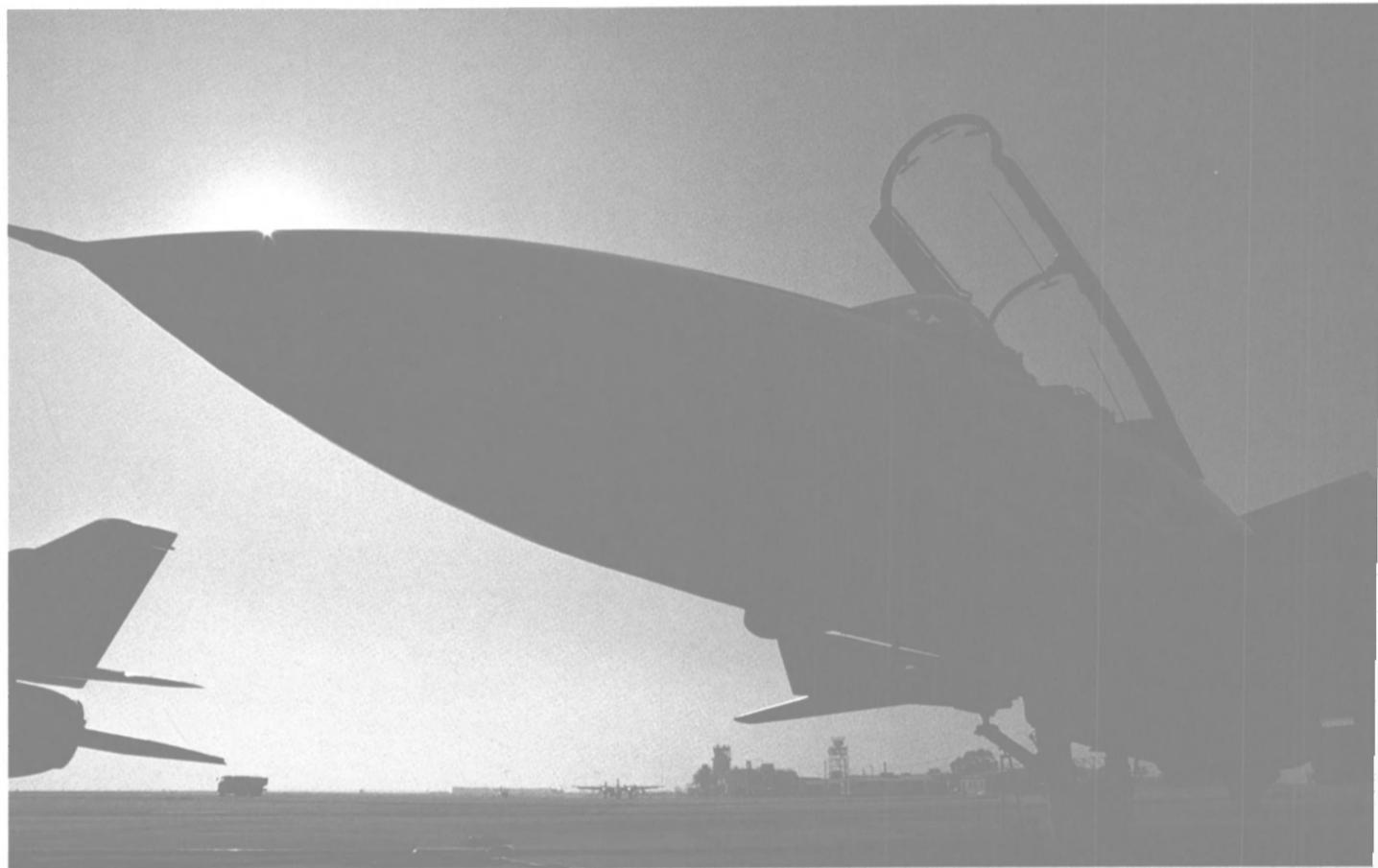
The report may be obtained from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161.

The order numbers and prices are

as follows: Executive Summary, PB86-166956/AS, \$9.95; User's Guide, PB86-166964/AS, \$16.95.

The computer programs are available on diskettes from Seaworthy Systems. For information on how to order,

Circle 40 on Reader Service Card



They carry the most advanced weapons against corrosion.



Military aircraft and ships arm themselves against corrosion with PRC sealants and coatings.

Based on proprietary PRC Permapol® Polymers, PRC sealants and coatings are elastomeric, providing the flexibility to "give" with movement caused by thermal shock, vibration, and other environmental factors.

Where other materials become brittle and crack over time, PRC products maintain their elasticity. In addition to having a high degree of chemical resistance, PRC coatings are also abrasion and impact resistant. PRC coatings conform to the rigorous standards outlined by the EPA under VOC regulations. The end result: long-term protection.

PRC Proreco® Decking Systems have a 15 year service history of providing deck maintenance cost savings on all types of high wear deck surfaces including aircraft carrier flight decks, helicopter landing platforms on military ships and on offshore drilling rigs, cruise ships, cable laying ships, ice breakers, fishing vessels and ocean going towboats of all types.

Contact R.N. Morris, Market Manager
Products Research & Chemical Corporation,
P.O. Box 1800, Glendale, CA 91209. (800) 423-2411.
In California: (818) 240-2060.



Proreco® Deck Coating Systems

PROPULSION UPDATE

Bailey Offers Technical Paper On Better Combustion Control

A comprehensive technical paper entitled "Oxygen Control, Carbon Monoxide Control, or Both—Which Is Best for Your Boiler?" by E.P. Smith, market manager-energy group, Bailey Controls, Burlington, Ontario, was presented at the 46th National Conference of the Institute of Power Engineers in Halifax, Nova Scotia. Copies of the paper are available free of charge.

During the past 20 years, much has been published in the various trade magazines and journals on the pros and cons of excess air trim as applied to combustion boiler control systems. Some say oxygen (O₂) only for control is best, some say that carbon monoxide (CO) only for control is best, and others say that a combination of O₂ and CO is best.

Which is the best for your plant? This paper attempts to sort through much of the written material that is available on the subject and help you decide on the right selection for your plant.

The author concludes that the application of O₂ or O₂+CO excess air trim to the combustion process is a very attractive proposition for any combustion control system. Oxygen measurements are a true indication of excess air, but have no relationship to combustion quality and completeness of combustion. Carbon monoxide measurements have no relationship to excess air but do provide an index of combustion quality and completeness of combustion. By combining the two measurements in one O₂+CO system,

we have the best of two worlds.

For a free copy of the Bailey technical paper

Circle 11 on Reader Service Card

BP North America Names Dr. E. T. Libbey VP, Corporate Development

Dr. Edward T. Libbey has been named as vice president, Corporate Development of BP North America Inc., effective immediately. Dr. Libbey had previously served as

production manager of BP's Rotterdam Refinery in the Netherlands.

He succeeds Howard G. Lunn, who has been named managing director of Kaldair International Ltd., a British Petroleum subsidiary which is involved with flare technology and industrial gases. He will be located at Sunbury-on-Thames, near London and takes up his new appointment.

BP North America Inc. is a wholly owned subsidiary of The British Petroleum Company p.l.c. and oversees the wholly owned investments of the BP Group in the United States.

Grandi Motori To Unveil Diesel Engine Designs —Literature Available

Grandi Motori, the diesel engine division of Fincantieri Cantieri Navali Italiani, will be launching a number of new engine designs in the course of this year and 1987. Most of

them will be for marine applications or land-based electric power generation.

One unit is the GMT A320 4-stroke, medium-speed engine with

The right propellers: you may or may not have them. But you can sure find out in a hurry. For free.

The right propellers can save on engine wear and fuel, increase speed and improve maneuverability, withstand damage, protect your shaft-line, and last a lot longer.

Tall order? Not if the engineering is competent.

We will engineer the right propellers for your boat. Free. Send the coupon today and get it underway.

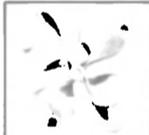
Builders of commercial, fishing, and military craft specify Columbians with confidence. We build them in CF-3 stainless steel, Nibral, and manganese bronze, in diameters up to about 14 feet.



Hydroflite—for efficiency at high shaft speeds



Hydrosonic—general service displacement hulls



Tetradyne—quieter high-performance



Mako—high HP high-performance hulls



Fishmaster—trawlers and draggers



Crewboat—high thrust with high reliability

Yes, we want you to engineer the right propellers for us: MR

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

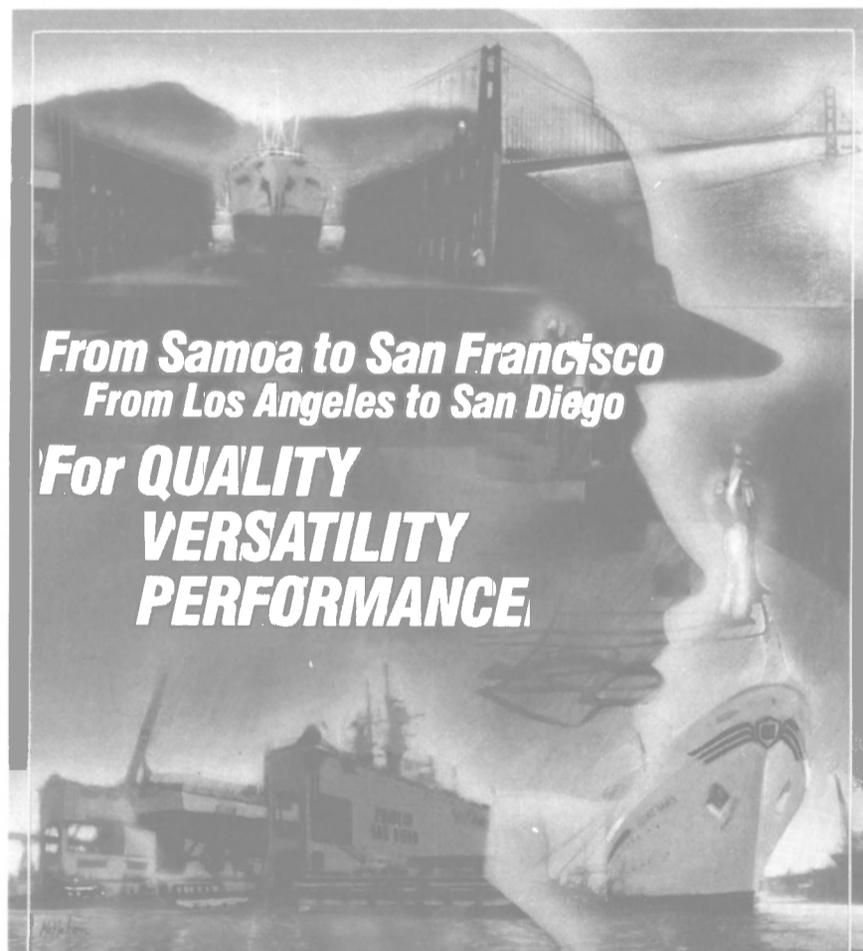
Telephone _____

Vessel(s) Type and Size _____



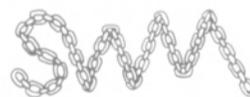
Columbian Bronze Corporation Dept. M-3
216 N. Main Street Freeport, NY 11520
Telephone (516) 378-0470

Circle 135 on Reader Service Card



From Samoa to San Francisco
From Los Angeles to San Diego

For QUALITY
VERSATILITY
PERFORMANCE



SOUTHWEST MARINE, INC.

SPECIALISTS IN THE REPAIR, MODERNIZATION & MAINTENANCE OF SEAGOING VESSELS

SAN DIEGO YARD
Southwest Marine, Inc.
Foot of Sanson Street
P.O. Box 13108
San Diego, CA 92113
(619) 238-1000
TWX No. 910-325-1167

SAN PEDRO YARD
Southwest Marine, Inc.
385 S. Seaside
P.O. Box 3347
Terminal Island, CA 90731
(213) 519-0600
TWX No. 910-345-8638

SAN FRANCISCO YARD
Southwest Marine of San Francisco, Inc.
P.O. Box 7644 (Pier 28)
San Francisco, CA 94120
(415) 543-0499

SAMOA YARD
Southwest Marine of Samoa, Inc.
P.O. Box 1387
Pago Pago
American Samoa 96799
684-633-4122
Telex 525 SWM SB

SOUTHWEST MARINE, INC. 1983

Circle 237 on Reader Service Card

outputs from 3,000 to 8,000 bhp at 720-750 rpm, but with special features to insure improved performance at part loads. This type will use the latest bore-cooling technique for combustion chamber components, and utilize to best advantage the greater efficiency of the latest Brown Boveri exhaust-gas turbochargers. This engine, and the other commercial (non-naval) diesels, are designed for operation on heavy fuel.

Also on extended testbed trials at present is a longer-stroke version of the well-established B550 engine, with a bore of 550 mm the largest of the GMT medium-speed engine range. This new higher-powered, more economic BL550 unit covers a power range from 9,900 to 33,000 bhp for ship propulsion or electric power generation.

With the stroke/bore ratio raised from 1:07 to 1:14 by increasing the piston stroke from 590 to 630 mm, the cylinder output of the BL550 has been increased to 1,650 bhp at 450 rpm with only a modest rise in mean effective pressure from 20.6 to 21.6 bar, and of the mean piston speed from 8.85 to 9.45 meters per second. Modifications to combustion chamber and fuel injection designs, together with adoption of the latest higher-efficiency turbochargers, have already reduced the specific fuel consumption to 178 gr/kW on the standard B550 engine, but it is predicted that the new BL550 will have an even better figure of 168 gr/kW as a result of higher maximum combustion pressures.

Two of these new type 6-cylinder engines have already been ordered for a ferry for the Italian State Railways, and two others, but with 16 cylinders and as dual-fuel (gas and diesel oil) units for a total-energy municipal power station in Turin. This longer-stroke BL550 will be available with 6, 8, and 9 cylinders in-line and with from 12 to 20 cylinders in V-form.

Following testbed results on a new 12-cylinder 420H engine, production is about to commence on this new higher-rated version of the GMT A420H (420-mm bore series). Output per cylinder is increased from 700 bhp at 500 rpm to 800 bhp at 600 rpm. This series now covers an output range from 4,800 to 12,800 bhp, from in-lins with 6, 8, and 9 cylinders, and V-form with 10, 12, 14, and 16 cylinders.

With the Brown Boveri VTR ME4 turbochargers of the latest design and higher efficiency, this class of engine has a lower specific fuel consumption (about 128 grams per bhp-hour) compared with the original A420 engine, a shorter piston stroke of 480 mm, and output per cylinder increased from 700 to 800 bhp at a higher 600 rpm.

As a further development, Grandi Motori is also concentrating efforts on its 230-mm bore, high-speed engine, a highly versatile unit capable of burning heavy fuel oil and therefore suitable for uni-fuel ships. This engine is also available as special M versions for naval ship propulsion and auxiliary applications, including a non-magnetic unit for mine-hunting naval vessels.

The engine designated B230 is available in two versions, standard and long-stroke, both radically updated as regards cooling arrangements and pressure-charging, and otherwise meeting the higher outputs available from 720 to 1,200 rpm for marine propulsion of commercial vessels, for generating sets, off-shore duties, and for naval vessels.

Another major step for Grandi

Motori will be taken this year when production is commenced of the supercharged A210SM naval engine, a marked development of the naturally aspirated A210M units installed in the Italian Navy's recent Sauro Class submarines. The latest redesign and other development work has resulted in an even more compact engine with 8, 12, and 16 cylinders in V-form, of low specific

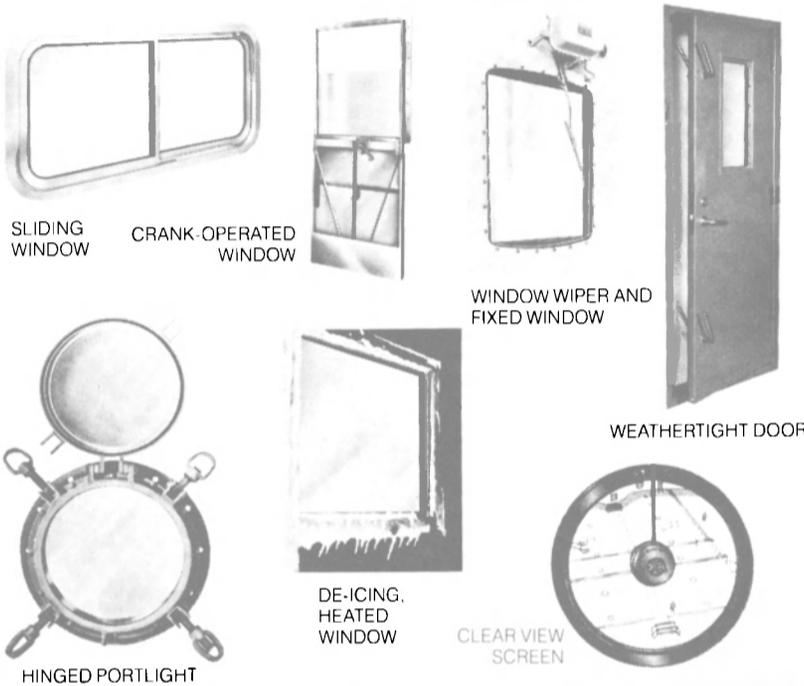
weight, and covering outputs of 785, 1,180, and 1,570 kw at 1,500 rpm. The new A210SM for submarine propulsion has a cylinder bore of 210 mm, piston stroke of 230 mm, and is pressure-charged with inter-cooling to an MEP of 9.87 bar.

For further information and free literature on GMT engines,

Circle 19 on Reader Service Card

'PROVED ENGINEERING AND DEPENDABILITY

STAND BEHIND THE WORLD'S FINEST SHIPBOARD WINDOWS, WINDSHIELD WIPERS AND DOORS BY... SINGER'S KEARFOTT DIVISION... NATURALLY.



Kearfott products are quality constructed to meet requirements of A.B.S., U.S.C.G. and Navy standards.

Kearfott windows and doors can be manufactured in various sizes, shapes and materials.

Catalog showing complete line of marine products furnished upon request.

SINGER

THE SINGER COMPANY
KEARFOTT DIVISION
550 S. Fulton Ave., Mt. Vernon, N.Y. 10550
914-664-6033 • Telex 133440.

Circle 205 on Reader Service Card

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
RF-230M.
BECAUSE
RELIABLE
COMMUNICATION
IS NOT
A LUXURY.**

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 141 on Reader Service Card

Voith Acquires Holding In Kunststofftechnik Rodenberg GmbH

J.M. Voith GmbH of Heidenheim, West Germany, has acquired a holding in Kunststofftechnik Rodenberg GmbH & Company KG of Rodenberg/Niedersachsen. The company's production comprises water-lubricated plain bearings, compo-

nents for eccentric worm pumps, and injection castings for machine construction of elastomers and thermoplasts. In the cooperation between the two firms, development and sale of the bearings for ship propulsion, pumps, and water turbines will take priority.

For further information on Voith's products,

Circle 43 on Reader Service Card



In attendance at Hampton Roads Section meeting were (L to R): Thomas F. Conroy Jr., discussor; David P. Donahue, chairman; Gerard C. Hoffmann, author; and C. Thomas Hutchins Jr., discussor.

Navy Acquisition Streamlining Topic At Hampton Roads SNAME

At a recent meeting of the Hampton Roads Section of The Society of Naval Architects and Marine Engineers held in Norfolk a paper entitled "Navy Acquisition Streamlining" was presented by Gerard C. Hoffmann. The author was recently appointed to be the Navy's Specification Control Advocate General. The objective of this new officer is to eliminate the non-cost-effective contract requirements.

Mr. Hoffmann presented the following ideas for acquisition streamlining as a method of cost reduction:

- Run each acquisition as a business, cost-effective requirements balanced by justifiable risk;
- Tailor requirements for each major procurement; that includes specifications, standards, data re-

quirements, and contract terms and conditions;

- Act in a timely fashion; keep alternatives open as long as possible; premature decision-making shuts the door on cost-saving options;

- Insure early industry involvement in the requirements development process, including early design phases.

The author presented the details of each of the proposals, and concluded by stating, "The one Navy acquisition streamlining area that needs the most effort is risk taking. The very idea goes against the grain with most Navy acquisition managers, financial managers, and particularly engineers. Yet if we do not start assuming some risks, we will be out of business very rapidly."

Adams & Porter Elects Three New Executives

Adams & Porter Incorporated of New York, N.Y., insurance brokers and adjusters of average, recently announced the election of three officers to the positions of president, chairman of the board and chairman of the executive committee.

David B. Adams has been elected president of Adams & Porter. He was previously executive vice president and has been with the company for 23 years. He is a grandson of the company's co-founder, Henry

A. Adams, and a graduate of Johns Hopkins University.

Edward J. Rock, formerly president, has been elected chairman of the board. He has been with Adams & Porter for 39 years.

Robert C. Savage, formerly chairman of the board, has been elected to the position of chairman of the executive committee. He has served with the company for more than 46 years.

Adams & Porter Incorporated was founded in 1907, and is an international corporate insurance brokerage firm.

IMA To Publish Report On Navy Ship Systems Market

International Maritime Associates (IMA) is preparing a business analysis of the Navy ship systems market. The approximately 200-page report will provide a very comprehensive assessment of current and future market opportunities and will be available in June. Market updates will then be issued at three-month intervals.

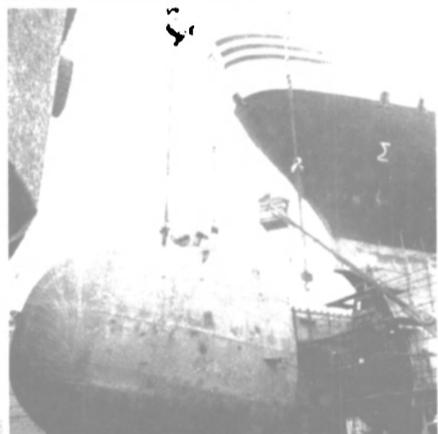
The development and procurement of complex ordnance, electronic and mechanical systems for Naval vessels generates an annual market of more than \$20 billion. As

ships become more sophisticated, this market will grow and become enormously attractive for developing new business opportunities. The emphasis on competition in defense procurement opens the market to any firm willing to make the marketing investment.

The report and quarterly updating service are available to subscribers at a cost of \$480. For further information, contact J.R. McCaul at tel. (202) 659-9547, or

Circle 34 on Reader Service Card

IRI GROUP FINCANTIERI IS SHIPREPAIRS & CONVERSIONS



20 graving docks for ships up to 400,000 tdw. 8 floating docks for ships up to 160,000 tdw. 13 km of repair berths and the frontage of the repair yards around the Italian coastline: the resources of Fincantieri's Shiprepairing Division are conveniently situated along the main and busiest Mediterranean shipping routes.

YARDS FOR SHIP REPAIR:

- A.T.S.M. - TRIESTE YARD
Tel. (O) 40 7391 - Tlx 460122 FINCAT I
- C.N.O.M.V. - VENEZIA YARD
Tel. (O) 41 798511 - Tlx 410255 FINCVE I
- TARANTO YARD
Tel. (O) 99 407134 - Tlx 860020 FINCTA I
- PALERMO YARD - Tel. (O) 91 546488-545288
Tlx 720674, 910041 FINCPA I
- S.E.B.M. - NAPOLI YARD
Tel. (O) 81 7858111 - Tlx 710040 FINCNA I
- O.A.R.N. - GENOVA YARD
Tel. (O) 10 283801 - Tlx 270090 FINCOR I
- M.G.N. WORKS
Tel. (O) 10 283811 - Tlx 270370 FINCMG I
- LIVORNO YARD
Tel. (O) 586 34121 - Tlx 500071 FINCLI I

FINCANTIERI
Cantieri Navali Italiani S.p.A.

SHIPREPAIRING DIVISION
Via Cipro, 11 Genova/Italy Tel. (O) 10 59951
Tlx 270102 FINCGE I

Circle 263 on Reader Service Card

TM
INFRAPHONE

— keeps your boiler clean

Yes please,
send more information!

Mail this coupon to

INFRASONIK AB

S-612 20 Finspong, Sweden
MR

Name

Company

Dept

Address

City

Country

or use the reader enquiry service.

Circle 107 on Reader Service Card

**The Manitowoc Company
Appoints Michael Decker
Vice President And CFO**



Michael Decker

Ralph Helm, president of The Manitowoc Company, Inc., recently announced that Michael Decker has been appointed vice president and chief financial officer of the company. He will direct the activities of the accounting, data processing and treasury departments.

Mr. Decker most recently served as treasurer of Becor Western Inc. in Milwaukee, Wis. He also held positions of assistant corporate controller, plant controller and assistant treasurer of Becor Western Inc., and served as a senior staff accountant of Price Waterhouse. A certified public accountant, he received a Bachelor of Arts degree in social studies from the University of Evansville in 1964, and a Bachelor of Science degree in business and accounting from Indiana University in 1967.

**President Vetoes Maritime
Amendments Legislation**

Despite broad support for the bill by Republican Senators and Congressmen, President Reagan vetoed the Miscellaneous Maritime Amendments (HR-2466). Among the provisions of the bill was one that would have closed a Jones Act loophole that could allow foreign-flag tugboats to assist foreign-flag ships in U.S. ports. While the Administration did not object to that particular amendment, it said that others were unsupportable, including one that would have set up a National Offshore Vessel Operators Safety Advisory Committee. The House Merchant Marine and Fisheries Committee plans to add these and other provisions from HR-2466 to another bill.

**Racal Marine Moves
To New Headquarters
In Cranford, N.J.**

Racal Marine, one of the world's leading suppliers of marine electronics, has relocated its United States sales and service headquarters to Cranford, N.J. The office was previously located in Florida.

According to Robert M. Burns, executive vice president of sales and service, "The move strengthens Racal Marine's sales and service operations and provides a focal point for the dealer network in the United States. We can now better serve our customers throughout the country

including those in the Port of New York and New Jersey." Mr. Burns also said that customer service would be improved because of closer access to major domestic and international transportation links. The new offices of Racal Marine Inc. are located at 70 Jackson Drive, Cranford, N.J. 07016, telephone (201) 272-4222.

Racal supplies navigation aids, ra-

dar, communications, integrated ship management systems and bridge simulators for the commercial maritime market, as well as a wide range of marine electronics for private boat owners. Service is provided by Racal teams in coastal and inland ports, and through some 200 dealers around the country.

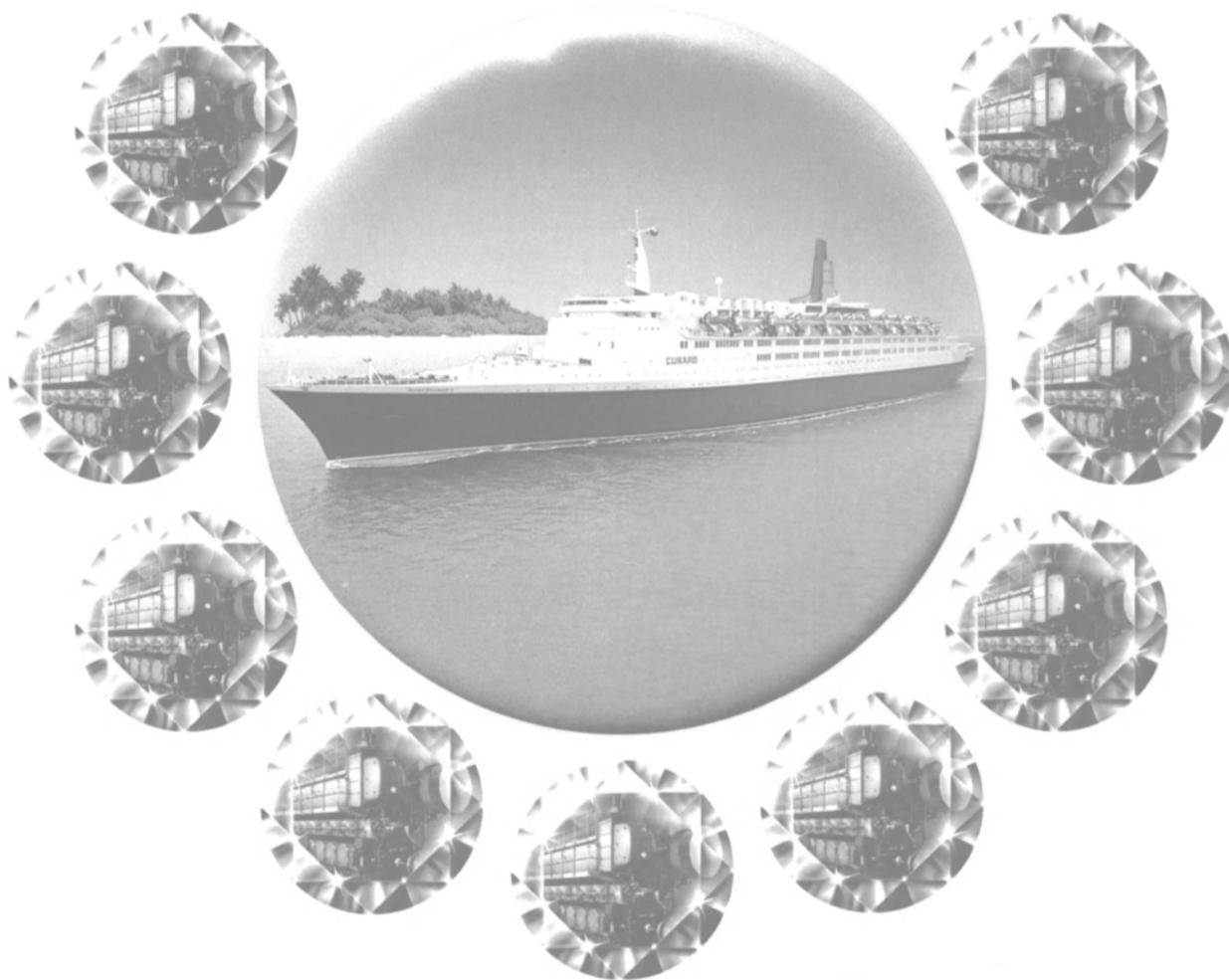
Racal Marine is a unit of the international Racal Group, which

provides products, systems and services in data and radio communications, telecommunications, security, defense radar and avionics, marine and energy electronics, specialized electronics and occupational safety and health equipment.

For further information and free literature from Racal Marine,

Circle 67 on Reader Service Card

The very best for a Queen



Maximum economy and optimal reliability are the two major requirements stipulated for the new propulsion plant on board that most famous of ocean-going hotels, the "Queen Elizabeth 2". After carefully comparing various propulsion concepts, the

Cunard Line shipping company opted for M.A.N.-B&W's proposal based on nine 9L 58/64 four-stroke Diesel engines. Once installed, these engines will develop an aggregate 130,000 HP and will provide this noble vessel with the propulsion power required

for on-schedule Atlantic crossings and during leisurely cruises. A heavy fuel oil consumption rate of just 123 g/HP and the advanced engine design based on a refined maintenance concept are factors which guarantee both economy and reliability.

*See you
at Pozidowig*

Worldwide Service

M.A.N.-B&W Diesel GmbH
Stadtbachstrasse 1
D-8900 Augsburg
Cables: manbw augsburg
Telephone: (0821) 3221
Telex: 53796-0 man d



Circle 277 on Reader Service Card



Schottel Rudderpropeller provides maximum maneuverability for the new Brooks K.

New McAllister Tractor Tug Inaugurates Jacksonville Service

With the recent delivery of the 4,300-bhp tractor tug Brooks K. McAllister (photo), McAllister Brothers Inc. of New York announced the formation of McAllister Towing of Florida Inc. to begin a ship docking service in the Port of Jacksonville.

Capt. F. Cecil Payne has been appointed general manager of McAllister Towing of Florida. A for-

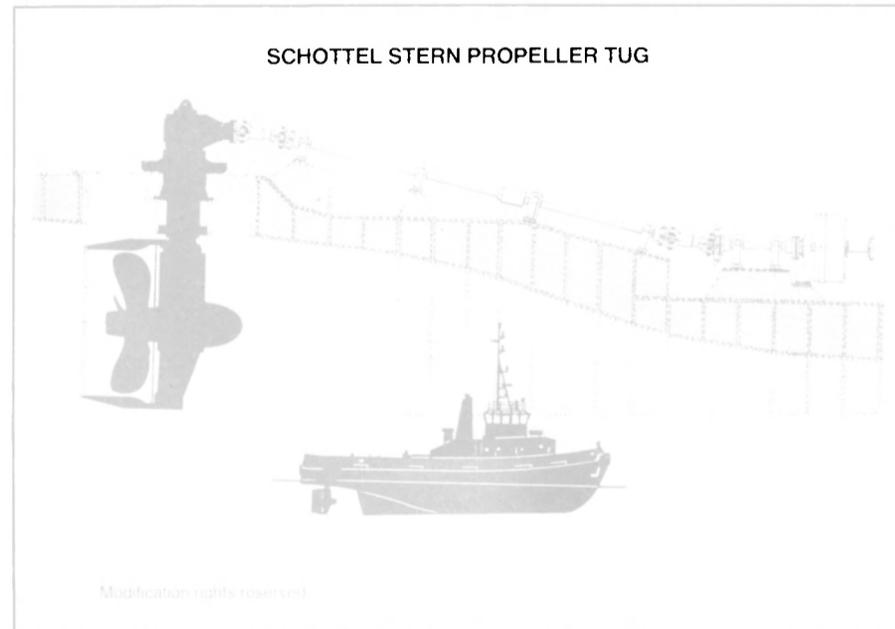
mer tugboat captain, he was for many years general manager for Crowley Maritime in Jacksonville.

The McAllister organization has been active in the boatbuilding business in the Jacksonville area for years. The firm's shipyard, Offshore Shipbuilding on the St. Johns River, has owned and constructed some \$30-million in equipment, the latest being the Brooks K.

Although McAllister vessels operate throughout the Caribbean, South America, and as far away as the Persian Gulf, the bulk of their activities are conducted on the major ports of the U.S. East Coast. Founded in 1864, McAllister now owns more than 100 units including: tugs, passenger vessels, ferries, barges and oilfield service equipment.

The new Brooks K. is fitted with two Schottel rudder-propeller drives (Monel SRP 1100/1001) driven by twin GM Electro-Motive Division 16-645EZ diesel engines. This propulsion design features two right-angle drive units located under the stern of the vessel. Each unit can rotate 360 degrees to provide virtually immediate and complete

Typical example of Schottel Rudderpropeller installation similar to that on the Brooks K.



Schottel Rudderpropeller before installation on the Brooks K.



control of thrust and direction. The propellers are enclosed in nozzles to further enhance the bollard pull of the vessel.

The Schottel rudder-propeller system produces a high degree of maneuverability and power that provides substantially increased economy and safety for the new tugboat. This advanced tractor tug design, though common in most of the modern European and Far East ports, is the first placed in service on the U.S. East Coast, according to company president **Brian A. McAllister**.

The Schottel Rudderpropeller is the nucleus of the Schottel propulsion system. Developed more than 30 years ago, it created completely new possibilities in the design and maneuvering capabilities of modern harbor and seagoing tugboats.

The Schottel system transforms engine output into optimum thrust by use of specially designed gears and a proportional propeller. Full thrust is provided to move the tug almost instantly in any direction by rotating the lower gearbox, without power loss, and with maximum maneuvering capability at full power ahead, astern and laterally. Turning circles and stopping distances at full power can be executed in approximately one tug length.

Power is transmitted by the Schottel Rudderpropeller through silent-running, spiral-bevel gears; packing seals are fitted throughout. Fixed or controllable-pitch propellers are of the push-type, designed to suit the individual vessel. For tugboat propulsion, most of the units are fitted with nozzles to increase thrust. Schottel Rudderpropellers are available in a power range from 27 to 6,000 horsepower.

Fast, single-lever fingertip control is provided by two separate direct-follow-up electrohydraulic steering systems.

The 4,300-bhp Brooks K. has

been joined in the Florida port by two 2,400-bhp tugs, the Dee Dee McAllister and the Danielle McAllister, and additional boats are planned for the new service.

For complete literature on the Schottel Rudder propeller system,

Circle 7 on Reader Service Card

For more information on the complete towing services offered by McAllister Brothers,

Circle 8 on Reader Service Card

Yost Nominated To Be Next Commandant Of U.S. Coast Guard

Vice Adm. **Paul A. Yost** has been nominated by President **Reagan** to become the next commandant of the U.S. Coast Guard. Following Senate confirmation, he will replace Adm. **James S. Gracey** who will retire on May 30 after four years as head of the service.

Admiral **Yost**, is a 1951 graduate of the Coast Guard Academy who has been serving as Commander of the Atlantic District. Secretary of Transportation **Elizabeth H. Dole**, whose department has jurisdiction over the Coast Guard, said the 35-year veteran has "served with distinction" in a wide variety of assignments both in Korea and Vietnam; he was decorated in both theaters.

DEADLINE OCT'2!

Will you be ready for the new pollution regulations?

By October 2nd, all ships must comply with the new I.M.O. regulations controlling the discharge of oil in the sea. Most ships will now have to fit an oily water separator. So fit the best - the Hamworthy unit - backed by the reputation of the world's leading manufacturer of marine pollution control equipment.

When you compare the Hamworthy separator with others, you will see that it's less complex, more compact,

and doesn't have expensive filters needing continual replacement.

There are 3 models with capacities up to 5 tonnes per hour, and all are fully automatic with fail-safe devices. They come as a complete module requiring only electrical and inlet/outlet connections. Naturally they are I.M.O. and U.S. Coastguard approved.

Send for further details, today. Time is getting short!

HAMWORTHY

Hamworthy USA Inc., 10555 Lake Forest Boulevard, Suite 1F, New Orleans, Louisiana 70127. Tel: (504) 244.9074. Telex: 853884

Hamworthy Engineering Ltd, Poole, Dorset, England, BH17 7LA. Telephone: 0202 675123. Telex: 41348

Companies, Offices and Agents throughout the world

BROOKS K. McALLISTER Major Suppliers

Main engine (2) . . . GM-EMD 16-645 E2
 Engine monitoring . . . Tracor Marcon
 Silencers . . . Reiley Beard (Maxim)
 Steering system, Rudderpropellers,
 clutches & shafting . . . Schottel
 Generators . . . Detroit
 Air compressor . . . Quincy
 Fuel pumps . . . Oberdorfer
 Bilge, ballast & fire
 pumps . . . Peabody-Barnes
 Air conditioning . . . Carrier
 Engine room ventilation . . . Hartzell
 Sanitation system . . . Microphor
 Potable water pump . . . Tate Andale
 Water heater . . . Bradford-White
 Switchboard, main power distribution &
 navigation panels . . . Power Panels
 Lighting Aqua-Signal/Pauluhn/Phoenix
 Electrical cable . . . Gaubert
 Radar . . . Furuno
 VHF radios . . . ICOM
 Loudhailer/horn . . . Raytheon
 Depth recorder . . . Datamarine
 Rectifier . . . Newmar
 Batteries . . . Tiger Glo
 Battery chargers . . . LaMarche
 Hatches, portlights &
 WT doors . . . Centrex Marine
 Windows . . . Kearfott
 Bumpers & fenders . . . M&M Bumpers
 (Hughes Bros.)
 Coatings . . . Sigma
 Life saving equipment . . . Jim Buoy

Alaska Barge Lines Begins New Service

Alaska Barge Lines (ABL), Inc., the new service begun by Seattle businessman **Gordon D. McMillan** and Totem Ocean Trailer Express (TOTE), Inc., recently had its first sailing out of the Port of Tacoma, Wash.

ABL operates a flat deck barge transporting containers and break-bulk cargo to Anchorage and the Alaska railbelt. Its docks are located within TOTE's terminals on the Blair Waterway of the Port of Tacoma, and in the Port of Anchorage.

Sailings are conducted twice a month, beginning in the spring, and so on to the beginning of the winter season (the latter part of November).

Joining Mr. **McMillan** on the management team are **Walter Seay**, vice president of sales and operations, and **Doreen White**, vice president of administration.

ABL, a subsidiary of TOTE, will provide additional price and service options for the shipping public.

According to Mr. **McMillan**, his company will meet the needs of shippers who were previously utilizing such barge operations as Foss Alaska Lines, Pacific Western Lines and other carriers which departed the Alaska market during the past year.

For more information about Alaska Barge Lines,

Circle 66 on Reader Service Card

Portland Port Commission Approves Construction Of \$5.9-Million Bulk Facility

The Port of Portland (Oregon) Commission recently approved construction at Terminal 4 of a \$5.9-million bulk export facility that will move commodities at three times the rate of the present facility, which is 40 years old. The new facility will be designed to reduce dust emissions and noise to insure a cleaner and quieter environment.

The new facility will have an annual capacity of 1.5-million tons. Financing of its construction, including an upgrading of the rail tracks serving it, will be through the sale of revenue bonds. Completion is scheduled for late 1987.

Exportation of bulk products through Portland totaled in excess of 500,000 tons during 1984, and is expected to increase. Leading bulk exports include bentonite clay, talc, and soda ash, destined chiefly for Pacific Rim countries.

M.A. Hanna Sells Nipigon Unit

M.A. Hanna Company has sold its Nipigon Transport Ltd. subsidiary to Algoma Central Railway, a Hanna spokesman announced recently.

Nipigon, a Canadian company, owns and operates a fleet of three great Lakes/St. Lawrence Seaway bulk carriers, the Lake Manitoba, the Lake Nipigon and the Lake Wash. Terms of the agreement were not disclosed.

Coast Guard Admiral Urges More Input From The Marine Community

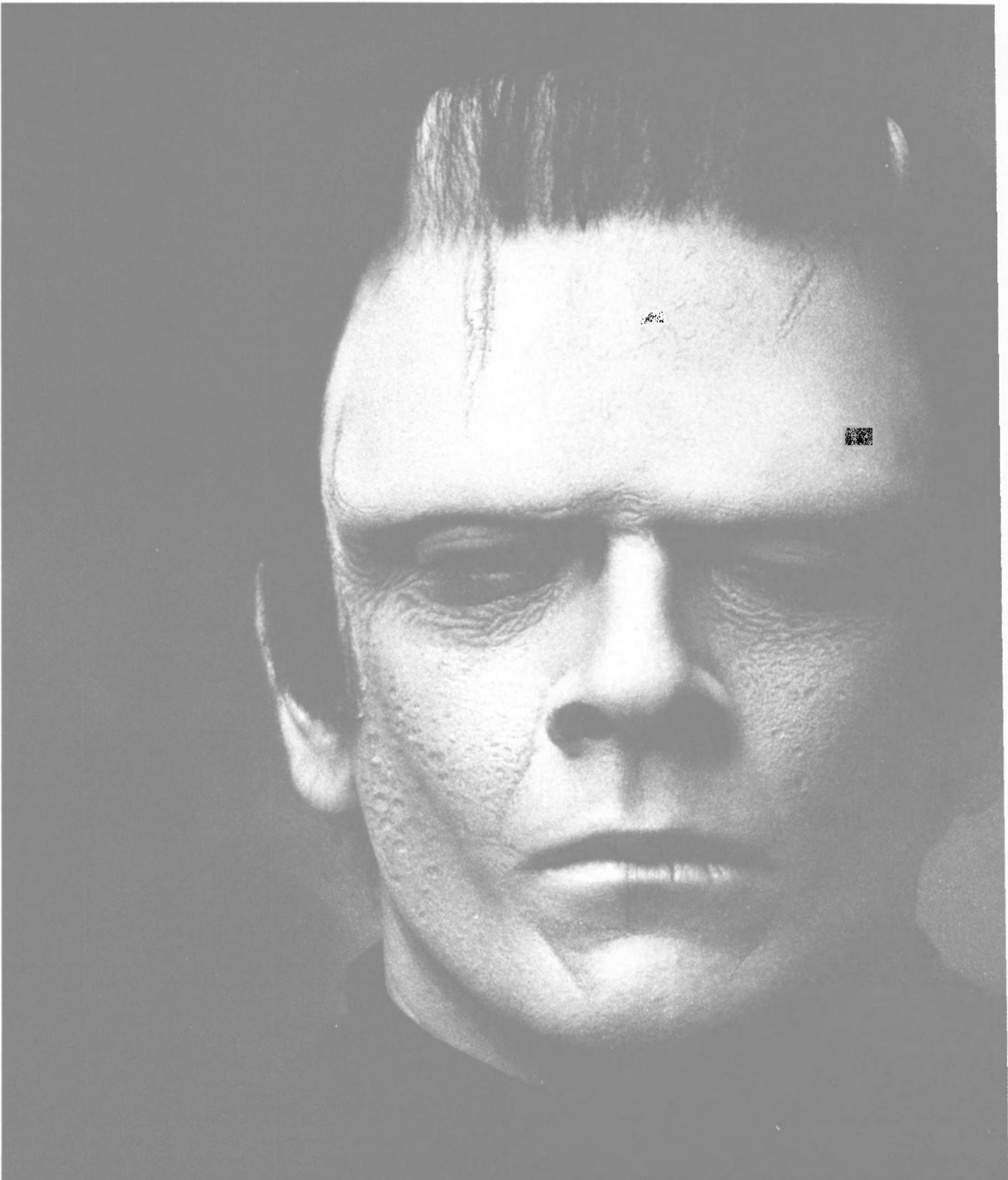
Shipbuilding and other maritime interests should get more involved with the U.S. Coast Guard, the International Maritime Organization (IMO), Congress, and other regulatory agencies to protect their own interests and avoid unnecessary laws and inappropriate regulations

that could cost billions of dollars. That was one of the messages delivered by Rear Adm. **Clyde T. Lusk**, commander of the Coast Guard's Eighth District, and Capt. **W.A. Mayberry**, USCG (Ret.), executive director of the Offshore Marine Service Association (OMSA), at the group's recent quarterly meeting in New Orleans.

After telling OMSA members of the Coast Guard's expanding role in safety, environmental, and enforcement missions, Admiral **Lusk**

urged his civilian audience to get involved because budgetary and manpower limitations of his service could cause the interests of some to be overlooked.

With respect to the IMO in London, Admiral **Lusk** said, "It is terribly, terribly important that someone look out for your interests over there. Somebody out there is getting involved in your knickers." IMO writes conventions and regulations that affect domestic trade as well as the worldwide marine community.



It's frightening.

The desire to save a little money here or a bit of time there can often result in unexpectedly monstrous problems.

That's true in most businesses. And it's especially true in yours.

By taking a chance on buying parts that aren't genuine GM/EMD parts, you risk losing your money in downtime and unscheduled maintenance.

And because meeting schedules is so vital, unavailable equipment

can have serious financial results.

It's a risk not worth taking.

Any part you order from us, at the very least, is made from the same exacting specifications the original gave you. But in many cases you get more than you bargained for.

"... When you ask for people to come to Washington to give you an input and nobody shows up, and when you seek somebody from the private sector to go with you on your delegation and help you and nobody comes ... then you get what you deserve," the admiral said. He added that the offshore marine service interests have "... been ably represented and I think you people have profited from it."

Prior to the admiral's remarks, Capt. **Mayberry** told the OMSA

members of proposed or pending regulations on certification of seamen, drug testing, physical examinations, firefighting examinations, and new license requirements for persons working on offshore drilling units.

He also discussed new Safety of Life at Sea (SOLAS) proposals on life rafts, new Coast Guard standards on exposure or immersion suits, additional manning requirements on vessels, new proposals regulating the use and operation of

cranes on liftboats and offshore installations, and standing boat legislation.

Imperial Receives Order For 500 Survival Suits —Literature Available

Imperial Manufacturing Co. of Bremerton, Wash., a leading producer of survival suits, has written a contract for over 500 survival suits

for two new ODECO drilling rigs. The Ocean Valiant and Ocean America rigs are being built in Korea by Hyundai Heavy Industries for ODECO (Ocean Drilling & Exploration Company), and are expected to be operational next year.

ODECO has had Imperial survival suits on all its offshore platforms for four years. Last fall the survival suits helped save the lives of employees swept overboard off the Coast of Mexico during Hurricane Juan. One person survived more than 20 hours of exposure in the 50-foot waves, wearing the Imperial survival suit.

Imperial provides adult standard, jumbo, and child's size survival suits. The suit fits over clothing and can be donned in about one minute. Imperial has worked with various governing bodies, including the Coast Guard and Underwriters Laboratory, for 15 years in testing and developing safe standards.

For free literature and more information,

Circle 57 on Reader Service Card

Seebeckwerft Awarded Contract To Add Capacity To Passenger Ferry

A/B Swedcarrier of Stockholm has placed an order with Seebeckwerft AG of Bremerhaven to increase the passenger capacity of its RO/RO passenger ferry Saga Wind. The vessel, which operates between the ports of Travemünde and Trelleborg, is scheduled to arrive at the shipyard in July this year; the conversion work is expected to take about two weeks.

The deckhouse will be enlarged by the addition of 22 new cabins for a total of 60 additional passengers. To accommodate them, the size of the lounge and cafeteria will be increased and other changes undertaken. Two additional lifeboats will be installed.

The Saga Wind has an overall length of about 506½ feet and beam of 69 feet. She was built by Elsinore Shipyard in Denmark in 1972 and lengthened by Fosen Shipyard in Norway in 1984.

Kansas City Company Gets \$9.7-Million Navy Contract For Six Sets of Cranes

Engineering-Manufacturing Corporation of Kansas City, Mo., has been awarded a \$9,730,000 contract by the U.S. Navy for the construction and installation of six cranesets for the next three auxiliary crane-ships (T-ACS-4-5-6) that will be converted from merchant vessels.

The program calls for the conversion of a total of 12 vessels to crane-ships that would be used in emergencies to discharge ships in ports where conventional shoreside facilities are not available. The first conversion was completed by Bay Shipbuilding, the second was awarded to Continental Maritime, and the third to Dillingham Ship Repair.

Just a reminder of what can happen when you use inferior parts.

Our R&D team has developed replacements for parts and engine conversion kits that can transform older pieces of equipment into better performers than when they were brand new. So you get improved efficiency and longer service life.

We have also instituted new procedures in our manufacturing that make our record of quality control even better.

Contact us at the Electro-Motive Division, LaGrange, Illinois 60525. Or telex us at 270041.

And then find out how our parts can save your company money, increase the performance of your equipment and reduce unscheduled downtime.



Todd Chairman To Retire In July; Board Nominates New Chairman And President

At a board of directors meeting of Todd Shipyards Corporation recently **John T. Gilbride**, 69, announced he will retire as chairman and chief executive officer immediately following the annual meeting on July 16, 1986. Mr. **Gilbride**, who has been chairman since 1975, will continue as a director of the company and chairman of its executive committee.

The board nominated **Hans K. Schaefer**, president and chief operating officer and a director since 1981, to succeed Mr. **Gilbride** as chairman and chief executive officer, and **John T. Gilbride Jr.**, vice president of Todd Pacific Shipyards Corporation and general manager of Todd's Seattle Division to become president and chief operating officer, effective July 16, 1986.

"The board was gratified to be able to select such capable and seasoned executives, both at a relatively young age, to take over the top management responsibilities at Todd," Mr. **Gilbride** said. "These promotions are consistent with the company's long-standing policy of advancing proven managers to senior positions and maintaining long-term executive continuity within the organization. Both men are dedicated to maintaining Todd's traditionally high standards of quality and integrity and to providing top value in products and services to government, commercial and industrial customers."

Mr. **Schaefer** joined Todd in 1968 and assumed increasingly important positions in New York, Seattle and Los Angeles, becoming vice president of Todd Pacific Shipyards Corporation and general manager of the Los Angeles Division in 1979 and a director in 1981. Born in Hamburg, Germany, he served his apprenticeship at the Deutsche Werft Shipyard in Hamburg while attending the Marine Engineering College concurrently, and in 1955 was awarded a degree in marine engineering. He moved to Canada in 1956 and worked successively at the Davie Shipbuilding Company, Quebec, Saint John Shipbuilding and Dry Dock Company, New Brunswick, and Canadian Vickers, Ltd., Montreal, at the same time continuing his studies in

business management and naval architecture and applied electronics.

John T. Gilbride Jr., joined the Seattle Division of Todd in 1968 and became a licensed professional mechanical engineer in the State of Washington in 1971. He then held various production and administrative positions before becoming general manager of the Seattle Division in 1979. He was elected a director in 1985. Mr. **Gilbride** graduated from Lehigh University where he received concurrent Bachelor of Science degrees, with honors, in both industrial engineering and business administration.

Todd Shipyards Corporation, one of the nation's largest independent shipbuilding and ship repair companies, operates yards in Seattle, San Francisco, Los Angeles and Galveston. Its Aro subsidiary is an international manufacturer of industrial air-powered equipment, including tools and aeronautical life-support products and environmental services.

For further information and free literature on the full range of shipbuilding services offered by Todd,

Circle 76 on Reader Service Card

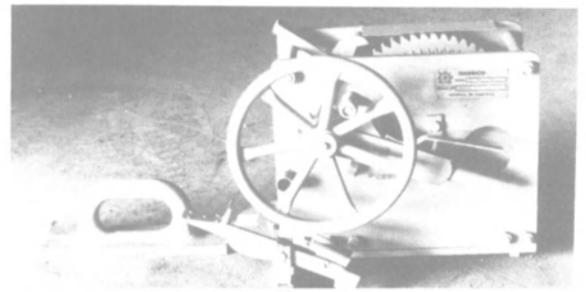
Free Literature Offered On New NABRICO Hand Winch

An all-new hand winch especially designed for use on barges, towboats and for other winch applications requiring significant holding capacity, has been introduced by Nashville Bridge Company (NABRICO), Nashville, Tenn.

Off all-steel construction, the mini-profile design winch has a 40-ton holding capacity. Additionally, both right- and left-hand models are available for the increased safety of the operator, according to **T. Ray Jackson**, company vice president-materials.

An attractive feature of the unit is an accompanying NABRICO "D" ring which allows the winch to be swiveled a full 180 degrees. "This feature," said Mr. **Jackson**, "and the maneuverability it allows, will be very useful to the marine industry."

The new winch employs many features of the original NABRICO hand winch, including a quick-release action, a hand wheel for fast take-up and a foot brake for run-out control. Many



parts for the new winch are interchangeable with parts for other NABRICO winches for easy repair or replacement, and all parts are available from NABRICO and many of its distributors.

Headquartered in Nashville, NABRICO is a wholly-owned subsidiary of The American Ship Building Company, Tampa, Fla. The company has been in the marine field for more than 70 years, and offers a complete line of deck hardware for towboats, barges and terminals serving the marine industry.

For free copies of the full-detailed literature being offered by NABRICO on the all-new hand winch,

Circle 77 on Reader Service Card

Genset Contract Awarded Stewart & Stevenson By Navy —Literature Available

Stewart & Stevenson recently received a contract from the U.S. Navy to build nine additional gas turbine-powered ship service generator sets. The units will be used aboard CG-47 Aegis Class cruisers to supply the vessel's electrical power.

Powered by an Allison 501-K17 gas turbine driving an Ideal generator, each genset produces 2,500 kw of electrical power. The ship service generators are controlled by a Stewart & Stevenson microprocessor control system.

Stewart & Stevenson had built 39 of the ship service generator sets for 13 Aegis Class cruisers prior to the present contract.

For additional information and free detailed literature on Stewart & Stevenson ship service generator sets,

Circle 72 on Reader Service Card

**OIL SPILL and
DEBRIS SKIMMERS**

**UNIQUE
FILTERBELT
SYSTEM**

**More than 75
MARCO skimmers
operating worldwide**

REQUEST OUR FREE BROCHURE

2300 West Commodore Way • Seattle, WA 98199 USA
Phone (206) 285-3200 • Telex 160587MARCO UT

Circle 350 on Reader Service Card

NEW IMA REPORT ON NAVY SHIP SYSTEMS MARKET



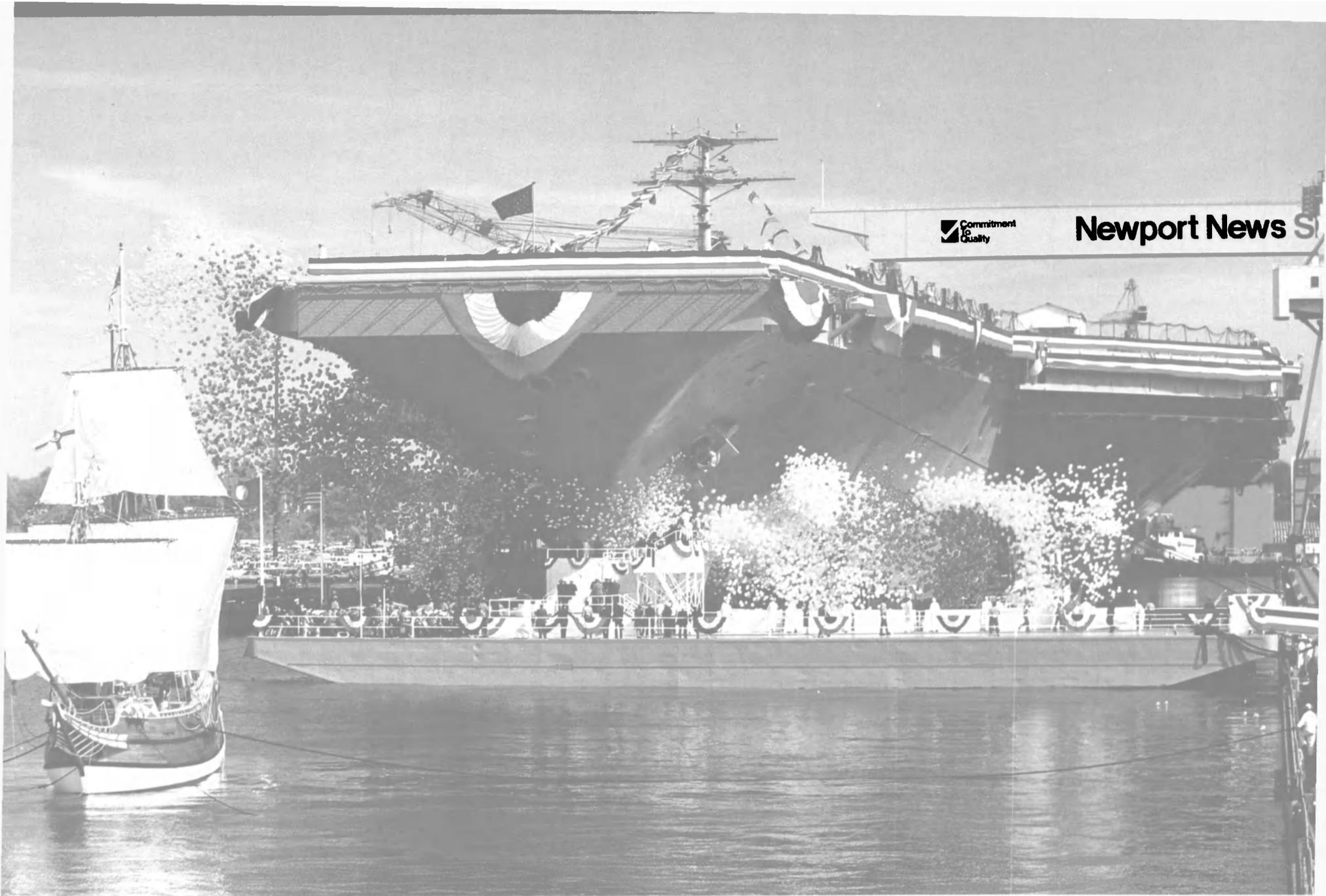
Naval ships are complex platforms for ordnance, electronic and mechanical systems. Development and procurement of these systems generates an annual market exceeding \$20 billion. This market will continue to grow significantly as ships become increasingly sophisticated. It is an enormously attractive market for developing new business opportunities. The emphasis on competition in defense procurement opens the market to any firm willing to make the marketing investment.

International Maritime Associates, (IMA) is preparing a business analysis of the Navy ship systems market. The report (approximately 200-page) will provide a very comprehensive assessment of current and future market opportunities, and will be available in June. Market updates will then be issued at three-month intervals.

The report and quarterly updating service will be available to subscribers for \$480. For further information please contact J.R. McCaul, tel. (202) 659-9547.

Circle 170 on Reader Service Card

Maritime Reporter/Engineering News



NEWPORT NEWS MARKS 100 YEARS OF SHIPBUILDING LEADERSHIP

—A SUPPLEMENT—

This year Newport News Shipbuilding and Dry Dock Company (NNS), Newport News, Va., is celebrating its first century of leadership in the shipbuilding and ship repair industry. More than 700 vessels—from small tugboats to giant, nuclear-powered aircraft carriers—have carried the words “Built by Newport News” to the oceans of the world.

The yard was founded by **Collis P. Huntington**, one of the builders of the first transcontinental railroad, as a repair facility for ships involved in the coal trade. Incorporated as the Chesapeake Dry Dock and Construction Company in January 1886, the first business for the fledgling yard was the repair of sailing schooners. Its first drydock, hailed as “a wonder of the age,” began operation in April 1889 with the docking of the naval monitor

Launching of the Theodore Roosevelt (CVN 71) Aircraft carrier at Newport News Shipbuilding.

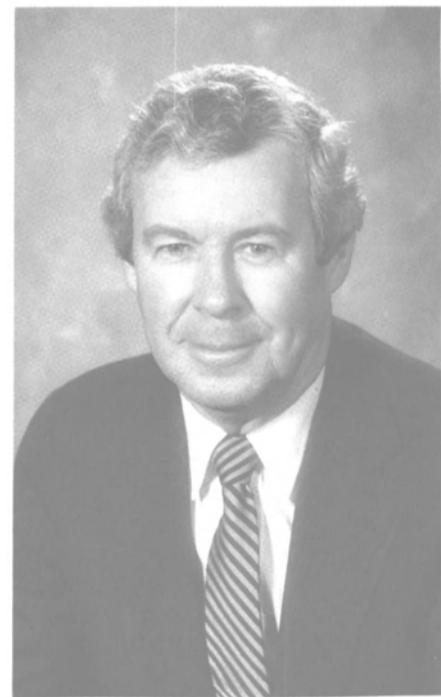
Puritan. In February 1890 the name of the company was changed to Newport News Shipbuilding and Dry Dock Company.

In that same year the company received a contract for its first newbuilding, a 90-foot tugboat named Dorothy. The quality built into that first hull is demonstrated by the fact that she remained in active service for more than 60 years until she was extensively damaged in a collision. In 1976 NNS retrieved her and brought her back home; now restored to her original appearance, she is on permanent display at the yard as a tribute to five generations of shipbuilders.

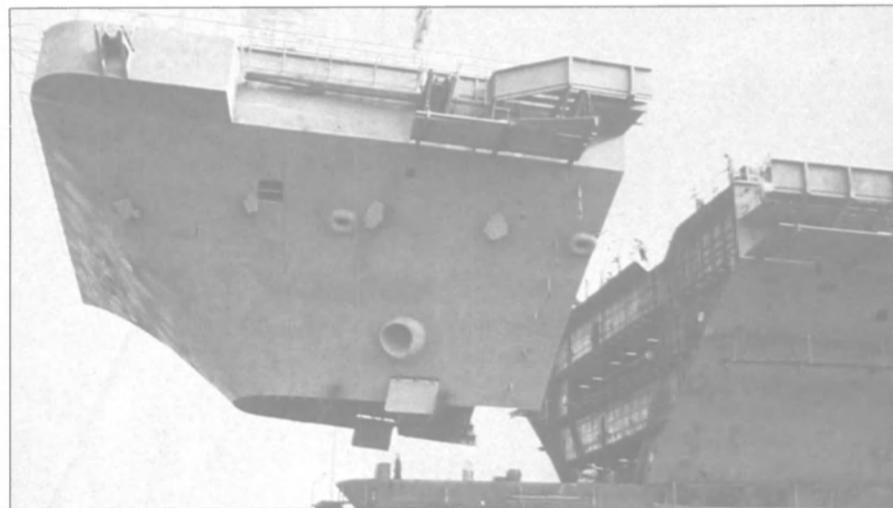
Long Association With Navy

The company's first U.S. Navy contract in 1893 was for the construction of three gunboats, the Nashville, Wilmington, and Helena, and marked the beginning of a long association between NNS and the Navy that continues today. Soon

(continued)



Edward J. Campbell
President & Chief Executive Officer



Newport News— 100 Years

(continued)

after she entered service, the Nashville became famous by firing the first shot of the Spanish-American War.

In December 1907, President Theodore Roosevelt's Great White Fleet set sail from Hampton Roads for its round-the-world voyage to demonstrate that the United States had come of age and was a naval power to be reckoned with. The Newport News yard had built seven of the 16 battleships in that fleet—the Kearsarge, Kentucky, Illinois, Missouri, Louisiana, Minnesota, and Virginia.

From 1904 until the start of the war in Europe in 1914, the shipyard's reputation grew. Contracts were received for 15 naval vessels and 84 commercial ships, including ferries, tankers, freighters, and passenger liners. By the time the U.S. declared war in April 1917, 20 percent of the total tonnage of the U.S. Navy had been constructed by NNS.

The recession of the early 1920s brought hard times to the U.S. For the shipyard, a combination of circumstances, including an unprecedented 10-year Naval shipbuilding "holiday," made the years 1921 and 1922 among the most difficult in the yard's history. Work ceased on contracts worth \$70 million, and in a single year the company's work force dropped from 10,000 to 4,000.

With no ships to build, the shipyard under the leadership of **Homer L. Ferguson** began to diversify, manufacturing railroad cars, traffic signal lights, and various types of industrial equipment. This period also marked the company's entry into the water power field, the only divergent field of the 1920s that continued in volume beyond the Depression. NNS has built some 250 hydro turbines for many power projects, including the Grand Coulee, Chief Joseph, and Hoover (Boulder) Dams.

World War II

Since the contract in 1930 for the Ranger, the first ship designed and built from the keel up as an aircraft carrier, the name Newport News has become synonymous with the carrier. With only one exception, NNS has been the lead yard in designing and construction every class of carrier built by the Navy. Under the National (Industrial) Recovery Act of 1933, NNS received contracts for the aircraft carriers Yorktown, Enterprise, and Hornet. All three ships played decisive roles in the Pacific carrier battles during World War II.

Photos—Top to bottom: Attack submarine Newport News (SSN-750) launched March, 1986; Aircraft carrier Woodrow Wilson; Section of the Roosevelt (CVN-71) being put into place; Christening of the old Enterprise, an aircraft carrier with a reputation as one of the most famous warships of World War II.

When Pearl Harbor was attacked in 1941, the shipyard's already heavy activity in Naval construction was accelerated again. Forty-six ships were delivered to the Navy during WWII; altogether, 185 NNS-built ships participated in the war. The yard's efforts during wartime were devoted almost exclusively to the production of eight Essex Class carriers, with a delivery schedule of one every three months. No other shipyard approached this record. Such renowned ships as the Randolph, Franklin, and Ticonderoga belong to this group of NNS-designed carriers.

Newport News reached its peak employment in April 1943 when more than 31,000 employees were in the work force.

Other construction at the yard during WWII included an ambitious program to build tank landing ships (LSTs). These ships were mass-produced, built six at a time in one of the big graving docks; a total of 18 were constructed in the high-priority year of 1942. Also during the war, the company pioneered the development of "baby flattops." The first conversion of these cargo ship hulls was completed in just 77 days. Used as escort carriers, they were intended primarily for antisubmarine and convoy duties.

Another WWII achievement was the construction of an entirely new shipyard at Wilmington, N.C., in 1941. Five years later, 21,000 shipbuilders had delivered 243 merchant vessels totaling more than 2½ million dwt.

Delivery of the 990-foot passenger liner United States highlighted the early 1950s. The largest passenger ship ever built in the U.S. and still the fastest ship of her size afloat, she still holds the Blue Riband for the fastest crossing of the Atlantic in both directions, averaging almost 36.5 knots (42 mph) on a full day's run.

Enter The Nuclear Age

The 1950s also marked the yard's transformation into a nuclear facility. The company's activities in the field of nuclear power have grown over the past 30 years at a pace that has established the yard as the world's largest builder of nuclear-powered ships. In 1959, the yard launched the Robert E. Lee (SSBN-601), its first Polaris submarine. The following year, its first attack submarine, the Shark (SSN-591), and the world's first nuclear-powered aircraft carrier, the Enterprise (CVN-65), slid down the ways. Since then, the company has built or is building all six Nimitz Class carriers and more than 30 nuclear-powered submarines.

In 1968, Newport News Shipbuilding was acquired by Tenneco Inc., a diversified international company based in Houston. The benefits of the acquisition appeared quickly. One improvement involved the largest physical change in the company's history, begun in 1972 with the construction of a new North Yard on 150 acres of landfill. This yard features a 900-ton gantry

(continued)

Newport News can breathe new life into your fleet.

To jumboize a ship takes superior technology, facilities and imagination. At Newport News we have them all, more than any other shipyard.

Our plant and our trained people give us a greater capacity to convert your ships for years of extended service.

Integrated Computer Aided Design/Computer Aided

Manufacturing allows us to build more complete, more accurate subassemblies...even 900-ton construction modules that fit together like a glove.

That's why at Newport News, your job is done on time and the way you want it.

So when you've got a problem, come to us. We can handle the toughest jobs,

including some that other shipyards won't even attempt.

Newport News Shipbuilding,
Newport News, Virginia 23607.
1-804-380-2600. Telex 82-3453.
TWX 710-880-0007.

Newport News Shipbuilding 

A Tenneco Company
Newport News, Virginia 23607

Circle 185 on Reader Service Card

An Allison Gas Turbine will get to the scene and back in a hurry. The concept is simple. When a high power-to-weight ratio is needed for fast marine propulsion, use an Allison high

power-to-weight ratio gas turbine.

The Allison 501-KF creates more than 4,300 horsepower and the 570-KF produces 6,445 horsepower. Both engines have been proven time and again in

the most adverse environments.

That's not all. The new 571-KF will soon be available with 7,694 horsepower. And Allison marine engines are marinized and constructed to withstand even the

**The Allison gas turbine.
Now you see it.**



most rigorous maritime uses.

An Allison Gas Turbine is easily maintained. As a division of GM, Allison has a worldwide parts and service network which means you get the security, the

reliability and the technology of GM. Plus we have 50 years as an experienced military contractor.

For more information about Allison Marine Systems, write to Allison Gas Turbine Division,

General Motors Corporation,
P.O. Box 420 Speed Code U6,
Indianapolis,
Indiana 46206-
0420, USA.
Telex 276400.

Allison



Circle 300 on Reader Service Card

Now you don't.



Worldwide Navigation for under \$7,500

You can't always depend on the stars to see you safely across the oceans. That's why more and more captains rely on Tracor Global Navigation Systems. Our integrated Bridgestar/Omega Navigator keeps you on course with precise position fixes from Transit satellites — continuously updated by Omega station signals. In addition, there's a complete route planning function,



distance and bearing to 15 waypoints and the unique "Sleep Mode" feature that cuts power consumption to the absolute minimum.

Tracor navigation systems have a proven record of performance and reliability and they are backed by an experienced sales/service dealer network with over 200 locations worldwide. Call us today for a free GNS brochure and the name of your nearest representative.

Tracor Instruments

Tracor Instruments Austin, Inc. 6500 Tracor Lane Austin, Texas 78725 Telephone 512 929 2051

Circle 293 on Reader Service Card

Newport News — 100 Years

(continued)

crane towering 23 stories over a 1,600-foot drydock, the most extensive such facility in the Western Hemisphere, and an 11-acre, all-enclosed steel production facility.

Many operations in this new complex are automated, from steel handling and fabrication to the erection and transportation of huge subassemblies. The first ships to be built in the North Yard were two LNG carriers. These were followed by the largest tankers ever built in the U.S., two 390,000-dwt ultra large crude carriers.

Advance Technology-Savings

The three Nimitz Class aircraft carriers currently under construction in the North Yard are being built using state-of-the-art modular construction. Previous carriers had been built using small subassemblies and then outfitting after launching, a painstaking process that required thousands of tons of material to be brought aboard the ship and custom-fitted. The modular construction being used now involves the joining together of huge subassemblies weighing as much as 900 tons, each of which is completely outfitted before installation. This technology is being used in the con-

U.S. Navy Ships Currently Under Contract To Newport News Shipbuilding

Navy No.	Name	Approx. Contract \$	Contract Del'y Date
CVN-71	Theodore Roosevelt	1,300,000,000	9/86
CVN-72	Abraham Lincoln	1,550,000,000	12/89
CVN-73	George Washington	1,550,000,000	12/91
SSN-721	Chicago	225,000,000	6/86
SSN-722	Key West	225,000,000	6/87
SSN-723	Oklahoma City	225,000,000	87
SSN-750	Newport News	278,000,000	87
SSN-753	Unnamed	319,000,000	88
SSN-756, 8-9	Unnamed (3)	779,500,000	89-90
SSN-21	Unnamed	28,900,000*	—
TOTAL		\$6,480,400,000	

* Design contract

JOINER DOORS

THE NAVY'S LIGHTEST AND STRONGEST JOINER DOORS — IN STOCK AND AVAILABLE IMMEDIATELY!

Lightweight Honeycomb Doors (Meets U.S. Navy Specs)



TYPE 1

TYPE 2

TYPE 3

- * Aluminum Honeycomb
- * CRES Honeycomb
- * GRP/Nomex[®] Aramid
- * Steel Honeycomb



TYPE 4



DOUBLE DOOR



ADVANCED STRUCTURES CORP.

235 WEST INDUSTRY COURT
DEER PARK, NEW YORK 11729
(516) 667-5000

NOMEX[®] ARAMID IS A TRADEMARK OF DUPONT
Circle 245 on Reader Service Card

CONGRATULATIONS

NEWPORT NEWS SHIPBUILDING CO.

DEVOE MARINE COATINGS CO.

Division of GROW GROUP INC.

Circle 149 on Reader Service Card

RAMPMASTER

MARINE ALUMINUM GANGWAYS

TRUSS OR BEAM TYPE — ANY LENGTH

CORROSION RESISTANT

Portable Handrail Assemblies

ALL TYPES SHIP'S LADDERS PIER STANDS

Call Us For Quotes!

RAMPMASTER
INCORPORATED

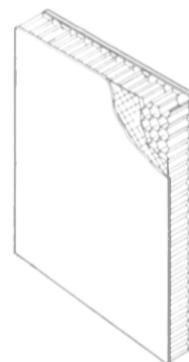
9825 OSCEOLA BOULEVARD VERO BEACH, FLORIDA 32960
TELEPHONE 305 569 9600

Circle 243 on Reader Service Card

JOINER BULKHEADS

THE NAVY'S LIGHTEST AND STRONGEST HONEYCOMB BULKHEAD PANELS — IN STOCK AND AVAILABLE IMMEDIATELY!
(Meets U.S. Navy Specs)

- *Corrosion Resistant
- *Lightweight
- *High Strength/Weight Ratio
- *Decorative



- * Aluminum
- * Steel
- * Stainless Steel
- * GRP/Nomex[®]

TYPICAL APPLICATIONS:

- *M.J. Bulkheads
- *Berthing Partitions
- *Shower Enclosures
- *Waterclosets
- *Work Stations
- *False Decks

AVAILABLE WITH ALUM., CRES & GRP ERECTION MEMBERS



ADVANCED STRUCTURES CORP.

235 WEST INDUSTRY COURT
DEER PARK, NEW YORK 11729

516-667-5000

NOMEX[®] ARAMID IS A TRADEMARK OF DUPONT
Circle 246 on Reader Service Card

struction of the Theodore Roosevelt (CVN-71), the Abraham Lincoln (CVN-72), and the George Washington (CVN-73).

At her launching, the Roosevelt was then 17 months ahead of schedule and \$42.1 million under budget. The yard got off to a fast start with CVN-71 by completing in 23 months what had taken 40 months to complete with the previous Nimitz Class carrier, the Carl Vinson (CVN-70).

The advanced technology has enabled progress to be accelerated since the Roosevelt's keel was laid in late 1981. For the first time, the yard used structural Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) to cut the steel for the carrier, helping speed fabrication dramatically. Once the units come out of Steel Fabrication, they are joined with other assemblies into modules and preoutfitted with much of the piping, ventilation, and electrical equipment they need.

Advanced technology is also paying off on the construction of the fifth and sixth Nimitz Class carriers. At mid-1985, construction of the Abraham Lincoln and the George Washington was reported by the Navy to represent \$450 million in savings.

These techniques are being applied at the yard to an even greater challenge—the building of nuclear-powered submarines. The company has committed \$300 million to the construction of the most modern and efficient submarine construction facility ever conceived. Computerized manufacturing technology, including robots and lasers, is being used to design and build the vessels, affirming NNS's role as the leading innovator in the U.S. shipbuilding industry.

Following months of prodding by the Navy, Newport News recently indicated that it may be willing to bid on Trident submarines, a program thus far awarded entirely to General Dynamics, whose Electric Boat division has to date been given contracts for 13 of the 20 Tridents that are planned. The Navy orders only one Trident a year, at a price of about \$1.5 billion.

If the Virginia shipyard becomes a second source for the Trident, it will represent a breakthrough for the Navy in its efforts to secure competitive bidding on its biggest procurements. Further negotiations are required, however, to decide how much the Navy will pay Newport News to help in gearing up to participate in the Trident program, and to set the ground rules for the competition with General Dynamics.

Newport News also competes with General Dynamics in the construction of Los Angeles Class attack submarines, four of which are awarded in each fiscal year. The Virginia yard currently has contracts for eight attack subs at a total cost of more than \$2 billion. Also on order are three aircraft carriers of the Nimitz Class at a total price of \$4.4 billion. With the future of air-

craft carrier construction uncertain, however, the next decade may be the years of the submarine at the Newport News yard.

"The decision that has to be made in the next few years is where do we go besides shipbuilding," said **Edward J. Campbell**, president and chief executive officer. With the advance in building man-made is-

lands, he speculates on the modular construction of a chemical plant and towing it to a site somewhere in the Third World, and a fleet of towed submarine tankers carrying oil underseas.

Today, Newport News Shipbuilding is a huge manufacturing complex employing some 30,000 highly skilled people, with state-of-the-art

facilities encompassing almost 500 acres along 2.2 miles of the James River—the culmination of 100 years of shipbuilding. The shipyard enters its second century well prepared for the challenges ahead.

For further information on Newport News Shipbuilding's facilities and capabilities.

Circle 23 on Reader Service Card

BUNKERING



Belcher's bunkering experience and expertise results in saving you money with quick and efficient turnarounds. Service has been a Belcher tradition for over 68 years.

Belcher Delivers

Main Office: 8700 West Flagler, P.O. Box 025500, Miami, Florida 33102-5500; Phone (305) 551-5200; Telex Marine Sales, Towing and Supply — 51-9452. Cable BelOilCo Miami, Florida. **Bunkering Ports:** EAST COAST-Miami, Port Everglades, W. Palm Beach, Cape Canaveral, Savannah, Norfolk, New York, Boston. GULF COAST-Brownsville, Corpus Christi, Point Comfort, New Orleans, Gulfport, Pascagoula, Mobile, Pensacola, Tampa, Port Manatee. INLAND-Memphis. **Marketing Offices and/or Terminals:** AL-Mobile, AR-West Memphis, FL-Cape Canaveral, W. Palm Beach, Port Everglades, Miami, Port Manatee, Tampa, Pensacola, Tallahassee. GA-Savannah. LA-New Orleans. MA-Boston. NY-New York. TX-Corpus Christi. VA-Norfolk

Subsidiary of The Coastal Corporation

Belcher
The Energy People

Marine Fuels, Fuel Oils, Gasoline and Bulk Lubricants

Circle 183 on Reader Service Card

IS YOUR COMPETITION HERE?

General Dynamics—General Motors—Bell Helicopter—FMC Corporation—
ITT—McDonnell Douglas—Cadillac Gage—Avco—
Chartered Industries of Singapore—LTV Aerospace & Defense—
Michelin Tire—Rolls Royce—United Technologies—Grumman Aerospace Corporation—
Canadair, Limited—AAI Corporation—Wild & Leitz—
Sperry—General Electric—Boeing Aerospace—Royal Ordnance

Why do these businesses, and many others, representing over 50 percent of the world's top defense contractors, exhibit in the annual Modern Day Marine—Force in Readiness Military Exposition?

Because they know that this, the world's largest display of equipment, supplies and services relating to amphibious operations is one of the most important military expositions in the United States. Over 130 companies occupied more than 95,000 square feet of exhibit space at the Sheraton Washington in 1985, and early sales for the '86 exposition, scheduled July 22-24, have resulted in over 70 per-



cent of the floor space already sold.

In addition to the exposition, special conferences and briefings on topics ranging from computers in the military to an update of new equipment entering the inventory are scheduled throughout the three days of the exhibit. Receptions in the exhibit hall, a grand banquet, and an awards luncheon serve to showcase your products. Present your

product to more than 7,000 interested persons at the Modern Day Marine—Force in Readiness Military Exposition. Join the competition.

For More Information, Call or Write:

MODERN DAY MARINE FORCE IN READINESS

Marine Corps League Exhibit Company
25 S. Quaker Lane, Suite 24
Alexandria, VA 22314
(703) 823-2333

Circle 261 on Reader Service Card

Maritime Reporter/Engineering News

CDI Offshore Appoints Payne And Domingue To Management Positions

Raymond G. Wiese, president of CDI Offshore Company, has announced the appointment of Alvin D. Payne Jr. to vice president of Houston operations and Larry Domingue to general manager of quality assurance, based in New Orleans.

Mr. Payne has more than 35 years of experience in international construction and engineering supervision and management, most recently with Offshore Management Services, Inc. and prior to that with Earl and Wright Consulting Engineers and King-Wilkinson, Inc.

Mr. Domingue has more than 20 years of construction supervision experience with offshore and onshore oilfield construction of platforms and pipelines, including assignments in the U.S., the North Sea, and Saudi Arabia.

CDI Offshore was established to provide the offshore oil and gas industry with project management assistance and inspection services. These include project execution and project control through monitoring and reporting of cost control, schedule control, and quality control.

Subsidy Board Will Let Subsidized Bulkers Haul Preference Cargoes

The Maritime Subsidy Board of the Maritime Administration will permit subsidy-aided bulk carriers to compete for preference cargoes without subsidy. The ruling will mean greater competition that should lead to lower bids and decreased costs to the government for shipping cargoes.

The MSB said there should be further savings in operating differential subsidy payments as subsidized ship operators forego ODS in order to carry preference cargoes at fair and reasonable rates. Previously, these operators had been excluded from the preference trades.

Vickers Group Awarded \$720-Million Royal Navy Order To Build Submarines

The Cammell Laird subsidiary of Vickers Shipbuilding has been awarded a \$432-million contract by the Ministry of Defence to construct three diesel-electric submarines for the Royal Navy. Vickers itself got a \$288-million order to build one nuclear-powered sub.

Some 800 jobs could be created at the Merseyside yard as Cammell Laird approaches the peak of the submarine construction within the next two or three years. The contract for Vickers Shipbuilding will insure continued employment for the 12,500 work force at the Barrow-in-Furness shipyard.

BFGoodrich Offers Brochure On Cutless Line Of Rubber Bearings

The complete line of Cutless® brand rubber bearings is the subject of a new two-color, four-page brochure from BFGoodrich of Akron, Ohio. Featuring an exclusive water wedge design and broad application flexibility, Cutless rubber bearings are a product of years of research

and development by BFGoodrich and Lucian Q. Moffitt, Inc.

The bearings' water wedge design provides maximum lubrication for both bearing and shaft. Tough but resilient, rubber bearings are resistant to oil, grease, and most chemical solutions, and have a very low coefficient of friction when wet. Ideal for marine and industrial applications, they are said to last many times longer than hard-surfaced bearings.

Particularly helpful in this new

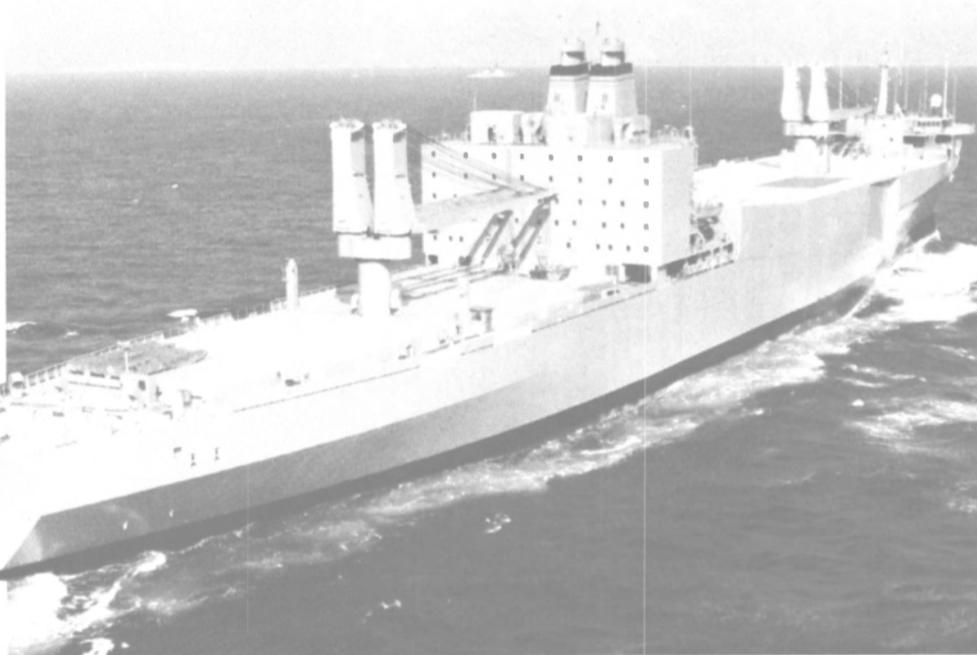
brochure are details of Cutless brand bearings designs. Bearings are available with either metal or non-metallic shells. Those with metal backing come in either a full-molded style of solid or split design, or in a segmented style. Also available is information on BFGoodrich's recently patented FE (fiberglass epoxy) bearing.

For a free copy of Brochure LQM 101,

Circle 87 on Reader Service Card

HÄGGLUNDS CRANES — DESIGNED TO MASTER THE ELEMENTS

HÄGGLUNDS is proud of the confidence shown in its cranes which have been selected for and installed on 21 of the Military Sealift Commands ships. All 79 cranes for this SEALIFT project ranging from 36 to 100 ton lift capacity are now in operation. HÄGGLUNDS has also recently delivered its 5000th crane unit. Our high technology cranes are now also available with STEADYLINE-Hagglunds new computer controlled cargo spotting equipment. HÄGGLUNDS Crane Technology is now U.S. based.



HÄGGLUNDS

ASEA HÄGGLUNDS INC.
P.O. Box 7949, The Woodlands, TX 77380
Phone (713) 292-4110, telex 792829

One of the eight Sealand (SL-7) vessels now owned by the US Navy renamed "Algol" have been installed with Hagglunds deckcranes type 1xTG 5026/3532 and 1xTG 3532.

Circle 148 on Reader Service Card

Superb RAY-150 SSB keeps you in touch, worldwide.



The RAY-150 delivers full SSB radiotelephone coverage, 150-watt transmit power, 10-channel scanning... a full set of outstanding features.

- Microprocessor control for easy, user-friendly, touch-pad operation
- All frequencies between 1.6 and 30 MHz in 100-Hz steps
- 192 ITU channels pre-programmed for fast selection
- 64 additional user-programmable channels
- Scanning of 10 selected channels
- Touch-keys for 2182-kHz emergency channel and approved distress signal
- Heavy-duty, noise-cancelling microphone
- Digital clarifier and automatic squelch for outstanding reception
- 10 watts of adjustable "blast-through" audio
- J3E, R3E and H3E modulation modes
- Auto-tuning antenna coupler
- Approved for shore station as well as shipboard operation
- Two-year limited warranty

RAYTHEON MARINE COMPANY
676 Island Pond Road
Manchester, NH 03103 USA
(603) 668-1600 Telex: 943459

Raytheon

Circle 140 on Reader Service Card



POSIDONIA '86

INTERNATIONAL SHIPPING EXHIBITION

Piraeus, Greece—June 2-7



This year's Posidonia International Shipping Exhibition will take place June 2-7 in Piraeus, Greece. The site of the exhibition, the large and distinctively designed St. Nicholas Terminal, originally built as a facility for cruise passengers but best known since 1976 as the home of the biennial Posidonia, has been extensively refurbished and renamed the Exhibition Centre of Piraeus. The exhibition area has been

enlarged, restaurant facilities improved, and air conditioning installed in the central area. Posidonia 86 will be the first major event to be held in the refurbished center.

Greek shipowners are still effectively in control of the same huge volume of merchant tonnage—more than 50 million grt—as was the case eight years ago. The age profile of the Greek fleet has improved greatly, with more than 200 older hulls dispatched to breakers' yards in 1984, and the first 40 vessels of a 100-ship newbuilding program being added to the fleet strength. Greek acquisitions on the second-hand market, mainly of quality, modern tonnage, averaged 30 vessels a month.

Greek shipping remains an important and dynamic marine market for the shipyards, ship finance, ships' equipment, and ship service industries worldwide.

This year the Posidonia Forum will take on a new dimension, with the site of the discussions within the exhibition building itself. This will

allow the traditional Forum debates to be expanded to permit greater depth of discussion of current maritime affairs, and further contributions from top-level speakers.

The Forum room will be available at other times during the week for hire exclusively to exhibitors as a site for product presentations, press conferences, and client receptions.

Following the last Posidonia in June 1984, many exhibitors made immediate reservations for the 1986 exhibition. These exhibitors, representing all facets of the maritime and related services industries, came from 47 countries to take advantage of the unique Posidonia atmosphere, establishing and nurturing long-standing, high-level business contacts, finalizing negotiations, and arranging new contracts.

The stimulating atmosphere of Posidonia is enhanced by the many social events that are arranged by both the exhibitors and the sponsors, varying from formal receptions at the most exclusive Athens hotels to small tavern parties.

EXHIBITING COMPANIES

Aalborg Boilers
 ABN Bank
 Aberdeen Shipbuilders
 AEG AG
 Alexandra Towing
 Alfa Mi Hellas
 Al Hilal Publishing
 Alstom Pielstick
 Allweiler Marine
 American Bureau of Shipping
 American Hellenic Chamber of Commerce
 American Hull Insurance Syndicate
 Ameron
 AMK-Berlin
 Anes
 Angelos Hellas Marine Services
 Anschutz
 Arab Shipbuilding + Repair Yard
 Associated Marine Oil
 Assos. Assn of Soviet Shipowners
 De Baerdemaeker
 Bahrain Slipway Co. Ltd.
 Baltic International
 Blohm + Voss AG
 Boele's Shipyards + Engineering Co. Ltd.
 Boettcher & Groening
 N. Bogdanos Marine Bureau
 Bond Instrumentation + Process Control Ltd

British Marine Equipment Council
 British Overseas Trade Board
 British Shipbuilders
 Bureau Veritas
 Business Air Centre Ltd.
 Candia Co. SA
 Caneco
 Caprimar (Pte) Ltd.
 Castrol
 C.C.N.
 H. Cegielski
 Centromor S.A.
 Cerrahogullari
 Chase Manhattan Bank
 Chernikeef
 Chris Marine
 Chubb Fire
 Citrus Coolstore
 H. Clarkson + Co Ltd.
 Cobelfret
 Colombo Dockyards (Pte) Ltd.
 Commercial Bank of Greece
 Comsat
 Conver-OSR
 N. Cotzias (Shipping) Co. Ltd.
 Deutsche Schiffsbeleihungsbank
 DHL
 Diesel Power Holland BV
 Division De Construction Naval Del INI
 D.C.N.
 Dorbyl Group of Companies
 Eagle Industry Co. Ltd.
 EB Communications Ltd.
 E.E.S. El. S.A. Auditors Consultants
 Eissing H.E. KMBH
 Eko Abee
 Elea Computers
 Eleusis Shipyards S.A.
 EMAQ
 Epidaurus Ltd.
 Esabras Estaleiros Associados Do Brasil
 Esgard International GmbH
 ESP Industries Inc.
 Euro-Silo
 Evge-Societe De Gestion
 Exxon Corp.
 Fairplay Publications Ltd.
 Farrell Lines
 Fincantieri
 Finnish Foreign Trade Assn.
 Fiskars OY
 Fortschritt
 General Shipping S.A.
 Geranos S.A. Management Consulting &
 Data Processing
 Germanisher Lloyd
 German Machinery & Plant Manufacturers
 Assn.
 German Shipbuilding Industry Assn.
 Ghent Trading & Storage
 Port of Ghent
 Ghent Grain Terminal
 Gibraltar, Port Dept.
 Glassflake
 Goliath Transport & Shipping B.V.
 Harland & Wolff PLC
 Harris Pye Marine Ltd.
 HDW—Hamburg Werft & Maschinenbau
 GmbH
 Heinami S.A.
 Hellenic Coastal Lines Ltd.
 Hellenic Industrial Development Bank
 Hellenic General Enterprises Co. S.A.
 Hellenic Mutual War Risks Assn.
 Hellenic Polish Shipping & Trading Enterpr.
 Ltd.
 Hellenic Register of Shipping
 Hellenic Shipyards
 Hempel's Marine Paints A/S
 Hitachi Zosen Corp
 Hodge Separators
 Holland Diving Int'l BV
 Horace, Holman Marine Overseas Ltd.
 Hudig Langeveldt
 IMCO Hellas Ltd.
 Inham Refrigeration BV
 Inmarsat
 Institute of Marine Engineers
 Instrumentarium MET of
 Ippocamos S.A.
 Ishibras
 Ishikawajima-Harima Heavy Industries Co
 Ltd
 Japan Ship Exporter's Assn.
 Kawasaki Heavy Industries
 Kelvin Hughes

Kesteleyn Georges
 Ketting-Muilwijk BV
 Klement-Gottwald
 Knowsley Instrument Services Ltd.
 Kobe Maritime Services
 Koning En Brevini Aandrijvingen BV
 Kon Mij De Schelde, BV
 Koraboimpex, FTO
 Krupp Atlas Elektronik GmbH
 Liberian Services (Greece) Ltd.
 Lisnave
 Lloyd's of London Press
 Lloyd's Register of Shipping

McDonald Douglas
 MacGregor Far East Ltd.
 MacGregor-Navire S.A.
 MaClaren (Brasil)
 Magnus Maritec Hellas Ltd.
 Malta Drydock (UK) Ltd.
 M.A.N. Maschinenfabrik
 Augsburg-Nurnberg
 Marac Electronics
 Marel Electronics
 Marine Automation Service
 Marine Management Holdings Ltd.
 Marine Publications Int'l Ltd.

Maritime China
 Marti Shipping & Trading Co. Inc.
 Mathias-Thesen-Werft
 Loucas G. Matsas
 Medical Advisor Systems
 Metek Engineering & Contr. Co. S.A.
 Metos Marine Instrumentation
 Jos. L. Meyer GmbH and Co
 Middle East Shipping & Transport
 Midland Bank PLC
 Miller Ltd.
 Thos. R. Miller & Son (Bermuda) Ltd.
 (continued)

New Pure Car Carriers

When it comes to pure car carriers or any other vessel with roll-on and roll-off provisions, HHI is unmatched in terms of design, building technology and price competitiveness. We have built four pure car carriers and fourteen ro-ro ships. Currently, three pure car carriers are under construction at HHI's Ulsan shipyard. Such rich experience enables HHI to have confidence in the construction of any type of pure car carriers to our customers' best advantage.

Now we are proud to introduce three prototypes of pure car carriers comprised of 4,100 unit, 4,800 unit and 5,100 unit car capacity. They are equipped with a roll-on and roll-off system i.e., a stern and a side port ramp. Ramps connect all car decks including a hoistable car deck installed for large vehicles like buses.

For your newbuilding project and more information, contact HHI today.



Item	4,100 Units	4,800 Units	5,100 Units
LOA	184 M	180 M	195 M
LBP	174 M	171 M	185 M
B	30.6 M	30.6 M	32.26M
D TO UP DK	27.62 M	28.94 M	31.985 M
d1	8.2 M	8.2 M	9 M
DWT at d1	11,200 M	11,000 M	15,200 M
M/Engine	HD - B&W 8L 60MCE	HD - B&W 7L 60MCE	HD - B&W 8L 60MC
M. C. R.	11,690 x 105	11,170 x 107.3	13,810 x 104
N. C. R.	10,520 x 101.3	10,050 x 103.6	12,430 x 100.4
F.O. Consumption	30.1 Tons/day	28.99 Tons/day	36.42 Tons/day
Speed	18 Knots	18 Knots	18 Knots
Car Size (Length)	4.16 M	4.16 M	4.36 M
(Breadth)	1.595 M	1.595 M	1.7 M

SHIPBUILDING DIVISION
HYUNDAI
 HEAVY INDUSTRIES CO., LTD.

• HEAD OFFICE: 1 CHEONHA-DONG, ULSAN, KOREA TLX: HHIYARD K52452 TEL: (82) ULSAN (522)32-2326 (DIRECT TO SALES MANAGER) FAX: (82) ULSAN (522) 32-4001
 • SEOUL OFFICE: 140-2 KYE-DONG, CHONGRO-KU, SEOUL, KOREA TLX: K28361, K27496 TEL: (82) SEOUL (2) 741-1201/30 FAX: (82) SEOUL (2) 741-1211
 TOKYO TLX: 28548 HDT J. TEL: 03211-0741
 LONDON TLX: 938686 HDLDNG, TEL: 01-741-1531
 OSLO TLX: 72621 HDOSL N, TEL: 472-410920/410982
 BOMBAY TLX: 114696 MAKH IN TEL: 244 285/222172
 NEW JERSEY TLX: 6853396 HDC NJ, TEL: 201-585-8289
 ATHENS TLX: 212778 HMDP GR, TEL: 418-0114
 HONG KONG TLX: 83464 HKHDS HX, TEL: 5-436373
 SYDNEY TLX: 70700 HDSSYD AA, TEL 02-957-5481

Circle 155 on Reader Service Card

Posidonia '86

(continued)

Mitsubishi Heavy Industry Ltd.
Mitsui Engineering & Shipbuilding Co. Ltd.
Mobil Marine
Frank Mohn AS
V/O Moterekhniiformreklama-Moscow
V/O Morpasflot-Moscow
Motor Ship
MXA Consulting

National Bank of Greece
Naftiliaki
Naval Architect, The
Navicom Electronics Ltd.
Navimor Kountis Ltd.
Navishore
Neorion Shipyards Syros Ltd.
Netherland Council for Trade Promotion
Nippon Kaiji Kyokai
Nippon Kokan KK
Niver Lines
Nordisk
Det norske Veritas

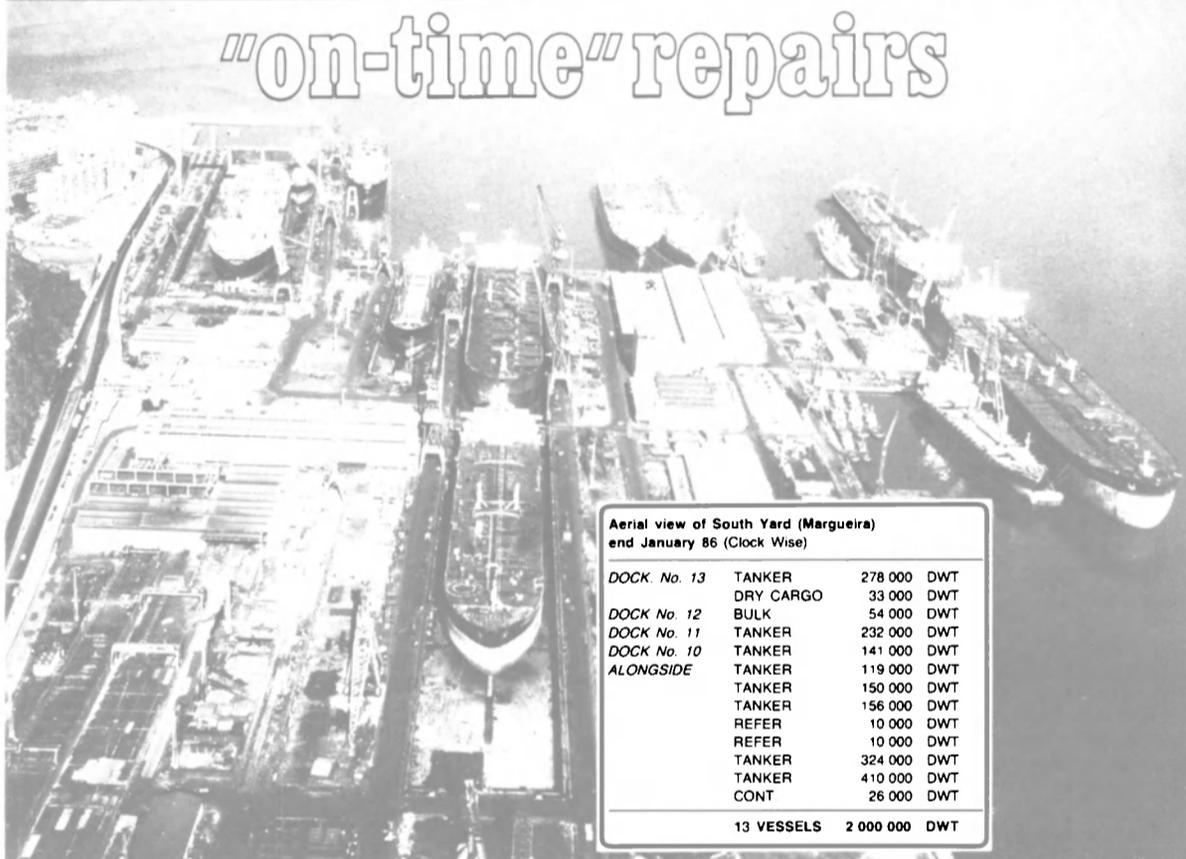
Nova
Olympic Airways
Oriental Commercial & Trad. Co. Ltd.
Overland First Bank
Pandora Maritime Agencies CC
Perennator Hellas
Perolin/Unitor
Polski Rejestr Statkow
Polyverix-Meister
Promac Nederland BV
Provoli SA
O.D. Potter Ltd.
Pyrotechnic



LISNAVE 86

streamlined and reorganized
is now ready to offer quality and

"on-time" repairs



**Aerial view of South Yard (Margueira)
end January 86 (Clock Wise)**

DOCK No. 13	TANKER	278 000 DWT
	DRY CARGO	33 000 DWT
DOCK No. 12	BULK	54 000 DWT
DOCK No. 11	TANKER	232 000 DWT
DOCK No. 10	TANKER	141 000 DWT
ALONGSIDE	TANKER	119 000 DWT
	TANKER	150 000 DWT
	TANKER	156 000 DWT
	REFER	10 000 DWT
	REFER	10 000 DWT
	TANKER	324 000 DWT
	TANKER	410 000 DWT
	CONT	26 000 DWT
13 VESSELS		2 000 000 DWT

we have:

- HIGHLY SKILLED MANPOWER**
North Yard (Rocha) -700
South Yard (Margueira) -3500
- UNLIMITED DRYDOCKING CAPACITY**
- IDEAL GEOGRAPHICAL SITUATION
AND WEATHER CONDITIONS**
- LAND BASED CLEANING STATION
AND BUNKERING FACILITIES (BOLIDEN)**
- VOYAGE REPAIRS (LISNICO)**
- ELECTRICAL REPAIRS (ENI)**
- OWN FLEET OF TEN POWERFUL TUGS
AND TWO FLOATING CRANES
(100t. lifting)**



AERIAL VIEW
OF TANK CLEANING
AND BUNKERING STATION
**Tanker
being prepared
for entrance the yard**

AERIAL VIEW
LISNAVE - ROCHA (left)

LISNAVE
ESTALEIROS NAVAIS DE LISBOA, S.A.R.L.
APARTADO 2138 - 1103 LISBON CODEX - PORTUGAL
TELEX: 18172 - 12649 - 16370 LISNAV P
PHONE: 2750811 - MARGUEIRA YARD - 606171 - ROCHA YARD

TELEFAX SERVICE
DIRECT TO LISNAVE
FAX: 2764670
LISBON - PORTUGAL

LISMAR
Marketing Services Ltd.

CREE HOUSE
18-20 CREECHURCH LANE
LONDON EC 3A 5AY - ENGLAND
TELEX 269 739 CMGI G
PHONE 01-6231233

U.S. Representative
EAST COAST MARINE ASSOCIATES
21 West Street, New York, NY 10006
Phone - 212-943-0200 Telex: 421 726 EAST UI

Radar Devices Inc.
Radwar
Rauma-Repola Shipbuilding Div.
Reklitou-Mi Cont.
Reyniers & Sogama
Royal Bank of Scotland
Salvage Assn., The
Sasebo Heavy Industries Co. Ltd.
Scandinavian Near East Agency S.A.
Schiffcommerz
Schiffswerft Neptune
Schoerock
Scotsman
Seagold Maritime Inc.
Seatrade Publications Ltd.
Seatrade Academy
Sedwick Group PLC
Seebeckwerft AG
Selesmar
Semt Pielstic
Shell Company (Hellas) Ltd.
Shipbuilders Assn. of Japan, The
Shipcontrol
Shipping World & Shipbuilders
Sigma Paints Hellas
Simpson, Spence & Young
Singapore Assn of Shipbuilding & Repairers
Soviet Shipping
Sperry
Sudodizel
Sudoelectro
Sudoflot
Sudoimport
Sudomechanism
Sudopromshelf
Sudoremont
Sudoservis
Sudosshelf
Sudotechflot
Sudotechshelf
Sudotransport
Sumitomo Heavy Industries Ltd.
Sunflame Co Ltd.
T C I Ltd.
Technava
Technoship-Dipl. Ing a Dombros
Textil und Verdlungshetried
Thomson CSF Telephone
Trade Development Board of Singapore
Transmed Shipping SA
Transportation Ltd.
Transuez
Ente Autonomo del Port Di Trieste
UNI Diesel Sarl (SACN)
Valmet Corporation
Valmetin Laivateollisuus
Vanta Marine Co. Ltd.
Vanuatu, Republic of
Vecom BV
Verolme
Verolme Botlek BV
Veson Inc (USA)
Victor Automation Systems Ltd.
Vokos Publishing Group
Warnowwerft
Wartsila/Vasa Works
Wartsila Shipbuilding
Watercraft
Westfalia Separator
P. Wigham Richardson
Wijmuller
Wilton Feyenoord BV
G.J. Wortelboer Jr. BV
Zihni Group of Companies

Shipbuilding And Ocean Engineering Conference In Helsinki—Sept. 7-10

Leading international personalities in shipbuilding and ocean engineering, including **Graham J. Day** of the U.K., **Prof. Harry Benford** of the U.S., **Tapio Forsgrén** of Finland, and **Prof. Alexander Kholodilin** of the USSR, will be speaking at the Fourth International Shipbuilding and Ocean Engineering Conference scheduled for September 7-10, in Helsinki, Finland.

Whereas previous conferences in the series have concentrated on shipbuilding economics, history, and industrial relations, the focus this year will be on futures. The 1986 program also reflects the spread into shipbuilding of the strong academic backing that initially grew out of the interest of universities.

For further information on the conference contact **Fred Walker** at the National Maritime Museum in London, telephone 858-4422; or **Frank Hannah** at ESAH in Gothenburg, (31) 509000.

Bardex Receives Contract For Rig Skidding System From Shell U.K.

Shell U.K. Exploration and Production has contracted with Bardex Corporation, through its London Office, for the rig skidding system on the Shell Eider platform in the North Sea.

The system will consist of a control console and four hydraulic gripper jacks. The control console will have the capability of skidding the skidbase in an east/west direction or the substructure in a north/south direction. The system will use two 400-ton hydraulic piston gripper jack assemblies for skidbase skidding and two 275-ton hydraulic piston gripper jack assemblies for substructure skidding.

Bardex Corporation (formerly Hydranautics Hydraulic Systems) is headquartered in Goleta, Calif., with offices in London and Houston. The company designs and manufactures heavy-load moving equipment for offshore- and shipyard-related activities.

For free literature containing complete details on Bardex heavy-load moving equipment,

Circle 37 on Reader Service Card

Centrico Manufactures High-Tech Centrifuges —Literature Available

A high-tech method to remove water and impurities from heavy fuel oil, improve engine performance, and prevent diesel breakdowns are features of Centrico's product line. Westfalia oil-purifying centrifuges, including the automatic, self-cleaning model OSA 20 and

the take-down OTB 2 version, are being increasingly specified by diesel engine manufacturers and shipbuilders for workboats, service vessels, and offshore platforms.

By removing water solid fines, and other impurities from heavy fuel oil, Westfalia purifiers permit efficient combustion of the low-cost grades of fuel. Put to work eliminating similar contaminants for lube oils, they also enable operators to recycle lube oil, thus forestalling

premature engine wear and reducing downtime as well as extending lube oil life.

Westfalia OSA models are especially suitable for automatic, continuous operation. They incorporate self-cleaning, disc-type bowls designed for optimum oil-water separation even when oil characteristics and feed rates change. OSA models are available with maximum rated capacities of 5,550 gph, but actual throughput depends on viscosity,

specific gravity, and other properties of the oil.

Westfalia OTB take-down oil purifiers are designed for de-watering and removal of solid impurities from fuel and lube oils. They are currently in use on many service vessels in the Gulf area, and in other workboats throughout the world.

For further information and free literature,

Circle 44 on Reader Service Card



PERFORMANCE SO IMPROVED, WE CHANGED THE NAME...

CUMMINS VTA28-M

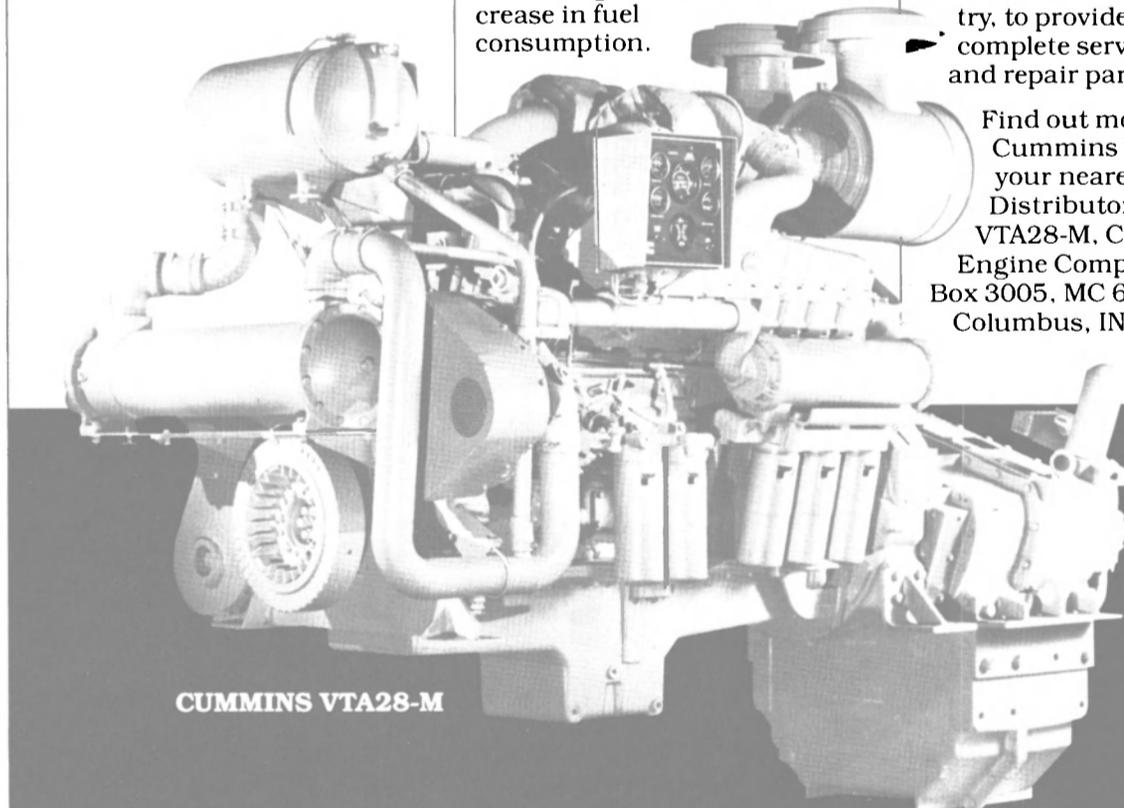
Taking the proven, reliable 5½" x 6" bore and stroke V-12 design, and using the latest diesel technology, Cummins delivers a new, more powerful engine matched to the tough requirements of today's marine industry.

Rated 675 continuous bhp at 1800 rpm, the powerful yet compact VTA28-M is an improvement of 55 bhp with less than one gallon-per-hour increase in fuel consumption.

More powerful with no sacrifice in fuel consumption. That, coupled with Cummins full package support of on-the-spot technical assistance, installation recommendations, computerized propeller selection, and instrumented sea trials brings a new, clear choice in marine propulsion to owners and captains around the world.

And you can always depend on the Cummins Distributor and Marine Dealer network, one of the most extensive in the industry, to provide expert service, complete service facilities, and repair part inventories.

Find out more about Cummins VTA28-M from your nearest Cummins Distributor or write: VTA28-M, Cummins Engine Company, Inc., Box 3005, MC 60403, Columbus, IN 47202-3005.



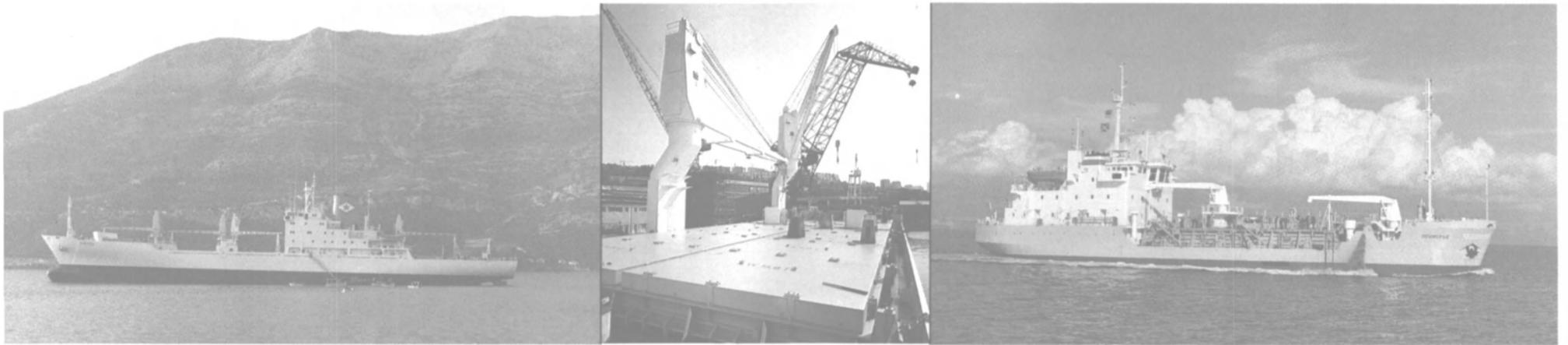
CUMMINS VTA28-M



NOBODY KNOWS DIESELS BETTER

© 1986, Cummins Engine Company, Inc.

Circle 120 on Reader Service Card



Left: Reefer Racisce delivered to Panamanian owners by Brodosplit. **Center:** Light service and heavy-duty cranes are designed and built by 3.MAJ in Rijeka, under license from Haggblunds. **Right:** The Primorje built by Brodosplit in Split, Yugoslavia for Sudoimport of Moscow.

A Report On The Yugoslav Shipbuilding Industry

Though the Yugoslav shipbuilding industry appeared on the international market only in the mid-50s, and has since exported an impressive amount of tonnage to the international shipping community, the roots are much deeper. The history of modern Yugoslav shipbuilding began in 1729 with the founding of the shipyard in Kraljevica. Uljanik followed in 1856, while 3. Maj can have as many as three birthyears—1882, 1892, or 1906.

Other yards are more recent additions, the oldest being Split, which started in the early 1920s. The origins of the industry are undoubtedly naval; both Titovo Brodogradiliste Kraljevica and Uljanik were founded as arsenals for the onetime Austrian, later Austro-Hungarian Empire. The same goes for 3. Maj, which started to build its first naval vessel in the first year of the yard's history. At the turn of the century, production range was comprehensive, including everything from submarines to battleships.

In those early years, shipbuilding was very much self-contained. Almost everything was produced in situ except for the armament. The same applied when merchant ships were built, as was generally the shipbuilding practice of the time. All the ships were for domestic use, the shipowners being the only link with the international community.

With the first export order booked in the mid-50s for a Swiss account, the situation started to change and is now completely reversed. In the period from 1968 to 1984, out of more than 11 million dwt produced, 93.5 percent was for export. Of that tonnage, 82.2 percent was sold to Western owners, the rest being delivered to the USSR. In the past 30 years, Yugoslavia has exported ships to 67 countries, including all major shipbuilding nations except Japan, South Korea, and Spain. Vessels built for Norwegian and Swedish owners when shipbuilding in those countries was at its best are cited as proof of the Yugoslav product. The

first foreign owner, Suisse Atlantic, tops a long list of companies that took deliveries from 1956 onward. Other prominent owners include Mobil, BP, Bergesen, Wilh. Wilhelmsen, Louis Dreyfus, Salen, Oltendorf, Petrobas, SCI, and Livanos.

During all these years the active exchange of ideas between shipyards and owners resulted in new types of ships being built at the Yugoslav yards. These included tankers of close to 30,000 dwt; twin-engine, twin-skeg VLCCs; Panamax size conbulks; chemical products carriers in the 40,000-dwt range; RO/ROs; LO/LOs; and cellular guide containerships.

A feature of the yards is the custom-built ship, fitting the owner's needs precisely; they have never concentrated on the so-called ready-made market. They have always followed owners' innovative ideas very closely, a policy they are convinced is justified.

For years Yugoslavia has maintained more or less steady production, being among the top 10 countries in world shipbuilding. In the past few years, the yards have managed to consolidate their position, being today number six on the list with production of about 2.5 percent of the world total.

However, the Yugoslav yards have been affected by the current slump in world shipping and shipbuilding. Compared with peak years of the pre-1975 period, today's production has been reduced by as much as 30-40 percent. The shipyards feel that this relatively lower rate of decrease compared with other countries is primarily the result of their flexibility and close cooperation with market-oriented owners.

From the very beginning, Yugoslav yards have maintained an open door policy concerning the materials and equipment used in building ships, either for domestic owners or for export. For example, Norwegian owners introduced Norwegian equipment, etc. The yards have nev-

er insisted on rigid makers' lists, regardless of the amount of credit extended to the owner, and have therefore remained an important market sector for the entire European ship machinery and equipment industries.

The large number of license agreements is seen as a further contribution toward a common goal. Main and auxiliary engines produced under license in Yugoslavia (M.A.N.-B&W, Sulzer, Pielstick) exceed 6.5 million bhp. Other licenses include Hatlapa, Norwinch, and Hydraulik Bratvaag for deck equipment; Alfa Laval for coolers; Hatlapa for compressors; and Haggblunds and Liebherr for deck cranes.

Yugoslav owners have also been integrated into the international shipping community, trading either within various conferences or on the spot market, and willingly accepting the burden and benefits of the competitive market.

Due to the heavy losses of ships during World War II contributing to the Allied war effort, Yugoslavia regained its prewar tonnage only in 1958 (about 411,000 grt). Since then there has been a relatively steady

growth. In the post-war period up to 1975 it acquired about 2.4 million grt, but still not reaching the prewar percentage of the world total—with 0.62 percent in 1939 and 0.56 percent in 1975.

Unlike many other national fleets that were built almost exclusively at home, Yugoslav owners in the 30-year period up to 1975 acquired about 35.4 percent of the fleet in terms of grt from Yugoslav shipyards; the rest, an impressive 64.6 percent, was either built abroad or bought second hand from foreign (almost exclusively European) owners.

The combined historical background of the 20+ members of the Yugoslav shipbuilding industry totals almost 1,000 years. Market-oriented and totally integrated into the international shipbuilding and shipping community, the industry is justly expecting to benefit from its past, present and future efforts. The Yugoslav shipyards are "here to stay".

For free literature describing the services and facilities offered by Yugoslav shipyards,

Circle 15 on Reader Service Card

Unique Slipway Launch Of Aft Part Of Hull Performed At 3.Maj Yard

The 3.Maj Shipyard in Rijeka, Yugoslavia, recently launched the aft hull part of newbuilding No. 643 down sliding Slipway No. 1, a new technology for the use of inclined ways.

The decision to build Hull No.

643, a 25,500/34,950-dwt bulkcarrier on Slipway No. 1 entailed a problem. The hull was designed with an overall length of 728.7 feet, and the slipway is serviced by cranes to the length of about 640 feet.

The solution to the problem by



The 3.Maj Shipyard in Yugoslavia built this 34,950-dwt bulk carrier in two parts, a unique technology when the ship is to be launched on an inclined slipway.

moving the aft part hull, comprising the engine room and Hold No. 7, in the direction of the slipway's front for a length of 11.8 feet. Construction of the hull was in two parts—engine room and one part of Hold No. 7, and the other part from Hold No. 4 forward to the bow. The distance between the two parts was about 8.2 feet.

Both parts of the hull were supported, as usual, by sand-filled blocks. The aft part, in anticipation of the eventual sliding-down operation, was set 120 mm higher than the bow part. After completion of the aft hull and the usual extent of engine room outfitting, preparations began for the sliding-down operation.

By use of steel wire ropes the aft hull was secured to the Goliath Gantry Crane that spans two slipways. By employing constant force from the gantry, the aft part was guided down the sliding ways at a constant speed of just under 2 feet per minute for the total distance of 114.8 feet. The aft hull was stopped by effecting increased force from the gantry. After having been stopped, the aft hull was accurately positioned longitudinally and transversely by means of hydraulic presses, and then lowered by letting the sand flow out of the supporting blocks.

The complete operation, including sliding down, accurate positioning, and lowering of the hull part was carried out during two working days. A section containing Holds No. 5 and 6 was then inserted between the aft hull and the bow part.

When completed, Hull No. 643 will have an overall length of 728.7 feet, beam of 75.7 feet, depth of 48.4 feet, and draft of 26/31.8 feet.

For further information on the 3.Maj Shipyard,

Circle 6 on Reader Service Card

Isotta Fraschini Receives Order For 8 Engines —Literature Available

The Yugoslavian company Brodomaterijal of Fiume has placed an order with Isotta Fraschini for eight ID 36 SS 8V diesel engines that will be used to power ferry boats. The Italian company's 6-16 cylinder, V-configuration ID 36 series engines have been adopted by several foreign countries (U.S., Great Britain, Greece, Yugoslavia and Norway) for a variety of commercial and military applications.

For further information and detailed literature on the complete line of engines offered by Isotta Fraschini,

Circle 9 on Reader Service Card

2-Volume Research Report, 'Ship Performance Analysis System' Now Available

The Maritime Administration has announced the publication of a two-volume research report, "Ship Performance Analysis System (SPAN)."

May, 1986

The report describes the development of a microcomputer software program for determining the best hull and propeller surface vessel. It operates on an IBM-PC/XT or compatible computer.

The study team was headed by John J. McMullen Associates, Inc. Also participating were two U.S.-flag vessel operators, Titan Navigation, Inc. and Tanker Management, Inc., and two marine coatings manufacturers—Devoe Marine Coatings

Co. and International Paint Co.

McMullen was responsible for managing the project and developing and documenting the SPAN system. The ship operators and paint manufacturers assisted in the development of data.

The system analyses factors affecting ship performance and combines this with a financial analysis to evaluate alternative hull coating systems and propeller cleaning strategies.

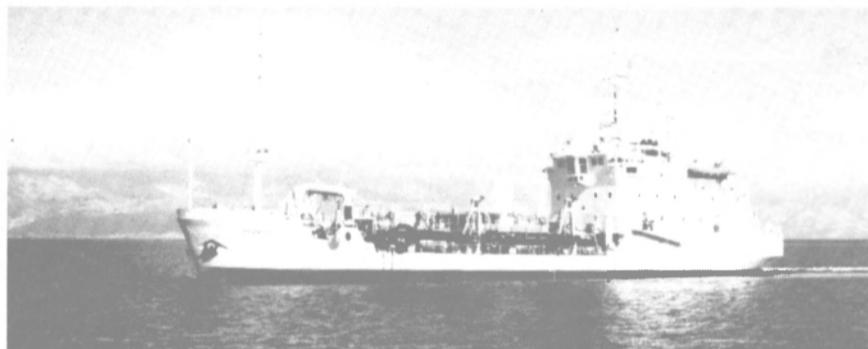
Copies of the report may be obtained from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161.

The order numbers and prices are as follows: Executive Summary, PB86-169554/AS, \$9.95; User's Manual, PB86-169562/AS, \$22.95.

SPAN computer programs are available on diskettes from J.J. McMullen. For information on how to order,

Circle 41 on Reader Service Card

SPLIT, THE SHIPBUILDERS WITH A DIFFERENCE



Over the past 100 years, Split has established a worldwide reputation for building and fitting out all types of vessels as well as constructing a wide range of special purpose off/on shore drilling platforms and other marine equipment, including diesel engines under the M.A.N. — B & W licence. Over 260 vessels totalling four million dwt. have been delivered. Over 90 per cent to overseas buyers. Today we are continuing that same tradition of quality and expertise. Designing even more sophisticated and complex ships. Building every conceivable type of vessel. If you want to see a big difference from other shipbuilders, contact SPLIT.

BRODOSPLIT
SHIPBUILDING INDUSTRY „SPLIT”

Address: Put udarnika 19, P.O. Box 107,
58000 SPLIT, Yugoslavia.
Telephone (exchange): 521-222
Telex: 26 125, 26 113, 26 296, BROGR YU
Cable: BROSPPLIT, Split
President: telephones: 522-380, 522-075

A Member of the Association of Shipbuilding Industry "Jadranbrod", Zagreb, Yugoslavia.

- OIL TANKERS
- CHEMICAL TANKERS
- BULK CARRIERS
- OBO & COMBO CARRIERS
- REEFER VESSELS
- DREDGERS
- OCEAN GOING BARGES
- PASSENGER SHIPS
- NAVAL VESSELS

SEE US AT POSIDONIA 86.
ATHENS JUNE 2-7.
STAND NO. A 421.

Circle 204 on Reader Service Card

Baker Named President Of WATERCOM

Richard A. Baker has been named president of Waterway Communications System, Inc. by its board of directors. Mr. Baker's appointment as president and chief executive officer of WATERCOM was effective April 1, 1986. Waterway Communications Sys-

tem, Inc., Jeffersonville, Ind., is responsible for the development of WATERCOM, an new direct-dial telephone service for the marine industry.

Mr. Baker has directed the WATERCOM project since joining the firm in 1982 as executive vice president and chief operating officer. Under his leadership, WATERCOM has become a reality for the inland waterways.

WATERCOM is a direct-dial telephone network providing the marine industry with improved telecommunications. The network serves 4,000 miles of inland waterways with high-quality, automated telephone service from land to vessel, vessel to land, and vessel to vessel. Service extends to the Mississippi, Ohio and Illinois River and the Gulf Intracoastal Waterways with incidental coverage extending



Richard Baker

to tributaries of the waterways and offshore waters of the Gulf of Mexico.

WATERCOM is an advanced river communications system. It provides important data services and voice privacy conducive to efficient business operations. Vessels can become computerized "mobile offices." Data services include VIS (Vessel Information Service), Vessel Location Service, Memo Service and Data Link Service. VIS and Vessel Location Service are built into the WATERCOM system requiring no additional onboard equipment. WATERCOM service will be available in mid-1986.

For further information on WATERCOM, the new advanced river communications system,

Circle 62 on Reader Service Card

3. MAJ is number 1

You might not think so with our name.
But when it comes to shipbuilding,
we are second – or third – to nobody.

3.MAJ is one of the most technically advanced shipyards in the world.

- The first for building tailor-made vessels of any type.
- The first for cutting running costs.
- The first for first class quality.

FIRST CLASS EXAMPLE OF 3.MAJ TECHNOLOGY "ADELINE DELMAS"

Log bulk container carrier.

The owner:

Societe Navale et Commerciale Delmas-Vieljeux,
Paris, France.

Length, B.P.	169.00 m.
Breadth	30.00 m.
Depth	15.80 m.
Draught, designed	8.50 m.
Draught, scantling	10.50 m.
Deadweight (8.50m)	24,300 t.
Deadweight (10.5m)	33,500 t.
Main Engine	"3.MAJ-SULZER" 6 RTA 58
Main Engine MCR	6,000 kW at 98 min.
Daily fuel consumption (trial)	17.5 t/day



Tomorrow's skills today

3.MAJ, Associated Shipbuilding Industry,
P.O. Box No. 117, 51001 Rijeka, Yugoslavia.
Telephone: 617-111 (20 lines). Telex: YU 24-137, 24-240, 24-338.
Cable: 3.MAJ-RIJEKA
(A member of the Association of Shipbuilding Industry
"JADRANBROD", Zagreb, Yugoslavia)

3.MAJ is number 1 in everything – except our name.

SEE US AT POSIDONIA 86. ATHENS JUNE 2-7. STAND NO. A 421.

Circle 285 on Reader Service Card

Moran Towing Appoints Karl Eckhardt Manager, Harbor Operations



Karl Eckhardt

Thomas E. Moran, president and chairman of the Moran Towing and Transportation Co., Inc. has announced the appointment of Karl B. Eckhardt, as manager of harbor operations. Mr. Eckhardt will have the operational responsibility for the fleet of Moran tugs serving customers in the Port of New York and New Jersey.

From 1968 to the present, Mr. Eckhardt held a variety of executive positions ashore in the maritime industry, including cargo superintendent, manager of container services, operations manager and director of sales. He joined Moran in 1982 as a sales representative. Well known in the port's maritime community, Mr. Eckhardt is on the board of governors of the Propeller Club and a director of the Maritime Association of the Port of New York and New Jersey.

OMI Corp. Elects Goldstein President And CEO

OMI Corp., a major U.S. and international bulk ship owner and operator with a fleet of 29 ships totaling 1,600,000 deadweight tons, announced recently that **Jack Goldstein** was elected president and chief executive officer.

Mr. **Goldstein** has been vice president of Overseas Shipholding Group, Inc. and previously served as chief economist at Allied Chemical. He is a trustee of the Transportation Institute and the American Maritime Association.

Electric Boat Receives \$587-Million Contract To Construct Ohio Class Sub

General Dynamics Corporation, Electric Boat Division, Groton, Conn., is being awarded a \$587,000,000 modification to a previously awarded fixed-price-incentive contract for the construction of one Ohio class submarine (SSBN-738). Work will be performed in Groton (75 percent), and Quonset Point, R.I. (25 percent), and is expected to be completed in December 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-2062).

Ingalls Shipyard Gets \$133.8-Million Navy Award For Aegis CG Equipment

Litton's Ingalls Shipbuilding Division in Pascagoula, Miss., has been awarded a \$133,831,658 modification to a previously awarded cost-plus-fixed-fee Navy contract for class standard equipment to be used in three CG-47 class Aegis cruisers—CG-63, CG-64, and CG-65. Work is expected to be completed in May 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-2016).

Sperry To Market Puroflow Power-Line Filters —Catalog Available



Puroflow Marine Corporation recently announced that an agreement has been reached with the Marine Division of Sperry Corporation Aerospace and Marine Group for distribution of Puroflow power-line filters in marine markets.

According to vice president of

marketing **C.R. Kenny**, the Sperry Marine Systems Division will market the Puroflow products in the United States and overseas through the company's extensive network of subsidiary companies and agents worldwide. In addition, the Puroflow filters will be incorporated into many Sperry Marine Systems Division products.

Puroflow filters are used widely throughout the marine industry, for

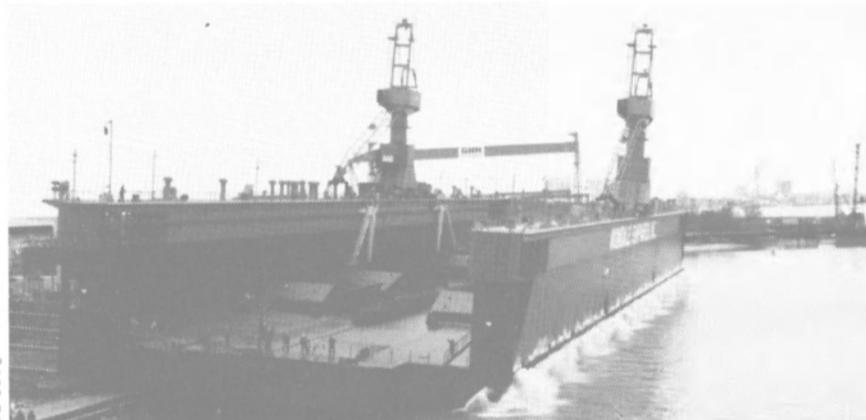
both shipboard and shoreside applications, to protect electronics and computer-based systems from the harmful effects of voltage fluctuations in the electrical power supply. According to Puroflow vice president **G. Howard Warren**, these filters incorporate a unique design that provides multiple levels of suppression devices, which work together to clamp voltage surges before they can damage sensitive elec-

tronic components. Typical reaction time is less than one nanosecond.

Mr. **Warren** stated that the Puroflow filters have been independently tested and documented to meet the most exacting standards for surge and noise suppression, including all applicable military specifications.

Circle 63 on Reader Service Card

Only specialists can build four floating drydocks within one year...



...88 in a century. Floating docks have been on the programme of MAN GHH since 1878. Between April 1982 and May 1983 we designed, built and supplied a 20,000-t and a 30,000-t dock for the U.S.A. as well as a 22,000-t and a

10,000-t dock for Saudi Arabia. From June 1982 until September 1983, two GHH floating docks were commissioned by our specialists at their final destination in the U.S.A., another two in Saudi Arabia, one in Indonesia, and one in Singapore.

Our dock construction yard is also fully equipped for building floating cranes, such as the three 200-t units delivered to Saudi Arabia in 1983. For further information we shall be pleased to send you our brochures.

Convincing Technology

M.A.N.-GHH
P.O.B. 110240
D-4200 Oberhausen 11
Phone 208/692-1
Telex 856691 ghh d
Telefax 208/692-2887



Circle 175 on Reader Service Card

PROFESSIONAL



Ameritech Corp.
Commercial • Shipbuilding & Repair

7 Belver Avenue, Suite 215
Quonset Point - Davisville Ind. Park
North Kingston, Rhode Island 02852

401 295-2663
401 295-2664

AMIRIKIAN ENGINEERING CO.
HARBOR AND DRYDOCKING FACILITIES
FLOATING LIFT DOCK AND SHORE TRANSFER
CONCEPTS, DESIGN, INVESTIGATIONS

Chevy Chase Center Office Bldg
Suite 505, 35 Wisconsin Circle
Chevy Chase, Md. 20015 (301) 652-6903

NAVAL ARCHITECTS MARINE ENGINEERS



ART ANDERSON ASSOCIATES

Bremerton, WA (206) 479-5600
Seattle, WA (206) 622-6221

Captain Astad Company, Inc.
Complete Marine Services - Full Broker Service
Owners Representative Service
Purchase & Sale of All Types of Vessels

CAPTAIN A. J. ASTAD P.O. BOX 53434
President NEW ORLEANS, LA 70153

PHONE (504) 529-4171 (24 HRS.)

Ocean Engineering Centre
SHIP-MODEL TESTING

- Resistance Tests • Flow Visualization
- Wake Surveys
- Towed Directional Stability Evaluations
- Seakeeping

For information Contact:
B.C. Research
Ocean Engineering Centre

3650 Westbrook Mall,
Vancouver, Canada V6S 2L2
Telephone (604) 224-4331
Telex 04-507748

CDI MARINE CO.
NAVAL ARCHITECTS
MARINE ENGINEERS

EXECUTIVE OFFICE, JACKSONVILLE, FL 904/723 2620

JACKSONVILLE, FL 904/724-9700

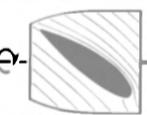
CHESAPEAKE, VA 804/543-4211 HAMPTON, VA 804/627-4328 KNOXVILLE, TN 615/693-0545

PHILADELPHIA, PA 609/228-1853 BOSTON, MA 617/878-8340

BREMERTON, WA 206/479-8829 SEATTLE, WA 206/235-0888

PASCAGOULA, MS 601/762-0098 YOKOSUKA, JAPAN 011-81-468-261911

A QUALITY TEAM



C.T. MARINE
NAVAL ARCHITECT • MARINE ENGINEER

18 Church Street, Georgetown, CT 06829
Telephone: 203-544-8110
Telex: ITT 4994761

- TUGS
- TOWBOATS
- BARGES



CHILDS ENGINEERING CORPORATION
Waterfront & Structural
Engineering • Diving Inspection

Box 333/Medfield/MA 02052
(617) 359-8945

Thomas Coudon Associates
Marine Equipment Sales

6655 Amberton Drive Baltimore, Md. 21227 (301) 796-2525



CRANDALL
DRY DOCK ENGINEERS, INC.

Railway and Floating Dry Docks
Waterfront Structures • Consulting
Design • Inspection
Dry Dock Hardware and Equipment

21 Pottery Lane Dedham, MA. 02026
Tel. (617) 329-3240 Telex: 924406

C. R. CUSHING & CO., INC.
NAVAL ARCHITECTS, MARINE ENGINEERS
& TRANSPORTATION CONSULTANTS

18 Vesey Street
NEW YORK, N.Y. 10007

TEL (212) 964-1180 CABLE CUSHINGCO
TX: 752481



DLI
ENGINEERING CORPORATION

MARINE VIBRATION ANALYSIS NOISE CONTROL

253 Winslow Way West, Bainbridge Island, WA 98110
(206) 842-7656

Measurement, recording and analysis of mechanical, structural and electrical phenomena.



DEL BREIT INC.
MARINE ENGINEERING CONSULTANT

326 Picayune Place Suite 201
New Orleans, La. 70130

(504) 523-2801

DESIGN ASSOCIATES, INC.
M. KAWASAKI

14360 Chef Menteur Highway
New Orleans, Louisiana 70129

Naval Architects Marine Management
Marine Engineers Transportation Consultants

Phone: (504) 254-2012 TWX 810-951-5317

DESIGNERS & PLANNERS, INC.
NAVAL ARCHITECTS MARINE ENGINEERS

CRYSTAL PARK #1, SUITE 500
2011 CRYSTAL DRIVE
ARLINGTON, VA 22202
(703) 892-8200
TWX 710-955-1132

190 TOWNE STREET
NORWICH, CT 06360
(203) 887-2501

1941 OLD CUTHBERT ROAD
SUITE 106
CHERRY HILL, NJ 08034
(609) 795-1170

797 BROADWAY
BAYONNE, NJ 07002
(201) 339-9446

ECO Inc.
Ship Design and Engineering
Ports, Waterways and Offshore Facilities
Military and Defense Systems

1036 Cape St. Claire Center, Annapolis, Md. 21401
(301) 757-3241



ENCON MANAGEMENT & ENGINEERING CONSULTANT SERVICES

Marine Structures • Engineering Analysis • Marine Survey
Project Management • Loss Prevention • Naval Architecture

P.O. Box 7760 • Beaumont, Texas 77706
(409) 866-9158

Envisions
ENGINEERING VISIONS, INC.

Formerly PRC Guralnick and PRC Marine Services
Naval Architects & Marine Engineers

1111 Bay Boulevard (619) 575-3300
Chula Vista, CA 92011

BARGES - TUGS - TOWING
CHARTERS AND SALES
PROCUREMENT AGENTS
ON INLAND
AND OCEAN TOWING

Jack Faulkner, Inc.
ESTABLISHED 1954

Cable Address: FAULKBOAT
OFF: (504) 838-9675
(312) 798-2419

1001 W. HARIMAR COURT, METAIRIE, LA 70003
2419 Caddy Lane Flossmoor, Illinois 60422
TOWING ANYWHERE THERE IS WATER

CHRISTOPHER J. FOSTER, INC.
WORLD-WIDE EXPERIENCE AS DESIGNERS OF
GRAVING DOCKS • MARINE STRUCTURES
SHIPYARDS • MODERNIZATION • PORT FACILITIES
OFFSHORE TERMINALS • FLOATING DRYDOCKS

MARINE ENGINEERS • NAVAL ARCHITECTS
CONSULTING ENGINEERS

PORT WASHINGTON NEW YORK 11050
(516) 883-2830 TELEX 14-4674 CABLE: "CEFOSTA"

GIBBS & COX INC
NAVAL ARCHITECTS & MARINE ENGINEERS

119 West 31st Street • New York, N.Y. 10001
(212) 613-1300

Naval Architects Seattle, WA
Marine Engineers 206 624-7850
Ocean Engineers Telex: 32-1226

THE GLOSTEN ASSOCIATES, Inc.

Phillip Gresser Associates Ltd.
MARINE ENGINEERS
CONSULTANTS & SURVEYORS

3250 SOUTH OCEAN BLVD.
PALM BEACH FLORIDA 33480 TEL: (305) 586-0813

MORRIS GURALNICK ASSOCIATES, INC.

NAVAL ARCHITECTS MARINE ENGINEERS

MAIN OFFICE: 620 FOLSOM STREET, SUITE 300
SAN FRANCISCO, CA 94107
(415) 543-8650

EAST COAST OFFICE: 1911 JEFFERSON DAVIS HIGHWAY
SUITE 902 ARLINGTON, VA 22202
(703) 892-1700



H-TEST
LABORATORIES, INC.

P.O. Box 226 Buckingham, Virginia 23921
(804) 969-4264

- Underwater Explosion Shock Testing (MIL-S-901)
- Fixture Design and Fabrication
- R & D Support
- East & West Coast Facilities
- Test Program Management
- Field Testing with Craft & Engineering Support
- Pitch and Roll Simulation to 20,000 Lbs.



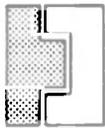
J.J. HENRY CO. INC.
naval architects • marine engineers • marine consultants

40 EXCHANGE PLACE
NEW YORK, N.Y. 10005
TEL. (212) 635-4000
TWX 710-581-2021. TELEX 422-036

Cohasset, Mass (617) 383-9200 Moorestown, N.J (609) 234-3880 Sturgeon Bay, Wis. (414) 743-8217

C. Raymond Hunt Associates, Inc.
High Speed Powerboat Design

69 Long Wharf - Boston, MA 02110
Tel: (617) 742-5669/TX: BSTLX 294116 (Attn. Hunt)



Naval Architects
Marine Engineers
Marine Design Computer Services

10 CUTTS ROAD
PO BOX 865
DURHAM, NH 03824
603-868-2560



MARINE ENGINEERS
SURVEYORS
CONSULTANTS

INTRAMARINE, INC.
P.O. BOX 53043 JACKSONVILLE, FL 32201
(904) 353-0828 TELEX: 56-8421
ALSO NEW YORK, HAMBURG, PIRAEUS
• HULL • MACHINERY • CARGO • YACHT SURVEYS



JJH of Virginia

• NAVAL ARCHITECTS • MARINE ENGINEERS • MARINE CONSULTANTS •

"Quality First"

CHERRY HILL, NJ 609-779-8025 PORTSMOUTH, VA 804-399-4096 ARLINGTON, VA 703-920-3435 NEWPORT NEWS, VA 804-873-0028



R. D. Jacobs and Associates
Naval Architects • Marine Engineers
Consulting Engineers

MARINE AND STATIONARY PROJECTS
Marine Surveyors; Project Specifications and Designs;
Energy Efficient Concepts
Owner Representation Services; Machinery
Casualty Investigations;
Practical Engineering Economics Analyses

11405 MAIN ST., ROSCOE, IL 61073 815-623-6760

Jantzen Engineering Co., Inc.
Consulting Engineers
Ocean Mining and Dredging
(301) 796-8585
6655 Amberton Dr. Baltimore, Md.

JAMES S. KROGEN & CO., INC.
NAVAL ARCHITECTS & MARINE ENGINEERS
Tel. (305) 642-1368
1515 N.W. 7th St., Suite 124, Miami, FL 33125



RODNEY E. LAY & ASSOCIATES
NAVAL ARCHITECTS

NAVAL ARCHITECTS • MARINE ENGINEERS
13891 Atlantic Blvd.
Jacksonville, Florida 32225
(904) 246-6438 TWX 810-828-6094



Alan C. McClure Associates, Inc.
NAVAL ARCHITECTS • ENGINEERS
2600 South Gessner • Suite 504 • Houston, Texas 77063
(713) 789-1840 • Telex 792397

John J. McMullen Associates, Inc.



Naval Architects • Marine Engineers • Transportation Consultants

New York, NY • Arlington, Va • Newport News, Va • Houston, Tx
Ventura, Ca • Bath, Me • Seattle, Wa • Pascagoula, Ms

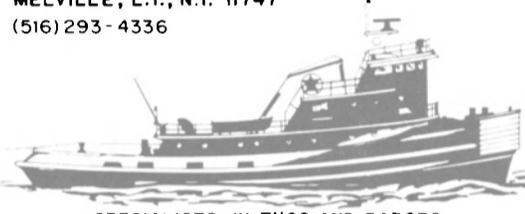
One World Trade Center/Suite 3000/New York, New York 10048/(212)466-2200



Speed & Propulsion Power Policy
FENDALL MARBURY
NAVAL ARCHITECT
1933 LINCOLN DRIVE
ANNAPOLIS, MARYLAND 21401 (301) 268-6168

MARINE CONSULTANTS & DESIGNERS, INC.
Naval Architects Marine Engineers
Telex: 98-5587
Main Off.: 308 Invest. Insur. Bldg. • Cleveland, Ohio 44114
(216) 781-9070

MARINE DESIGN, INC.
NAVAL ARCHITECTS • MARINE ENGINEERS
Formerly TAMS INC. Naval Architects, Estb 1865
401 BROAD HOLLOW RD. (Rt. 110)
MELVILLE, L.I., N.Y. 11747
(516) 293-4336



SPECIALISTS IN TUGS AND BARGES



THE PROFESSIONALS
Maintenance, Repair &
Retrofit Specialists

1010 Turquoise St., Ste. 217, P.O. Box 99546
San Diego, CA 92109, (619) 488-7703

MARITIME DESIGN, INC.

NAVAL ARCHITECTS MARINE ENGINEERS
MARINE CONSULTING COMPUTER PROCESSING
MARINE DESIGN MARINE SURVEYS

2955 HARTLEY RD • JACKSONVILLE, FL 32217 • (904) 268-9137

GEORGE E. MEESE
NAVAL ARCHITECTS CONSULTANTS MARINE ENGINEERS SURVEYORS
194 ACTON ROAD ANNAPOLIS, MARYLAND 21403
TELEPHONE (301) 263-4054

R. CARTER MORRELL
MARINE CONSULTANT
715 S. CHEROKEE
BARTLESVILLE, OK 74003 918-336-8306

TELEPHONES 941-7070 1810 943-7073
NIGHT MORRISTOWN, N.J. (201) 518-1789
FAX 710-581-2872

MOWBRAY'S TUG AND BARGE SALES CORP.
21 WEST STREET, NEW YORK, N.Y. 10006
YOUR MARINE CONSULTANTS

SPECIALISTS IN BUYING, SELLING AND RENTING TUG BOATS • BARGES CONTRACTORS FLOATING EQUIPMENT



NELSON & ASSOCIATES, INC.
MARINE
SURVEYORS ENGINEERS CONSULTANTS APPRAISERS
610 N.W. 183 St., Miami, Fla. 33169 (305) 653-4884
Telex: 44-1869 Cable: NELSURVEY

NORTHERN MARINE
Naval Architecture - Marine Engineering
Marine Surveying
(616) 946-5959
P.O. Box 1169 Traverse City, MI 49685

PILOTAGE CONSULTANTS, INC.
Capt. Jim Stillwaggon P.O. Box 2046
516-742-2467 New Hyde Park, NY 11040

Q.E.D. SYSTEMS, INC. VIRGINIA BEACH (804) 490-5000

MARINE ENGINEERS NAVAL ARCHITECTS LOGISTICS ENGINEERS

ARLINGTON SAN DIEGO LAKEHURST
BREMERTON PHILADELPHIA CHARLESTON
JACKSONVILLE SAN FRANCISCO

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS

New York City 350 Broadway 212-431-6900
San Diego 1007 Fifth Avenue (619) 238-1300
San Francisco 667 Mission Street 415-777-0500
Charleston Heights, S.C. 3370 Rivers Avenue (803) 744-1686
Arlington, Va 2341 Jefferson Davis Highway (703) 892-5680



M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS

SARGENT & HERKES, INC.
NAVAL ARCHITECTS • MARINE ENGINEERS
1005 INTERNATIONAL BLDG., 611 GRAVIER ST
NEW ORLEANS, LA 70130
(504) 524-1612



Quality Marine Engineering Management, Training and Support Services
AT 21 WORLDWIDE LOCATIONS
CORPORATE OFFICE: MT. LAUREL, NJ 609-866-2400

ARLINGTON, VA BREMERTON, WA CHARLESTON, SC
CHERRY HILL, NJ DOVER, NH GROTON, CT
GULFPORT, MS JACKSONVILLE, FL LOS ANGELES, CA
NATIONAL CITY, CA NORFOLK, VA OAKLAND, CA
ORLANDO, FL PASCAGOULA, MS PEARL HARBOR, HI
PHILADELPHIA, PA PORTSMOUTH, NH SUBIC BAY, PHILIPPINES
TEXARKANA, TX VALLEJO, CA VIRGINIA BEACH, VA

SYSTEMS ENGINEERING ASSOCIATES CORPORATION
Where Quality Is a Tradition

SEACOR is a subsidiary of Day & Zimmermann, Inc.



Seaworthy Systems, Inc.

Marine Engineers and Naval Architects
Energy Reduction Fuel Technology

Main Street 17 Battery Pl
Essex, Conn. 06426 N.Y. N.Y. 10004
P.O. Box 205 2 Skyline Place, Suite 311
Solomons, MD 20688 Falls Church, VA 22041

TWX: 7104580271

GEORGE G. SHARP, INC.

MARINE ENGINEERS NAVAL ARCHITECTS SYSTEMS ANALYSTS MARINE SURVEYORS

100 Church Street Arlington, Virginia 22202
New York, N.Y. 10007 (703) 892-4000
(212) 732-2800

Virginia Beach, Va. 23462 Voorhees, N. J. 08043
(804) 499-4125 (609) 772-0888/89

New Racal Survey And Dredge Control System —Literature Available

System 900, a new automatic data collection and charting system for hydrographic surveying and dredge control, was demonstrated for the first time recently by Racal Positioning Systems Limited. Literature is now available describing System 900 in full detail.

Using a modular and distributed processing approach, System 900 can be configured to suit a

small survey boat with a single positioning sensor or a larger vessel incorporating two or more positioning systems and a range of data inputs.

An off-line charting facility accepts the data from both configurations, producing tide reduction, change of vessel position and general editing of all collected data. The data can be from more than one vessel or from previous surveys.

A digitizing feature allows additional information to be added to the database and interactive computer-aided techniques are used to produce the contours. Final charts and overlays are printed on a high-quality graphic plotter.

The modular design allows the data collection and charting operations to be performed in parallel. The charting system can also be used dynamically to produce dredge control data for computer-aided graphical displays to indicate: guidance for the dredger; location of dredge leads and quality control of the dredge area; cross-section profiling showing current with desired overlay; and pre- and post-dredge survey contours to allow volumetric calculations.

For free copies of the Racal System 900 literature,

Circle 78 on Reader Service Card

includes a large job machine shop, offers customers the best in quality, service and price on diversified piping specialties, 1/8-inch to 72 inches. All metals, including cast iron, ductile, cast steel, forged steel, bronze, aluminum, stainless, Monel and alloy carpenter 20, are available.

For free literature containing full information,

Circle 80 on Reader Service Card

Free 12-Page Guide To Selecting Solvents For Coatings Now Available

A 12-page selection guide for the solvents most commonly used in coatings is available from Union Carbide Corporation.

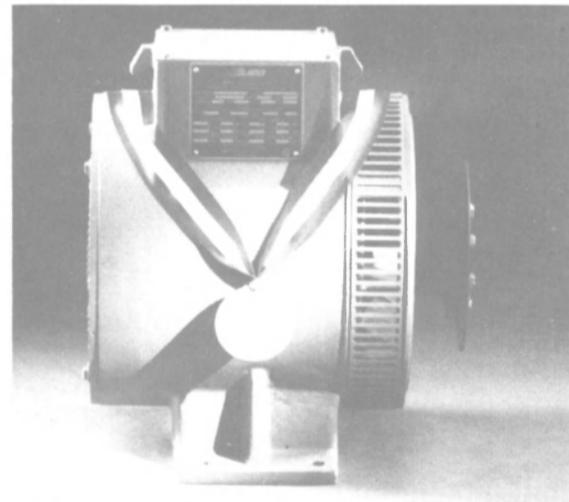
A tabular selector matches a range of fast, medium and slow evaporating UCAR® solvents with their use in various types of coatings. A comprehensive listing of 46 UCAR solvents gives physical properties, as well as status under Rule 66-type air pollution control regulations. Properties of diluents, including naphthas and aromatics, are also presented in a table.

The booklet details the physical properties of UCAR alcohols, glycol ethers, esters and ketones used for waterborne coatings. Other tables describe solubilities of resins and relative viscosities of lacquer formulas using various solvents.

For free copies of the booklet, "UCAR Solvents Selection Guide for Coatings," designated F-7465X,

Circle 75 on Reader Service Card

Lima Introduces Gold Medallion Alternator Series —Free Catalog Offered



The Lima Electric Company of Lima, Ohio, has introduced their 250 Gold Medallion Series of electric alternators commemorating the company's half-century dedication to superior technology and field-proven reliability.

The new 250 compact design is claimed to provide more kw per pound and less cost per kw than any other quality alternator. The smaller frame, only 14 3/8 inches in length, gives the 250 a portability and versatility not possible with larger units. The economical compact 250 is available in 5 through 8.5 kw self-regulated MAC, or 6.5, 10, 12 and 15-kw externally regulated SER designs.

For complete specifications on this 50th anniversary series from The Lima Electric Company,

Circle 82 on Reader Service Card

For a catalog on all Lima Electric equipment,

Circle 83 on Reader Service Card

Maritime Reporter/Engineering News

- Marine Surveyors
- Port Engineer Service
- On-Off Hire Surveys
- Damage Surveys
- Voyage Repair Supervision
- World Wide Travel

SIMMONS ASSOCIATES Naval Architects & Marine Engineers



P.O. BOX 760 • SARASOTA, FLORIDA 33578 • USA
(813) 921-1231 * TLX 9103808486

STV/SANDERS & THOMAS

Marine Engineering • Systems Analysis
Consulting/Design Engineering

1745 Jefferson Davis Highway
Arlington, VA 22202 703 521-5416

THE SOCIETY OF MARINE CONSULTANTS

CONSULTANT REFERRALS

Capt. J.C. Musser, Executive Director
P.O. Box 72 212-242-4928
Rockville Center, NY 11571 516-379-4640

R.A. STEARN INC.

NAVAL ARCHITECTS and MARINE ENGINEERS

253 N. 1st Avenue

Sturgeon Bay, WI 54235

Phone (414) 743-8282 TLX 753166. ESL 62388810

Trans-International Marine Services Corp.



TIMSCO

MAINTENANCE MONITORING SYSTEMS
INVENTORY CONTROL SYSTEMS
622 Azalea Road
Mobile, Alabama 36609 205 666-7121

Tracor Hydronautics

INTEGRATED ENGINEERING SERVICES
FOR THE MARINE INDUSTRY

RESEARCH • DEVELOPMENT
DESIGN • TESTING

HYDRONAUTICS SHIP MODEL BASIN

Tracor Hydronautics

7210 Pindell School Road
Laurel, Maryland 20707
Telephone: (301) 776-7454
Telex: 8-7585

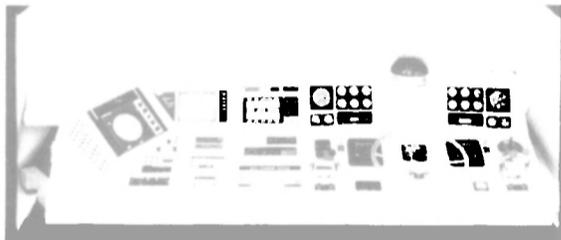
THOMAS B. WILSON ASSOCIATES

NAVAL ARCHITECTS & MARINE ENGINEERS

1258 N. AVALON BLVD. • WILMINGTON, CA. 90744

PHONE (213) 518-0940

GALAX Offers New Free Literature On Kit-Assembled Marine Control Consoles



One logical configuration of the GALAX II marine control console from GALAX Integrated Systems.

GALAX Integrated Systems of New Baltimore, Mich., is offering new free literature, including a brochure and data sheets, on their kit-assembled "starship-styled" marine control consoles.

The company has now made available a series of high-tech aluminum pre-fab sectional modular consoles to fit any wheelhouse or open command bridge.

The design of each innovative control system is engineered to place all essential instrumentation in one easily accessible helm station command center. The layout features logical placement of engine instrumentation, navigation equipment and communication equipment around the helm's wheel.

According to GALAX, these sophisticated modular console systems only could have been custom-ordered in the past, but now the customer can kit-assemble his own console for up to 70 percent off custom prices.

Configurations to fit any combination of controls, instruments or electronics are available.

For a free GALAX brochure and any data sheets on the new marine control consoles,

Circle 81 on Reader Service Card

Metropolitan Plumbing Offers Full Manifold Valve Stock —Supplies Valves To Order

Metropolitan Plumbing Supply of Long Island City, N.Y., in addition to maintaining a full stock of cast steel manifold valves, also provides special marine valves to order.

Their 200,000-square-foot warehouse, which



Cummins-Powered Empress Launched By Serodino, Inc.

Providing fun and recreation is the only function of the 105-foot Empress, now the newest, most luxurious and modern excursion boat in the United States.

Based at Phil Foster Park's Steamboat Landing in Riviera Beach, Fla., the 98-gross-ton tri-level vessel was built by Serodino, Inc., of Chattanooga, Tenn., and delivered to its home base in late-January of 1986.

Powered by two Cummins NT855-M engines that generate 295 hp at 1,950 rpm, the Empress, with a permanent crew of five, accommodates 550 sightseeing passengers and seats 340 people for lunch and dinner cruises.

Owned by Island Queen Excursions, Inc., the Empress, along with a companion 85-foot stern wheel riverboat, Island Queen, conducts several daily sightseeing excursions from Monday through Sunday each week, plus lunch and dinner cruises from Wednesday through Sunday.

IQE president **Jim Cross** said that public reaction to the new vessel has been "extra good." He pointed out that guests have expressed appreciation for the elegantly carpeted inside decks and the polished brass fixtures that blend perfectly with the craft's design which resembles a turn-of-the-century Northeast United States steamboat.

Mr. **Cross** previously owned and operated the Dixie Belle, a stern wheel riverboat at Boonesboro, Kty., for seven years before moving his operation to Riviera Beach.

Now at his present location for five years, Mr. **Cross** is currently constructing a building at the Steamboat Landing dock that will house company offices, a gift shop and a galley facility to prepare meals for the lunch and dinner cruises.

Overseeing the large cruiseboat's construction was fleet Capt. **Bill Hipple**, a 15-year veteran skipper. "I chose Cummins engines for the Empress because past experience taught me they are easier to maintain, more economical to operate and have a low noise level," he said.

Designed by architect **Alan**

Main engines	Cummins
Propellers	Michigan Wheel
Steering system	Serodino
Generators	Cummins
Reduction gears	Twin Disc
Radar	Furuno
VHF radios	Cybernet
Depth sounder	Data Marine
Compass	Danforth
Air horn	Kahlenberg
Navigation and Running lights	Perko
Fire Pump	Peerless

Bates, the steel-hulled vessel, which is pushed by 40-inch, 32-pitch, four-blade Michigan Wheel propellers on three-inch shafts, was 16 months in construction.

For free literature on Cummins engines,

Circle 32 on Reader Service Card

For further information on Serodino, Inc., facilities and capabilities,

Circle 4 on Reader Service Card

NAVSEA Awards ITT \$106.5-Million Contract For Radar Systems

ITT Corporation/ITT Gilfillan, Van Nuys, Calif., is being awarded a \$106,504,601 fixed-price incentive contract for AN/SPS-48E Radar Systems for various U.S. ships. Work will be performed in Van Nuys, and is expected to be completed September 1988. The Naval Sea Systems Command is the contracting activity (N00024-86-C-5226).

Russellstoll Engineers Gain Patent For Fluorescent Lamp-Locking Device

Richard Havens, Joseph Flor, and Peter Panayoti have received a U.S. patent for a self-actuating locking assembly to prevent undesired rotation and fluorescent lamp "fall-out" problems resulting from the vibration conditions typical of marine and industrial environments. The patent has been assigned to the Russellstoll Division, Midland-Ross Corporation.

The locking assembly is attached to a conventional fluorescent tube socket and is designed to prevent the rotation and subsequent fall-out of a standard, straight-line type fluorescent lamp even under the vibration and impact conditions encountered aboard ship or in industrial plants.

The invention consists of a C-shaped spring that holds two non-conductive locking members between the arms of the C and attaches to a conventional socket. The

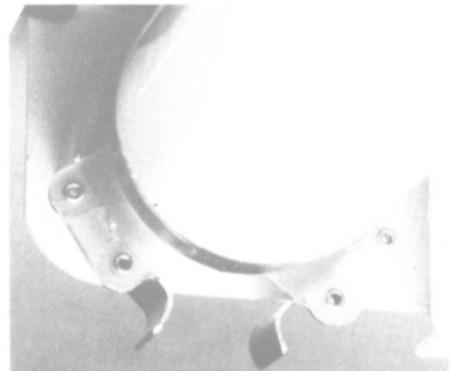
locking members permit the pins of the fluorescent lamp to be inserted into the socket as usual, but then automatically lock the pins into position. The lamp is easily removed, however, by spreading the C slightly with the fingers while rotating the lamp.

Presently included in low-profile ceiling lights intended primarily for marine or industrial use, the Russellstoll locking device can be incorporated into most existing fluorescent fixtures. Only one end of the lamp need be locked to prevent rotation.

The self-locking assembly is initially being applied to Russellstoll's SnapLight marine and industrial fixture line on fixtures holding 4-foot lamps. Shorter lamps are not usually loosened by vibration.

For additional information on the new locking device,

Circle 33 on Reader Service Card



Russellstoll's newly patented vibration-resistant locking assembly for fluorescent lamps helps prevent undesired lamp rotation and "fall-out" caused by vibration conditions of marine and industrial environments. (The mechanism is demonstrated here using a draftsman's dividers to simulate the lamp contact pins.)

NAVSEA Approves Greitzer Galley Exhaust Ventilation —Free Literature Offered

Greitzer, Inc., Riverdale, N.J., recently announced that their Grease Interceptor Hoods for galley cooking equipment exhaust ventilation have received the approval of the Naval Sea Systems Command.

According to the manufacturer, the units feature: effective grease extraction; reliable fail-safe damper control; and automatic internal cleaning. Greitzer offers several

models for a wide range of applications.

Rudman & Scofield, Inc., have been named exclusive distributors of the Greitzer Grease Interceptor Hoods. Rudman & Scofield have regional offices located throughout the U.S., and, at this time, will handle all inquiries concerning the ventilation units through their Newport News, Va., office.

For further information and free literature on the Greitzer Grease Interceptor Hoods,

Circle 56 on Reader Service Card



JIM'S PUMP REPAIR INC.

48-55 36th STREET, LONG ISLAND CITY, NEW YORK 11101



JIM LAGONIKOS, President Established 1974 **Bob Mooney, Sales & Service Mgr.**

Reconditioned Coffin & Pacific Feed Pumps

Service
24 HRS
718-392-4444

A-1 Condition
TYPE • F-CG - DE - DEB - IND - T
TBA • 12 - 16 - 16½

Parts Available
TLX - TWX
710-5824847JPRNYK

Circle 195 on Reader Service Card

NUMBER



MARITIME REPORTER

ALONE DELIVERS YOUR ADVERTISING TO MORE MARINE BUYERS THAN ANY OTHER TWO MARINE MAGAZINES COMBINED.

In 1985, MARITIME REPORTER's total circulation increased again to a record 24,305 copies every issue . . . the largest total requested circulation of any marine magazine in the world.

This entire increase consisted of only Buying Influence Readers. MARITIME REPORTER now delivers your advertising to an unequalled 21,609 buying influence readers . . . thousands more than any other Marine magazine in the entire world . . . and, more than any other two marine magazines combined.

THE UNITED STATES is the largest marine market nation in the world . . . offers greater potential for marine sales than any other country.

MR HAS THE LARGEST TOTAL U.S. CIRCULATION . . . thousands larger than No. 2, ME/Log . . . including thousands more U.S. marine buyers than ME/Log or any other marine magazine in the world.

YOUR MOST POWERFUL MARINE A

WORLD'S LARGEST CIRCULATION TO BUYERS

1985—MARITIME REPORTER's total circulation increased to 24,305 including a record 21,609 Buying Influence Readers.

COMPARE CIRCULATION TO BUYERS				
	MARITIME REPORTER	ME/Log	WATERWAYS JOURNAL	THE WORKBOAT
BUYERS ↓	21,609 89%	15,107 60%	2,347 34.2%	?
NON-BUYERS AND UNIDENTIFIABLE MIXED GROUPS ↓	2,696 11%	10,028 40%	4,526 65.8%	?
Total Requested Circulation	24,305	22,745	6,873	9,985
Unrequested free copies	0	2,390	0	3,046

WORKBOAT does not report titles of all readers, Presidents, Vice Presidents, Treasurers, Purchasing Agents, etc. Impossible to identify number of buyers reached.

Circulation audit bureaus do not identify buyers. Identification of BUYERS is based on a 1984 survey, commissioned by MARITIME REPORTER, of over 1,000 marine sales managers who identified true buyers as shoreside management, design and purchasing people in vessel operations, shipbuilding and design (naval architects). Signed and dated replies on file at MARITIME REPORTER.

RECORD SALES LEADS FOR ADVERTISERS

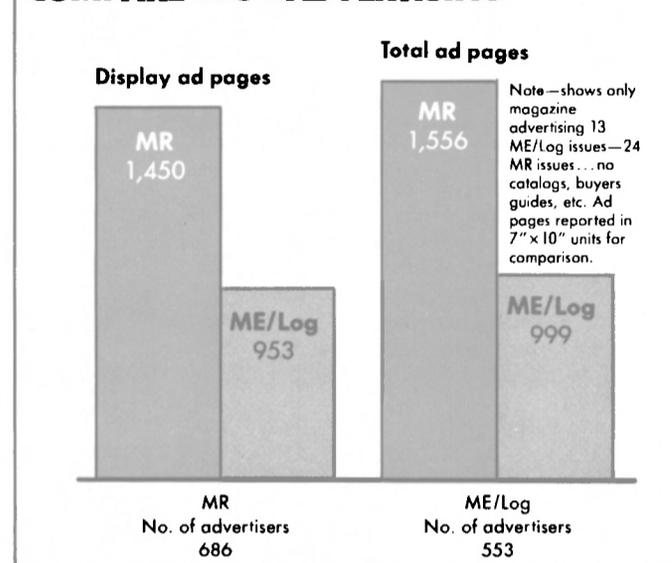
MARITIME REPORTER produces more and better sales leads than any other marine magazine...two times and three times more than the number 2 magazine. Each figure listed represents inquiries produced for an individual advertiser by MARITIME REPORTER in one year or less.

PAINT CORROSION CONTROL	SHIPBUILDING/REPAIR
1,033	2,147
714	613
655	570
DECK MACHINERY/CARGO HANDLING	DIESEL ENGINES
545	1,533
415	1,352
477	1,168
NAVIGATION & COMMUNICATIONS	OILY WATER SEPARATORS
773	936
663	751
623	459

THE ADVERTISING LEADER

In 1984, and for years, more media buyers placed more pages of advertising, for a larger number of advertisers, in MARITIME REPORTER than in No.2 ME/Log.

COMPARE 1984 ADVERTISING



NUMBER 1 THE WORLD'S MOST SUCCESSFUL MARINE MAGAZINE

By their actions, the most important people in the marine industry—the readers and the advertisers—have voted MARITIME REPORTER NUMBER ONE.

- **WORLD'S LARGEST TOTAL REQUESTED CIRCULATION**
- **LARGEST TOTAL US. CIRCULATION**
- **THOUSANDS MORE BUYING INFLUENCE READERS**
- **LARGEST NUMBER OF ADVERTISERS**
- **LARGEST NUMBER OF AD PAGES**
- **BEST RESULTS—LARGEST NUMBER OF INQUIRIES FOR ADVERTISERS**

118 East 25th Street
New York, New York 10010
212-477-6700

MARITIME REPORTER
AND
ENGINEERING NEWS

ADVERTISING SALES FORCE FOR '86

Hardware Specialty Offers Complete Shipbuilding Fastener And Hardware Line—Catalog Available

Hardware Specialty Company, Inc., a 53-year-old hardware fastener distributor firm based in Long Island City, N.Y., has been increasingly committed to meeting the demands of the shipbuilding industry.

Their Ships Division is currently committed to more than doubling their already impressive inventory levels and adding more qualified technical people to their seasoned veteran sales staff in order to meet the surging demand for off-the-shelf availability of MIL-B-857 and MIL-S-1222 fasteners, supplied with required certification.

Division manager **Jim Lewis**, formerly the company's director of quality control, attributes much of their current high visibility in the military marine industry to their history of supplying high quality certified fasteners as an approved source to public service utility firms throughout the nation and to the nuclear plant construction engineering firms that wrote the specs.

Strict adherence to stringent quality control enabled the company to qualify as an approved source for several major East Coast shipbuilding firms engaged in new construction, maintenance and repair for the U.S. Navy.

Since 1960, the firm has been concentrating on the supply of military specification fasteners and hardware to the aerospace and defense instrumentation industries, and the rising demand for the Ships Division's capabilities is not all that surprising. The management has com-



James Lewis, Ships Division manager for Long Island City-based Hardware Specialty Company, Inc.



Hardware Specialty has computerized quality control.

mitted the resources of the company to keep pace with the increasing demand.

The company is presently serving many of the leading West and Gulf Coast shipyards and welcomes the opportunity to assist buyers with even minimal quantity needs.

For further information and complete literature on Hardware Specialty equipment,

Circle 2 on Reader Service Card

Full-Color Brochure On 150-Ton Mobile Boat Hoist From Marine Travelift

Marine Travelift Inc. of Sturgeon Bay, Wis., is offering a free full-color brochure on their 150-ton-capacity mobile boat hoist.

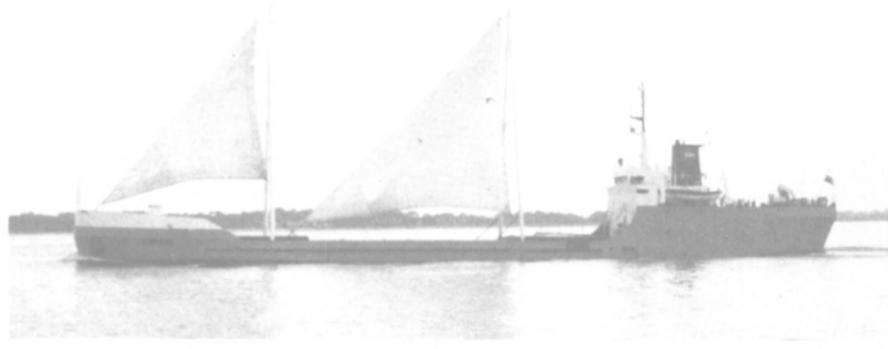
The color publication features several fine photographs of the 150-ton-capacity mobile boat hoist, as well as the unit's operator cabin, pivot trunnion and hoist apparatus. Drawings of the hoist's synchronized sling system and carriage are

also included. Specifications and dimensions (both in U.S. measure and metric) are included on the back panel of the brochure.

The Marine Travelift brochure is divided into eight brief easy-to-read sections, and includes text on: the unit's synchronized sling system (with automatic load equalizing); two-speed hoisting ability; 90-degree pivoting ability; and easy maintenance.

For a free copy of this brochure from Marine Travelift,

Circle 49 on Reader Service Card



Sail Freight International Offers Design For Auxiliary Wind Propulsion

According to Capt. **D.C. (Sandy Anderson)**, founder of Sail Freight International (SFI) of Greenwich, Conn., sail-assist should be viewed as a total performance improvement package and not solely as a fuel-conservation measure. In this light, sail-assist undoubtedly has a future in the modern merchant marine.

The Japanese clearly have the lead in this area, with a total of 20 ships either trading or in various stages of completion. The size of these ships ranges from about 1,000 dwt with 93 square meters of sail area, all the way up to 50,000 dwt and 14,000 square meters of sail.

There are four principal methods of using wind power at sea. With the exception of the soft sail approach that SFI is presently using, all other sail-assist techniques use one of the high-technology, high capital cost systems that, without exception, are best suited for installation as part of the ship's original construction. Even then the pay-back in oil savings will be in excess of 10 years at current oil prices. The pay-back for the soft sail system will generally be less than two years and sometimes less than one. SFI is said to be the only company in the world today offering a complete "turnkey" package of low-cost sail-assist for shipowners and operators seeking to retrofit some form of sail-assist into their existing vessels.

SFI provided the technology, Colonial Navigation Inc. of Savannah, Ga., supplied the ship, and several manufacturers provided equipment at reduced costs. The results of this effort have helped to launch a new technology for marine transportation in the U.S.

In the complete service offered by

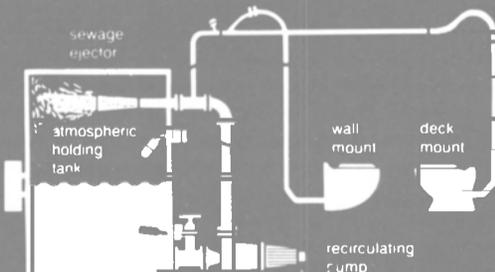
SFI, the first step is analysis. Sail-assist does not work on all vessels under all circumstances, and many variables must be looked at before any system should be considered.

A potential user of sail-assist will look first at the installed cost, then ease of operation; the system's lift coefficient will generally be third. SFI uses a sophisticated computer model to analyze these variables. In this way, the vessel can be "operated" in the computer model both with and without sails. The results of this simulation offer a good preliminary indication as to whether sail-assist should be investigated further.

The installed cost of SFI's ProTech I system of sail-assist ranges from about \$320 per square meter to about \$600 per square meter, depending on the vessel's existing equipment. The "fuel" to operate the sails is free for the life of the system. This fact must be tempered, however, with the understanding that sail-assist works only when the wind is blowing. The cost/benefit comparison is further complicated when it is considered that fuel savings are third in line when it comes to quantifying the advantages of sail-assist to the shipowner. The first and second items on this list, increased speed and decreased engine wear, are difficult to quantify accurately but they are nevertheless the most important in today's market.

SFI installed the ProTech I system of sail-assist on Colonial Navigation's 3,000-dwt bulk carrier Carib Alba (photo) in 1985. The entire installation took only 10 days, as most of the equipment had been prefabricated. The ship has operated steadily since then with no major mishaps or delays. The horsepower generated by the sails can be used in either of two ways. When energy conservation is important, the ship is able to reduce rpm slightly and maintain the original speed while reducing oil consumption up to 35 percent. During this time, stack temperatures drop as the engine is under far less load. If time is more important than energy conservation, the ship is able to increase speed by up to 15 percent while fuel consumption remains the same or decreases slightly. To do this, the sails are set but the engine is left at full rpm. The ship is then going faster while burning slightly less

The E-VAC sewage ejector now makes a holding system the sensible choice.



- low volume fresh water flush toilet (2 pints/flush)... 10 man crew produces 15 gals. of sewage per day
- small diameter piping... 1-1/2" and 2"
- piping layout flexibility... with vertical lift
- reduced holding tank size... 80% smaller
- system components can be adapted to utilize ship's hull tanks where space is limited
- toilet vents eliminated

ENVIROVAC INC.

1260 Turret Drive
Rockford, IL 61111 U.S.A.
815/654-8300, Telex 257-415
Toll Free: 800-435-6951
(except IL, HI, AK)

7036-30 Street S.E.,
Calgary, Alberta, T2C 1N9 Canada
403/279-2669, Telex 03-821885
Toll Free: 800-661-3161

Circle 200 on Reader Service Card

fuel, and the engines are not working quite so hard.

SFI has learned from this experience that it is important to work closely with the operating staff of the shipowner in order for the shipping company to realize the full benefits of sail-assist. This is the main reason SFI has become affiliated with a major shipowner/oper-

tor in Greenwich, Conn.—Skaarup Ship Management. Working with that company, Sail Freight International can now offer all phases of sail-assist to the neophyte user: analysis, design, installation, and operation

For further information on SFI,

Circle 10 on Reader Service Card

New Simulator Training Complex For U.S. Navy—Literature Available

MarineSafety International, a professional maritime training organization, has been awarded a contract to provide shiphandling training services to the U.S. Navy in Newport, R.I. The award calls for simulator training courses at various levels to be provided for up to 1,200 naval officers annually starting early next year.

Currently the training of naval officers to maneuver and dock their ships in harbors has been accomplished "on-the-job" when opportunities presented themselves. The use of full-mission ship simulators permits better training at reduced risk to ships and personnel and savings in vessel operation and fuel costs.

The training complex which will include full mission and part-task trainers, will be installed, operated and maintained by MarineSafety, a subsidiary of FlightSafety International. Training service will be provided to the Navy on an annual cost per-trainee basis for one year with an option for four additional years. The training curriculum will be developed in concert with the Navy over the next nine months. Training will begin at the simulator complex in January 1987. Courses will be designed for advanced level surface warfare and aviation officers and for intermediate level surface warfare and reserve officers.

The simulator complex will be housed in a new building on MarineSafety-owned property in Middletown, R.I. within a 10-minute drive of the Navy Base. The building will be custom designed to accommodate the 15-foot high vertical screens making up the dual visual simulation theaters.

It will house a unique full mission

ship simulator which can be conned from the bridge or from a bridge wing. The simulator will permit Navy officers to gain experience in handling any type of combat or support ship in any body of water in the world under a variety of environmental conditions. The officers in training will experience stressful maneuvering or docking situations and control casualties without risk to their ship or other ships.

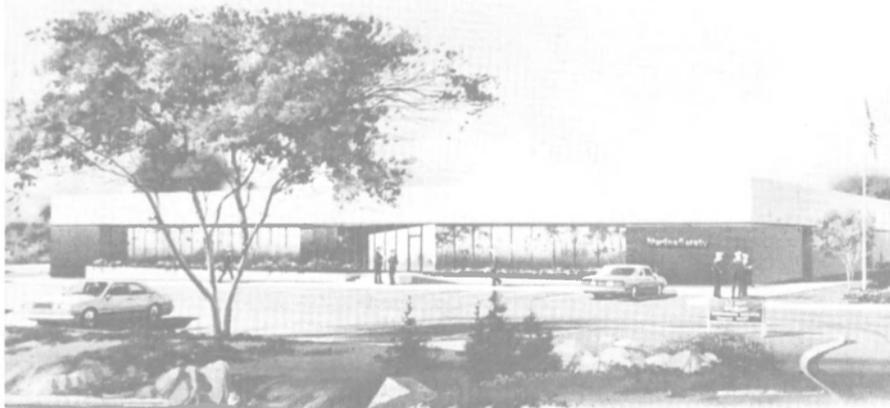
Training in the full mission bridge simulator will be supplemented by controlled learning experiences in part-task simulator trainers that respond with the same hydrodynamics as the full mission simulator. They will be used to make time on the full mission simulator more efficient by teaching handling of specific ship types and facilitating decision-making practice on a part-task basis.

The unique approach represented by this program will provide the Navy with low-cost, high quality shiphandling training without requiring a major capital outlay by the Navy for construction or for the purchase of sophisticated simulators.

A professional training organization with over 30 years of experience, FlightSafety International presently owns and operates 26 training complexes, including the marine simulation center at LaGuardia Airport in New York operated by its MarineSafety subsidiary. Along with training 300-400 merchant officers each year, MarineSafety has provided ship-handling training to Navy officers since July 1980.

For further information and free literature,

Circle 22 on Reader Service Card



Artist's rendition of the shiphandling simulator training complex for the U.S. Navy, to be located at the Aquidneck Industrial Park in Newport, R.I. It will be owned and operated by MarineSafety International.

CCA Holds Meeting, Appoints Officers

The Chemical Carriers' Association, Inc. (CCA), representing marine chemical tanker owners and operators in the United States, held its eighth annual meeting recently at the new Paramus, N.J., headquarters of the American Bureau of Shipping.

The current officers, who were appointed to continue on for the coming year, are: president, **Alfred E. Schultz**, Stolt, Nielsen Inc.; vice president, **Ivo Brieven**, Globe Tanker Services, Inc.; secretary, **Mark F. Martecchini**, Stolt-Nielsen Inc.; and treasurer, **L. Stephen Willrich**, Diamond Shamrock Corp.

The primary focus of the meeting involved agenda items concerning the pending April 1987 implementation of the IMO MARPOL Annex II pollution prevention requirements for bulk chemicals, and the related impact of the U.S. Resource Conservation and Recovery Act (RCRA) requirements for the manifest and

disposal of hazardous wastes. The CCA is looking to active participation by its members at the upcoming U.S. Coast Guard Seminar on Annex II in Washington, D.C.

At the meeting, a presentation by Lt. **Lutz Buesing** of the U.S. Coast Guard concerning the value of joint Coast Guard/industry training programs was well received. Lieutenant **Buesing**, formerly with the Coast Guard's Hazardous Materials Division, is currently participating in such a program for one year with Stolt-Nielsen Inc.

The Chemical Carriers' Association, Inc. is the only industry association that solely represents the interests of chemical tanker owners and operators in the United States. Current CCA membership is composed of chemical manufacturers and shippers. Associate membership is open to all who have an interest in the construction, equipment, operations and employment of chemical tankers. Information on the Association can be obtained by writing to Chemical Carriers' Association, Inc., 45 Eisenhower Drive, Paramus, N.J. 07652-1401.



FRED DEVINE

DIVING & SALVAGE, INC.

Marine Salvage • Harbor Clearance •
Wreck Removal • Pollution Control •
Diving Services • Ocean Engineering •
Fire Fighting • Tanker Lightering •
Ocean Outfalls • Flyaway Salvage Crews •
Anchor & Chain Recovery



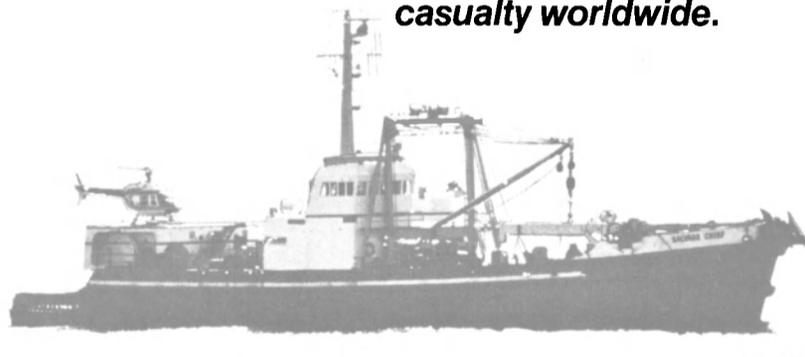
Write for full capability information and specifications on the SALVAGE CHIEF, the finest salvage ship afloat.

FRED DEVINE

DIVING & SALVAGE, INC.

Headquarters
6211 N. Ensign, Portland, OR 97217
(503) 283-5285
Telex 36-0994 DEVINESALV

**Quick, effective
response to any marine
casualty worldwide.**



Circle 212 on Reader Service Card

FOR MORE INFORMATION ON EQUIPMENT AND SERVICES ADVERTISED IN THIS ISSUE

CIRCLE THE APPROPRIATE NUMBER ON READER SERVICE CARD OPPOSITE →

ADVERTISER	EQUIPMENT CIRCLE /SERVICE NO.	ADVERTISER	EQUIPMENT CIRCLE /SERVICE NO.
ADVANCED STRUCTURES	DOORS 245	LISNAVE	SHIPBUILDING/REPAIR 305
ADVANCED STRUCTURES	PANELS 246	McALLISTER BROS	TOWING SERVICES 250
AMERICAN MASON SAFETY TREAD	ABRASIVE/NONSLIP PRODUCTS 147	M.A.N.-B&W DIESEL	DIESEL ENGINES 277
ASEA HAGGLUNDS	DECK CRANES 148	M.A.N.-GHH	DRYDOCKING SYSTEMS 175
ATKINSON DYNAMICS	INTERCOMS 125	MARINE CORPS LEAGUE EXHIBITION	MILITARY EXHIBITION 261
AT&T	COMMUNICATIONS 177	MARINE SAFE ELECTRONICS	ELECTRONICS 320
BELCHER OIL CO.	BUNKERING 183	MARCO	OIL SKIMMERS 350
BRODOSPLIT	SHIPBUILDING/REPAIR 204	MEYER-WERFT	SHIPBUILDING/REPAIR 306
A.W. CHESTERTON	PUMP SEAL 275	L.Q. MOFFITT	BEARINGS 197
CITYVARET	SHIPBUILDING/REPAIR 108	NAVAL ELECTRONICS	ANTENNAS 130
COLUMBIAN BRONZE	PROPELLERS 135	NEWPORT NEWS SHIPBUILDING	SHIPBUILDING/REPAIR 185
CUMMINS ENGINE COMPANY	DIESEL ENGINES 120	PACIFIC MARINE SERVICE	PROPELLER POLISHING 103
CURTIS BAY TOWING	TOWING SERVICES 215	PHILADELPHIA RESINS	COATINGS/CHOCKING/RESIN COMPOUNDS 229
DEL GAVIO	HYDRAULICS 155	POSIDONIA '86	TRADE SHOW 254
FRED DEVINE	DIVING & SALVAGE 212	PRODUCTS RESEARCH & CHEMICAL	MARINE COATINGS 257
DEVOE MARINE COATINGS	COATINGS 149	RAMPMASTER	BOARDING EQUIPMENT 243
A. L. DON	PILOT LADDERS 105	RAYTHEON MARINE	COMMUNICATIONS 140
ENVIROVAC	SEWAGE TREATMENT SYSTEMS 200/327	SAAB MARINE ELECTRONICS	TANKER CARGO CONTROL SYSTEM 265
FERNSTRUM	GRIDCOOLERS 165	S P RADIO	COMMUNICATIONS 280
FINCANTIERI CANTIERI NAVALI RIUNITI	SHIPBUILDING/REPAIR 263	SOUTHWEST MARINE	SHIPBUILDING/REPAIR 237
GENERAL MOTORS/ALLISON DIV.	PROPULSION EQUIPMENT 300	THOMSON GORDON	BEARINGS 260
HBC BARGE	BARGE BUILDING 241	TIOGA PIPE SUPPLY CO.	PIPE/TUBING 325
HARRIS CORP/RF COMMUNICATIONS	COMMUNICATIONS 141	3 MAJ ASSOCIATED SHIPBUILDING	SHIPBUILDING/REPAIR 285
HAMWORTHY ENGINEERING	POLLUTION CONTROL EQUIPMENT 234	TRACOR INSTRUMENTS	NAVIGATION 293
HYUNDAI HEAVY INDUSTRIES	SHIPBUILDING/REPAIR 158	TRANSAMERICA DELAVAL/CORPORATE	ENGINEERED MARINE COMPONENTS
INFRASONIK AB	BOILER CLEANING 107		-IN EUROPE 219
INTERNATIONAL MARITIME ASSOCIATES	MARKETING GUIDES 170		-IN US/FAR EAST 220
JIM'S PUMP	PUMP REPAIR 195	TRANSAMERICA DELAVAL/PYRAMID PUMP	FOS/LOS PUMPS 201
KEARFOTT MARINE/SINGER	WINDOWS/DOORS 205	ZIDELL EXPLORATIONS	CONTAINER CRANES 129
WALTER KIDDE	FIRE PROTECTION SYSTEMS 309		

FERNSTRUM GRIDCOOLER

When lives depend on your boat's reliability...

Don't take a chance on your cooling system. Crockett & McConnell use Fernstrum GRIDCOOLERS to keep their search and rescue crafts always ready.

Fernstrum GRIDCOOLERS are completely assembled and factory tested to assure dependable service. Fernstrum GRIDCOOLERS are available in copper-nickel 90/10 and 5000 series aluminum.

TO CONTACT US:
R. W. FERNSTRUM & COMPANY
MENOMINEE, MICHIGAN, U.S.A. 49858
Phone: (906) 863-5553 • Telex: 26-3493
Answer Back: FERNSTRUM MNOM

Circle 165 on Reader Service Card

HBC BARGES LAST LONGER.

They last longer because they are:

- built by craftsmen.
- designed to provide maximum pound for pound strength with attention to critical wear points.
- built with a full measure of quality materials and welding.
- built straight and dimensionally accurate.

What's more, HBC has the versatility to build the barge that will last longer in your service.

HBC Barge
Brownsville
Pennsylvania 15417
Phone: 412/785-6100

Circle 241 on Reader Service Card

REDUCE OPERATING COSTS

Pacific Marine Services has developed cost reducing underwater techniques and services for all ships.

UNDERWATER PROPELLER POLISHING
CLOSE-UP INTERNAL TANK INSPECTION

Full range of diving services
24-hour service

PACIFIC MARINE SERVICES
P.O. BOX 3400
TERMINAL ISLAND, CALIFORNIA 90731-0413
(213) 832-4281 FAX 315872
Call or write for info

Circle 103 on Reader Service Card

WINCHES CRANES

HATCH COVERS

DEL GAVIO MARINE HYDRAULICS, INC.

SERVICE • CONSULTING • PARTS

Complete Repairs
On All Types of Electro Hydraulic Steering Systems

Hydraulic Pump Testing,
Rebuilding For Certification

24 Hour Service, Worldwide
207 West Central Ave., Maywood, N.J. 07607
Telephone: (201) 843-4700
Telex: 132610 DELMARINE

Circle 155 on Reader Service Card

Naval

OMNI-DIRECTIONAL

MARINE TELEVISION ANTENNA SYSTEMS

MK20CA

NAVAL ELECTRONICS, INC.
5479 JETPORT IND. BLVD. TAMPA, FL 33614
PHONE (813) 885-6091

Circle 130 on Reader Service Card
Maritime Reporter/Engineering News

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 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) 477-6700.

AIR COMPRESSORS

Marketeq, Inc., 27 Bowers Lane, Chatham, NJ 07928
Squire-Cogswell Company, 3411 Commercial Ave., Northbrook, IL 60062

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

Bailey Refrigeration Co., Inc., 2323 Randolph Avenue, Avenel, NJ 07001
Borg-Warner Air Conditioning, P.O. Box 1592-361C, York, PA 17405
Flakt AB, Box 8862, S-40272, Gothenburg, Sweden
Mechanical Resources Inc., 210 West Side Ave., Jersey City NJ 07305
Stal Refrigeration AB, Butangsgatan 16, S 601 87 Norrköping, Sweden
United Technologies, Carrier Transicold Division, P.O. Box 4805, Syracuse NY 13221

ANCHORS AND CHAIN

Baldt Incorporated, P.O. Box 350, Chester, PA 19016
G.J. Wortelboer Jr. B.V., Eemhavenstraat 4, P.O. Box 5003, 3008 AA Rotterdam, Netherlands

ANODES—Cathodic Protection

Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083
Federal Harco, P.O. Box 40310, Houston, TX 77240
Saphire Technology, Inc., 9370 Sunset Dr., Suite A215, Miami FL 33173
Thermal Reduction Company, 1 Pavilion Avenue, Riverside, NJ 08075
Wilson, Walton International, Inc., 66 Hudson St., Hoboken, NJ 07030

BALLASTS

Genstar Stone Products Co., Executive Plaza IV Hunt Valley, MD 21031

BASKET STRAINERS

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

BEARINGS—Rubber, Metallic, Non-Metallic

Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn NY 11231
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, OH 44309
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

Clemco, P.O. Box 7680, San Francisco CA 94120
Inventive Machine Corp., P.O. Box 369, Bolivar, OH 44612

BOILERS

Aalborg Vaerft, P.O. Box 661, DK-9100 Aalborg DENMARK
Combustion Engineering, Inc., 1000 Prospect Hill Road, Windsor, CT 06095
Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144
Boiler Tube Company of America, P.O. Drawer 517, Lyman, SC 29365

Marketeq, Inc., 27 Bowers Lane, Chatham, NJ 07928
Murray Tube Works, P.O. Drawer 517, Lyman, SC 29365
Senior Green Economizers, P.O. Drawer 517, Lyman, SC 29365

BOILER CLEANING

Asea Stal, 50 Chestnut Ridge Rd., Montvail N.J. 07645

BROKERS

Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, LA 70153
ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401
Jack Faulkner, Inc., 1005 W. Harimaw Ct., Metairie, LA 70001
Mowbray's Tug & Barge Sales Corp., 21 West St., New York, NY 10006
Western Maritime, 701 B Street, San Diego, CA 92101

BRONZES—COMMEMORATIVE

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

BUNKERING SERVICE

Belcher Company Inc., 8700 West Flagler, P.O. Box 025500, 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

CASTINGS/FORGINGS

NKS Industria Pesada, Grupo Industrial, Reforma 404, 140 Piso, Mexico, D.F. 06600 U.S. REP.—Lexington International Trading, Inc., 551 Fifth Ave., Room 910, New York N.Y. 10017

CHOCKING COMPOUND

InterProducts, Inc., 129 King Road E, Nobleton, Ontario LOG INO Canada
InterProducts, Inc., Avon Street Business Center, P.O. Box 1848, Charlottesville, VA 22903

Wirelock, 129 King Road E, Nobleton, Ontario LOG INO Canada

CLAMPS

Inter Product, Inc., Avon Street Business Center, P.O. Box 1848, Charlottesville, VA 22903

CLOSURES—Marine

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

COMPUTERIZED INFORMATION SYSTEMS

TIMSCO, 622 Azalea Rd., Mobile, AL 36609
Yeson Systems, 29 Broadway, Suite 1002, New York, NY 10006

CONDENSERS/SEPARATORS

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130
Wright Austin Co., 3245 Wight St., Detroit MI 48207

CONTROL SYSTEMS—Monitoring

American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906
ASEA, Inc., 4 New King St., White Plains, NY 10604
Bailey Controls, 29801 Euclid Avenue, Wickliffe, OH 44092
Barringer Research, 304 Carlingview Dr., Rexdale, Ontario, Canada M9W 5G2

Cooper Energy Services, Mount Vernon, OH 43050

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

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

Instruments Computers & Controls Corp., 6942 Haven Creek Dr., Katy TX 77449

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

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

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

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

Thomas Products Ltd., Flow Switch Div., 987 West St., Southington, CT 06489-1023

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

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

CRANES—HOISTS—DERRICKS—WHIRLIES

Davit Sales, Inc., P.O. Box 232, Jefferson Valley, NY 10535

Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235

J.D. Neuhaus, Hebezeuge, D5810, Witten Heven, West Germany

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

Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202

DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134
McElroy Machine & Mfg. Co., Inc., Lorraine Rd., Industrial Seaway, Gulfport, MS 39501

DECKING—GRATING

Alligned Fiber Composites, Highway 52, South Chatfield, MN 55923
International Grating, 7625 Parkhurst, Houston, TX 77028
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

Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn NY 11231

Haynes Corporation, P.O. Box 179, Jackson, MI 49204

Illman Jones, 1111 Green Island Rd., American Canyon, CA 94589

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

DIESEL ENGINE—Spare Parts & Repair

Alban Engine Power, Inc., 6455 Washington Blvd., Baltimore, MD 21227
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
BMW Bergen Diesel A.S., P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner LA 70062

Caterpillar Tractor Co., Engine Division, 100 N.E. Adams St., Peoria IL 61629

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Cummins Engine Co., Inc., Mail Code 40642, Box 3005 Columbus, IN 47202-3005

Golten, 160 Van Brunt Street, Brooklyn, NY 11231

Granges Repair Service GMBH, Gutenbergring, 64 D-2000 Hamburg-Norderstedt TX.0215533

Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, Federal Republic of Germany

Schoonmaker Service Parts Co., Inc., P.O. Box 757, Foot of Spring St., Sausalito, CA 94966

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

Sulzer Brothers Inc., 200 Park Ave., New York, N.Y. 10166

Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647

ELECTRICAL EQUIPMENT

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Newmar, P.O. Box 1306, Newport Beach, CA 92663

Sigmaform Corporation, P.O. Box 515, Richboro, PA 18954

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

ELECTRONIC SYSTEMS

Marine Electric RPD, Inc., 666 Pacific St., Brooklyn, NY 11217 TX: 125327

EMULSIFICATION SYSTEMS

Sunbelt Energy Systems, Inc., Park Square, 2105 Park Ave., Suite 14, Orange Park, FL 32073

S/S Research & Development Inc., 1050 State St., Perth Amboy, NJ 08862

Todd Marine Systems, 61 Taylor Reed Place, Stamford, CT 06906

ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360

EQUIPMENT—Marine

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94083

Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Beaver Tool Co., 1525 SE 29th St., Box 94717, Oklahoma City, OK 73143

Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

Thomas Coudon Associates, 6655 Amberton Dr., Baltimore, MD 21227

Daito Engineering Co., Ltd., 10-23 Kawaguchi, 3-chome, Nishi-ku, Osaka JAPAN

Genstar Stone Products Co., Executive Plaza IV, Hunt Valley, MD 21031

Hossfeld Manufacturing Co., P.O. Box 557, Winona MN 55987

Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, NY 10550

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

Nicolai Jaffe, P.O. Box 5362, 9171 Wilshire Blvd., Beverly Hills, CA 90210

Raytheon Service Company, 100 Roester Rd., Suite 103, Glen Burnie, MD 21061

Waterman Supply Co., Inc., 2815 E. Anaheim Street, P.O. Box 596, Wilmington, CA 90748

EVAPORATORS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

Atlas-Danmark Marine & Offshore, Baltorpvej 154, KD-2750 Bllerup, Copenhagen DENMARK

Meco (Mechanical Equipment Co., Inc.), 861 Carondelet Street, New Orleans, LA 70130

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

FANS—VENTILATORS—BLOWERS

Joy Manufacturing Company, 338 So. Broadway, New Philadelphia, OH 44663

Jon M. Liss Associates, Inc., 411 Borel Ave., P. O. Box 5554, San Mateo, CA 94402

FASTENERS

Action Threaded Products, Bridgeview IL 60455

Erico Fastening Systems, Inc., 301 New Albany Rd, Moorestown, NJ 08057

Hardware Specialty Co., Ships Division, 48-75 36th St., Long Island City, NY 11101

FENDERING SYSTEMS—Dock & Vessel

InterTrade Industries, 15301 Transistor Lane, Huntington Beach, CA 92649

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook VA 22624

FILTERS

Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307

Marketeq, Inc., 27 Bowers Lane, Chatham, NJ 07928

Parker Filter Division, 16810 Fulton County Rd., #2, Metamora, OH 43540

FINANCING—Leasing

JMJ Marine Investors Corp., 1525 River Oaks Rd East, Marahan LA 70123

FIRE PROTECTION, DETECTION & ALARM SYSTEMS

Formica Corp., One Cyanamid Plaza, Wayne NJ 07470

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

FURNITURE

Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001

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

GAUGES

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

HATCH & DECK COVERS—Chain Pipe

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

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

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

HEAT EXCHANGERS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

Meco (Mechanical Equipment Co., Inc.), 861 Carondelet Street, New Orleans, LA 70130

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

Vapor Corp., 6420 West Howard St., Chicago IL 60648

HORNS/WHISTLES

Kohlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

HULL CLEANING

Aurand 1270 Ellis Street, Cincinnati, OH 45223

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

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

Seaward Marine Service, Inc., 201 N. Union Street, Alexandria, VA 22314

Seaward Marine Service, Inc. 5409 Beamon Rd., Norfolk, VA 23513 TX: 710-881-1182

Seaward Marine Service, Inc. 424 West 8th Street, National City, CA 92050

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

HYDRAULICS

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

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

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

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

Del Gaudio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607

Hydra-Dynamics, Inc., 2141 Greenwood Ave., Wilmette, IL 60091

Parker Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112

Titeflex Corporation, P.O. Box 54, Springfield, MA 01109

Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

INERT GAS

Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

INSULATION—Cloth, Fiberglass

Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001

Duracote Corp., 350 North Diamond St., Ravenna, Ohio 44266

Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619

INSURANCE

Adams & Porter, 510 Bering Dr., Houston, TX 77057-1408

Adams & Porter, 1 World Trade Center, Suite 8433, New York, NY 10048

Wm. Keith Hargrove, Inc., 1300 Post Oak Blvd., Suite 2050, Houston, TX 77056

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

Astech, 3030 S. Red Hill Ave., Santa Ana, CA 92711

Bailey Distributors, Inc., 2323 Randolph Avenue, Avenel, NJ 07001

Masonite Commercial Division, Dover, OH 44622

Walz & Krenzer Inc., 725 Glen Cove Ave., P.O. Box 6, Glen Head NY 11545

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St.,

ton, VA 22202
 ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401
 Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706
 Engineering Visions, 1111 Bay Blvd., Chula Vista CA 92011
 Capt. R.J. Fearson & Associates, P.O. Box 983, Tampa, FL 33601
 Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, NY 11050
 Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001
 John W. Gilbert Associates, Inc., 66 Long Wharf, Boston, MA 02110
 The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
 Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
 Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
 Hamilton Cornell Associates, Box 188, Snug Harbor Station, Duxbury, MA 02331
 J.J. Henry Co., Inc., 40 Exchange Place, New York, NY 10005
 Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921
 HydroComp, Inc., 10 Cuts Road, P.O. Box 865, Durham, NH 03824
 Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
 JH Inc. of Virginia, 330 County St, Portsmouth VA 23704
 R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
 Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, MD 21227
 James S. Krogen, 1515 NW 7th St., Suite 124, Miami FL 33125
 Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
 Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
 John J. McMullen Associates, Inc., 1 World Trade Center, New York, NY 10048
 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, 1010 Turquoise St., Ste 217, San Diego, CA 92109
 Maritime Design, Inc., 2955 Hartley Rd., Jacksonville, FL 32217
 George E. Meese, 194 Acton Rd., Annapolis, MD 21403
 R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003
 NKF Engineering Inc., 12200 Sunrise Valley Dr., Reston VA 22091
 Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
 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
 Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 33156
 Q.E.D. Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455
 M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
 Sargent & Herkes Inc., 611 Gravier St., New Orleans, LA 70130
 Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 33316
 SEACOR Systems Engineering Corp., 520 Fellowship Rd., Ste C306, Mt. Laurel NJ 08054
 STV/Sanders & Thomas, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202
 Seaworthy Systems Inc., 28 Main St., Essex CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 205, Solomons MD 20688; 2 Skyline Pl, 5203 Leesburg Pike, Falls Church VA 22041
 Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004
 George G. Sharp, Inc., 100 Church St., New York, NY 10007
 Simmons Associates, P.O. Box 760, Sarasota, FL 33578
 R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
 Thomas Coudon Associates, 6655 Amberton Drive, Baltimore, MD 21227
 Tinsco, 622 Azalea Road, Mobile, AL 36609
 Tracor Hydraulics, Inc., 7210 Pindell School Rd., Laurel, MD 20707
 Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744

NAVIGATION & COMMUNICATIONS EQUIPMENT
 Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
 COMSAT World Systems, 950 L'Enfant Plaza, S.W., Suite 6151 Washington, DC 20024
 A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
 General Electric Company, Mobile Communications Division, Lynchburg, VA 24502
 Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
 Henschel, 9 Hoyt Drive, Newburyport, MA 01950
 Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
 ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202
 Kongsberg Vopenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
 Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065
 Micrologic, 20801 Dearborn, Chatsworth, CA 91311
 Naval Electronics, 5479 Jetport Industrial Blvd., Tampa FL 33614
 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 64000, Miami, FL 33164
 Racal Marine Inc., 1 Commerce Blvd., Palm Coast, FL 32037-0029
 Radio Holland USA, Inc., 6033 South Loop East, Houston, TX 77033
 Raytheon Marine Co., 676 Island Pond Road, Manchester, NH 03103
 Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
 Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
 Robertson-Shipmate, 400 Oser Ave., Hauppauge NY 11788
 S.P. Radio A/S, DK 9200 Aalborg, Denmark
 SAIT Inc., 33 Rector St., New York, NY 10006
 Simrad, 2208 NW Market St., Seattle WA 98107
 Sperry Corporation, Rte 29 North, Charlottesville, VA 22906
 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
 Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA
 Tracor Instruments Austin Inc., 6500 Tracor Lane, Austin, TX 78725

OILS—Marine—Additives
 B P North America Petroleum, 555 US Route 1, So. Iselin, NJ 08830
 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
 Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647
 FAST Systems, Inc., 1717 Sublette, St. Louis, MO 63110
 Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928
 NALCO Chemical, Co., 2901 Butterfield Road, Oak Brook, IL 60521

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062
 Peck Purifier Sales Co., 3724 Cook Blvd., Chesapeake, VA 23323
 Sigma Treatment System, Merry Meadows RD 1 Box 70, Chester Springs, PA 19425

PAINTS—COATINGS—CORROSION CONTROL
 American Abrasive Metals Co., 460 Coit St., Irvington NJ 07111
 Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
 Devoe Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207
 Esgard, Box 2698, Lafayette, LA 70502
 Farboil Company, 8200 Fischer Rd., Baltimore, MD 21222
 Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 6868 NorthLoop East, Suite 304, Houston, TX 77028; P.O. Box 10265, New Orleans, LA 70181
 International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
 Jatun Marine Coatings Inc., 175 Penrod Court N&O, Glen Burnie, MD 21061
 Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
 Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203
 Selby Battersby & Co., 5220 Whitby Ave., Philadelphia, PA 19143

PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings
 Amermarine International, P.O. Box 9205, Dundalk, MD 21222
 Ameron Fiberglass Pipe Division, P.O. Box 801148, Houston TX 77280
 Deutch Metal Components, 14800 S. Figueroa St., Gardena, CA 90248
 Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063
 Knights Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567
 Tioga Pipe Supply Co. Inc., 2450 Wheatshaf La., P.O. Box 5997, Philadelphia, PA 19137
 Willcox, P.O. Box 484, Garfield NJ 07026

PLASTICS—Marine Applications
 Hubeva Marine Plastic, Inc., 390 Hamilton Ave., Brooklyn, NY 11231

PROPELLER POLISHING
 Aquafacs Marine Technical Services, Pier One, Berth One, Boston MA 02128
 Pacific Marine Services, P.O. Box 3400, Terminal Island, CA 90731

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
 Allison Gas Turbine Division, General Motors Corp., P.O. Box 420 Speed code U6, Indianapolis, IN 46206
 Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105
 Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
 Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
 BMV Bergen Diesel A.S., P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner LA 70062
 Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202
 Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
 Caterpillar Tractor Co., Engine Division, 100 N.E. Adams St., Peoria IL 61629
 Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
 Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
 Combustion Engineering, Inc., Windsor, CT 06095
 Coolidge-Stone Vickers, Inc., 56 Squirrel Rd., Auburn Hills, MI 48057
 Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340
 Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505
 General Motors, Electro-Motive Division, LaGrange, IL 60525
 Golden Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231
 KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada
 Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
 Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323
 M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Høleby, Denmark
 MTU of North America, 10450 Corporate Dr., Sugarland, TX 77478
 MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046
 Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
 Mitsubishi International Corporation, Mita Kokusai Bldg. 4-28 Mita 1-chome, Minato-ku Tokyo 108 Japan
 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., 21213 76 Ave. So., Kent, WA 98032
 Schottel of America, Inc., 8375 N.W. 56 St., Miami, FL 33166
 Skinner Engine, Co., 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
 Ulstein Maritime Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
 Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway
 J.M. Voith GmbH Dept. WErung, Postfach 1940 7920 Heidenheim/Brenz, West Germany
 Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021
 Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647
 Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072

PUMPS—Repairs—Drives
 Allweiler Pump Inc., 5410 Newport Dr., Rolling Meadows, IL 60008 TX: 270-0444
 Cat Pumps Corp., 1681 94th Lane NE, Minneapolis MN 55434
 CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030
 Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224
 Del Gaudio, 207 W. Central Ave., Maywood, NJ 07067. Telex: 132610 DEL MARINE
 FMC Coffin Turbo Pump, 326 S Dean St., Englewood NJ 07631
 Goltsens, 160 Van Brunt St., Brooklyn, NY 11231
 Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
 Mecco (Mechanical Equipment Co., Inc.), 861 Carondelet Street, New Orleans, LA 70130
 Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
 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
 Grasso, Inc., 1101 N. Governor Street, P.O. Box 4799, Evansville, IN 47711-0799
 United Technologies, Carrier Transicold Division, P.O. Box 4805, Syracuse, NY 13221

ROPE—Manila—Nylon—Hawsers—Fibers
 A.L. Don Co., Foot of Dock St., Matawan, NJ 07747
 Allied Fibers, 1411 Broadway, New York, NY 10018
 Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
 Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666
 Tubbs Cordage Co., P.O. Box 7986, San Francisco, CA 94120-7986
 Vermeire N.V. Industriepark Zwaarveld, B-9160 Hamme, Belgium TX: 21687

SANITATION DEVICES—Pollution Control
 Davit Sales Inc., P.O. Box 232, Jefferson Valley, NY 10535
 Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
 FAST Systems Inc., 1717 Sublette, St. Louis, MO 63110
 Golar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway

SCAFFOLDING EQUIPMENT—Work Platforms
 McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238

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

SHAFT SEALS, MECHANICAL PACKING
 EG&G Sealol Engineered Prod. Div. Marine Products Group, Warwick, RI 02888
 Garlock Inc., Mechanical Packing Div., 1666 Division St., Palmyra, NY 14522

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

SHIPBUILDING EQUIPMENT
 Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116
 M.A.N.—GHH, Sterkrade Werksrabe 112 D-4100 Duisburg 18, West Germany
 MAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, West Germany
 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
 High Strength QA Steel, P.O. Box 40606, Houston, TX 77240-0606
 Welded Beam Company, P.O. Box 280, Perry, OH 44081

SHIPBUILDING—Repairs, Maintenance, Drydocking
 Arsenalo Triestino-San Marco Shipyard, Trieste, Italy, U.S. Rep. Marine Technologies & Brokerage, 33 Rector St., New York, NY 10066
 Astilleros Unidos De Veracruz, S.A. San Juan Ulua S/N, Apdo. Postal 647 Veracruz, Ver Mexico
 Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
 Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116
 Bath Iron Works Corp., 700 Washington St., Bath, ME 04530
 Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235
 Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601
 Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
 Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1 (In US)-Blohm & Voss CO, Springfield, N.J.
 Blount Marine Corp., P.O. Box 368, Warren, RI 02885
 Boston Whaler Commercial Div., 1149 Hingham St., Rockland MA 02370
 Brodosplit, Put Udarniku 19, P.O. Box 107, 58000 Split YUGOSLAVIA
 Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C., Canada
 Chesapeake Shipbuilding Inc., 710 Fitzwater St., Salisbury, MD 21801
 Cityvarvet AB, Lindholmen, P.O. Box 2753, S-402 76 Goteborg SWEDEN
 Conrad Industries, P.O. Box 790, Morgan City, LA 70380
 Coast Iron & Machine Works, 5225-7th Street E., Tacoma, WA 98424
 Curacao Drydock (U.S.A.) Inc., 26 Broadway, Suite 741, New York, NY 10004
 Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401
 Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
 Gladding-Hearn Shipbuilding, Box D (1 Riverside Ave.), Somerset MA 02726
 HBC Barge Co. Brownsville, PA 15417
 Hitachi Zosen Corp., 1-1-1 Hitosubashi, 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
 Industrial Marine Engineering Ltd., P.O. Box 172, Suva, Fiji
 Jakobson Shipyard Inc., P.O. Box 329, Oyster Bay, NY 11771
 Jefferboat Inc., Jeffersonville, Ind. 47130
 Jered Brown Brothers, Inc., 56 S. Squirrel Rd., Auburn Hills, MI 48057
 Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409
 Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094
 Paul Lindenau GmbH, & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany
 Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134
 M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany
 Main Iron Works, Inc., P.O. box 1918, Houma, LA 70361
 Marathon LeTourneau Offshore, P.O. Box 61865, Houston, TX 77208
 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
 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
 Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607
 Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249
 Pennsylvania Shipbuilding, P.O. Box 442, Chester, PA 19016
 Port Allen Marine, P.O. Box 108, Port Allen, LA 70767
 Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
 Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905
 Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyong-ro, Chung-ku, Seoul, Korea
 Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113
 Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601
 Todd Shipyards Corp., 1 State St. Plaza, New York, NY 10004
 Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316
 Verreault Navigation Inc., Les Mechins, Quebec, G0J 1T0
 Walker Boat Yard, P.O. Box 729, Paducah, KY 42001
 Waller Marine, Inc. 11777 Katy Freeway/Suite 395, Houston, TX
 Westport Shipyard, Inc., P.O. Box 308, Westport, WA 98595
 Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

SHIPPING—PACKING
 Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040
 Signet Corporation, 1800 West Loop South, Suite 1600, Houston, TX 77027

SIMULATOR TRAINING
 Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371

SILENCERS
 Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

STUFFING BOXES
 Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062
 Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

SURVEYORS AND CONSULTANTS
 Advanced Technologies Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA

Omnithrusters Installed In Variety Of Canadian Government Vessel Types

Omnithruster•Canada has delivered a PV700 unit to Halifax Industries Ltd. of Halifax, Nova Scotia, as part of a complete propulsion and auxiliary machinery package supplied by GEC Diesels Inc. of Etobicoke, Ontario, for the Canadian Coast Guard.

The PV700 Omnithruster is to be retrofitted to the 2,222-ton ice-strengthened Navais Tender Narwhal built in 1963 by Canadian Vickers of Montreal, Quebec (now Versatile Vickers).

Omnithruster hydrojet maneuvering and propulsion equipment operates efficiently whether the vessel is in ballast or loaded, whether her speed through the water is high or low and in deep or shallow water. In ice, the Omnithruster operates to disperse ice away from the vessel and its main propellers. Also, with optional Omniphase units, the sys-

tem can be used for ice lubrication by air/water injection around the hull.

Omnithruster systems are currently installed in vessels of many types from tugs, barges and fishing boats to icebreakers, large cruise ships and tankers. Units manufactured in Sarnia, Ontario have been supplied to the Canadian Department of Fisheries and Oceans and to the Canadian Coast Guard, both for newbuildings and retrofits.

Omnithruster•Canada sales and service representatives are **John W. Shelley**, Sarnia, Ontario (519/337-3410), and **Robert Hardman**, Vancouver, British Columbia (604/255-4341); and sales representative, **Allan MacKinnon**, Beaconsfield, Quebec (514/697-2225).

For further information and free literature from Omnithruster,

Circle 42 on Reader Service Card

Valmet Opens New Engineering Office In Calgary, Canada —Literature Available

Valmet's Shipbuilding Group recently established a new engineering affiliate in Calgary, Canada, providing engineering services for Arctic marine and offshore projects mainly in Canada and the U.S. The founding partners besides Valmet are **Arno Keinonen**, D. Eng., and **Ed Wetherell**, M.Sc. (Eng.), both earlier employed by Dome Petroleum.

Although the company is new, the two partners represent some of the most extensive practical experience in Arctic offshore. The company is also able to offer the latest knowledge in the design of icegoing vessels and icebreakers in North America by combining the innovative knowl-

edge acquired in Beaufort Sea development and the traditional Finnish knowledge based on long experience. The founders have, for example, participated in the preliminary design of the Polar class-8 icebreaker for the Canadian Government. This vessel will be the biggest icebreaker in the world.

"I believe that with the new company, we shall find the way to participate in the design and construction of Arctic vessels and offshore projects in Canada," said **Harry Lindroos**, R&D manager of Valmet's Helsinki Shipyard, also a member of the board of the new company.

The turnover of the company is expected to grow to USD 2 million during the first year.

For further information and free literature,

Circle 89 on Reader Service Card

Woodward Offers Brochures On Turbine Modernization And Cogeneration Process

The Woodward Governor Company of Fort Collins, Colo., has recently published two new brochures, one on cogeneration entitled, "Control System Design Guide," and another on the advantages of modernizing turbine-control equipment called, "Retrofit/Modernize Your Steam And Gas Turbines."

The "Control System Design Guide" brochure gives a brief history of cogeneration and outlines the many roles reciprocating engines play in the cogeneration process.

Examples of electrical/mechanical energy control and thermal energy control are studied. The booklet was designed to help planners and designers of cogeneration systems identify the controls that are available for reciprocating engine applications.

The "Retrofit/Modernize Your Steam And Gas Turbines" brochure points out the advantages of replacing older inefficient control systems with modern electronic control systems. Benefits such as: increased performance; increased reliability; increased flexibility; lowered operational costs obtained through reduced downtime; reduced maintenance; and calibration requirements.

Several case studies of modernization projects recently conducted are contained in the brochure.

Woodward offers a no-obligation consultation for customers interested in updating existing systems or installing new cogeneration systems and requiring assistance in selection of the correct control for the best system operation.

Woodward Governor Company is said to be the world's largest and oldest designer and builder of governors and associated auxiliary devices.

For your free copies of both new brochures,

Circle 61 on Reader Service Card

EG&G Receives New 3-Year Navy Contract For Program Support

EG&G Washington Analytical Services Center, Inc. (EG&G WASC), was awarded a new three-year contract by the U.S. Naval Sea Systems Command to provide technical and program management support for the AN/SQQ-89 Surface Ship Anti-Submarine Warfare (ASW) Combat System. Total value of the award, which significantly increases EG&G's current participation in the surface ship program, was set at \$20.2 million if all options are exercised by the Navy. The first year's work is valued at \$6.6 million. (The company also supports the Navy's attack submarine program for which it received a \$51.6 million contract last December.)

EG&G WASC is based in Rockville, Md. It is a subsidiary of EG&G, Inc., a technologically diversified corporation headquartered in Wellesley, Mass. The EG&G WASC organization provides technical and management support to many defense-related programs, with emphasis on those being pursued by the U.S. Navy. It is primarily a research organization that seeks solutions to major defense, space exploration, environmental, and energy problems.

General Ship Awarded \$5-Million Navy Contract For Fleet Oiler Overhaul

General Ship Corporation of East Boston, Mass., has been awarded a not-to-exceed \$5-million letter contract under a Master Ship Repair Agreement for the drydocking, overhaul, and voyage repairs of the fleet oiler USNS Mississinewa, a ship of the Military Sealift Command. March 22, 1986 has been set as the completion date. Eleven bids were solicited and three offers were received. The Military Sealift Command, Washington, D.C., is the contracting activity (N00033-85-H-0309).

22102
Frank Jeffrey & Assoc., 5201 Westbank Exp., Suite 206, Marrero, LA 70073

SURVIVAL EQUIPMENT
Fitz-Wrights Suits Ltd., 17919 Roan Pl., Surrey, B.C., Canada V3S 5K1
Harvey's Commercial Marine Division, 205 South 252 St., Kent, WA 98032
Imperial Manufacturing Co., P.O. Box 4119, Bremerton, WA 98312
Viking Life-Saving Equipment, 3305 N W 37th St., Miami, FL 33142

TANK CLEANING
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

TANK LEVELING INDICATORS
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

TORSIONAL VIBRATION SPECIALISTS
T.W. Spaetgens, 156 W. 8th Ave., Vancouver, Canada, V5Y 1N2

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay Houston Towing Co., 2243 Milford, P.O. Box 3006, Houston, TX 77253
Bulkfleet Marine Corporation, 1800 West Loop S., Ste 1600, Houston, TX 77027
Curtis Bay Towing, World Trade Center, Suite 800, Baltimore MD 21202
Jack Faulkner, Inc., 1005 W. Harimaw Ct., Metairie, LA 70001
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, Two Greenwich Plaza, Greenwich CT 06830
National Marine Service, Transport Div., 1750 Brentwood Blvd., St. Louis, MO 63144
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767; Walker Boat Yard, P.O. Box 729, Port Allen, LA
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, TX 77002
Turecimo Coastal & Harbor Corp., 1 Edgewater Plaza Staten Island, N.Y. 10305

VALVES AND FITTINGS
Bailey, Division of CMB Industries, P.O. Box 8070, Fresno, CA 93747
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056
Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92663
Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139
Elliott Manufacturing Co., Inc. (Remote Valve Operating Equipment), P.O. Box 773, Binghamton, NY 13902
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Jamesbury Corp., 640 Lincoln St., Worcester, MA 01605
Metropolitan Plumbing Supply, 5000 2nd Street, Long Island City, NY 11101
Nupra Co., 4800 E. 345th St., Willoughby, OH 44094
Parker Hydraulic Valve Division, 520 Ternes Avenue, Elyria, OH 44035
Parker Actuator Division, 9948 Rittman Road, P.O. Box 450, Wadsworth, OH 44281-0450
Parker Systems Division, 651 Robbins Drive, Box 3500, Troy, MI 48007-3500
Pittsburgh Brass Manufacturing, Sandy Hill Rd., R.D. 6 Box 387-A, Irwin, PA 15642
Stacey/Fetterolf Corporation, P.O. Box 103, Skippack, PA 19474
Stockham Valves & Fittings, Box 10326, Birmingham, AL 35202
Swagelok Company, 5171 Hudson Dr., Hudson, OH 44236
Tate Andale Inc., 1941 Landsdowne Rd., Baltimore, MD 21227
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186
Whitey Co., 318 Bishop Road, Highland Heights, OH 44143
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

VESSEL OWNER/OPERATOR
Wallenius Lines, P.O. Box 17086, S-10432 Stockholm, Sweden

VIBRATION ANALYSIS
DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110

WATER PURIFIERS
Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Atlas-Danmark Marine & Offshore Baltorpej, 154 DK-2750 Ballerup, Copenhagen, Denmark, TX 35177 Atlas DK

Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
MECO (Mechanical Equipment Company, Inc.), 861 Carondelet St., New Orleans, LA 70130
Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

WEATHER CHART RECORDERS
Alden Electronics, 40 Washington St., Westborough, MA 01581

WELDING
Metallizing Co. of America, Inc., 321 So. Hamilton, Sullivan, IL 61951
Miller Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912

WELDING EQUIPMENT
Enerjee Ltd., 32 S. Lafayette Ave., Morrisville, PA 19067
Erico Fastening Systems, Inc., 301 New Albany Rd., Moorestown, NJ 08057

WINCHES AND FAIRLEADS
Fritz Culver, Inc., P.O. Box 569, Covington, LA 70434
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
McElroy Machine & Mfg. Co., Inc., Lorraine Rd., Industrial Seaway, Gulfport, MS 39501
Nashville Bridge Co., P.O. Box 239 Nashville TN 37202
Smith Berger Marine Inc., 516 S. Chicago St., Seattle, WA 98108

WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, NY 10550

WINDOW WIPERS
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928

WIRE/CABLE LUBRICATOR
Atlantis Services, Inc., 1057 Kings Ave., Jacksonville, FL 32207

WIRE AND CABLE
Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings
Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

ZINC
Thermal Reduction Company, 1 Pavilion Avenue, Riverside, NJ 08075
Smith & McCroken, 153 Franklin St., New York, NY 10013

MANUFACTURER'S REPRESENTATIVES

Territories Open Throughout U.S.

Well established U.S. company internationally recognized in the field of heavy-duty marine propulsion and positioning equipment actively seeks high-performance representation to handle a comprehensive product line, including newly introduced Pump and Bow Jet propulsion and maneuvering devices.

We require an individual or organization with a solid background in the marine industry currently calling on large and small shipyards, Naval Architects, and government agencies. Our products are used in new building and retrofitting of both commercial and naval vessels.

We provide responsive logistics support and technical services, national advertising, complete sales promotional materials, and trade show participation. Please forward resume with full details to:



Schottel of America, Inc.
8375 N.W. 56th Street
Miami, Florida 33166
Attn: Mr. P. Jacobs

SENIOR MARINE ENGINEER SEEKS POSITION

Twenty years of marine experience, familiar with all aspects of ship repairs, new construction, power plant design, and vessel operations. Presently residing in N.Y., Metropolitan area. Willing to travel and relocate, also accept oversea assignment. Resume on request.
Reply to Box 503
118 East 25th St.

Maritime Reporter
New York, NY 10010

ASSISTANT/ASSOCIATE PROFESSOR

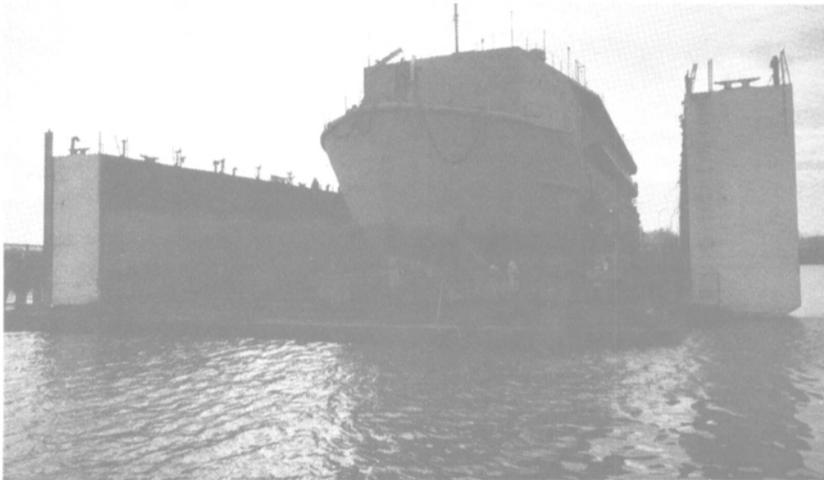
TEACH UNDERGRADUATE COURSES IN ELECTRONIC NAVIGATION SYSTEMS AND RELATED NAUTICAL SCIENCE SUBJECTS. START ON OR ABOUT 7/22/86. MS DEGREE AND MARINE LICENSE PREFERRED. SEND RESUME TO: PROFESSOR R. J. MEURN, COMMERCE DEPARTMENT OF MARINE TRANSPORTATION, U.S. MERCHANT MARINE ACADEMY, KINGS POINT, NEW YORK 11024. AN EQUAL OPPORTUNITY EMPLOYER

Mt. Hope & Narragansett Bays
DOCKING & COASTAL TOWING
All Diesel Fleet
PROVIDENCE STEAMBOAT COMPANY
1 India St., Providence, RI 02903
401-331-1930

FOR SALE

POWER GANTRY MOUNTED WHIRLEY CRANE MANUFACTURED BY CLYDE IRON WORKS INC. RUNNING ON RAILS. ELECTRICAL CONTROLS WITH DIESEL ENGINES. REVOLVES 360° MODEL 24 DE-110-9 CAPACITY 145,000 lbs. Max. RAD. AND 40,000 lbs. at 100' RAD. Boom Reach 110 ft. Max. and 35 ft. Min. SALE WILL BE ON AN "AS IS WHERE IS" BASIS. INTERESTED PARTIES PLEASE CALL: JOSE S. GONZALEZ. (809) 842-0170

EXCLUSIVELY IN OUR HANDS FOR IMMEDIATE SALE STEEL FLOATING DRYDOCK—"SEALIFT"



Built: In 1949, American Bridge built two (2) Railroad Carfloats, 326' x 40' x 10.8' ea. In 1979, the two (2) carfloats were joined together by Newport News Shipbuilding in 1979, wing walls fabricated by Tidewater Construction Co., and installed on the pontoons by Allied Repair Service.
Lifting Capacity: 5,500 Tons.
Width: 82.2 feet between wing walls.

Remarks: There are thirty (30) compartments and four (4) rake compartments. Ballasting down can be completed in thirty (30) minutes with the dock empty. Average time for complete deballasting, allowing for temporary pump shut down during trimming, is two and one half hours. This drydock can be certified by the U.S. Navy for 2,900 Tons at a cost of approximately \$100,000.00.

NEW LOW PRICE: \$1,450,000.00 in Norfolk Virginia.
NO REASONABLE OFFER WILL BE REFUSED.

MOWBRAY'S TUG AND BARGE SALES CORP.

21 WEST STREET, NEW YORK, N. Y. 10006

TELEPHONES
(212)

943-7070
thru
943-7073

NIGHT MORRISTOWN, N.J.
(201) 538-1789 TWX: 710-581-2872

SPECIALISTS IN
BUYING, SELLING AND RENTING
TUG BOATS • BARGES
CONTRACTORS FLOATING
EQUIPMENT

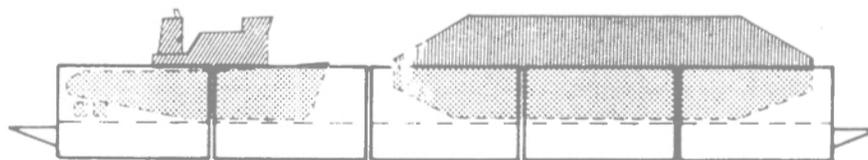
**Free Heavy Duty Flexible Reach Rod
Brochure** describing mechanical
valve control from a remote station.

Write or call 201-752-8300.
S. S. WHITE INDUSTRIAL PRODUCTS
151 Old New Brunswick Road, Dept-M
Piscataway, NJ 08854.

DRYDOCK FOR SALE

Length over keel blocks:
458 feet (139.6 meters).

Depth over keel blocks:
28 feet (8.5 meters).



Lift capacity: 9,000 long tons
(9,144 metric tons).

Length overall: 514 feet
(156.7 meters).

Clear width: 92.7 feet
(28.3 meters).

Sectional pontoon design enables each of its five sections to operate independently. The dock is used primarily for tugs, barges, dredges, and small- to medium-sized vessels. Recent survey, located in U.S. Price negotiable. Contact:

John C. O'Malley

Telephone: 212/477-6700 Telex: 424768 MARINTI
Box 1202, MARITIME REPORTER/Engineering News
118 East 25th Street, New York, NY 10010

Call the Barge People



Rentals Sales Service

MCDONOUGH MARINE SERVICE

Rented deck barges from our large, diversified fleet can be used to transport materials and equipment, and can also function as your jobsite on the water.

New Orleans
(504) 949-7586
Telex 58-4993
P.O. Box 26206
New Orleans, LA 70186

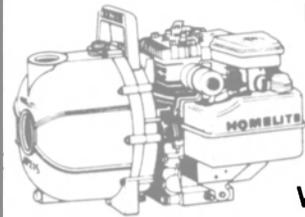
Parkersburg
(304) 485-4494
Telex 86-9412
P.O. Box 1825
Parkersburg, WV 26101

Houston
(713) 452-5887
17500 Market St.
P.O. Box 233
Channelview, TX 77530

St. Louis
(314) 725-2224
Suite 1108
11 S. Meramec Ave
St. Louis, MO 63105

HOMELITE PUMPS

Model AP-220



2" Inlet and Outlet
140 Gal. Per Min.
Briggs 3 H.P. Eng.
New 86 Models
One Year Warranty

WAS \$329.25

YOUR TOTAL COST \$189

IDEAL FOR PUMPING SALT AND FRESH WATER
FREE SHIPPING IN U.S.A.

Send Check, Money Order or Phone VISA or MASTERCARD

JERRY. B. LEACH CO.
P.O. BOX 71 802 MARKET ST.
CHERAW, S. C. 29520
PHONE 1-800-845-9005

FOR SALE

Ocean Marine Survey Company, Southern California; Cargo-Hull-Machinery. Annual Gross past 5 years \$200,000. Owner will assist buyer for 1 year. Terms on secured collateral.

Box 501 Maritime Reporter
118 East 25th Street New York, NY 10010

WATERTIGHT DOORS IN STOCK

SIZES

26"x48" 26"x66"
26"x60" 30"x60"
5/16" Frame - 1/4" Panel

STEEL DOGS

6-Dog right and left hand hinged doors with frames. Constructed of 1/2" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Built to ABS.

LEVER OPERATED OR WHEEL OPERATED DOORS AVAILABLE

26"x48"

26"x66"

30"x60"

NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" x 10" CLEAR OPENING

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

ALSO 12" x 10" IN STOCK

THE BOSTON METALS COMPANY

233 E. Redwood St.—(301) 539-1900—Baltimore, Md. 21202
Marine Warehouse (301)-752-1077



COVERED BARGES

Former N.Y. Harbor
Coffee Barges:

116 x 34 x 10.6

Excellent Condition

\$100,000.00

Call HELEN AMAKER
(201) 659-3550

SURPLUS NEW

From Late Ship Cancellations

45,000 SHP Steam Turbines
22,500 GPM Cargo Pumps
21,500 GPM Main Circ Pump
22,500 GPM Ballast Pumps
Gun Clean Assembly
Steering Gear
Butterfly Valves

NICOLAI JOFFE CORPORATION

P.O. Box 5362 Beverly Hills, Ca. 90210
(213) 273-0650 Telex 67-4638

Guided Missile Destroyer Hatakaze Delivered By MHI



Mitsubishi Heavy Industries, Ltd. (MHI) recently delivered the 4,600-ton guided missile destroyer (DDG) Hatakaze to the Japanese Defense Agency at Nagasaki Shipyard & Engine Works.

The 492-foot-long by 54-foot-wide Hatakaze is the 17th destroyer MHI has built since the end of World War II, and the fifth DDG. It is the first Hatakaze-class DDG equipped with the Tatar surface-to-air missile, the Harpoon surface-to-surface missile and the ASROC antisubmarine rocket as well as two 5-inch 54-caliber rapid-fire guns and two Close-In Weapon Systems (CIWS).

Using COGAG (Combined Gas turbine and Gas turbine) engines the Hatakaze can travel at high speeds on its two main gas turbines and two cruising gas turbines, and at normal speeds on its two cruising gas turbines. Its maximum speed is 30 knots and it carries a crew of 260.

MHI received the order for Hatakaze in fiscal 1981. It also received an order for one destroyer each in fiscal 1982 and fiscal 1983.

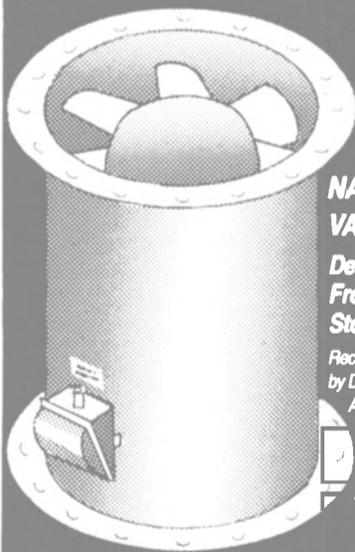
For further information and free literature on Mitsubishi Heavy Industries,

Circle 85 on Reader Service Card

Maritime Reporter/Engineering News

JON M. LISS ASSOCIATES, INC.

411 BOREL AVENUE, SUITE 505 • POST OFFICE BOX 5554 • SAN MATEO, CALIFORNIA 94402-0554



NAVY STANDARD VANEAXIAL FANS

Delivery
From
Stock

Reconditioning and Rewinding
by Dahl Beck Electric.
Available with Warranty.

(415) 573-9191

TELEX 17-2655 GOJON SMT

HYDRAULICS

SERVICE • REPAIR • PARTS CONSULTING • DESIGN

CUNNINGHAM MARINE HYDRAULICS CO., INC.

201 Harrison St. • Hoboken, N.J. 07030
(201) 792-0500 (212) 267-0328

2030 E. Adams St. • Jacksonville, FL 32202
(904) 354-0840

TWX 710-730-5224 CMH Hoboken, NJ





NABRICO Constructs 2 Dump Scows For Panama Canal Commission

Two 215-foot by 50-foot by 14-foot split-hull dump scows have been constructed by Nashville Bridge Company (NABRICO) of Nashville, Tenn., for the Panama Canal Commission.

The two 1,300-cubic-yard barges, the first to be built by NABRICO for the Commission, will be used in the on-going dredging operations in the Panama Canal. Each is classed by the American Bureau of Shipping as an unmanned ocean service barge complete with loadline.

A steel reinforced four-inch layer of concrete has been used to protect the hoppers from damage by the 15-cubic-yard bucket used in the dredging operations.

Installed on the barges are two hydraulically operated rams which can open the hopper in approximately 30 seconds and close it in one minute.

After construction and preliminary testing at NABRICO, the two barges were towed from Nashville to New Orleans, across the Gulf of Mexico to Gamboa in the Republic of Panama for final testing and acceptance by the Commission.

NABRICO is a wholly owned subsidiary of The American Ship Building Company of Tampa, Fla. The company has been in the marine field for more than 70 years and is primarily concerned with the design, engineering and construction of grain and coal barges, deck barges, liquid tank barges and cement barges for river and ocean service as well as drydocks and towboats.

For further information and free literature on NABRICO services and facilities,

Circle 30 on Reader Service Card

J.J. Henry Announces Key Executive Appointments



Gregory J. Masaitis

David F. McMullen

Charles H. Gross Jr.

Joseph J. Cuneo, chairman and chief executive officer of the J.J. Henry Co., Inc., a firm of Naval Architects, Marine Engineers and Marine Consultants, has announced the appointment of **Gregory J. Masaitis**, **David F. McMullen** and **Charles H. Gross Jr.**, to senior management positions.

Mr. **Masaitis** has joined the company as executive vice president with an initial assignment as general manager of the Moorestown Division. A graduate of Webb Institute of Naval Architecture with an MBA from Long Island University, his career path has provided comprehensive experience in ship design, construction and operation.

Mr. **McMullen** has been promoted to senior vice president and will be responsible for new business development, cultivating and maintaining client relationships, marketing, and contractual matters with special emphasis on the firm's direct government marketing efforts, and the establishment of an office in Crystal City, Arlington, Va., to sup-

port government activities in the Washington area. He attended Pennsylvania University and the Carnegie Mellon University Graduate School of Industrial Administration. He began his career at the J.J. Henry Co., Inc., in 1956, upon release from active duty in the U.S. Navy.

Mr. **Gross** has been promoted to senior vice president and will continue to be responsible for all management and marketing activities of the firm's New York Design Division. A graduate of the U.S. Merchant Marine Academy at Kings Point, N.Y., with a master's degree from Stevens Institute of Technology, Mr. **Gross** has spent 21 years with the company's New York office.

Founded in 1946, the J.J. Henry Co., Inc., is celebrating its 40th anniversary this year. Offices are maintained in New York, N.Y.; Moorestown, N.J.; Washington, D.C.; Sturgeon Bay, Wisc.; and Cohasset, Mass.

Tri-Tex Introduces New Video Medicare First Responder® System

Tri-Tex Marine Inc., a subsidiary of Baldt Inc., has introduced the new Video Medicare First Responder® System. The First Responder concept is based on the need to provide immediate medical life support to persons injured in the workplace and recreational settings. First Responder video program provides rapid visual step-by-step instruction on injury management techniques and the use of appropriate medical supplies now available in four different sizes of med-pacs, small, medium, large and extra large.

Utilizing a unique interactive video disc program, First Responder system is intended for use at work sites and recreation areas where access to established emergency services are not readily available. The interactive video program is a color-coded system that enables the operator to select instructions for management of the injured victims. The video program will instruct the operator on specific care of the most common injuries. Similarly color-coded prepackaged medical kits are located in each of the four new medical pacs.

The most common work-related injuries and their emergency re-

sponse techniques were thoroughly analyzed. Using professional actors and makeup artists, the injuries and medical response techniques were recreated for the video disc program. The extreme realism prepares the operator for the emotional shock generally associated with life-threatening injuries. These medical techniques were supervised by Video Medicare's medical director, **Charles L. Waite, M.D.**, former Deputy Surgeon General of the Navy.

This state-of-the art video laser technology is intended for both emergency response use and training. The design concept makes initial care available where lengthy emergency response time could adversely affect the survivability of the victim or result in permanent injury. First Responder is designed as a system for those people who may be called upon to administer first aid and as a skill reinforcement for those who have previous medical training.

For more information on the new Video Medicare First Responder System,

Circle 95 on Reader Service Card

TWO 30-TON Container Cranes 70-foot Track Span

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

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

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



More Cranes Available

Contact: Dennis Murphy
or
Bill Gobel

In Oregon — 503-228-8691
Toll Free — 1-800-547-9259

ZIDELL EXPLORATIONS, INC.
3121 S.W. Moody Ave.
Portland, OR 97201

Circle 129 on Reader Service Card

ADVERTISE IN THESE SPECIAL EMPHASIS ISSUES

BEST READ
BECAUSE EVERY ISSUE
IS CURRENT



SPECIAL NAVY
COVERAGE

★ BONUS DISTRIBUTION
AT MEETINGS & SHOWS

Subject to Change

FOR MORE MARINE SALES IN '86

JULY 1986 DOUBLE ISSUE

Advertising Closing Date—June 11

- Special Naval Technology Edition—Up-Date Latest Developments in the Navy Building Program
- ★ • Extra Distribution at Marine Corps League 6th Annual Exhibition—July 22-24—Washington, DC
- Diesel Engine Review
- Marine Lubricants Review

AUGUST 1986 DOUBLE ISSUE

Advertising Closing Date—July 11

- ★ • Nor-Fishing '86 Preview
Trondheim, Norway—August 11-16
- Scandinavian Shipyards Review
- ★ • Offshore Northern Seas Expo
Stavanger, Norway—August 26-29
- U.S. Coastal Tugboat Fleets

SEPTEMBER 1986 DOUBLE ISSUE

Advertising Closing Date—August 12

- ★ • Preview—The Hamburg Show
International Ship, Machinery & Marine Technology Trade Fair Hamburg, West Germany—September 23-26
- Naval Technology & Shipbuilding Edition
Latest U.S. Navy Authorization Bill
- German Marine Industry In The North American Market—Machinery—Shipbuilding—Drydocking—Electronics
- ★ • A.S.N.E. Symposium/Destroyer, Cruiser, Frigate Biloxi, Mississippi—October 2-4

OCTOBER 1986 DOUBLE ISSUE

Advertising Closing Date—September 11

- ★ • FISH-EXPO '86 Preview
Boston, Massachusetts—October 15-18
- Canadian Offshore Resources Exposition
Halifax, Nova Scotia—October 7-9
- Deck Machinery/Cargo Handling Review
- ★ • Pacific Marine Expo '86
Seattle, Washington—November 20-22

THE DOMINANT WORLDWIDE MARINE INDUSTRY MAGAZINE

- World's Largest Requested Total Circulation—100%
- World's Largest Circulation to Buying-Influence Readers
- Largest U.S. Circulation to Buyers
- Largest Circulation to Navy Buyers
- Full Market Coverage—Ocean, Offshore, Inland, Navy
- Best Quality Circulation Records
- Most Current Circulation Records
- Current Editorial Content
- Largest Number of Advertisers
- Largest Number of Advertising Pages
- Produces Largest Number of Sales Leads

FOR BEST
ADVERTISING
RESULTS

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

118 East 25th Street
New York, NY 10010
(212) 477-6700

TIOGA STOCKS MIL-SPEC PIPE & TUBING



We know what you need.

At Tioga, we offer immediate stock delivery on the most diversified range of pipe and tubing in the U.S.A. We also stock stainless, carbon and alloy steel pipe, fittings and flanges for any application.

Tioga is qualified to provide:

- LEVEL 1 material from stock.
- ABS inspection.
- All forms of supplemental testing, including ultrasonic liquid-dye penetrant, and hydro-testing.
- Government source inspection.

Tioga has an inspection system in compliance with MIL-I-45208A. We stock and provide the following MIL specs:

MIL-P-1144	MIL-T-8504	MIL-T-16420	MIL-T-23226
MIL-P-24338	MIL-T-8506	MIL-T-18165	WW-P-404D
MIL-T-1368	MIL-T-15005	MIL-T-20155	WW-P-406D
MIL-T-5066	MIL-T-16286	MIL-T-20157	
MIL-T-6736	MIL-T-16343	MIL-T-22555	



2450 Wheatshaf Lane, P.O. Box 5997, Phila., PA 19137
(215)831-0700 TELEX: 83-4650
TELECOPIER: 215-533-1645
Toll Free National Wats Number 800-523-3678

Saab unveils TankRadar

-the tanker cargo control system of the 90s



Please send a TankRadar brochure to: ^{MR}

Name: _____

Company: _____

Address: _____

City: _____

Country: _____

Telephone: _____

Mail this coupon to Saab Marine
Electronics, P.O.Box 13045,
S-402 51 Gothenburg, Sweden, or call
us on +46 31 37 00 00. Telex 21652.

TankRadar is a complete, self-contained cargo measuring and control system. TankRadar stands apart from the field on one decisive point: it features Saab's tried and proven radar based level gauging system.

More than two hundred of these systems are already operational and their owners have confirmed the excellent reliability and low maintenance cost of the system.

TankRadar measures level, temperature, volume, weight, draught, inert gas pressure and many other parameters. A load calculator and electronic control of pumps and valves can be incorporated in the system.

Our brochure features a detailed description of TankRadar. Complete the coupon or call us and you'll be among the first to find out about the cargo control system of the 90s.

SAAB
Marine Electronics