

MARITIME REPORTER AND ENGINEERING NEWS



GROWING WORLD CRUISE MARKET

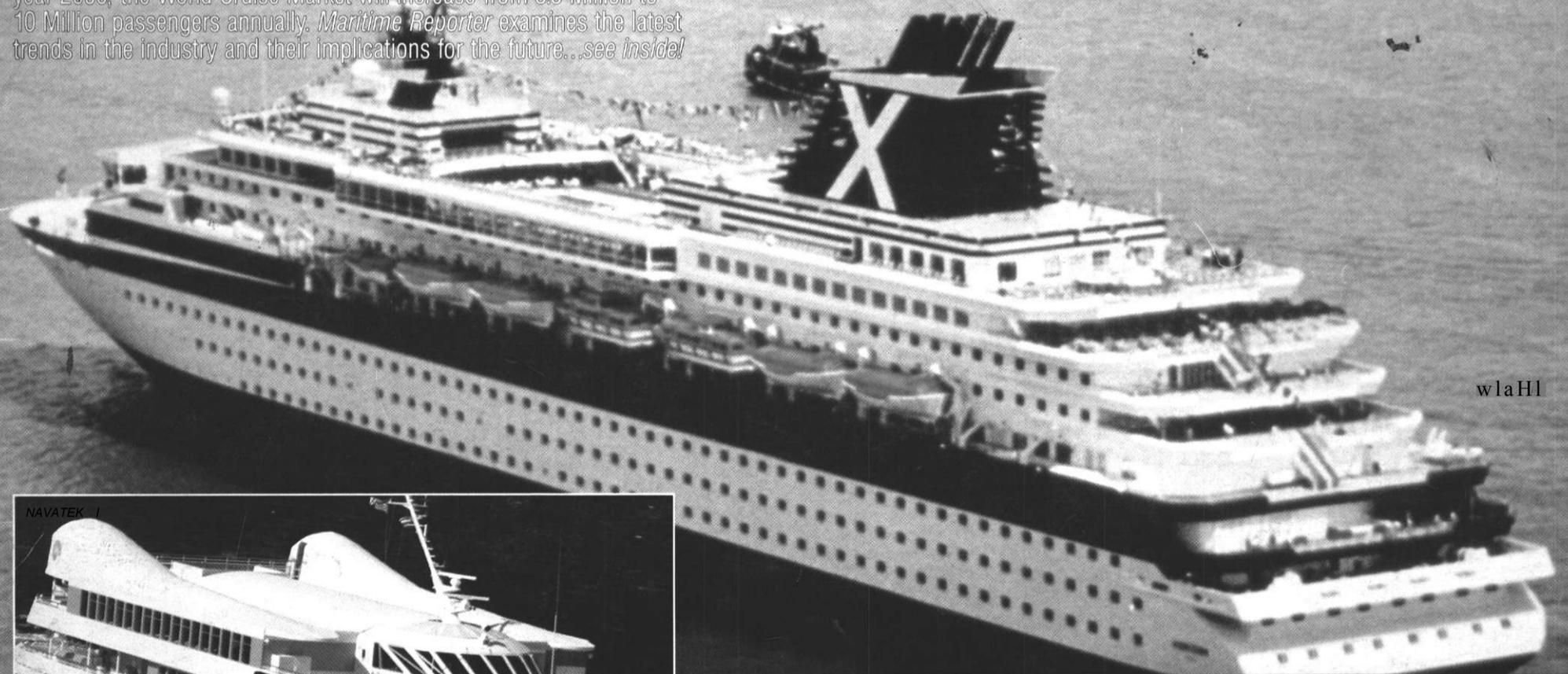
10 MILLION PASSENGERS BY 2000 — Industry analysts predict by the year 2000, the World Cruise Market will increase from 3.5 Million to 10 Million passengers annually. *Maritime Reporter* examines the latest trends in the industry and their implications for the future...see inside!



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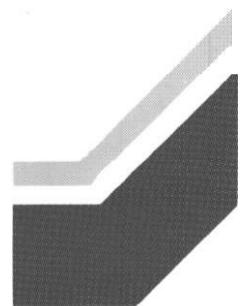
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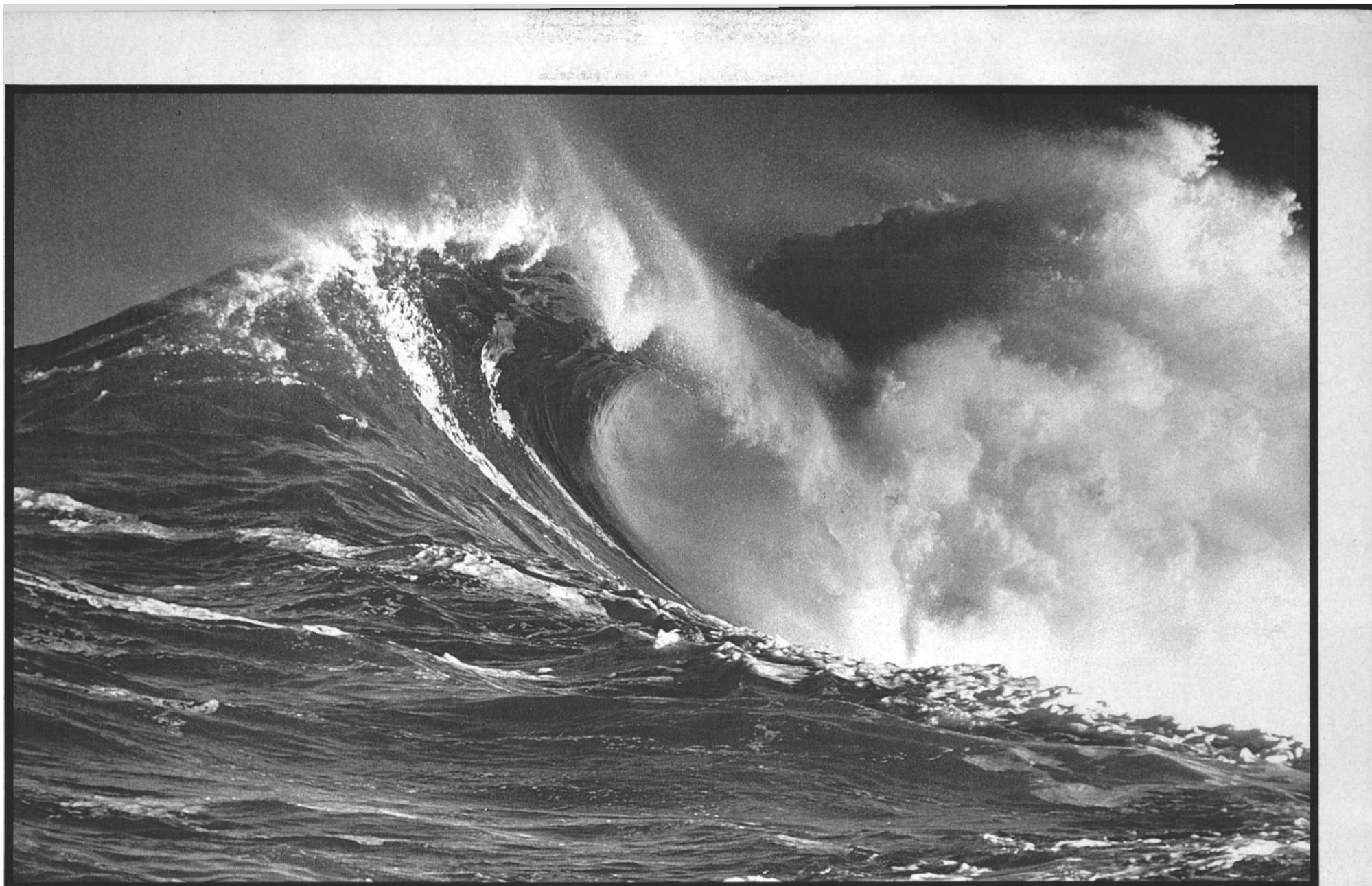
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ON THE COVER

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Chandris Celebrity's M/V Horizon cruising in the waters off Manhattan; inset, top left: Royal Caribbean's Sovereign of the Seas; inset, top right: Royal Caribbean's Viking Serenade; and inset, bottom: SWATH cruise vessel Navatek I.

COVER DESIGN: ALEX BROWN / ARTWORK PRODUCTION

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NAPVO Annual Convention 48

Todd-Pacific Awarded
\$63.4-Million AOE Phased
Maintenance Contract

Todd-Pacific Shipyards Corp. of Seattle, Wash., has been awarded a \$63.4-million contract for the phased maintenance of fast combat support ships homeported in Seattle.

A&T Wins New Contracts
Worth \$12.1 Million

Analysis & Technology, Inc., North Stonington, Conn., which specializes in professional and technical services for submarines and antisubmarine warfare (ASW) and in training programs for Fortune 500 clients, won over \$12.1 million in contracts and subcontracts during November 1990, A.T. Mollegen Jr., president and CEO, recently announced.

A&T also recently opened a new office in Monterey, Calif., and will support the design and development of environmental prediction and analysis systems for the Naval Oceanographic and Atmospheric Research Laboratory and the Fleet Numerical Oceanography Center.

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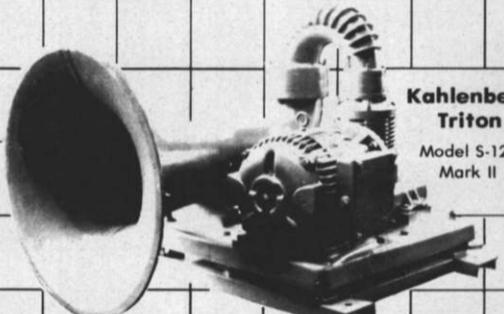
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**MARITIME
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ENGINEERING NEWS

ISSN-0025-3448

118 EAST 25th STREET
NEW YORK, N.Y. 10010
(212) 477-6700
Telex: MARINTI 424768
Telefax: (212) 254-6271

ESTABLISHED 1939

Maritime Reporter/Engineering News is published monthly 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.

Publishers are not responsible for the safekeeping or return of editorial material.

Member

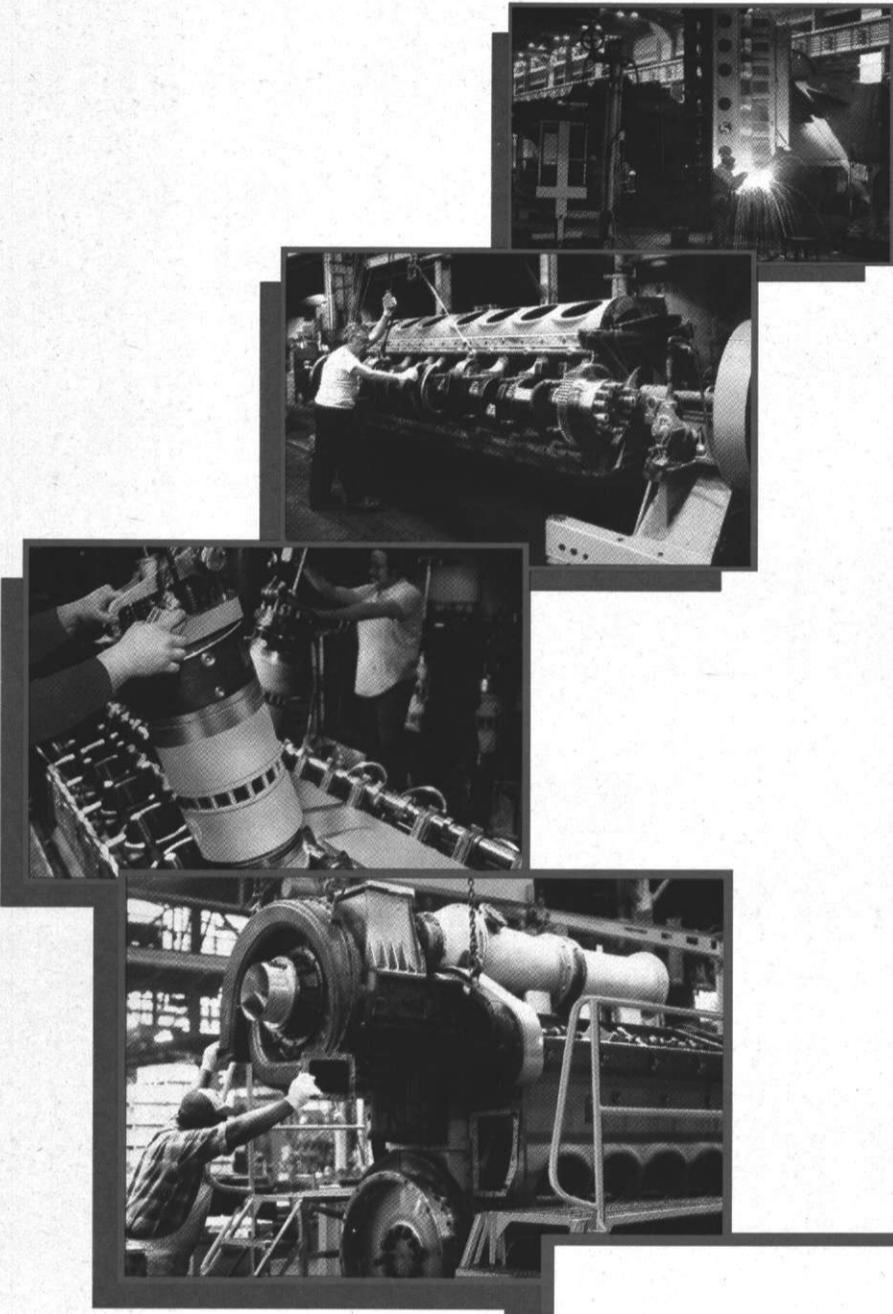
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No. 1

Volume 53

Maritime Reporter/Engineering News



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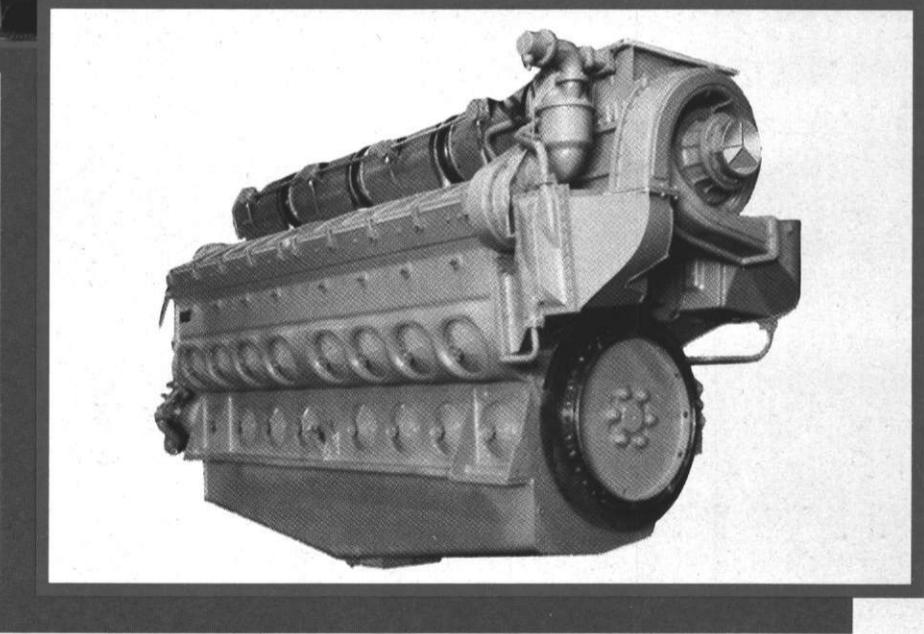
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New Exxon Plant Provides Customer-Specific Product Blends For Marine Industry

Exxon Company, U.S.A. has completed installation of a sophisticated computer control system at the company's new Port Allen Lubricants (PAL) Plant in Port Allen, La. The new plant is scheduled to go into full operation next month.

When completed it will further enhance Exxon's ability to provide unique products for application in the marine industry.

Computerized operations at the new Exxon facility will provide products that are accurately blended to exact customer specification; and shipped on time.

Employing the latest in sophisticated technology, the new computerized PAL Plant system will inte-

grate all plant operations through a single data base. This integration will allow technicians to schedule, monitor and control blending, storage, inventory and delivery activities with a higher degree of accuracy and flexibility than previously attainable.

For further information and free literature from Exxon,

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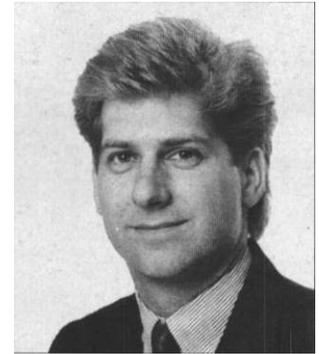
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MagneTek Names Huggett New RV And Marine Product Line Manager



Mark Huggett

Mark Huggett has been named RV and marine product line manager for MagneTek, Kokomo Division.

Mr. Huggett oversees the manufacturing procedures and heads new product development. He is responsible for all domestic marketing programs including advertising, trade shows, public relations, publications and sales representative training.

MagneTek is the leading supplier of power conversion units for the RV industry, serving the U.S. and Canada.

For more information and free literature on MagneTek,

Circle 19 on Reader Service Card

1991 Ship Production Symposium Issues Call For Papers

A call for papers has been issued for the Ship Production Symposium to be held in San Diego, Calif., September 4-6, 1991. The event is sponsored by The Society of Naval Architects and Marine Engineers and the Ship Production Committee, National Shipbuilding Research Program.

The theme of the symposium is "Building the Ships and Boats of 2010: The Way Forward."

Subjects to be considered include: Facilities/Environmental Effects; Outfitting and Production Aids; Design/Production Integration; Planning/Control; Contracts and Producibility; Human Resource Innovations; Marine Industry Standards; Supplier/Production Integration; Welding; Industrial Engineering & Automation; Education and Training; Surface Preparation and Coatings; Quality Control; Accuracy Control & Measurement; Advanced Materials; and Lessons Learned From Other Industries.

Those interested in preparing a paper for the conference should send a one-page abstract by January 15, 1991, to: **Jay Carson**, Cochairman, Technical Program Committee, 1991 Ship Production Symposium, c/o Engineering Department, M/S 05, NASSCO, P.O. Box 85278, San Diego, Calif. 92186-5278, fax 619 544-3543.

Authors of accepted abstracts will be notified by February 1, 1991. First draft manuscripts are required by April 15, 1991.

Maritime Reporter/Engineering News

Klinges To Serve On 1991 USA Ordnance Corps Hall Of Fame Induction Board



David H. Klinges

David H. Klinges, vice president, maritime affairs, Bethlehem Steel Corporation, has been selected to serve as the sole nongovernment-affiliated member of the 1991 U.S. Army Ordnance Corps Hall of Fame Induction Board.

The induction board is composed of 13 distinguished members from the Ordnance military and civilian community. The other 12 are senior Ordnance general officers, warrant officers, command sergeant majors and Department of the Army civilians.

The Bethlehem Steel executive is chairman of the board of directors of the Shipbuilders Council of America. He also serves on the National Defense Transportation Association's Sealift Committee and is a member of the Military Sealift Command's National Defense Executive Reserve.

Astilleros Delivers First Of Two Tankers For Petronor Company

Astilleros Espanoles recently delivered the 140,000-dwt tanker Artega to its owner, Spanish oil company Petronor.

This Suezmax tanker, built at the Puerto Real yard of Astilleros, is the first in a series of two for the own-

The 900-foot-long by 142-foot-wide Artega carries the latest in cargo-handling equipment, security and safety, air-conditioning and ventilation, maintenance, steering, navigation and communications instruments, etc.

Thames Operator Buys High-Tech Catamarans

FBM Marine Ltd. of Cowes, Isle of Wight, has won a contract to build three new catamaran ferry craft for the Riverbus Partnership who operate the RiverBus service on the River Thames.

The 62-seat catamarans are specifically designed for use on riverine and harbor ferry routes. The design has taken into account many environmental concerns which will not only benefit Riverbus passengers but other users of the Thames and the general public as well.

In particular, both internal and external noise levels will be low and

wash levels generated by the new craft will be reduced to the point where, subject to PLA approval, constant high-speed operation should be possible.

Leading the FBM team that negotiated contract was **John Warbey**, FBM's marketing director.

The catamarans will be constructed from Fiber Reinforced Composite (FRC) material. This material has been specified by the

Royal National Lifeboat Institution for their new offshore lifeboats, the Mersey class, currently being built at FBM. FRC gives the new catamarans a high degree of strength, stiffness and resistance to impact damage.

The catamarans will be powered by two Scania 340-bhp marine diesel engines, one in each hull. These will drive two Riva Calzoni IRC 390 waterjets instead of the convention-

al propellers. This propulsion arrangement will give the catamaran a fully loaded draft of .75 meters, and a top speed of over 25 knots. Waterjet propulsion will also enhance maneuverability of the catamarans, which gives higher levels of safety and improves the turnaround of the ferries at the terminals.

For more information and free literature on FBM Marine,

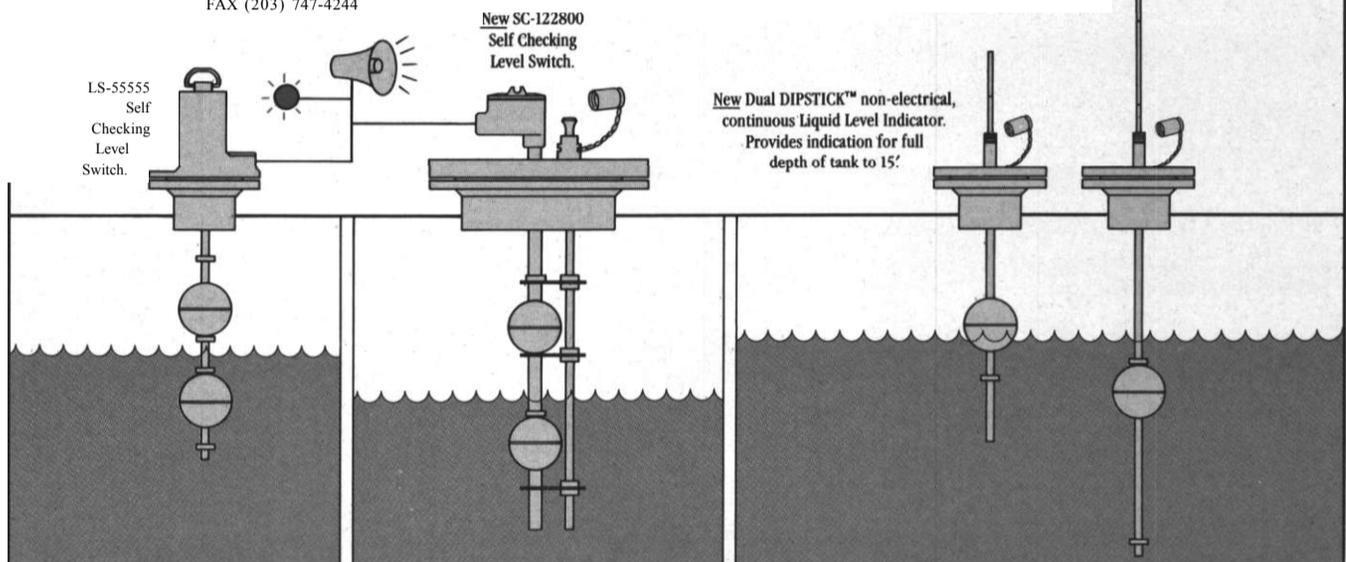
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AmClyde Wins Large Crane Contract

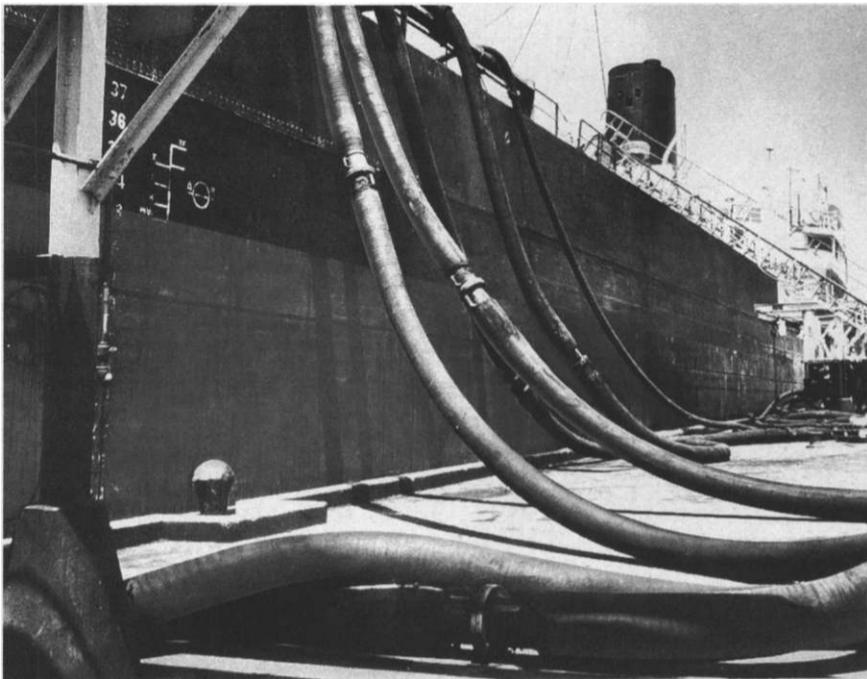
AmClyde Engineered Products, Inc. recently announced that it has sold two large multipurpose traveling gantry cranes to Lambert's Point Docks, Incorporated, a subsidiary of Norfolk Southern Corporation, for delivery to Norfolk, Va. The cranes, worth in excess of \$8

million, are scheduled for completion in early 1992.

Lambert's Point Docks is upgrading its capacity with the AmClyde contract and is firmly establishing itself as a major commodities and container terminal on the eastern U.S. coast.

For more information and free literature on AmClyde Engineered Products,

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World Merchant Fleet Continues To Expand

THE WORLD MERCHANT FLEET continued to expand between 1989 and this year, and has reached the second highest level ever, latest figures show.

Annual statistics confirm that the fleet is set firmly in an expansion phase after six years of recession, between 1982 and 1988. By the end of June, the world fleet had risen to 423.6 million tons gross, an increase of 13.1m tons on the year.

The figures reveal that Liberia has overtaken Panama as the leading country of registration with 54.7m tons, but this level is still more than 30 percent down on Liberia's total of 80.3m.

Panama has been pushed into second place with 39.3m tons, followed by Japan (27.1m), the U.S.S.R. (26.7m), Norway (23.4m), the U.S. (21.3m) and Greece (20.5m).

Panama's fall and contraction of 8.1m tons in its flag fleet ended a period of strong growth which, despite the turnaround in 1989/90, has seen the fleet grow by 62 percent in ten years.

Fleets showing the biggest increase in 1990 are Norway, in-

cluding Norwegian International Shipping register (NIS), up 7.8m tons, and Liberia, up 6.8m tons.

The fortune of the British fleet continues to dive with its 15th consecutive fall in tonnage to 6.7m tons. The U.K. has seen the largest fall of any of the major

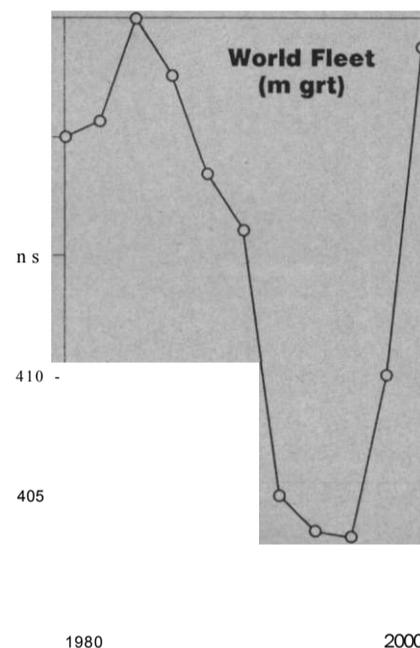
shipowning nations in its flag fleet over both five and ten-year periods, with losses of 53 percent and 75 percent respectively.

Of other European Community members, all except Denmark and Luxembourg with their minimal increases, show a decline over the last five years. Apart from the U.K., France has been particularly badly

hit, losing half its tonnage.

The proportion of the world fleet over ten years old has increased to more than 63 percent of the total, compared with 41 percent in 1980. The picture is even more worrying among tankers with 73 percent of ships over ten years old.

Germany had the most modern fleet at the end of June—69 percent of the fleet was less than ten years old, followed by Japan with 66 percent.



How the world fleet has fluctuated.

Gerard Technology Offers New Generation Of Teamtec/Golar Incinerators

After several years of testing and development, the first production units of Teamtec/Golar Marine Incinerators are being delivered with a new control system that makes the operation even simpler.

The flue gas damper, diesel burners and sludge injection rate are all automatically controlled so that maximum capacity will be realized at all times, while burning with the greatest efficiency and under the safest conditions. A mimic diagram is used to clearly indicate all the operating conditions, and it digitally displays the combustion chamber and flue gas temperatures and the combustion chamber pressure.

All alarm conditions are individually indicated.

Teamtec A/S confirms that although the new system has many advantages, they have managed through an improved purchasing policy and rationalized manufacturing to maintain the existing pricing for the Teamtec/Golar Marine Incinerators.

The USCG has now published their Final Rule for implementation of Annex V of Marpol 73/78, concerning the disposal of solid waste at sea. Gerard Technology Associates offers both the Teamtec/Golar Marine Incinerators and Custom-Pac 2000 Marine Compactors for helping to manage solid waste in accordance with the new regulations.

For more information,

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aritime Reporter/Engineering News



Shown above at the naming ceremony in Floro, Norway, for the M/T Stolt Helluland, first of four parcel tankers being built for Stolt Tankers, left to right: Mrs. **Nadia Stolt-Nielsen**; **Jacob Stolt-Nielsen Jr.**, chairman and CEO, Stolt Tankers and Terminals; Mrs. **Bitten Lillelien**; **Christopher J. Wright**, president, Stolt-Nielsen; Mrs. **Mary Wright**, godmother; Mrs. **Kari Kleven**; **R. Stanley Symon**, executive vice president, Shipowning, Stolt-Nielsen; **John Kleven**, chairman, Kleven Floro A/S; **Bjorn Lillelien**, managing director, Kleven Floro A/S; and Mrs. **Pauline Symon**.

First Of Four Parcel Tankers Being Built For Stolt Named At Kleven Floro Yard In Norway

The M/T Stolt Helluland, the first of four 29,999-dwt state-of-the-art parcel tankers being built for Stolt Tankers and Terminals (Holdings) S.A., was recently named at the Kleven Floro A/S shipbuilding yard at Floro, Norway. Mrs. **Mary Wright**, wife of **Christopher J. Wright**, president of Stolt-Nielsen, was godmother.

The deliveries of the M/T Stolt Helluland and her sisterships will add significant modern stainless steel capacity to the Stolt Tankers' fleet. Stolt-Nielsen's decision to build these four new tankers in spite of high shipbuilding prices, marks a further step in the company's continuing effort to improve the quality of its bulk liquid distribution services.

The new parcel tankers are built to meet customers' increasingly more stringent requirements in the 1990s and beyond. To provide maximum safety in operation, the ships are built to the highest IMO class, have double bottom throughout to protect cargo and environment against hull penetration, and are fitted with traverse cofferdams to provide additional segregation for adja-

cent cargoes. Each ship is equipped with a radar-based automatic level gauge system and optical hi-hi level alarms to protect against cargo overflows. They also have the Schilling rudder and bowthruster, which together greatly improve maneuverability, and have many other safety features.

In addition, the new parcel tankers are designed to meet the highest cargo quality standards. They have 41 fully independent segregations, 25 of which are built of solid stainless steel. To facilitate tank cleaning, the stainless steel tanks contain minimum internal structural members or obstructions.

The Kleven Floro A/S shipbuilding yards at Floro and Forde, Norway, won these orders in international competition last year. These yards had previously built many chemical tankers during the 1970s and early 1980s, and have extensive experience building complex ships of this type.

Stolt Tankers and Terminals (Holdings) S.A. is an international transportation company specializing in the distribution of bulk liquids, both by land and sea.

Mackay Communications Announces Key Promotions

Mackay Communications, Inc., recently announced the promotion of several key employees at its New Orleans, La., and Los Angeles, Calif., depots.

Chuck Muller, former West Coast regional supervisor, has been promoted to West Coast regional manager. Mr. **Muller** is based out of the Los Angeles depot and will be responsible for service and sales support on the West Coast. In his new assignment, Mr. **Muller** will be spending his time with customers and other West Coast depot managers and supervisors to further expand Mackay's West Coast operations.

David Ayers, former marine service engineer in the Los Angeles depot, has been promoted to depot supervisor. Mr. **Ayers** will be responsible for the Los Angeles depot operations and will report directly to Mr. **Muller**.

David Lemoine, former depot supervisor of the New Orleans depot, has been promoted to depot manager. In his new position, Mr. **Lemoine** will be responsible for product sales and service to customers in the Louisiana, Mississippi and Alabama areas.

Mike St. Romain, former service supervisor of the New Orleans depot, has been promoted to depot supervisor. Mr. **St. Romain** will be responsible for the New Orleans depot operations and will report directly to Mr. **Lemoine**.

Astilleros To Build Cable-Laying Vessel

The Vigo, Spain-based yard of the Astilleros Espanoles Group will build a new cable-laying vessel for Temasa (Telecomunicaciones Marinas, SA).

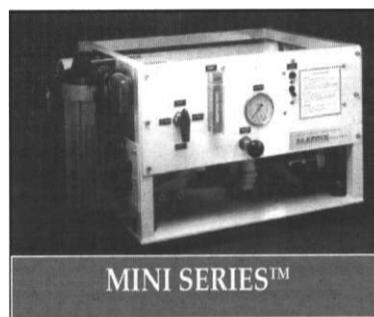
The 266-foot-long by 46-foot-wide vessel will be powered by two diesel-electric engines.

With a crew of 32 (and a reserve of eight), the new hi-tech vessel will be able to carry out any kind of repairs, either analogic or optical fiber cables, as well as to operate submersible vehicles for laying and maintaining cables.

For free literature detailing the facilities and capabilities of Astilleros Espanoles,

Circle 25 on Reader Service Card

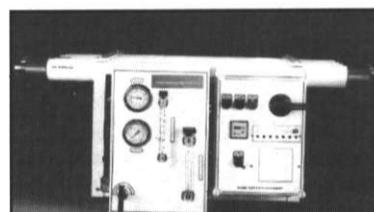
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Compact...

- Capacities from 100 - 600 gal./24 hrs.
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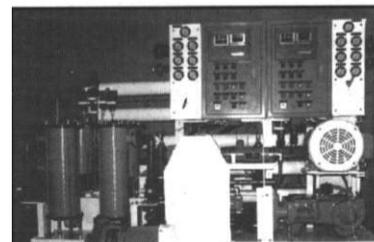
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- Capacities from 3,000 - 3,000,000 gal./24 hrs.
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Circle 209 on Reader Service Card

Fairbanks Morse Increases Service For Pielstick And Fairbanks Morse Engines

Fairbanks Morse Engine Division of Coltec Industries has dramatically increased its ability to service all commercial marine Pielstick and Fairbanks Morse engines.

Strategically located on both the East and West Coasts, and in New

Orleans, La., Fairbanks Morse offers 24-hour response to the needs of marine operators in any U.S. port. Ships from many countries, which include the U.K., Spain, Greece, Korea, Japan and India, and vessel types ranging from tugboats to cruise liners, are all serviced by Fairbanks Morse.

Capabilities include: Worldwide Support; Genuine Pielstick and Fairbanks Morse Manufactured Parts; Unit Exchange Parts and

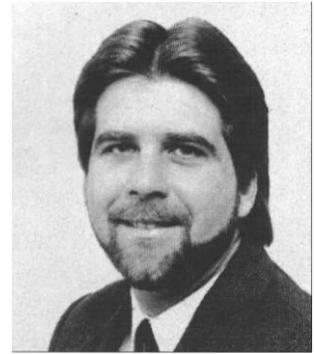
Components; Experience in Trouble-Shooting and Trend Analysis; and Turbocharger and Governor Service.

Service technicians are available to travel anywhere in the U.S., or the world, to service or repair PC2, PC2.5, PC2.6, PC4.0, PC4.2 and O.P. Series engines.

For free literature giving more information on Fairbanks Morse,

Circle 21 on Reader Service Card

Watercom Promotes Robert T. Smith



John G. Smith, vice president, sales and service of Watercom®, recently announced the promotion of **Robert T. Smith** to supervisor, vessel maintenance.

In his new position, Mr. Smith will be responsible for the quality maintenance of all Watercom equipment on customer vessels. All Watercom technicians will report directly to him. He will also continue to coordinate all authorized service dealer program-related activities.

Watercom is a leader in the field of communications for vessels on over 4,000 miles of America's inland waterways. The company's direct-dial telephone system—the only one of its kind available anywhere—offers facsimile and data transmission capabilities, credit calling for crew members, low night and weekend rates, and many other services.

More Foreign Nations Under FMC Investigation For Shipping Practices

The Federal Maritime Commission (FMC) will be busy in the next few months investigating a host of countries for unfair shipping practices. Under the Omnibus Trade Act of 1988 and the Shipping Act of 1984, the FMC has the authority to combat practices by foreign governments which create unfair trade situations for U.S.-flag carriers. Both Japan and Korea are currently under FMC investigation, and now the People's Republic of China and Taiwan have also been cited.

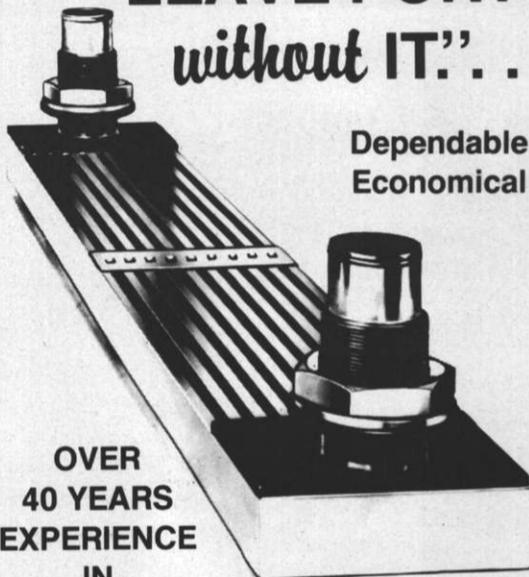
The FMC will be investigating the People's Republic of China for restrictions on U.S. carrier branch office activities, non-recognition of U.S.-flag carrier tariffs, restrictions on port service and inland operations, and excessive or discriminatory charges for various Chinese-controlled services, all which affect the operations of U.S.-flag carriers in the U.S.-China trade.

Should the FMC determine that corrective action is necessary against either the Chinese-flag or the Taiwanese-flag carriers, the FMC has the authority to impose tariff or agreement suspension, to deny access to U.S. ports, or to assess fees of up to \$1 million per voyage.

In a related development, the Republic of Korea was cited for unfair shipping practices by the FMC with further investigation pending.

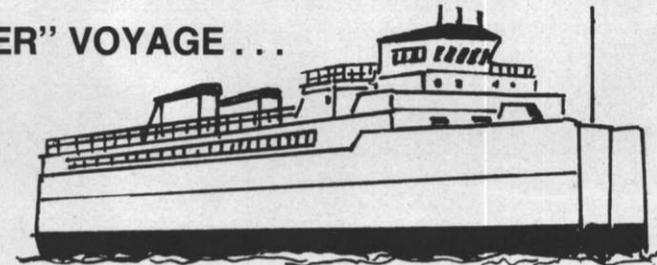
TO HELP ASSURE A "SMOOTHER" VOYAGE . . .

"NEVER LEAVE PORT without IT" . . .



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OVER 40 YEARS EXPERIENCE IN KEEL COOLING



FERNSTRUM GRIDCOOLER
ENGINEERED KEEL COOLING

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Voyage Repairs World Wide

We Specialize in Voyage Repair at sea—offering Complete Service with select travel teams for the following:

- Boiler Repair
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- Engine Repair
- Ballast Tanks

CHEMICAL/PRODUCT TANKERS • VLCC/OBO - BULK CARRIERS

25 Years Experience at Competitive Prices in Application of Recoating of Zinc Silicates, Phenolic Epoxies - Polyurethanes and Glass Flake Polyesters • Cargo Tank Coating - Ballast Tanks • Cargo Hold Painting • Complete Assessment of any Coating Failures • General Engine Repair on Diesel Engines • Turbo Charger Service • Cargo Pump Overhaul • Welding Service

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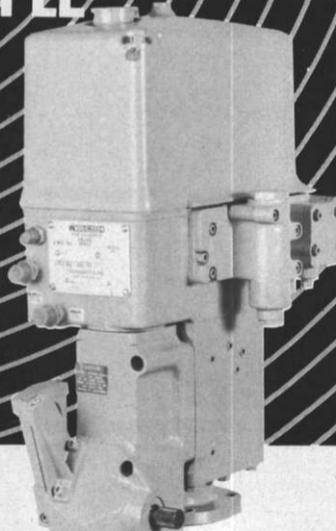
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Passenger vessel operators...



NAME YOUR STYLE, WE CAN DESIGN & BUILD IT.

FRONTIER TO 21ST CENTURY

We design and build all kinds of passenger vessels. From elegant floating reminders of yesteryear, to spectacular, ultra-modern dinner cruise and casino ships.

We also offer a wide range of tour boats, whale watch, and ferries for inter-island and commuter applications. We will build to your design or ours, to any regulatory standard.

Want innovation? We are a U.S. pioneer in design and construction of commercial and military surface effect ships (SES) and are now working on new SWATH applications. And, we lead the U.S. in design and construction of military and commercial vessels with ultra-quiet, diesel/electric propulsion.



You are assured of top quality and low maintenance because of our experience in the design and construction of thousands of durable, reliable boats for just about any purpose imaginable. Together, our ten shipyards have built over 14,000 vessels!

With that kind of experience, and the fact that we are a NYSE, "Fortune 500" company, you are assured of financial strength and stability, bonding capacities, and support programs.

So, if you need a passenger vessel with the look of yesterday, today, or tomorrow—look no further than the Trinity Marine Group. We can design and build any boat you need.

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Circle 313 on Reader Service Card

**Captain Leback Honored
At SUNY Maritime College**



Federal Maritime Administrator Capt. **Warren G. Leback** is shown at the lectern during Admiral's Ball at SUNY Maritime College.

The leaders of the maritime industry recently honored Federal Maritime Administrator Capt. **Warren G. Leback** for his support of the American merchant marine and maritime education and training. Almost 600 guests gathered for the dinner-dance held at the State University of New York Maritime College, Fort Schuyler, Bronx, N.Y., and to hear the latest from Captain **Leback** about plans for strengthening the industry and improving maritime education and training.

Rear Adm. **F.H. Miller**, president of New York State Maritime College, took the opportunity of this event to announce that more than half the funds needed to install a ship's bridge simulator on campus had been obtained from events such as this.

Admiral **Miller** announced a capital campaign to open a Center for Simulated Maritime Operations at the college, the nation's oldest maritime school. In his address, Captain **Leback** announced that changes in the requirements for licensing and upgrading of licenses, plus additional training requirements for unlicensed personnel would make such facilities mandatory.

With the Center for Simulated Maritime Operations on its campus, New York Maritime College will continue to provide the best in U.S. maritime training, begun with the formation of the school in December 1874 by Act of Congress.

**Nalfleet Changes Name,
Moves To New Address**

Nalfleet Inc. is the new corporate name for Nalfleet, Bull and Roberts.

Richard O'Boyle, president of Nalfleet Inc., also announced that the company has moved to more spacious quarters at 195 Mountain Avenue, Springfield, N.J., phone (201) 379-1340, fax (201) 379-9631.

The following personnel changes were announced: **Debra Decker** was appointed to assist customers and expedite customer orders; **Gary Solovay** was appointed to a purchasing and inventory control position within the Americas Zone; and **David Anderson** was pro-

moted to area sales manager.

Nalfleet Inc. Americas Zone handles supply and service of Nalfleet marine chemicals in the U.S., Canada and South America. Nalfleet Inc. is a wholly owned subsidiary of Nalfloc, in turn jointly owned by ICI and Nalco Chemical Co.

For further information and free literature on Nalfleet Inc.,

Circle 10 on Reader Service Card

**Los Angeles Shipyard
Negotiating To Reopen
Former Todd Facility**

The Los Angeles Board of Harbor Commissioners has authorized Port staff to negotiate exclusively with Los Angeles Shipyard (LAS) to reopen the shipbuilding and repair facility formerly operated by Todd

Shipyards Corp. in the Port of Los Angeles.

LAS, an independent investment group headquartered in Orange, Calif., plans to conduct commercial and military shipbuilding repair operations at the port.

The group currently has an \$82 million contract to build two 40,000-dwt tankers for OSCO, a Norwegian shipping company.

The Future of the World's Passenger Vessel Industry...

Could you use an excursion boat that:

- Radically reduces passenger seasickness?
- Sharply increases your passenger count?
- Rides smoothly in waves up to 12 feet?
- Lets you operate in marginal sea/weather conditions that keep your competitors tied up at the dock?
- Extends your operating season?
- Lets you open up profitable, new, rough-water routes your competitors can't run?
- Excites customers with a 21st century, high-tech design that makes your company the hottest thing on the water?
- Is Coast Guard certified Subchapter T and classed by the American Bureau of Shipping?



SWATH NAVATEK I

WavateAV Design Variants

- 33 meter pilot/station keeping boat
- 43 meter helicopter carrying patrol boat
- 45 meter 600 person ferry (20 knot)
- 45 meter 40 cabin yacht cruise ship

New Designs

- 22 meter 149 person adventure boat (20 knot)
- 40 meter workboat (22 knot)
- 73 meter mixed traffic ferry
- 75 meter casino/cruise ship

Hopeman Bros. To Supply Joiner Systems For Viking Serenade Project

Southwest Marine, Inc., San Diego, Calif., has selected Hopeman Brothers, Inc., Waynesboro, Va., as a subcontractor on the \$75-million, 13-week conversion of Royal Caribbean Cruise Line's Viking Seren-

ade.

As a subcontractor on the huge conversion project, Hopeman Brothers will complete the installation of the joiner systems in the public spaces aboard the cruise ship. Using both traditional U.S. suppliers and European sources, Hopeman Brothers will provide installation of quality materials. In addition, experienced Hopeman Brothers crews will ensure that the instal-

lation is performed rapidly.

The Viking Serenade is scheduled to enter Southwest Marine's San Diego facility on January 27, 1991, where she will undergo major structural modifications, with the addition of 296 staterooms and alteration of her public spaces to accommodate the increased passenger capacity. When she leaves the yard on April 29, the Viking Serenade will have a passenger capacity of about

1,500.

The prestigious project was won against international competition and is the largest conversion ever undertaken in the U.S.

For free literature detailing the joiner package available from Hopeman Brothers,

Circle 55 on Reader Service Card

Shipbuilding Orders In South Korea Show Sharp Increase

Officials of the Korea Shipbuilders' Association recently reported that foreign orders placed at South Korean shipyards totaled 4.89 million gross tons from January to November 1990, compared with 2.28 million tons a year earlier.

South Korean yards have enough orders to keep them busy until the end of 1992, an official said.

Japan Includes Two More AEGIS Destroyers In Five-Year Defense Plan

Japan has included two more AEGIS destroyers in its draft five-year defense plan, according to the *Washington Times*.

Congress approved the sale of AEGIS air defense electronics to the Japanese two years ago but defeated an attempt to amend the sale to include a U.S.-built hull, a requirement opposed by the Reagan Administration. The Defense Department had explained that concern for the condition of the Japanese shipbuilding industry was one reason why the entire system (electronics plus the hull) had not been offered for the foreign military sale during the original negotiations.

Hatch & Kirk Offers Engine Control Panel

Hatch & Kirk, Inc., Seattle, Wash., is promoting state-of-the-art engine monitoring and control panels available to diesel, dual fuel, and gaseous-fueled engine users worldwide, according to **Cliff Chappie**, vice president of sales.

The panels are custom-designed to replace outdated monitoring and control instruments which have become expensive to maintain. The panel, housed in a weatherproof stainless steel enclosure, measures 72 inches high by 30 inches wide by 10.5 inches deep and weighs 210 pounds. Power supply can be from AC or DC source.

Monitoring instruments available in the panel include digital tachometer with hourmeter and overspeed trigger; digital 20-channel annunciator; digital pressure switches and gages for fuel, engine oil, airbox, start air, and crankcase; and digital temperature scanner. Instrument readout is available in both.

For more information and free literature on engine control panels from Hatch & Kirk,

Circle 45 on Reader Service Card

NAVATEK I: SPECIFICATIONS

Length: 141 feet (43 meters)

Beam: 53 feet (16 meters)

Draft: 8-14 feet variable (2.4-4.3 meters)

Cruising speed: 15 knots at 1600 rpm

Top speed: 18 knots

Usable deck space: main: 5510 sf.; second: 4790 sf.; observation deck: 500 sf.; Total 10,800 sf.

Main engines: Twin Deutz MWM 16V-816CR diesels, continuous rating of 1350 hp each.

Engine location: Lower hulls

Propulsion: Direct drive with Ulstein reduction gear and Ulstein controllable pitch props.

Generators: Twin Detroit Diesel 6-71 generators rated at 99 KW each.

ABS Classification: +A1 Ferry, Hawaii Interisland Service, +AMS.

Coast Guard Certification: 400 passengers and crew, Subchapter T boat, (90 gross tons).

NAVATEK I: SPECIFICATIONS

Largest commercial passenger SWATH in the world.

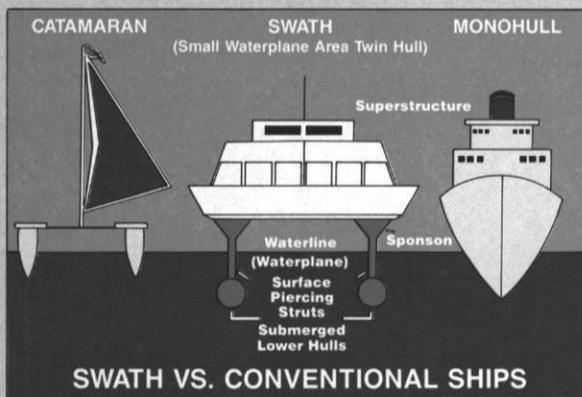
First SWATH in world to be classed by the American Bureau of Shipping.

First SWATH in world to be certified by the United States Coast Guard.

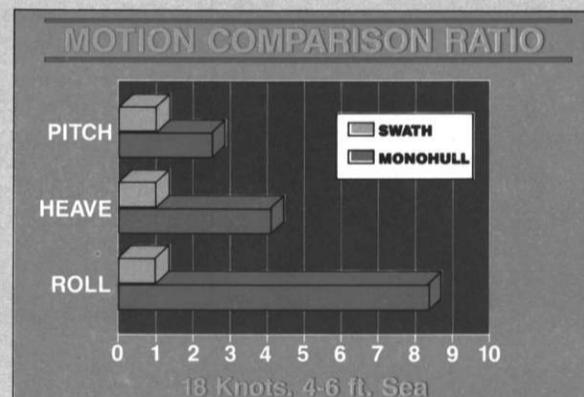
First SWATH to make 2,091 mile Pacific Ocean transit from San Francisco to Honolulu under own power.

First commercial SWATH to transit Panama Canal in historic 13,290 mile Honolulu-San Diego-New Orleans-Honolulu round trip voyage.

First service March 1990 as day excursion/dinner cruise boat in Hawaii running exclusive rough-water, ocean route off island of Oahu. Operating environment: 4-12 foot seas with verified passenger seasickness rate of *less than 1%*.



SWATH VS. CONVENTIONAL SHIPS



An end to passenger seasickness, and much more! That's what Navatek's revolutionary, patented SWATH technology offers your customers, your business—and your bottom line. In short, a tremendous competitive edge for your company in your marketplace. In December 1989, we leased our first commercial Navatek SWATH to Hawaiian Cruises, Ltd., and are ready to do the same for your company. With Navatek, you get a true SWATH, not a "pseudo-SWATH" modified catamaran, semi-submerged catamaran (SSC) or fast displacement catamaran (FDC). So you get the exceptionally smooth ride only a true small waterplane design can deliver. For a complete information package, call us today at 808-531-7001!

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Telephone: (808) 531-7001 Facsimile: (808) 523-7668

Navatek® is a registered trademark of Navatek Ships, Ltd.

Circle 219 on Reader Service Card

When is a marine radio not a marine radio?

Quite a few marine handheld radios begin life as ordinary walkie-talkies. But, hey, add a little silicon sealant, give it a fancy new name and *voila!* it's a marine radio. Right?

Come on.

To build a real marine handheld, like the Horizon HX220, you start out with a durable chassis, add reliable surface-mount microcircuitry then generously build in serious gasketing all the



One gasket covers the entire keypad to prevent water seepage between the keys.

way around the case, the display, control panel and knobs — then coat the circuit boards with HumiSeal.[®] It's the only way to get a radio that's equally protected from an errant wave or a penetrating fog.

Then, to make sure you have a handheld that works when you need it, put in gold battery contacts (which can't corrode in salt air) instead of steel (which can).

Once you've got everything sealed up tight, start building in features for *boaters*. Like one-touch access to Channel 16 and weather channels, an oversized, backlit LCD, and scan programming options from here 'til Sunday. Put on an easy-to-use control panel that minimizes the number

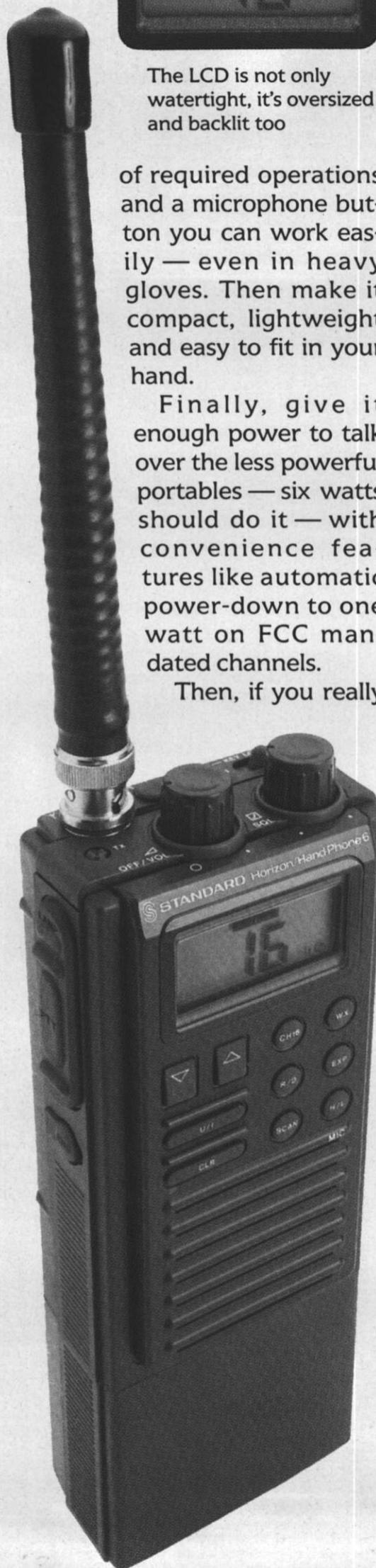


The LCD is not only watertight, it's oversized and backlit too

of required operations and a microphone button you can work easily — even in heavy gloves. Then make it compact, lightweight and easy to fit in your hand.

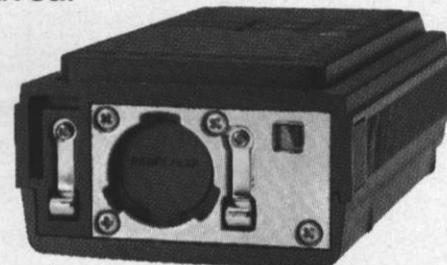
Finally, give it enough power to talk over the less powerful portables — six watts should do it — with convenience features like automatic power-down to one watt on FCC mandated channels.

Then, if you really



think you've built a quality marine radio, put your money where your mouth is and back it up with a full one-year warranty and Standard's Lifetime Flat Rate Repair Program.

Now obviously, not everyone builds marine handhelds and fixed radios with the same care and attention to detail that Standard does. And frankly, you can get other brands cheaper. But when you're in nasty weather on a dark night, it's hard to remember how much money you saved.



Gold battery contacts cost more, but won't corrode in salt air

When is a marine radio not a marine radio? We can't tell you which ones aren't. But we can guarantee one that is.

For the full story on the Horizon HX220 and a free copy of the 1990 Horizon Catalog, please write or call. We're looking forward to hearing from you.

This Horizon catalog is yours free for the asking

See the entire Standard line at the Miami Int'l Boat Show Feb. 14-20, Booth # X78



Nothing takes to water like Horizon.

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**U.S. Navy Secretary
Participates In LCAC Trial**



U.S. Secretary of the Navy **H. Lawrence Garrett III** is shown in the command module of the Landing Craft, Air Cushion during operational trials of LCAC-29 at Textron Marine Systems in New Orleans.

U.S. Secretary of the Navy **H. Lawrence Garrett III** recently participated in an actual operational trial onboard the Landing Craft, Air Cushion (LCAC). He first toured the entire LCAC manufacturing facility at the Textron Marine Systems Shipyard Operations in New Orleans, La.

The LCACs are amphibious vessels designed and built by Textron for the Navy and are being deployed during Operation Desert Shield. LCACs are home-ported normally at U.S. Navy Assault Craft Units (ACUs), located in Little Creek, Va., and at Coronado, Calif.

The Secretary stated he was inspired with the capabilities of the 88-foot-long craft which are placed into well deck of huge amphibious assault ships such as LSDs (dock landing ships) for the transoceanic voyage.

According to Textron Marine Systems president **John J. Kelly**: "The LCACs are fully amphibious and are capable of speeds in excess of 40 knots; they can carry personnel, heavy equipment and weapons from ships located miles from shore to landing points on the beach or beyond. Because they can traverse most of the world's previously inaccessible coastal areas, they provide greater flexibility in choosing landing sites. Their speed and over-the-horizon capability add extra safety for troops to be deposited inland instead of along the surf zone under enemy fire. The craft have the capability of carrying the M-1A1 main battle tank, which is the U.S. armed forces most modern and most capable tank."

Textron Marine Systems has delivered 19 LCACs to the U.S. Navy and currently has 26 more craft in various stages of production or on order at its shipyard on Bayou Sauvage in eastern New Orleans.

For free literature detailing the facilities and capabilities of Textron Marine,

Circle 20 on Reader Service Card

**BP Adds Cargo Controls
To S/T Keystone Canyon**

While in the process of converting the S/T Keystone Canyon from 165,000 dwt to 125,000 dwt at the

Northwest Marine Iron Works Shipyard in Portland, Ore., BP Oil of Cleveland, Ohio, has also added a complete system of closed gaging cargo monitoring equipment. The tankship is being retrofitted with the Cargomaster System manufactured by Skarpenord International a.s. of Langesund, Norway, and distributed in North America exclu-

sively by American United Marine Corp. of Saugus (Boston), Mass.

The system consists of sensors for pressure and temperature which can be mounted in cargo, ballast, and fuel tanks to provide computerized monitoring of liquid levels, vapor control, and high-level alarm/overflow controls.

Monitoring and control of the

system can be accomplished from a variety of work stations, including the cargo control room, deck office, and main administration office. In addition, the system can be linked via satellite to the owner's offices ashore.

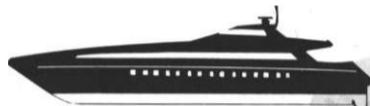
For further information on the Skarpenord Cargomaster Systems,

Circle 38 on Reader Service Card

DEUTZ MWM high-speed diesels

**WHEN ENGINE RELIABILITY AND
PROFITABILITY ARE ESSENTIAL...**

At DEUTZ MWM, we have been supplying engines to a new generation of high-speed water transport in North America and around the world.



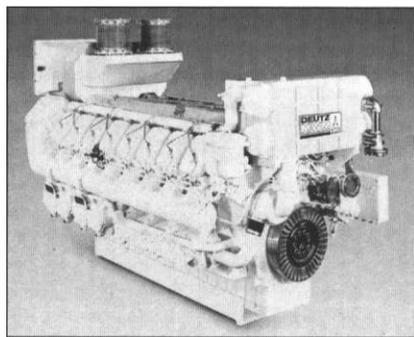
Monohull Planing Yacht

For just about every type of high-speed commercial and luxury vessel you can imagine: catamarans, SWATHs, hovercraft, patrol boats, wave piercers, hydrofoils, SES ferries, and yachts.



Hydrofoil

These engines have been designed specifically for high performance commercial applications. By virtue of their high-tech design, they combine light weight and outstanding reliability.



DEUTZ MWM 604B
(V-16CYL)

Our 604B engine series covers a power range of 571 to 2650 HP, depending on the application.



Monohull Displacement

Styled into remarkably trim packages with the highest possible quality of components, the DEUTZ MWM 604B series is a model of simplicity.



Patrol Hovercraft

Access ports allow a ship's mechanic to perform many maintenance, inspection, and repair



Wave Piercer

operations in minutes. Including changing a piston **without** dislodging the engine.



SWATH
(small waterline area twin hull)

The 604B's HALLO-swirl® design enhances optimal combustion even at low loads. The result? A

cleaner-operating, virtually smokeless performance with fewer carbon deposits or worn parts. Not to mention more efficient performance throughout the whole power range.

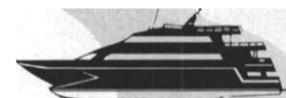
SES
(surface effect ship)

With after-sales service support second to none, we have factory-trained personnel on both coasts.



Passenger Hovercraft

And a proven reputation for fast and effective turnaround.



Wave Piercer

So if you are looking for reliability of engine **and** service performance, and would like to talk to an engine supplier with a strong track



Catamaran

record in the high-speed market, why not give us a call.

For the bigger picture of how DEUTZ MWM can power your future, contact:

Karl Heinz Goetz
KHD CANADA INC.
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High-Speed Innovative Containership To Be Designed By Japanese

*Key To Fast Ship Design
May Be Submerged Cylinders*

An \$11 million project to design a small containership that will travel 55 miles an hour and carry 1,000 tons of cargo is being carried out by the Japanese Government and several Japanese shipyards.

Known as Techno-Superliner, the high-speed cargo ship could carry 10 times as much cargo as a Boeing 747, yet travel between Tokyo and Hong Kong or Shanghai in less than a day, Japanese shipyard executives say. That trip takes ocean freight three or four days.

A consortium of seven Japanese shipyards working with Japan's Transport Ministry, the Technological Research Association for the Techno-Superliner, said the new ship will have a range of about 600 miles. That would make it possible for the vessel to reach Asian industrial centers in South Korea, Taiwan and China.

The research association said shipbuilders believe there will be strong demand for a high-speed containership capable of working the intra-Asia market, in part because of the rapidly growing demand for express delivery of small and light cargo.

The group said in a background report, "In Japan, where industrial and economic structures have changed rapidly, improvement of the transportation system is needed to cope with the sizable increment in the volume of trade between Japan and the newly industrialized economies of Asia. An ultra-high-speed vessel like the Techno-Superliner, which is halfway between a containership and air freighter, is being sought."

The superliner could carry more cargo than a plane but move it more quickly than a ship, just as sea-air cargo uses a mix of ocean and air shipping to cut ocean shipments in half at half the cost of all-air shipment, the association said.

The group expects to spend \$11 million by the end of 1993 to prove out the technologies required in such a ship. The shipbuilders estimate that it would cost about \$100 million—about 30 percent less than the cost of a new 747 air freighter—to build the ship.

Japanese researchers are evaluating whether their envisioned high-speed containership should ride on a cushion of air like those used by large hovercraft, or be suspended above the water on a pair of submerged cylinders.

Managing director for the research association Kazuo Sugai said early exploration of the hovercraft idea has shown potential problems with damage to rubber skirts used to contain the air cushion when moving through rough seas.

As a result, Mr. Sugai told Japanese Government officials, the yards are concentrating on designs that use high-stability submerged cylinders. The U.S. Navy pioneered the submerged hull concept, known as small-waterplane area, twin hull, or swath, for use in producing a better antisubmarine platform.

To power the Techno-Superliner, Japanese designers hope to adapt gas turbine engines built for aviation use. One proposal calls for use of four 25,000-hp engines to suck in seawater and fire it out of a series of submerged nozzles.

Either General Electric Co. or Rolls Royce may be asked to help on the engines, the association said.

Other shipyard engineers, however, are trying to find lightweight materials durable enough to stand the pounding of moving across the ocean at a speed of 50 knots or more.

A mix of titanium, aluminum alloys, high-strength plastics and carbon composites probably will be used.

The designers envision the superliner with slots for up to 150 twenty-foot ocean containers, though the ship could also carry air containers or automobiles. On shorter trips between Japanese cities, maximum cargo loads could be greater than on international runs.

Major Japanese shipbuilders taking part in the project include Mitsubishi Heavy Industries Ltd., Kawasaki Heavy Industries Ltd., Mitsui Engineering & Shipbuilding Co., NKK Corp., Sumitomo Heavy Industries Ltd., Hitachi Zosen Corp., and Ishikawajima-Harima Heavy Industries Co.

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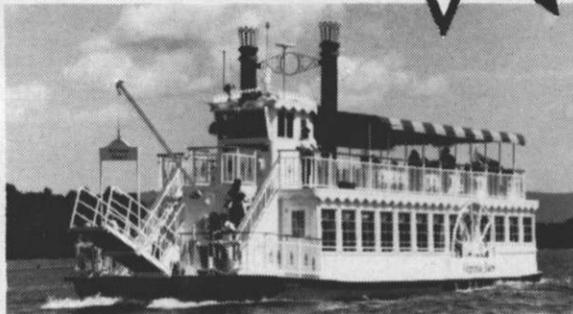
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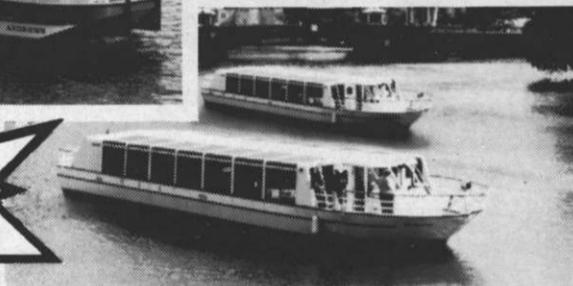
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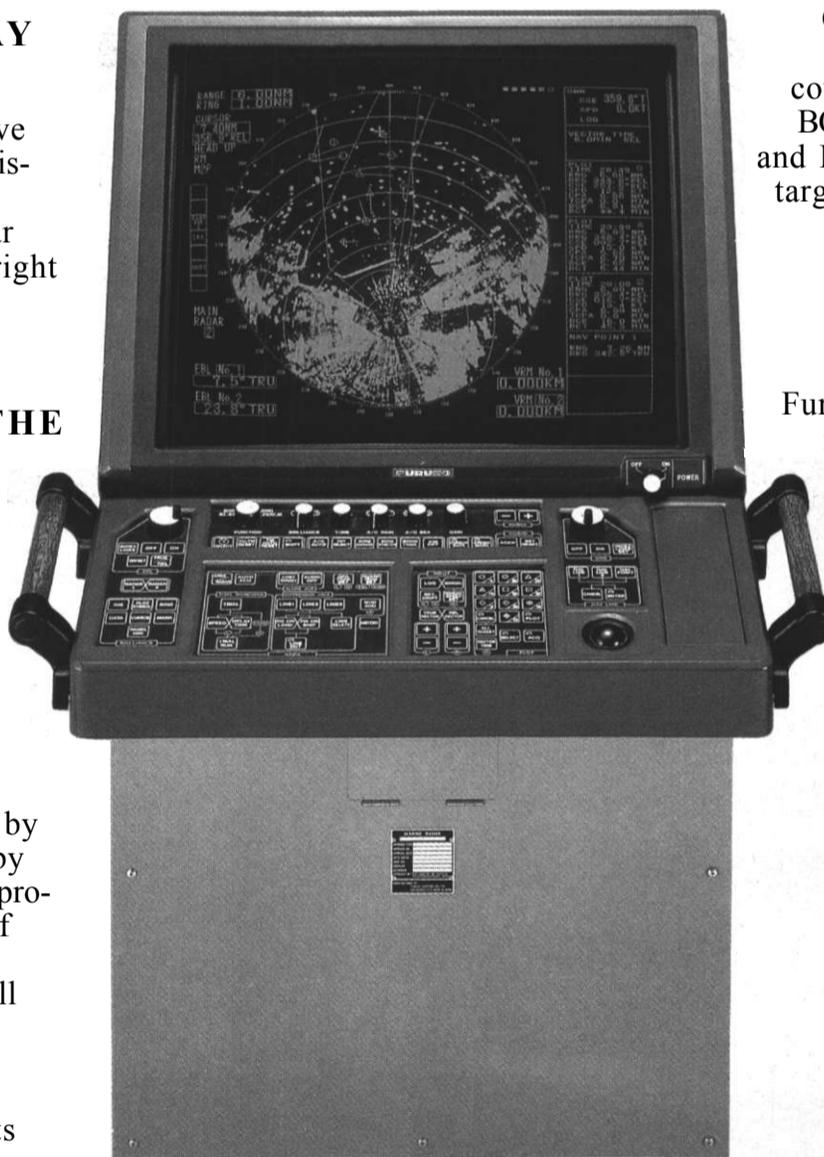
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CRUISE SHIPPING '91 Conference & Exhibition

Miami Beach, Florida, February 5-9

A record attendance of delegates, visitors and exhibitors is expected at the seventh annual Seatrade Cruise Shipping Conference and Exhibition when it takes place at the Fontainebleau Hilton Hotel, Miami Beach, Fla., from February 5 to 9, 1991.

With an exhibition that has doubled in size each year since 1986 and a conference attracting an all-time high of around 700 delegates in 1990, this year's conference and exhibition is expected to exceed all previous marks for attendance.

Cruise Shipping '90 set the previous highs for attendance at 1,800 and number of exhibition stands at 242. The 242 stands was more than double the number of exhibitors at the 1989 show.

Representatives from every sector

Photo: The M/V Eugenio Costa, operated by Costa Crociere.

of the international cruise industry gather each spring for this show's unique combination of discussion by leading personalities plus the latest ideas and information on all aspects of the cruise business.

According to **Michael Kazakoff**, vice president, sales, Seatrade Organization, all the exhibition area at Cruise Shipping '91 has been sold, with about 324 stands. As of press time, Seatrade was waiting for approval to expand the exhibition area. Mr. **Kazakoff** attributed the show's ongoing success to the fact that it offers attendees, delegates and exhibitors, "a wide diverse group of decision-makers from the cruise industry. It is the largest display of cruise-oriented products in the world."

Mr. **Kazakoff** claimed that 92 percent of the exhibitors have displayed at a previous Cruise Shipping exhibition. He noted that sev-

eral exhibitors have commented about how much business they have picked up as a direct result of the show.

This year's expanded exhibition will feature several national and loosely associated regional pavilions. Among the national pavilions will be France, the largest with about 19 companies represented, the United Kingdom, and Finland. The Caribbean Cruise Port Association, a loosely connected organization trying to market Caribbean ports to cruise shipping companies, includes such islands as Antigua-Barbuda, Bonair, British Virgin Islands, Curacao, Freeport and Nassau, Bahamas, Martinique and Curacao. Another informal group, the Canadian East Coast/St. Lawrence Seaway ports, will also be exhibiting.

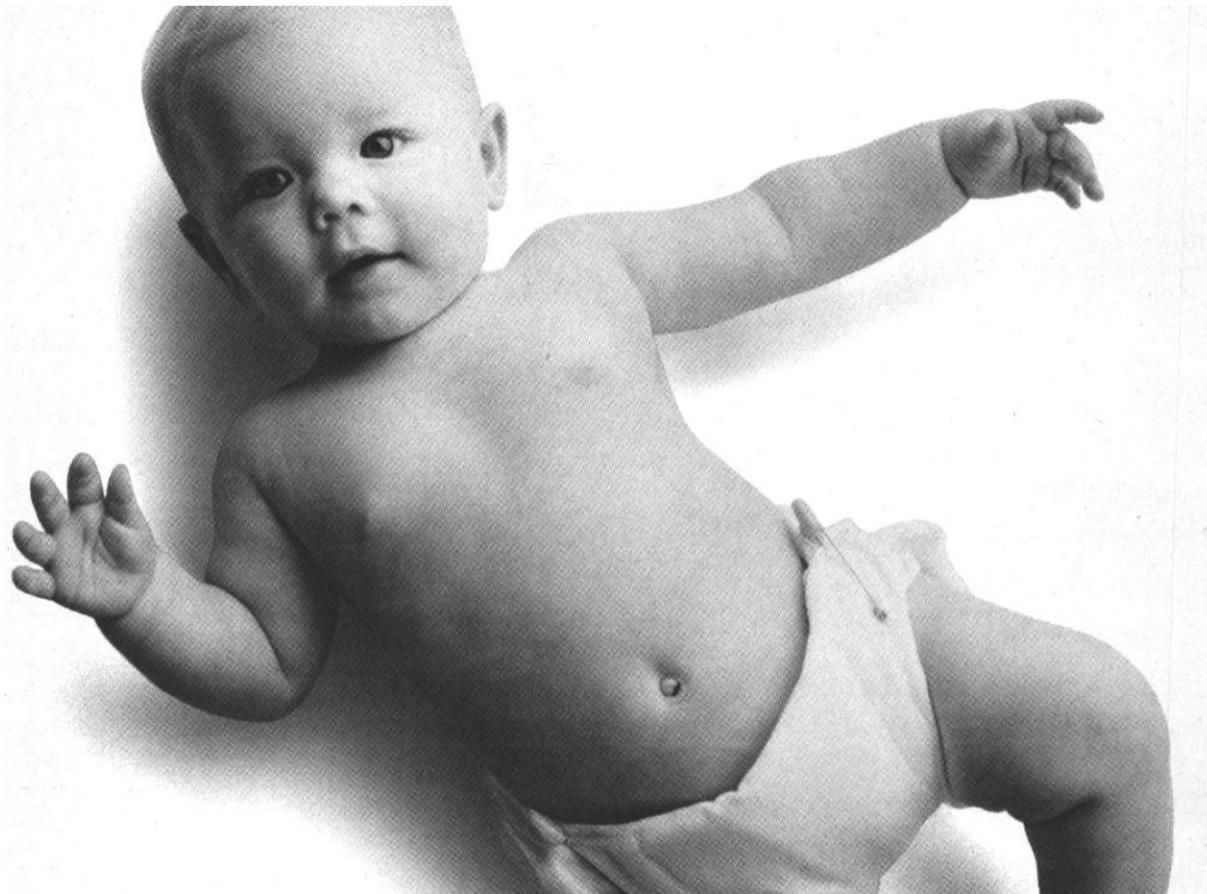
Not to be overlooked, Cruise Shipping's conference has been ex-

panded as well. A number of key decision-makers in the cruise shipping market will present papers on issues affecting the industry's future.

Among the topics discussed at the conference's "State of the Industry" debate on February 6 will be: "The Ability of the Cruise Industry to Absorb the New Capacity in the Forward Order Book"; "The Globalization of the Cruise Industry"; "The Mega-Ship Concept and Its Potential"; and "The Nature of Competition for the Cruise Industry in the Nineties."

Other sessions will discuss marketing and passenger relations, safety and the regulatory environment, destinations and ports of call, globalization of the cruise industry, efficient operations and maximizing on-board revenues.

(continued)



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Cruise Shipping '90

(continued)

Ships inspections at the Port of Miami of Royal Caribbean Cruise Lines' Nordic Empress, Norwegian Cruise Line's Norway, which just underwent a multimillion-dollar conversion, and Commodore's Carib I are being offered for February 8 and February 9.

For further information on the Cruise Shipping Conference and Exhibition, contact: **Michael Kazakoff**, The Seatrade Organization, 125 Village Boulevard, Suite 303, Princeton Forrestal Village, Princeton, N.J. 08540; telephone: (609) 452-9414; or telefax: (609) 452-9374.

CRUISE SHIPPING 91 Conference Program

Tuesday, February 5

Official Opening of Cruise Shipping 91

Delegate registration

The Seatrade Welcoming Reception in the evening

Wednesday, February 6—Morning Session
State of the Industry Debate

Introductory address by **Bob Dickinson**, senior vice president, sales and marketing, Carnival Cruise Lines and chairman, Cruise Lines International Association (CLIA).

Speakers will include:

Dermott McDermott, chairman, Cunard Line Limited; **Trygve Hegnar**, chairman and CEO, Kloster Cruise Limited; **Knut Utstein Kloster**, chairman of the board, World City Corporation A/S; **Nicola Costa**, president, Costa Line Cruises; **Don Tatzin**, director, Arthur D. Little, Inc.

Topics to be discussed will include:

"The Ability of the Cruise Industry to Absorb the New Capacity in the Forward Order Book."

"The 'Mega-Ship' Concept and Its Potential."

"The Globalization of the Cruise Industry."

"The Nature of Competition for the Cruise Industry in the Nineties."

"The Continuing Interest in the 200-Passenger 'Yacht Cruiser' Product and the Outlook for this Market Sector."

Cocktails and Luncheon

Luncheon Address—Carmen Lunetta, port director, Port of Miami.

Wednesday, February 6—Afternoon Session

Marketing and Passenger Relations

Panelists: **William Smith**, president and CEO, Commodore Cruise Line; **Kirk Lanterman**, president, Holland America Line-Westours, Inc.; **Al Wallack**, senior vice president, marketing and passenger services, Chandris Fantasy/Celebrity Cruises; and **Mike Spinelli**, president, Action 6.

Topics:

"Implementing a Yield Management System for Cruise Lines," by **David St. Amand**, senior associate, Booz-Allen & Hamilton, Inc.

The components of yield management, revenue forecasting for both "fixed itinerary" and "product line" cruise companies, yield management vehicles and the benefits to the line of implementing a yield management system.

"The Travel Agents' View of the Business," by **Murray Markin**, president, Strategic Decisions, Inc.

Analysis of research among more than 1,000 travel agents on anticipated growth/decline in sales over the coming 12 months, influence on line and ship selection, preferred supplier relationships and attitudes toward automated reservation systems.

"Tipping Policy," by **Dr Stanley I. Buchin**, senior vice president, Temple, Barker & Sloane, Inc.

Cruise lines have varying approaches to the question of passenger gratuities. How can operational and marketing considerations be best reconciled in devising an effective policy on tipping?

"On Board Spending Patterns," by **Jay Lewis**, president, Market Scope, Inc.

If a North American-based cruise line were to offer an unbundled ticket price for accommodation only and charged separately for other items, what would be the net effect on passenger spending overall?

Buffet dinner hosted by the Port of Miami.

Late evening reception hosted by the Key West Chamber of Commerce.

Thursday, February 7—Morning Session

Safety and the Regulatory Environment

Keynote address by **William O'Neill**, secretary-general, International Maritime Organization (IMO).

Panelists:

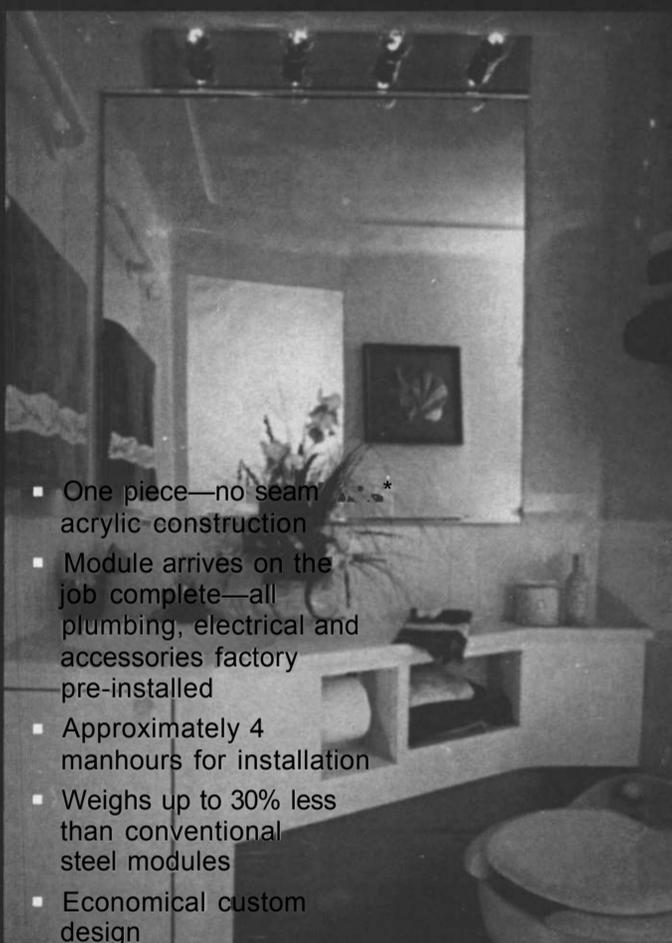
Capt. **Arie van Noort**, vice president, nautical operations, Holland America Line-Westours Inc.; and **Robert S. Dietz**, LeBouef, Lamb, Leiby & MacRae.

"Money and Cruise Ships—Building Large Cruise Ships: A Hightech Niche," by **Alain Grill**, chairman and CEO, Chantier de l'Atlantique.

"Secondhand Values and Availability," by **Ken Trippe**, chairman, Cruise Brokers, Inc.

"Financing Alternatives for Funding New-buildings, Secondhand Acquisitions and Conversions," by **Rolf Wikborg**, senior vice president, American Marine Advisors.

"Current U.S. Tax Issues Attracting the Cruise Industry," by **Alan Granwell**, partner,



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Cadwalader, Wickersham & Taft.
Luncheon hosted by the Singapore Tourist Promotion Board.

Thursday, February 7—Afternoon Session
Session I—Destinations and Ports of Call

"New Homeports for the Nineties," by **Luis Ajamil**, executive vice president, Post, Buckley, Schuh & Jernigan, Inc.

Cruise industry expansion and diversification are creating substantial homeport needs. With popular departure schedules placing heavy demands on existing facilities, where will new homeport cruise ship berths be found?

"The Airline Connection," by **Margarita Tamayo**, vice president, passenger services, Royal Caribbean Cruise Line.

Panelist: Dr. **A. Di Cio**, president, Venice Port Authority.

"The Impact of Cruise Tourism on a Port of Call," by **Baltron B. Bethel**, director-general of tourism, Bahamas Ministry of Tourism, and immediate past chairman, Caribbean Tourism Association.

What are the implications for the local economy and community of a cruise call? How to maximize the benefits; minimize the inconveniences and optimize the experience for the passengers.

"Itinerary Variations," speaker to be announced.

Despite substantial growth, the 80s saw very little change in the percentage distribution of berths between the various destinations. Will this be the same in the 90s? If not, what regional swings in ship deployment can be expected?

Session II—Cruise Ships Design, Refurbishment and Conversion

"Designing for the Next Generation of Cruise Vessels," by **John McNeece**, managing director, John McNeece Limited.

"The Catamaran Cruise Vessel," by **Christian Aspegren**, president, Diamond Cruise Limited.

"Cruise Vessel Refurbishment—Costs, Timing and Implementation," speaker to be announced.

"Conversion—What to Look for in Selecting a Vessel for Conversion; How Much Will It Cost?" speaker to be announced.

Friday, February 8—Morning Session
Session A: A Global Market Place?

The globalization of the cruise industry, opening up new passenger markets in Europe and the Far East and deploying more ships there, is now underway. How fast will this process develop and how far will it run?

Speakers will include:
Nigel Bath, director, China and South East Asia, Pearl Cruises; **Mark Beaumont**, managing director, Cruise Brokers Limited; **Jennifer Brown**, sales and marketing director (Europe), Royal Caribbean Cruise Line; and **Peter Waehnert**, chief executive, Transocean Tours.

Session B: Combining Economy With Efficiency In Cruise Vessel Operations

"Propulsion Systems for the 'Horizon' and 'Crystal Harmony'," by **Folker Boehm**, vice president, MAN B&W Diesel AG.

"Quality Management as the Key to an Economic and Efficient Operation," by **Terje Staalstrom**, regional manager, North and Central America, Det norske Veritas.

"Air Conditioning and Refrigeration," by **Andrew Steera**, principal surveyor, refrigeration engineering services group, Lloyd's Register of Shipping.

"Is There a 'Manning Crisis' for the Cruise Industry and If So How Can It Be Resolved?" speaker to be announced.

"Shipboard Health Care: Current and Proposed Regulations," by Dr. **Michael Stang**, president, Maritime Medical Systems Ltd.

Session C: How to Optimize the On-Board Experience While Still Maximizing On-Board Revenues

Topics to be discussed will include:

"Concessionaires Versus In-House Operations."

"Alternative Revenue Areas and Their Impact by Revenue, Cost and Satisfaction to Passengers."

"How to Manage and Maximize On-Board Revenue."

"New Revenue Areas and Their Potential."

"The Rights and Wrongs of On-Board Marketing Strategies."

Speakers will include:
Clive Tilley, senior vice president, Shore-

side Consultants Ltd.; **Anthony Kaye**, president, Coiffeur Transocean; **David Stanley**, vice president, casino operations, Royal Caribbean Cruise Line; **John Kimbrough**, vice president, marketing, CruisePhone, Inc.; **Eric M. Rahn**, senior vice president, Atlantic Maritime Services, Inc.

Cocktails and luncheon hosted by the Martinique Tourism Delegation.

Friday, February 8—Afternoon

Ship Inspection: a visit to Royal Caribbean Cruise Lines' Nordic Express.

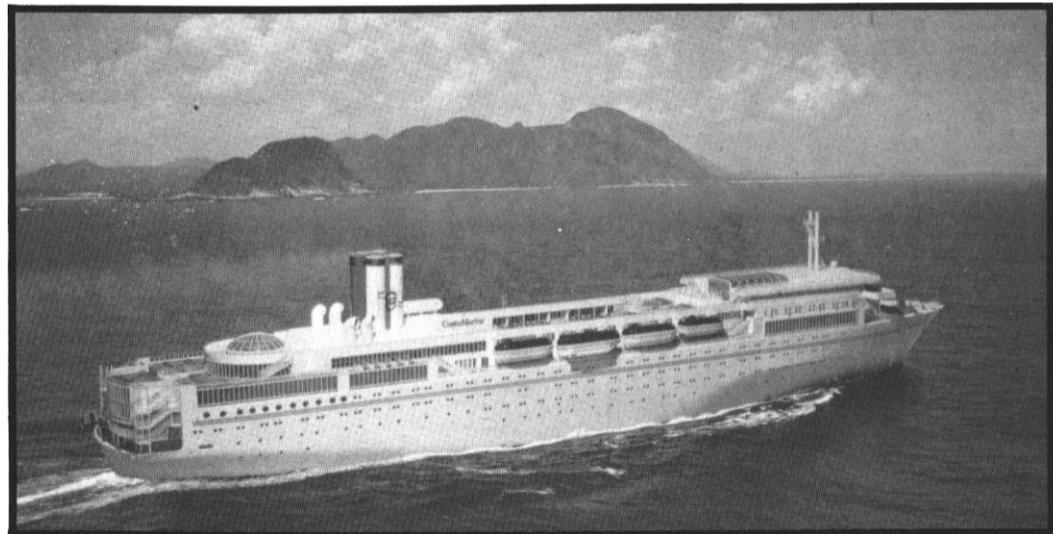
Saturday, February 9

Visit to the Port of Miami, including an inspection of Norwegian Cruise Lines' Norway, following her major refurbishment.

Since places for ship inspections are strictly limited, early reservations are strongly advisable. Anyone wishing to sign up for a visit must do so at Seatrade Information Desk from 3 p.m. on Tuesday, February 5 and before the end of the conference and exhibition on Friday, February 8.

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THE EXPANDING CRUISE INDUSTRY

10 MILLION PASSENGERS PER

Despite the recent drop in passenger bookings, some industry analysts are predicting that by the year 2000, more than 10 million passengers will take cruises annually. These projections are based on a growth level of 10 percent per year. Present cruise passenger levels stand at 3.7 million per year.

Many cruise lines are still bullish on the market and believe that the industry is only stopping for a breath before it prepares for another strong run.

Cruise Lines International Association (CLIA), a trade association representing 36 cruise lines, estimates that some 65 million people are potential cruise-takers. Over half that number—some 38 million—have indicated a definite or probable interest in taking a cruise in the next five years, translating into revenue potential of up to \$80 billion.

CLIA reports that 17 new or refurbished vessels, with about 11,000 passenger berths were added during 1990. With these new cruise ships, there now is a total fleet of 120 vessels with 84,000 berths serving the North American market.

In 1991, at least nine new or substantially refurbished cruise ships are scheduled for service, adding nearly 8,000 new berths and generating almost a half-million more passengers. This equation alone potentially creates more than a 10 percent increase in passenger carryings per year.

The association projects the rate of growth in new berth capacity over the next five years as only 7.6 percent, compared with an average 10 percent growth rate in passenger bookings over the last five years.

Any overcapacity might be eased by the late delivery of some vessels, but bookings on new spectacular

megaton ships will also likely displace sales for older vessels.

As lines with older vessels fight harder to survive a consolidation of market share, new entrants in the \$5 billion a year North American market will face increased competition and perhaps more market consolidation.

The industry's greatest concern in the short term, however, is consumer spending cuts due to the U.S. economic recession. A spokesman for Carnival Cruise Lines of Miami suggested that customers who normally would book premium cruises are expected to opt for less expensive packages in the face of the U.S. economic recession.

One reason for optimism in the passenger ship industry is that, more and more, the traveling public is realizing that cruises provide an excellent value and vacation alternative. And cruise lines believe that

this increased consumer awareness will fuel continued interest in and acceptance of cruise vacations.

Changing consumer attitudes also play a role in CLIA's 1991 outlook. Vacations have become a necessity, not a frill. In tough economic times, consumers will choose the best value for the money, and the cruise industry has successfully positioned itself at the top of the value vacation category.

The "all-inclusivity" of a cruise vacation means that cruise passengers known in advance what their vacation will cost and can plan accordingly.

Furthermore, the cruise industry is also optimistic that its wide variety of cruises to choose from—from ultra-luxury to economy—priced, from long duration to short weekend jaunts of two, three or four days—will also attract new customers.

PASSENGER VESSEL CONSTRUCTION WORLDWIDE (2,900 gross tons and above)

BUILDER	Vessel	TYPE	GRT	OWNER	DELIVERY
ASTILLEROS ESPANOLAS S.A., Madrid, Spain					
	Princesse Ragnhild'	RO/RO ferry	16,608	FVS Jahre Une Invest A/S	—/92
	(2) N/A	Cruise	N/A	Naviera Dosmares S.A.	—
	Vivamar	Cruise	6,517	Hoteles Marinos	4/92
BRODOSPLIT, Split, Yugoslavia					
	(2) N/A	RO/RO ferry	35,000	Sea-Link AB	91-92
CANTIERE NAVALE FERARRI, La Spezia, Italy					
	(5) N/A	Cruise	8,000	Panta Rei Cruises	92-96
	N/A	Cruise	29,760	Unknown	—/92
F1NCANTIERI-CANTIERI NAVALIITALIANI, Trieste, Italy					
	Regal Princes	Cruise	70,000	P&O Cruises	3/91
	(3) N/A	Cruise	50,000	Carnival Cruise Lines	92-94
	(2) N/A	Cruise	50,000	Costa Crociere	91
	N/A	RO/RO ferry	2,900	Adriatica Di Navigazione	-/92
GEC ALSTHOM-CHANTIERS DE L'ATLANTIQUE, St. Nazaire, France					
	Monarch of the Seas	Cruise	73,400	Royal Caribbean Cruise	12/91
	Majesty of the Seas	Cruise	73,400	Royal Caribbean Cruise	6/92
	(2) N/A	Cruise	40,000	Kloster Cruise Line	12/92-6/93
ISHIKAWAJIMA-HARIMA INDUSTRIES, Tokyo, Japan					
	N/A	RO/RO ferry	19,000	Shin-Nipponkai Ferry Co.	9/91
T. MARIOTTI, Genoa, Italy					
	ex-Alexandra ¹	Cruise	N/A	Costa Crociere	91
MASA-YARDS, INC., Helsinki, Finland					
	Ecstasy	Cruise	70,000	Carnival Cruise Lines	4/91
	N/A	RO/RO ferry	50,000	Johnson Line	6/91
	N/A	RO/RO ferry	27,000	Brittany Ferries	—/92
MEYER WERFT, Papenburg, Germany					
	Zenith	Cruise	45,000	Chandris Celebrity	-/92
	N/A	RO/RO ferry	N/A	Rederi AB Slite	-/92
MITSUBISHI HEAVY INDUSTRIES, LTD., Tokyo, Japan					
	Asuka	Cruise	27,000	N/A	10/91
NUOVI CANTIERI APUANIA, S.P.A., Marina di Carrara, Italy					
	Renaissance VII	Cruise	3,500	Yachtship	3/91
	Renaissance VIII	Cruise	3,500	Yachtship	6/91
	N/A	Cruise	31,000	Inter Ocean Italiana	12/92
	(2) N/A	Ferry	N/A	Grimaldi Compagnia Di Navigazione	

BUILDER	Vessel	TYPE	GRT	OWNER	DELIVERY
RAUMA YARDS OV, Rauma, Finland					
	Society Adventurer	Cruise	1,300 dwt	Discoverer Reederei	6/91
	N/A	Cruise	1,300 dwt	Discoverer Reederei	6/92
	SSC Radisson Diamond	Cruise	18,400	Diamond Cruises	5/92
	N/A	Cruise	18,400	Diamond Cruises	4/93
	N/A	Ferry	25,000	Effjohn International	—/92
	N/A	RO/RO ferry	28,000	Brittany Ferries	-/92
SCHICHAU SEEBECKWERFT AG, Bremerhaven, Germany					
	(2) N/A	RO/RO ferry	22,000	P&O European Ferries	6/92-12/92
	N/A	Cruise	40,000	Kloster Cruises	2/92
	(2) N/A	RO/RO ferry	30,000	P&O European Ferries	9/91
SOCIETA ESCERCIZIO CANTIERI, Viareggio, Italy					
	(2) N/A	Cruise	7,500	Colmar	91-92
	N/A	Cruise	9,500	Sana Eur. SpA	-/91
SOUTHWEST MARINE, INC., San Diego, California, U.S.A.					
	Viking Serenade'	Cruise	26,747	Royal Caribbean	4/91
STOCZNIA GDANSK IM. LENINA, Gdansk, Poland					
	(3) N/A	RO/RO ferry	20,000	Fincarrriers AB	93
TURKIYE GEMI SANAYO A.S., Istanbul, Turkey					
	(2) N/A	Ferry	5,000	Turkiye Denizcilik Isletmeleri	—/91
ULSTEIN HATLO, Ulsteinvik, Norway					
	N/A	RO/RO ferry	28,000	Brittany Ferries	-/92
UNION NAVAL DE LEV ANTE S.A., Valencia, Spain					
	Commodore 1	Cruise	19,000	Effjohn International	92
	Commodore II	Cruise	19,000	Effjohn International	93
VANCOUVER SHIPYARDS, Vancouver, B.C., Canada					
	(2) N/A	RO/RO ferry	3,000	B.C. Ferry Corp.	6-12/91
VERSATILE PACIFIC SHIPYARDS, Vancouver, B.C., Canada					
	N/A	RO/RO ferry	10,000	B.C. Ferry Corp.	2/93

Footnote: 1. Conversion.

Compiled by Maritime Reporter Staff



YEAR BY 2000, ANALYSTS SAY



Photo: P&O/Princess Cruises' Star Princess off the coast of St. Croix.

In an effort to offset more cautious or reduced spending, some cruise lines are augmenting their discount practices by creating new cabin classes at reduced rates.

In addition, cruise lines have stepped up their marketing campaigns by boosting their ad spending 20 percent in 1990 to \$300 million. The major target of the cruise industry is first-time customers. Cruising accounts for only 5 percent of the nation's \$100-billion-per-year leisure business. Cruise lines are hoping new programs and itineraries will not only attract new passengers but also bring repeat business by offering previous customers a new experience.

According to **Jim Godsman**, president of CLIA, at the Holiday at Sea Convention in London, the number of first-time cruisers was a very encouraging sign for the industry in 1989. A study in 1986 showed that they accounted for 38 percent of all business. In 1988, this figure grew to 44 percent, and last year the figure rose to 50 percent.

At a recent marine conference in Vancouver, B.C., Canada, **Richard**

Skinner of Seattle-based Holland America-Westours, stated that the international cruise industry has grown from a mere 500,000 passengers two decades ago to 3.7 million in 1989. Mr. **Skinner** also believes that the industry will continue to grow by nearly 10 percent per year over the next five years.

The Pacific Northwest has been a particular area of growth in the North American market. Since 1986, Alaska has become the fourth largest cruise destination, with about an 8 percent market share, surpassing the 100,000 passenger mark for the first time.

In addition, passenger growth through Vancouver has grown to from 267,000 five years ago to 388,000 last year. Holland America Westours plans to add new capacity this year.

Furthermore, Holland America also plans to enter the eastern Canada market with the 1,200-passenger Rotterdam. She will make autumn cruises from New York to Quebec City and Montreal.

"As fleets continue to grow, cruise lines will be looking for destinations

which can help them fill their ships," said Mr. **Skinner**.

"There is a huge population pool in the New York, Boston, Philadelphia area which we can tap into, that we think would love to cruise to Canada," he added.

Rumors are circulating that Crystal Cruises Ltd. also plans to enter the eastern Canadian cruise market with the new 960-passenger luxury liner Crystal Harmony. Like the Rotterdam, she would also sail out of New York.

Although the North American market represents 84 percent of the world total, other areas are growing in importance.

One international cruise operation that is hoping to consolidate regional market share is Mitsui O.S.K. Lines, which recently added its fourth luxury vessel, the 22,000-grt Nippon Maru.

According to **Michael White**, a spokesman for Mitsui O.S.K. Lines, his company is focusing on the Asian cruise market, which has been growing rapidly.

Compared with 4 million passengers a year in North America, Japa-

nese passenger bookings rose to 142,000 last year from only 120,000 in 1988. Mitsui O.S.K. Lines' focus on the Asian market led the company to form a joint venture with a Chinese entity to operate a ferry between Kobe, Japan, and Tianjin, China.

In addition, the Japanese company is also involved in the new cruise company Diamond Cruises Ltd., along with Finnish and U.S. interests. Diamond Cruises Ltd. plans to enter the Caribbean and Mediterranean markets in 1992 with the revolutionary new SSC Radisson Diamond, an 18,400-gross ton cruise ship based on semisubmersible technology.

Besides Asia, Europe is a growth area for the cruise industry as well. The U.K. market, for example, has grown from about 90,000 passengers four years ago to 180,000 passengers. Analysts predict that this market could reach 300,000 by 1996.

Without a doubt the cruise industry will continue to grow worldwide, but just how much will depend on factors outside of its control.

VIS Introduces New Vessel Instrumentation And Alarm System

Vessel Information Systems has brought microprocessor technology into the pilothouse by introducing the VIAS System-128. This new vessel instrumentation and alarm system represents a high-tech melding of computer display technology with familiar shipboard systems, resulting in the ultimate "at-a-glance" instrumentation and alarm system.

Unlike conventional instrument panels that show engine, electrical, and fluid level data on individual gages, the VIAS system uses a full-color CRT monitor to display "dials" on the screen. While the components remain the same for each installation, the screens are configured for a specific vessel. Relatively simple to install, the system consists of a main processor unit (usually mounted in the engine room), display processor, monitor

with keypad, and the capacity display data collected from a mind-boggling total of 128 inputs. Each input can be either analog or digital. The analog input represents a dial while the digital inputs are used to display the on/off status of shipboard switches.

According to the manufacturer, the real beauty of the system lies in its ability to be customized by the end user from the type of data collected to the number of audio/visual alarms to the formats used to present information on the screen. The monitor is really a display station where you look for all vessel information. An unlimited number of display stations are available, and each requires that only one wire is run from the engine room to the display. Past history data for up to a month is standard with each input.



The VIAS System-128 computer-based information and alarm system from Vessel Information Systems.

Also standard is four alarm limits for each input.

Vessel Information Systems says that this innovative system offers a large number of benefits never before available on board.

The VIAS-128 system is intended for use on pleasure and commercial vessels in excess of 65 feet. Options include sensor, additional display stations and the cable required.

For more information and free literature on the VIAS system-128 from Vessel Information Systems,

Circle 29 on Reader Service Card

SMC To Hold Further Seminars In 1991 On Pollution Control

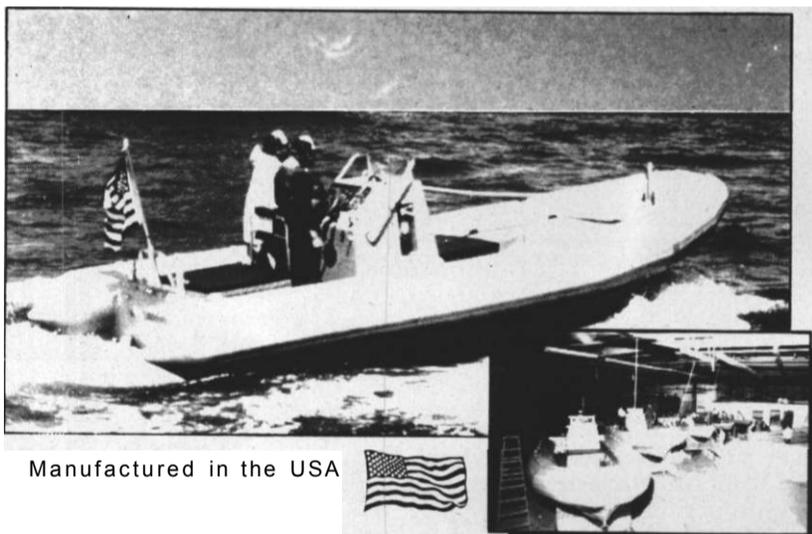
The Society of Marine Consultants (SMC), which recently conducted a seminar at the Whitehall Club In New York on "The Pollution Act of 1990—Requirements," plans to hold two further seminars

early in 1991 on specific subjects, due to the importance of this Pollution Act to the marine industry and the need for further clarification.

The first seminar will be on "The Pollution Act of 1990—U.S. Coast Guard Rules." The second will be directed to "The Pollution Act of 1990—Contingency Programs."

For further information, contact Capt. **Edward T. Hill**, Executive Director, SMC (203) 337 6736.

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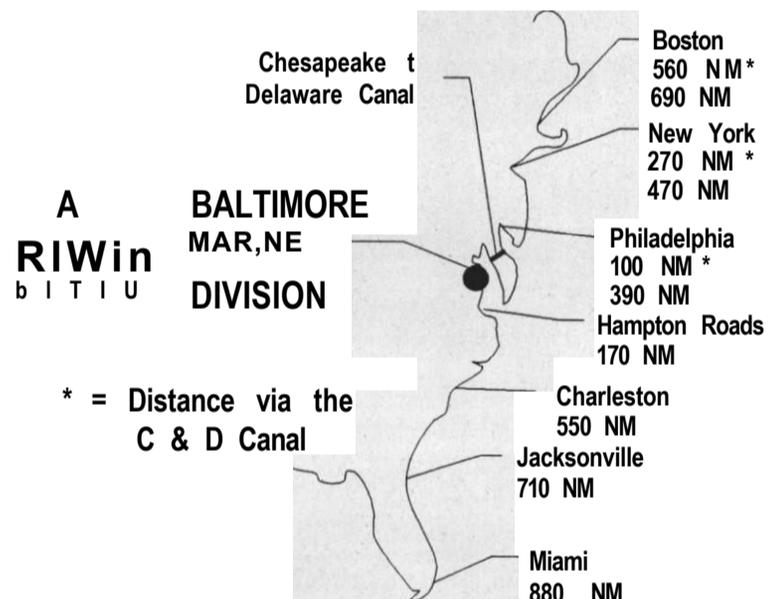
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**Singapore Shipbuilding
Christens 5,000-Dwt
Bunkering Vessel**



The Ocean Prestige is outfitted and equipped for bunkering and the transportation of cargo oil having flash point above 60 degrees C (140 degrees F). The vessel is steel welded with twin diesel engines and twin fixed-pitch propellers.

Singapore Shipbuilding & Engineering Ltd. (SSE), a member of Singapore Technologies, recently christened the 5,000-dwt bunkering vessel Ocean Prestige for Ocean Tankers (Pte) Ltd.

The vessel is designed and equipped with sophisticated computerized automatic tank gaging equipment and faster pumps for quicker fueling.

The 295-foot-long by 51-foot-wide Ocean Prestige was christened by Mrs. M. S. Liventals, wife of Mobil Oil Singapore's chairman A. V. Liventals at SSE premises.

**Call For Papers Issued
For MTS '91, New Orleans,
November 11-13**

The Marine Technology Society (MTS) has issued a call of papers for the conference it is sponsoring in New Orleans, November 11-13, 1991, at the New Orleans Convention Center. The conference theme is "An Ocean Cooperative—Industry, Government, Academia."

MTS '91 participants will include representatives of marine-related industries, academic institutions and government agencies worldwide. Attendance is expected to exceed 4,000.

The Technical Committee invites papers for oral or poster presentations at MTS '91. Papers exemplifying the conference theme are especially encouraged. An abstract that does not exceed 300 words is required to be submitted before the March 1, 1991 deadline, with author notification by April 15, and final camera-ready copy due by July 1, 1991.

For full information, contact the Marine Technology Society, 1825 K Street N.W., Suite 218, Washington, D.C. 20006.

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cial fishing vessel, offshore drilling platform or cruise ship. And there are times when the special requirements of a customer do not fit the specifications of a pre-designed commercial unit.

Recently, the U.S. military approached Sea Recovery Corp., Gardena, Calif., with a request for a watermaker of their own specifications, capable of producing 9,000

U.S. gallons per day. In addition to all normally included features, the unit needed to function automatically by utilizing a microprocessor to monitor and adjust all feedback and pressure valves.

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sis desalinator may include special requirements of size, capacity, automation, and feed water sources.

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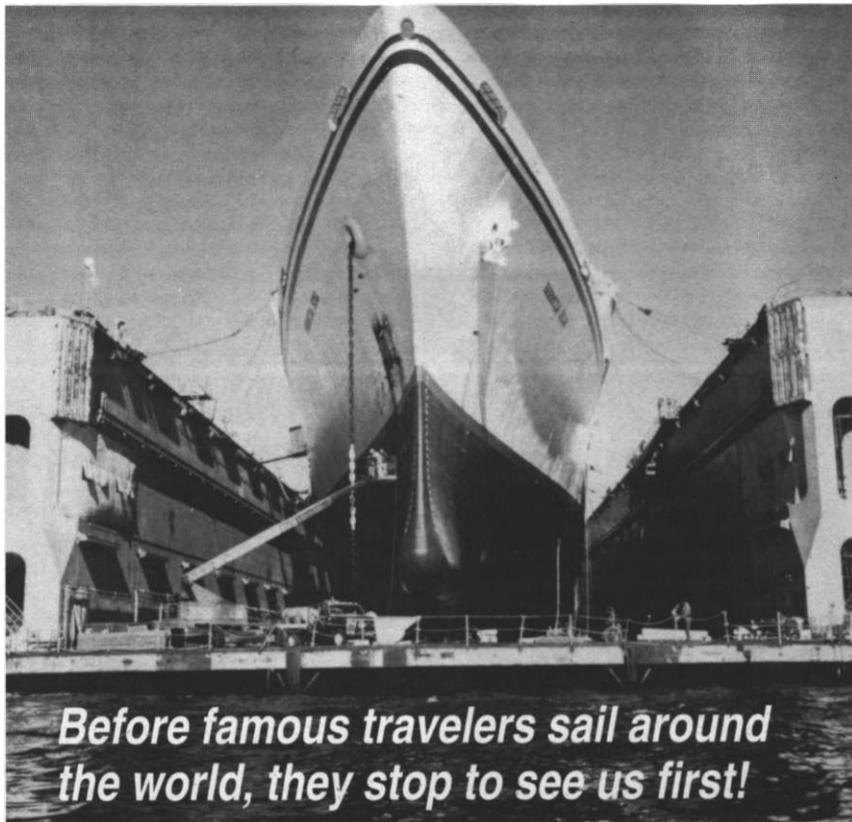
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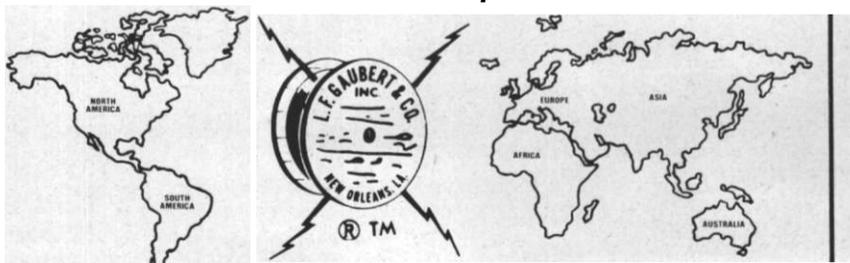
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McQUILLING BROTHERS HONORED—At the 49th Annual Guard of Honor Ball of the Robert L. Hague Merchant Marine Industries, American Legion Post, held recently at the Waldorf Astoria in New York City, dual awards were presented for the first time to **McQuilling** brothers **Tom** and **James**. This distinguished service award is given annually to the person or corporation that has contributed the most to the U.S. maritime community. At the same function, the annual "Gil Ross" award to the member of the media who has distinguished themselves was presented to the **O'Malley** family, publishers of **MARITIME REPORTER** and **Engineering News**. The **William Schwartz** award was presented to the Honorable **Guy Molinari**, former Congressman and current Borough president of Staten Island. Shown above during the Guard of Honor Ball, left to right: **James R. Ean**, Commander of the Post; **Thomas M. McQuilling**, **McQuilling Brokerage, Inc.**; **James A. McQuilling**, **Midland Marine Corporation**; and **William Horan**, dinner chairman.

Meyer Werft Delivers Eighth Passenger Ship For Indonesia

Meyer Werft of Papenburg, Germany, recently delivered the 6,000-grt passenger ship **Tatamailau** to the Directorate General of Sea Communication, Jakarta, Indonesia. The 969-passenger newbuilding is the eighth passenger ship and, at the same time, the first in a series of three vessels for the Republic of Indonesia.

The 327-foot-long by 59-foot-wide **Tatamailau** is a repeat of the "Lawit" type, two units of which were already delivered to Indonesia in 1986. Upon completion of the series of three vessels early in 1992, the yard will have built a total of 16 ships for Indonesia (10 passenger ships, five cargo/passenger vessels and one gas tanker).

The **Tatamailau** is propelled by twin **Krupp MaK 4-stroke diesel engines**, type **6Mu 453C**, each with an output of 1,600 kw (2,176 hp) at 600

rpm. The engines are capable of burning diesel oil. Maneuverability is enhanced by the installation of a bow thruster plant with controllable pitch propeller of 480 kw (653 hp) and a thrust of about 7.2 tons.

Electrical power is provided by four diesel generator sets (456 kw-620 hp at 2,000 rpm each) with a generator capacity of 525 kva each, as well as one emergency generator (184 kw/250 hp) with a capacity of 210 kva.

The air conditioning and other ventilation plants meet the requirements of the trade range.

For safety equipment aboard the vessel meets the highest requirements of SOLAS 1974.

For free literature detailing the facilities and capabilities of Meyer Werft,

Circle 44 on Reader Service Card



The **Krupp MaK** diesel-powered passenger vessel **Tatamailau** will be employed on Indonesian interisland service to provide links between many of the more than 13,000 islands.

Maritime Reporter/Engineering News

Kvaerner Delivers New Flying Cat High-Speed Catamaran To Greece



Kvaerner's 40M Flying Cat will sail in the Sea-Spetsai service in Greece, and has a capacity of 352 passengers, including 92 on the top deck.

The first foreign delivery of the new Flying Cat high-speed catamarans from Kvaerner Fjellstrand, a member of Norway's Kvaerner group, has been made to Greek shipowner Ceres Hellenic Shipping & Co.

This is the second Flying Cat to be built by Fjellstrand's Omastrand yard south of Bergen. The first went to a Norwegian ferry operator this past April, and a third unit was delivered to Thailand in December.

The catamaran supplied to Ceres joins a fleet of 25 hydrofoil craft which mainly provide ferry services between Athens and Greek islands in the Aegean.

Equipped with two engines and water jets developing a combined 4,000 kw, the vessel has a top speed of 38 knots and a service speed of 35 knots. It measures approximately 131 feet long by about 33 feet wide.

For free literature on the facilities and capabilities of Kvaerner Fjellstrand,

Circle 27 on Reader Service Card

Sonat Asks MarAd Permission To Sell Drilling Rig

The Maritime Administration (MarAd) has received an application from Sonat Offshore Drilling, Inc. of Houston, Texas, for permission to sell and transfer to Panamanian registry the 37,363-dwt drilling rig Henry Goodrich. The proposed purchaser is Arcade Drilling A/S, Oslo, Norway. The vessel would be used in worldwide drilling operations, primarily in the United Kingdom or Norwegian section of the North Sea.

The vessel was built in Tamano, Japan, in 1985. MarAd permission is required by section 9 of the Shipping Act of 1916, as amended.

New Simrad Echo Sounder Goes Into Operation

The first EM12 full ocean depth multibeam echo sounder from Simrad Subsea A/S, Horten, Norway, has gone into operation on the research vessel Ocean Surveyor, operated by Worldwide Ocean Surveying Ltd., England. The EM12 data has been collected for the scientific and commercial sectors and processed into working charts and terrain models.

The Simrad EM12 is the first third generation deep sea multibeam echo sounder, with a sector coverage of either 90 degrees with 81 beams, or 150 degrees with 151 beams. The first commercially available deep sea multibeam echo sounder, the Sea Beam, made its debut 15 years ago, with sector coverage of 40 degrees with 16 beams. Ten years later, Simrad introduced its second generation of multibeam

echo sounders, increasing sector coverage to 90 degrees with 50-60 beams. Besides increasing coverage and number of beams, the new EM12 also has a new feature, seabed imaging. The seabed image created is comparable to a side scan image in detail, but is bathymetrically corrected both on screen and hardcopy recorder.

The first EM12 installed on the Ocean Surveyor went through in-

tensive trials in the Bay of Biscay in September. According to Simrad, the trials showed that the unique phase detection principle used in the EM12 provided the benefits of higher accuracy, better range capability, and less weather dependence as compared to other systems.

For free literature detailing the new Simrad EM12 echo sounder,

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Circle 207 on Reader Service Card

OUTSTANDING PASSENGER



Despite recent concern about overcapacity in the cruise industry, new and refurbished luxury liners and cruise ferries continue to enter the market with more and more berths in an effort to attract first-time and repeat cruisers.

However, according to Cruise Lines International Association (CLIA), an organization which represents about 95 percent of the oceangoing capacity serving North America, these berths will be needed since predictions call for cruise passengers to increase from 3.7 million to 10 million annually.

The fortune of the U.S. shallow-draft passenger vessel market also appears to be entering an uncertain period. A number of second tier yards have reported a slowdown in orders for dinner/excursion boats, ferries, tour boats and commuter vessels. However, this slowdown is set against a backdrop of an industry that has been in a phenomenal growth spurt over the last few years.

On the other hand, several yards have benefited from the impending legalization of riverboat gambling, with a number of new vessels on order and several others under design.

The following section celebrates the most outstanding new entrants into the highly competitive passenger shipping market as selected by the editors of MARITIME REPORTER. The "Outstanding Passenger Vessels of 1990" range from megaton 2,000-passenger giants such as the Fincantieri-built Crown Princess to the elegant 350-passenger dinner boat Anita Dee II, built by Trinity Marine.

AMERICA

Dinner Boat

Marine Builders

This past year, Marine Builders, Inc., of Utica, Ind., delivered the 150-foot dinner/excursion boat M/V America to River City USA, Inc., a Kansas City, Ks., vessel operator.

A sleek, modern-style vessel designed by Marine Builders in conjunction with the marine architectural firm of Coe M. Best Jr. & Associates, the America is a striking contrast to River City USA, Inc.'s Missouri River Queen, a traditional 1800s style riverboat also built by Marine Builders. The America seats 450 passengers for dinner cruises and is certified to carry up to 800 passengers overall. Propulsion is provided by two Cummins NTA-855-M marine diesel engines rated at 350 hp each at 1,800 rpm, through Tonanco model KC-TM-828 marine gears to Bird Johnson 48- by 32-inch four-blade propellers. Normal engine vibration and noise is reduced by the use of a Lo-Rez vibration isolation system that Marine Builders incorporates in their vessels to provide optimum passenger comfort.

The enclosed, climate-controlled main and second decks are fitted with tinted and insulated glass in all cabin windows (designed by Marine Builders) that reduce condensation in all weather conditions and add to passenger sightseeing enjoyment. Three complete bars, a gift shop, a food preparation facility and a canopied open-air 3rd deck are also incorporated on the America.

Captain **Dick Lynn** and Ms.



Award winners, from top of page: SWATH excursion boat Navatek I, built by Navatek Ships Ltd.; Baltic cruise ferry Silja Serenade, from MASA Yards; catamaran passenger boat Audubon Express, built by Gladding-Hearn Shipbuilding; cruise ship Delfin Caravelle, from Rauma Yards; and (above) canal boat Edelweiss II and her sister Edelweiss I, built by Skipperliner Shipyards.

GER VESSELS OF 1990

K.C. Stanley, co-operators of River City USA, opted for the "Love Boat" style for their new vessel and completed the interior with opulent appointed furnishings featuring extensive woodworking. As stated by Captain **Lynn**, "This makes it truly unique for the inland waterways, and it was an excellent idea."

AMERICA Equipment List

Main engines (2) Cummins
Reduction gears Tonanco
Generators Lima
Generator engine Cummins
Propellers Bird-Johnson
Air compressors Ingersoll Rand
Engine monitoring equipment Murphy
Keel coolers Johnson
Steering system Marine Builders
Engine vibration
isolation system Lo-Rez
Depth finder Standard
Searchlights Carlisle & Finch
Airhorn Kahlenberg

ANITA DEE II Dinner Boat Trinity Marine

Aluminum Boats, Inc., Crown Point, La., a member of the Trinity Marine Group, has delivered the Anita Dee II, an elegant, all-aluminum, 140-foot, 350-passenger dinner yacht to Tee Dee Enterprises, Inc., Chicago, Ill.

Looking more like a stylish me-yacht than a commercial charter boat, Anita Dee II is available for group charters, private parties, wedding receptions, corporate functions, and other events from her

berth at the Navy Pier.

Designed by Aluminum Boats, Inc., its parent company, the Trinity Marine Group, and yacht design consultant **Alfred (Jay) Coyle Jr.**, Anita Dee II maximizes space on the two primary passenger decks by eliminating stanchions or supports.

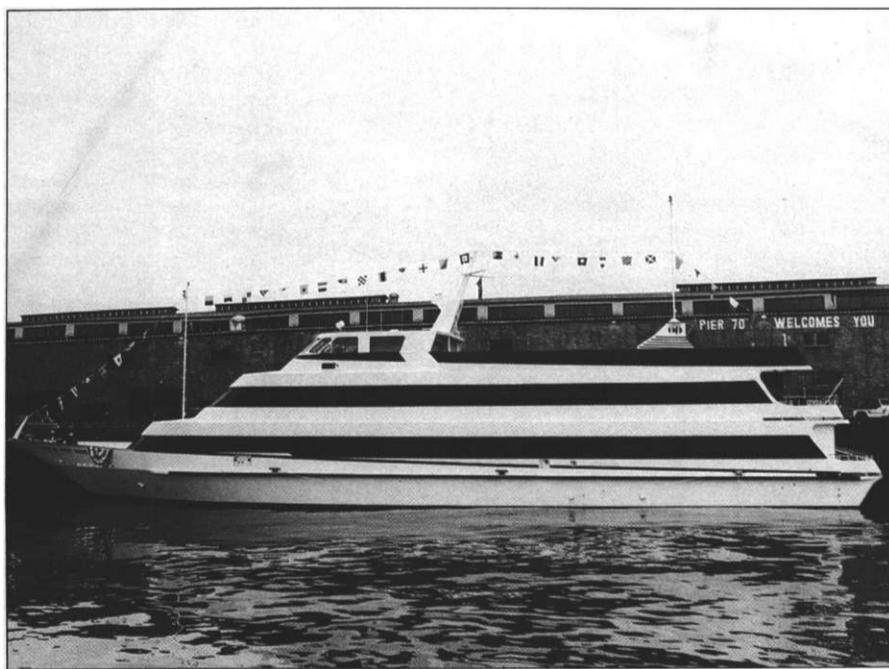
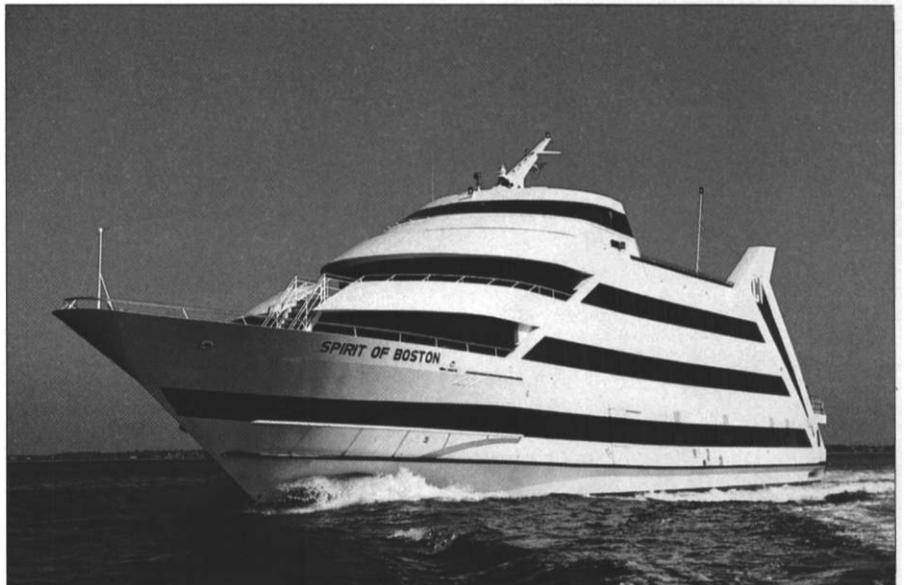
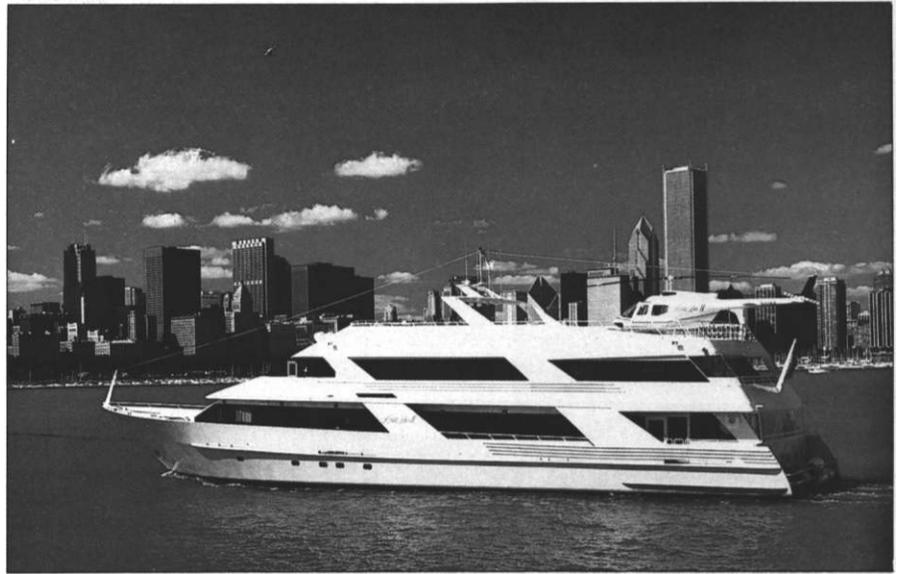
The spacious main deck includes intimate and group seating, through-the-bulkhead bar, restrooms, large galley and owner's stateroom. Additionally, the main deck also includes a full walk-around and a covered aft deck with seating and roll-up weather curtains.

The second deck has seating for 152 diners, a large buffet and waiter's station and additional restrooms. It also includes the pilot-house with port and starboard wing control stations, another double duty bar serving the diners inside and the covered aft deck outside, and stairs to the flybridge and main deck.

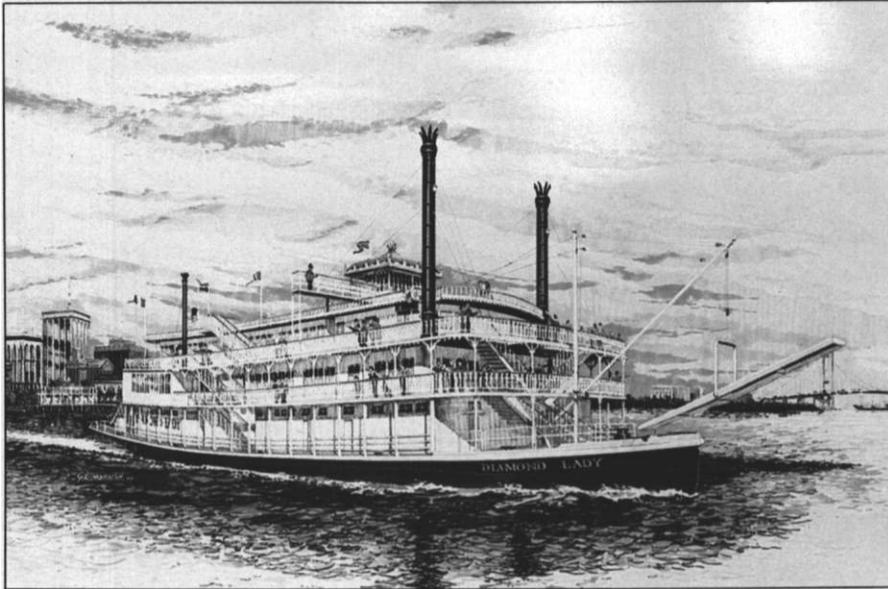
Atop is the flybridge which includes a lounge with seating for 62, an open dance floor and band stand, bar, and promenade area. A helipad is also on the flybridge along with a skylight to the dinner deck which doubles as a 16-foot long cocktail area.

The Anita Dee II is 140 feet in length, has a 33-foot beam, and draft of less than 5 feet 6 inches. Her shallow draft allows her to operate in the Intracoastal Waterway, normally inaccessible to vessels her size. A skegs protects her props and rudders.

Built to U.S. Coast Guard stand-
continued)



Selectees, from top of page: Dinner boat Anita Dee, built by Trinity Marine; Dinner boat Spirit of Boston, from Blount Marine Corporation; cruise ship Crystal Harmony, built by Mitsubishi Heavy Industries; excursion/dinner boat New Yorker, converted by Eastern Shipyards; and (above) dinner boat Spirit of Puget Sound, from Service Marine Industries.



Outstanding Passenger Vessels

(continued)

ards under subchapter T rules and regulations, the new boat is powered by two Caterpillar 3408TA diesel engines driving through Twin Disc reverse reduction gears.

The Anita Dee II operates in Chicago during the summer to mid-October and in winter from Bahia Mar Resort and Yachting Center in Ft. Lauderdale, Fla., from mid-November to mid-March.

ANITA DEE II Equipment List

Main engines (2)	. Caterpillar
Gears	. .Twin Disc
Generators	. Caterpillar
Steering system	. Al George
Engine controls	. . . Kobelt
Air compressors	. . . Quincy
Bowthruster	. . Arcturus
Shafts	. . Aquamet
Propellers	. . Federal
A/C & heating	. Lemoine's
Radar	. . Furuno
VHF	. . . . . Standard International
Fathometer	. Datamarine
Compass	. . . Ritchie
Navigation lights	. Aqua Signal
Engine room lighting	. . . . . Pauluhn
Horn	. Kahlenberg
Blowers	. . Hartzell
Life floats	. . Jim Buoy
Life jackets	. . Stearns

AUDUBON EXPRESS Passenger Catamaran Gladding-Hearn Shipbuilding

In the summer of 1990, Gladding-Hearn Shipbuilding, The Duclos Corp., delivered the M/V Audubon Express, the first high-speed catamaran (INCAT) for passenger service on the Mississippi River.

New Orleans Steamboat Company began operating the 102-foot, all-aluminum, twin-hulled Audubon Express between New Orleans's new Aquarium of the Americas and the Audubon Zoo. The 360-passenger catamaran is expected to make the seven-mile run in about 18 minutes.

The Audubon Express has a beam of 28-1/2 feet, depth of 8-1/2 feet and draft of 3.3 feet. Powered by twin 1,600-hp General Motors Detroit Diesel 16V149TI main engines, supplied by Stewart & Stevenson, and driven by two KaMeWa model 63S2 water jets, the ferry was designed for medium speeds up to 26 knots (30 mph) on the Mississippi. She is fitted with ZF model BUK485 marine gears. "By using waterjets instead of conventional propellers, the boat will have a draft of only three feet and produce minimal

wake at all speeds," said **Gordon Stevens**, New Orleans Steamboat Company's general manager. The triple-deck vessel includes upholstered seats, air-conditioning, and a snack bar in the main cabin.

AUDUBON EXPRESS Equipment List

Main engines (2)	. Detroit Diesel
Gears	. ZF
Waterjets	. . KaMeWa
Engine controls	. . KaMeWa
Generators	. . . . . Lima
Generator engines	. . . . . John Deere
Generator control panel	. . . . . Industrial Power Systems

CROWN PRINCESS Cruise Ship Fincantieri-CNI

The first of two luxurious 70,000-grt cruise ships, the Crown Princess, ordered by P&O Cruises was delivered this past year by the Monfalcone yard of Fincantieri Cantieri Navali Italiani.

With a length overall of 804 feet, beam of 106 feet, draft of 26 feet and passenger capacity of 1,950, the Crown Princess is one of the largest cruise ships afloat. She features extensive passenger facilities including lounges, night clubs, disco, casino, shopping arcades, cafeteria, conference room/cinema, two swimming pools, two jacuzzis, and other amenities. About 80 percent of the 792 passenger cabins have outer balconies.

Alfa-Laval, SpA, Italy, supplied the complete cooling system for the liner.

The ship's graceful and very distinctive silhouette looks somewhat like that of a dolphin. The profile of the "head" constitutes a large front dome over the Belvedere Bar/Casino.

Designed for worldwide cruising, the vessel is powered by a highly advanced diesel-electric plant consisting of four 6.6KV, 60-Hz main alternators driven through flexible couplings by four MAN B&W eight-

CROWN PRINCESS Equipment List

Main engines (4)	. . . . . MAN B&W
Propellers	. . . . . Lips Italiana
Boilers	. . . . . Sunrod
Cooling system	. . . . . Alfa Laval
Various pumps	. Hamworthy Engineering
Various pumps	. . . . . IMO-Alfa Laval
Paint	. . . . . International Paint
Alarm system	. . . . . Kockumation
Anti-collision radar	. . . . . Krupp Atlas Elektronik
Paneling	. . . . . Rockment
Integrated Bridge	. . . . . Sperry Marine
O/W separators	. . . . . Westfalia Separator
Special machine tools	. . . . . Unitor Ships Service

Photos, from top of page: Artist's conception of the sternwheeler Diamond Lady, under construction at Atlantic Marine; cruise ship Horizon, delivered by Meyer Werft; dinner boat America, from Marine Builders; and cruise ship Nordic Empress, built by GEC Alsthom's Chantiers de L'Atlantique.

cylinder, in-line L58/64 four-stroke, medium-speed engines, with a maximum continuous rating of 9,720 kw at 400 rpm. These alternators supply power through transformers to the two 12,000-kw, three-phase synchronous-type propulsion motors, each directly driving a Lips fixed-pitch propeller via shafting.

CRYSTAL HARMONY Cruise Ship

MHI

Built at a cost of \$200 million, the 48,621-ton luxury cruise liner Crystal Harmony, constructed by the Nagasaki shipyard of Mitsubishi Heavy Industries (MHI), is the first luxury ship for Los Angeles-based Crystal Cruises, a subsidiary of Japan's NYK Line.

Reportedly one of the most spacious ships in her class, the Bahamas-registered Crystal Harmony carries 960 passengers in first class luxury. Almost all of her passenger cabins are situated on the outside, more than half of which have a private veranda. She also features one of the largest penthouses afloat and the first floating casino to be operated by Caesars Palace of Las Vegas.

The Crystal Harmony's propulsion power is generated by four Mitsubishi-MAN B&W 8L58/64 large bore medium-speed diesel alternator sets. The output is fed via a 6.6 kv main switchboard to two 12 MW Cycloconverter drives, each serving its own 11.5 MW synchronous propulsion motors. ABB Marine supplied and engineered the Cyclo propulsion drives, generators, switchboard, bowthruster motors, integrated machinery and auxiliary automation system.

Plate coolers were installed on the vessel by Kyoto Machinery Co., Ltd., the Japanese division of Alfa-Laval.

Passenger amenities aboard the liner include two heated freshwater pools fitted with movable roofs called Magrodomes, a special piano lounge area with foliage on the Lido Deck, an Italian restaurant and Japanese restaurant.

CRYSTAL HARMONY Equipment List	
Main generator engines . . .	MHI-MAN B&W
Main generator engine turbochargers . . .	MHI
Auxiliary generator engine	Wartsila Diesel
Auxiliary boiler	MHI
CP propeller	.MHI-KaMeWa
Emergency generator engine .	GM/Tominaga & Co.
Electric propulsion system	ABB
Main & auxiliary generator	ABB
High voltage switchboard & motor	ABB
Power management system	ABB
Radar & ARPA	. Krupp Atlas
Doppler sonar	. Krupp Atlas
Integrated position indicator	. Racal Decca
INMARSAT . . . . .	.Magnavox & JRC
Garbage plant	. Norsk Hydro
Vacuum toilet system	EVAC
Fin stabilizer	Sperry Marine
Potable water sterilizer	Serck Como
Plate type heat exchanger . . . . .	.Alfa-Laval

DIAMOND LADY Casino/Dinner Sternwheeler Atlantic Marine

In March 1991, Atlantic Marine, Inc., Ft. Georges Island, Fla., will deliver The Diamond Lady, the first of three 201-foot sternwheel casino/dinner vessels for Steamboat Development Corporation of Davenport,

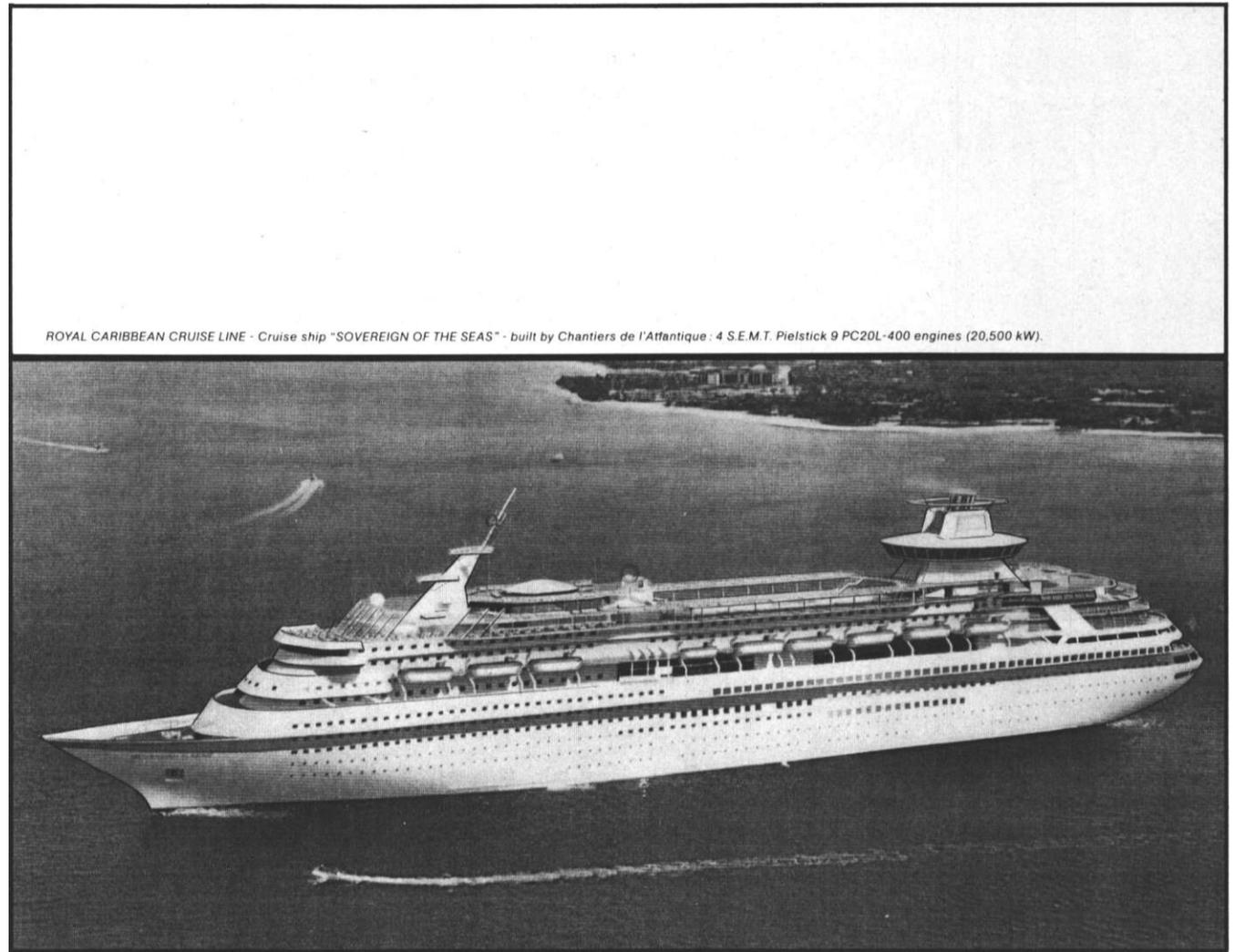
Iowa. The vessels' authentic 1890's design was specially developed by **John W. Gilbert**, owner of Boston-based John W. Gilbert Associates, Inc.

Interior Design International of Seattle, Wash., complements Mr. **Gilbert's** 1890's theme with its distinctive Victorian period interiors design. Gilded Philippine mahogany, Aubusson-style carpet, carved Victorian glass panels, sconces,

crystal chandeliers, marble/avonite counter tops, and embossed ceiling panels will make The Diamond Lady one of the most elegant inland passenger vessels afloat.

Launched in late October 1990, the 1,200-grt Diamond Lady will have a waterline length of 170 feet, width of 46 feet and total light ship weight of 863 tons.

(continued)



ROYAL CARIBBEAN CRUISE LINE - Cruise ship "SOVEREIGN OF THE SEAS" - built by Chantiers de l'Atlantique - 4 S.E.M.T. Pielstick 9 PC20L-400 engines (20,500 kW).

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TD PUB

Outstanding Passenger Vessels

(continued)

The main deck will house the largest of the two casino rooms, containing 250 slot machines, eight blackjack tables, two roulette tables, and two craps tables. The next deck will have a 250-seat dining area and

a lounge overlooking the paddlewheel turning at the stern of the boat. Moving up to the next deck, the forward area will be a lounge, with a second, smaller casino area in the center of the deck. At the rear will be a lounge with dance floor, video center and sophisticated sound system. The pilothouse will be on the top deck. Behind the pilothouse will be a large open-air deck from which passengers can get

a panoramic view of the river.

Powering each vessel will be three Caterpillar 671-horsepower diesel engines, two of which will drive screw propellers and a third, the functional rear paddlewheel. The riverboat can operate by using the paddlewheel alone, the paddlewheel and screw propellers together, or the screw propellers alone. The top speed is about 9-1/2 knots.

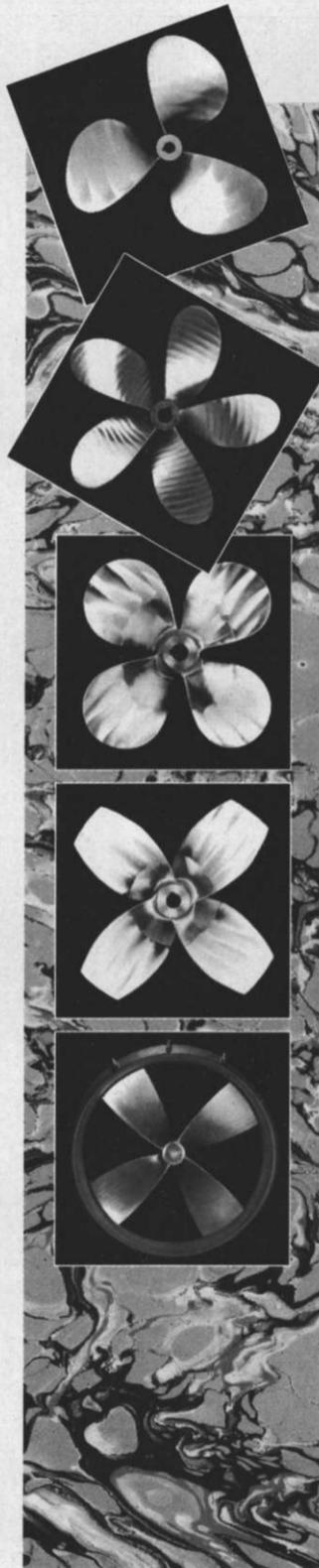
The diesel engines sit on special vibration-absorbing mounts to isolate engine vibration, so that passengers are provided with the feel of an onshore casino.

The Diamond Lady along with her sister ships, The Emerald Lady and The Golden Lady, will be berthed in Iowa and cruise the Mississippi River with a maximum of 1,200 passengers.

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Cruise ship Crown Princess, built by Fincantieri.

DELFIN CARAVELLE Cruise Ship Rauma Yards

This past year Finnish shipbuilder Rauma Yards Oy delivered the second of two smaller luxury cruise liners to Delfin Cruise Ltd., a shipping company based in Nauvo, Finland.

Christened the Delfin Caravelle by Mrs. **Leena Matomaki**, wife of the president of the Rauma-Repola Group, **Tauno Matomaki**, the liner has an overall length of 382 feet, breadth of 56 feet and draft of 14 feet. Her pair of Wartsila Vasa 6R32Ds produce a total of 3,017 hp at 750 rpm. She can accommodate up to 330 passengers in her 178 cabins, including her eight luxury suites fitted with jacuzzis and balconies.

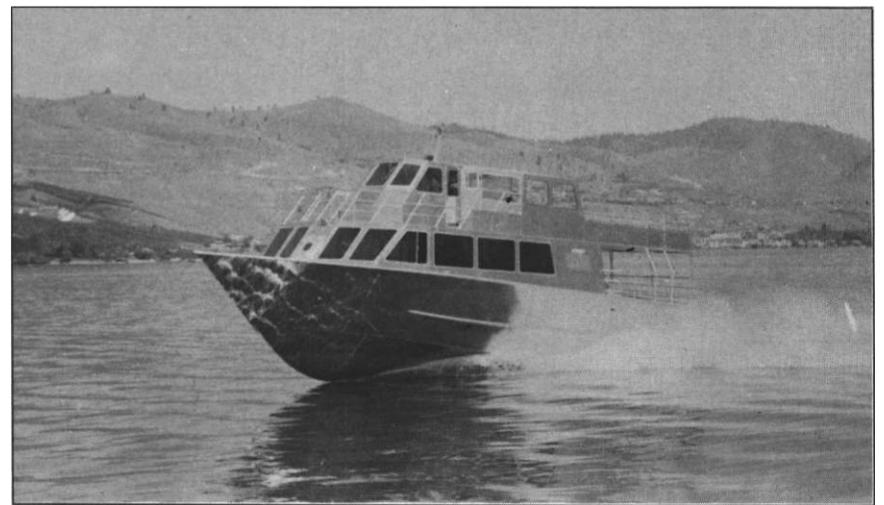
Delivered by the yard in about one year, the Delfin Caravelle has conference facilities for 200 participants, saunas with a swimming pool and jacuzzi, duty-free shop, saloon, casino, club/restaurant with dancing, nightclub/disco, beauty salon, and hospital quarters. The ship's main restaurant can accommodate all 330 passengers at a single seating.

DELFIN CARAVELLE Equipment List

Main engines(2)	Wartsila Vasa
Auxiliary engines	Wartsila Vasa
Alternators	Leroy Somer
Propellers & shafts	JW Berg
Reduction gears	Renk-Tacke
Shaft bearings & seals	Waukesha-Lips
Steering equipment	Wartsila-EES
Bowthruster	Ulstein-Liaen
Fin stabilizers	Blohm & Voss
Diesel generators	Leroy Somer
Shaft generators	Leroy Somer
Heat exchangers	GEA Ahlborn/Alfa-Laval
Emer. generator	Stamford
Emer. generator engine	Cummins
Vacuum toilet	Evac
Air cooling compressors	Sabroe
Davits	Schat-Davit
Evaporators	Alfa-Laval Nirex
Oil purifiers	Alfa-Laval
Radars, log & echo sounder.	Krupp Atlas Elektronik

The Delfin Caravelle will cruise during the summer and autumn from Turku to Visby three times per week, Gotland-Borgholm cruises and trips to Tallinn and the isle of Saaremaa in Estonia. The line will also arrange 24-hour cruises as well as conference and charter cruises,

(continued)



Munson-built passenger ferry Lady Express.

ASTILLEROS
ESPAÑOLES

**ASTILLEROS
ESPAÑOLES**

Enero 1991

LUN.	MAR.	MIER.	JUE.	VIE.	SAB.	DOM.
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Febrero

LUN.	MAR.	MIER.	JUE.	VIE.	SAB.	DOM.
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

Marzo

LUN.	MAR.	MIER.	JUE.	VIE.	SAB.	DOM.
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Abril

LUN.	MAR.	MIER.	JUE.	VIE.	SAB.	DOM.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

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All the best for 1991

**EDELWEISS II
Equipment List**

Main engines (2)	Cummins
Propellers	Michigan Wheel
Thruster engine	Onan
Generator engine	Cummins
Generator	Newage
Reduction gears	ZF
Engine controls	MMC
Steering controls	Hynautic
VHF radio	Uniden
Compass	Suunto
Depth sounder	Furuno
Fire pump	Peabody Barnes
Bilge pump	Peabody Barnes
Engine synchronizers	Glendenning
Air horn	Kahlenberg
Heat pump system	Crusair

**EDELWEISS II
Excursion Boat**

Skipperliner Shipyards

Skipperliner Shipyards, Inc., La Crosse, Wis., delivered last year the 150-passenger excursion boat Edelweiss II to Edelweiss, Inc., Milwaukee, Wis.

Operating out of Milwaukee, the 82-foot European Canal boat Edelweiss II has a beam of 20 feet, draft of 3 feet and a water height of 8 feet 6 inches. She is powered by twin Cummins 6BT5.9M diesel engines, which drive four-bladed Michigan Wheel propellers via ZF model IRM220 reduction gears with a reduction ratio of 2.45:1.

The Milwaukee River cruise boat has seating for 101 passengers. Her air-conditioned deckhouse is fitted with a bar, two heads and a galley, which is used for food preparation for meals cooked ashore.

Edelweiss, Inc., also operates the excursion boat Edelweiss I on the Milwaukee River in downtown Milwaukee, Wis. The river has several bridges with a 9-foot 6-inch clearance. The vessels are finished in a traditional European fashion with mahogany and brass.

Skipperliner Shipyards is one of the leading U.S. builders of excursion boats, sternwheelers and side-wheelers in the 49- to 300-passenger range.

**HORIZON
Cruise Ship
Meyer Werft**

This year Chandris Celebrity Cruises added the 46,811-grt luxury liner Horizon to its fleet following her delivery by Meyer Werft's ship-

**HORIZON
Equipment List**

Main & auxiliary engines	MAN B&W Diesel
Gearbox	Lohmann & Stolterfoht
Bow & stern thruster	Lips
Emer. generator	Janssen
Electric motors & starters	ABB
Flap rudder	Willi Becker
Stabilizers	Sperry Marine
Magnetcompass	Anschutz
Echo sounder	Krupp Atlas Elektronik
Radar	JRC
Boilers	Aalborg Marine
Lighting fixtures	Aqua Signal
Anchor	Blohm & Voss
Liferafts	Viking
Evaporators	Serck Como
Davits	Schat Davit
Ceilings	Dampa

yard in Papenburg, Germany.

The \$185-million Horizon along with her sister ship, the Zenith, currently under construction at Meyer Werft, are the largest passenger ships ever built in Germany.

The 47,000-grt Horizon has an overall length of about 681 feet, molded breadth of 95 feet and draft of about 24 feet.

The 12-deck ship is propelled by a father-and-son four-engine plant

consisting of two MAN B&W 9 L 40/54 "father" engines with an output of 8,152 hp at 514 rpm each and two MAN B&W 6 L 40/54 "son" engines, each developing 5,435 hp at 514 rpm.

ABB supplied the complete modular low-voltage switchgear system type MNS for an installed capacity totalling 20,625 kva and a short-circuit current of 160 ka, and the three-phase AC motors for the aux-

iliary systems.

Alfa-Laval Industrie of Hamburg, Germany, supplied three separators for HFO with a three-phase motor and electric switching cabinet and a total of seven lube oil separators, two type WHPX 410 and five type WHPX 407, with three-phase motors and electric switching cabinets.

The Liberian-flagged, 1,354-passenger vessel has 533 outside and 144 inside cabins.



Allied Fibers

LADY EXPRESS

Passenger Ferry

Munson Manufacturing

The summer of 1990 saw the delivery of the 65-foot passenger ferry Lady Express by Munson Manufacturing to the Lake Chelan Boat Company of Chelan, Wash.

Based on Munson Manufacturing's Hammerhead 65 design, the

Lady Express serves the town of Steheikin, located 57 miles up lake from Chelan. She has a beam of 21 feet and draft of 5 feet. The design of the Lady Express features a comfortable enclosed deck with an open covered area aft and an open back upper deck followed by a large open deck. There is seating for 70 passengers outside and 80 passengers inside. Ample space is also available for luggage. She has a snack bar

inside and men's and women's restrooms.

Great care was taken to protect the lake from the wake of the new vessel while maintaining quick and efficient transportation for passengers. The vessel was constructed to be partially assembled at the lake due to the problems involved with transporting a 65-foot boat via the interstate.

The Lady Express is powered by

LADY EXPRESS Equipment List

Main engines (2)	Detroit Diesel
Generator engine	Onan
Reduction gears	ZF
Engine controls	Mathers
Shafting	Aquamet
Compass	Aqua Meter

twin 12V-92 Detroit Diesel engines rated at 1,080 hp at 2,300 rpm each through ZF gears, four-inch straight shafts and 36-inch propellers. She has a top speed of 30 knots and a cruising speed of 24 knots.

NAVATEK I

SWATH Excursion Vessel

Navatek Ships

One of the world's most unique vessels, the 140-foot Navatek I, the first U.S. commercial SWATH (Small-Waterplane Area Twin-Hull) vessel, began carrying passengers on luxury Hawaiian dinner cruises in the first half of 1990.

Certified by the U.S. Coast Guard to carry as many as 400 passengers on an ocean route, the Navatek I is the first SWATH in the world to be classed by ABS, +A1 Ferry, Hawaiian interisland service, +AMS.

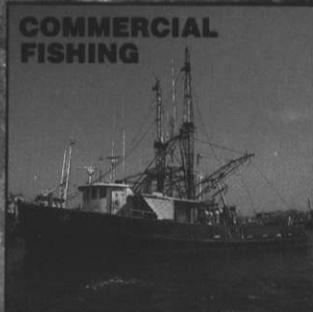
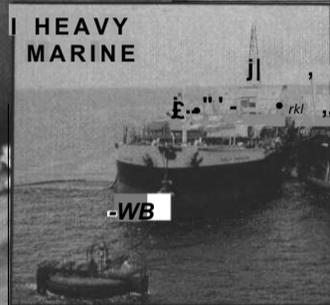
A SWATH ship is designed to radically reduce ship motions—pitch, heave and roll—caused by waves. The SWATH ship's most unique market advantage is the virtual elimination of seasickness. Compared to a conventional monohull or catamaran, it also offers greater maneuverability, more usable deck space, and can maintain greater speed through rough waters.

According to Navatek Ships, Ltd., which designed and built the SWATH ship, in her first seven months of commercial service, the Navatek I has carried over 55,000 passengers. Despite operating in rough ocean seas of 4-12 feet all year long, the passenger seasickness rate has been less than 1 percent. Since the start of service, the Navatek I has not lost any operating days due to mechanical failure, seas or weather.

"We're extremely happy with the response of our wholesalers and customers to the product," said **John Pyles**, president of Hawaiian Cruises, Ltd., which operates the Navatek I under a long-term lease on whale watch, luxury dinner, gourmet lunch and private charter cruises.

Navatek I is 140 feet long, has a beam of 53 feet, displacement of about 365 tons, and variable draft ranging from 8 to 12 feet. She is powered by two Deutz MWM 16V-816CR diesel engines, rated at 1,350 hp each, fitted with Ulstein reduction gears driving Ulstein controllable-pitch, four-bladed propellers. Auxiliary power is provided by two GM 6-71-powered generators rated at 99 kw each.

The structural design of the vessel consists of two demi-hulls, connected by a cross-structure consisting of two box beams. There are two vertical struts per side which con-



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Ropes used for docking, anchoring, mooring, towing, fishing, heavy marine or recreational marine should offer excellent value with outstanding wet performance.

Generally nylon and polyester ropes perform poorly when wet. There is a loss of strength and a significant loss of abrasion resistance.

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For further information and test results on how SeaGard benefits rope/cordage, please contact: your local rope manufacturer or E.B. Clark, Allied Fibers, 1411 Broadway, New York, NY 10018.



Outstanding Passenger Vessels

(continued)

nect the lower hulls to the upper structure. The lower hulls have hemispherical endcaps at the bow. Aft of this are two cylindrical lengths of hull of circular cross section. The deckhouse is mounted on flexible mounts.

The hull of Navatek I was built by Thompson Metal Fab, Vancouver, Wash.; she was outfitted by Northwest Marine, Portland, Ore.; and Trinity Marine Group, Gulfport, Miss., built her superstructure.

NEW YORKER Dinner/Excursion Boat Eastern Shipyards

Eastern Shipyards' Panama City, Florida facility recently completed the conversion of the 308-foot New Yorker, what is reportedly the nation's largest dinner cruise vessel.

Circle Line, headquartered in New York City, operates the luxurious cruise vessel, under its wholly owned subsidiary, World Yachts, which owns a fleet of five dinner boats that have set standards in the New York area for fine dining. The former Dayliner is one of the largest capacity excursion vessels operating in the U.S., capable of carrying 3,200 passengers. Built in 1972 by Bellinger Shipyards, Jacksonville, Fla., for the Day Line in New York City, the vessel spent many years carrying passengers up the Hudson River on excursion tours.

DeJong and Lebet, a naval architectural firm in Jacksonville, Fla., engineered the extensive conversion project, working closely with Circle Line, and subsequently, Eastern Shipyards.

U.S. Coast Guard-certified under subchapter H rules, The New Yorker has a full load displacement of 2,200 long tons. She carries 30 tons of stores, 16,415 gallons of fuel, 15,700 gallons of fresh water and have a 9,776-gallon sewage tank.

Tampa Shipyards, Tampa, Fla., was a subcontractor to Eastern, responsible for drydocking the vessel and all hull work, including the addition of the hull extension modules.

Eastern oversaw all of the major conversion work to the four decks as well as the installation of equipment in the galleys, bars, lounges, elevators, air conditioning systems, theater, stage and interior decoration.

According to Eastern's president **Brian D'Isernia**, Eastern plans to make extensive use of their advanced modular fabrication techniques in the construction phases of The New Yorker's superstructure and interior spaces.

The New Yorker measures 308 feet in length, has a beam of 65 feet, and loaded draft of 13-1/2 feet. The cruise vessel seats as many as 1,500 persons in a luxurious restaurant setting. She is powered by two EMD 16-645 E2 diesel engines.

NORDIC EMPRESS Cruise Ship

Chantiers De L'Atlantique

This past year, Royal Caribbean Cruise Line (RCCL) of Miami entered the popular three- and four-night cruise market with its new 1,610-passenger Nordic Empress, delivered by GEC-Alsthom's Chan-

tiers de L'Atlantique shipyard in St. Nazaire, France.

First class accommodation for 1,610 passengers is arranged in 801 two-berth cabins and four suites over five decks of the 12-deck ship. She is fitted with Sperry Marine's Integrated Bridge System for superior navigation and cost-effective operations. Sixty percent of all her staterooms have a view of the sea

and 71 deluxe staterooms and suites have balconies.

The centerpiece and crowning achievement of the Nordic Empress is her atrium called the Centrum, which traverses nine decks and is crowned by a skylight. The atrium, which incorporates sculpture, plants and even waterfalls, is served by glass-enclosed elevators.



The 44,300-grt, 12-passenger deck Nordic Empress has an overall length of 692 feet, length between perpendiculars of 673 feet, 100-foot beam.

Propulsion power is supplied by two 12-cylinder V configuration Wartsila Vasa 32 and two eight-cylinder Wartsila Vasa 32 main engines. The geared diesels drive twin controllable-pitch propellers at 105

rpm.

Auxiliary power is generated by three Wartsila Vasa 8R32 diesel generator sets, producing a total of 9,300 kw.

Alfa Laval S.A., Les Clayes Sous Bois, France, supplied nine separators mounted on modules with program units, S&T heaters, with sludge tanks, three boosters for ME and AE, and 11 PHE.

SILJA SERENADE

Cruise Ferry MASA-Yards

The Turku shipyard of Finnish builder Masa-Yards recently delivered the cruise ferry Silja Serenade to Silja Line. When she goes into service between Helsinki and Stockholm, the Silja Serenade will mark a

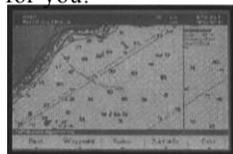
SILJA SERENADE Equipment List	
Main engine	Wartsila Vasa
Auxiliary diesel	Wartsila
Reduction gear	Renk-Tacke
Clutch	Renk-Tacke
CP Propeller	KaMeWa
Shaft & stern tube bearings & shaft seals	Waukesha-Lips
Electric motors & diesel alternator	ABB
Emer. diesel	Caterpillar
Emer. alternator	Stamford
Autopilot, radar, speed indicator & echo sounder	Atlas
Direction finder	C. Plath
Freshwater generator	Nirex
A/C refrig. plant	Stal-Laval
A/C, ventilation & fans for cargo & engine spaces	Flakt
Spot cooling units	Carrier
Screw pumps	Imo
Oil separators	Alfa-Laval
Side thrusters	KaMeWa
Fin stabilizers	Blohm & Voss
Side thruster motor	ABB
Slides	Viking
Lube oils	Shell
Paint	International
Cathodic protection	Wilson-Walton Int'l

MARINER'S GUIDE TO GPS

No question about it: GPS lets you fix your position more precisely than any other technology.

Unfortunately, the way most GPS systems fit your needs has been considerably less precise. That's because most companies only give you one model to choose from.

But at Trimble, we've always thought your navigation system should fit your bridge, your work and your lifestyle. That's why we offer GPS in eight very different systems. Here's how to decide which one's right for you:



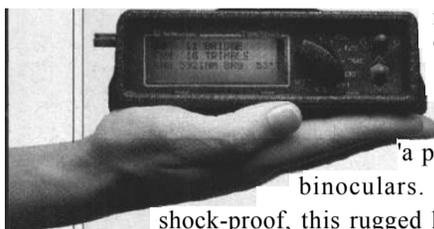
Charting If you want the ultimate in high-tech navigation, our *NavGraphic IP* is the most sophisticated GPS receiver commercially available. Integrating CD-ROM, LORAN, GPS, and micro-computer technologies, it plots a moving image of your boat right on a real NOAA chart. It's the most direct navigation device ever developed.



Ease of Use If you don't need charting, but like the way graphics simplify navigation, the

NavTrac™ GPS gives you a high-resolution screen in a smaller, more economical package. Its unique steering display shows you a perspective view of your boat's progress. And makes navigation as easy as driving down a road.

Portability If you've got more than one boat, or if your travels will take you over land or into the air, then you



need a system you can carry. The *TransPak™* puts a complete three-channel GPS receiver and antenna into a package the size of a pair of binoculars. Splash-proof, mud-proof, shock-proof, this rugged little unit will go anywhere you do. And our new *TransPak IT™* gives you the same portability with more waypoint storage and an I/O port.



Interfacing Both the *NavGraphic* and the *NavTrac* have extensive interfacing capability, but if you need a rugged system to act as the coordinating link of a fully-integrated nav station, the *10X™* is the perfect choice—especially in large installations where distributing control is important. The *10X* processing unit can handle two control heads, one for the nav station and one on deck.

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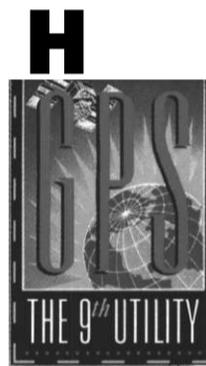
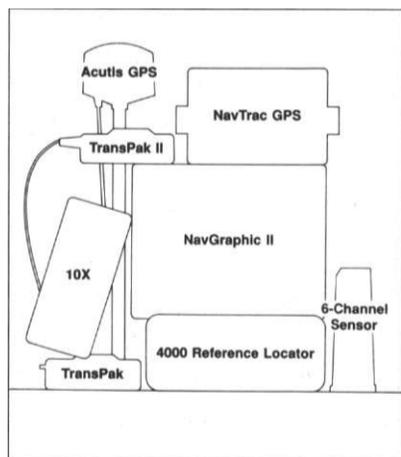
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new era in the ferry traffic in the Baltic.

Masa-Yards and Silja Line have been actively developing the "Baltic Ferry Concept" since the late fifties and early sixties. The 665-1/2-foot Silja Serenade, although it incorporates many of the design achievements of the past, is unique because of the Silja Promenade. This "main street" is a huge atrium on her main deck, with a length of 470 feet, width of 27 feet and height of five decks. The promenade is accented by skylights atop and a glass wall at the aft end of the ship, those providing passengers with a view of both the sea and sky. Restaurants, shops, and other recreational and entertainment facilities are accessible from the promenade.

In addition, two accommodation blocks are situated on each side of the promenade, with cabins facing either the sea or the main street.

The Silja Serenade will have a gross tonnage of 58,376 tons, breadth of 103 feet, and design draft of about 22 feet. She has a passenger capacity of 2,500 in 952 cabins. Additionally, the Silja Serenade can also accommodate 450 cars or 60 trucks.

SPIRIT OF BOSTON Dinner/Excursion Boat Blount Marine

In the first quarter of 1990, Warren, Rhode Island-based shipbuilder Blount Marine Corporation delivered the dinner/excursion boat M/V Spirit of Boston to Cruise International. The Spirit was the first boat launched from Blount Marine's new shipway.

Built for Holiday Cruise II, a subsidiary of Cruise International headquartered in Norfolk, Va., the 600-passenger Spirit of Boston operates in Boston Harbor. At her launching, she was called "the finest (one) of her kind," by owner **Richard D. O'Leary**, president of Cruise International.

(continued)

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(continued)

SPIRIT OF BOSTON Equipment List	
Main engines (2)	Caterpillar
Reduction gears	Twin Disc
Propellers	Columbian
Engine controls	Mathers
Generator	Detroit Diesel
Auxiliary engine	Caterpillar
Bowthruster engine	Caterpillar
Keel coolers	Blount Marine
Steering system	Wagner
Stuffing boxes	Blount Marine
Main shaft bearings	Rexnord
Stern bearings	Cutless
Radar	Furuno
VHF radiotelephones	Raytheon
Depth sounder	Datamarine
Air horn	Kahlenberg
Searchlight	ITT Jabsco

Commenting on the Spirit of Boston, **Luther H. Blount**, president of Blount Marine, said, "She represents the peak of design and construction of the last 40 years at Blount Marine."

Mr. **Blount** said that the Spirit of Boston was similar in some respects to the Spirit of New York, a dinner/excursion boat delivered by Blount Marine to Cruise International in 1987. "She (the Spirit of Boston) incorporates some changes by the owner and is actually a foot longer than the Spirit of New York, even though she is listed as 192 feet long," said Mr. **Blount**.

Other noticeable changes from earlier designs are the Boston's sleek megayacht profile and enlarged pilothouse. Additionally, the vessel's superstructure has been extended on the aft part of the third deck to conceal her stacks.

The Spirit of Boston has an overall length of 193 feet, beam of 36 feet, depth at amidships of 10 feet 5 inches, and full load draft of 7 feet. Her propulsion machinery consists of two Caterpillar 3408 marine diesel engines, Twin Disc MG-514 reduction gears and a pair of 48-inch by 32-inch Columbian propellers.

SPIRIT OF PUGET SOUND Dinner/Excursion Boat Service Marine

Looking more like a sleek private yacht rather than an 800-passenger dinner/excursion boat, the 175-foot Spirit of Puget Sound, designed and built by Service Marine Industries, Inc., Morgan City, La., made her debut this past year to raves from customers who came to the water-

SPIRIT OF PUGET SOUND Equipment List

Main engines (2)	Caterpillar
Generators	Marathon Electric
Generator engines	Caterpillar
Engine controls	MMC
Hydraulic steering control	Skipper Hydraulics
Propellers	Bird-Johnson
Bowthruster	Schottel
Bowthruster engine	Cummins
VHF radio	Furuno
Radar	Furuno
Loran	Furuno
Compass	Ritchie

front in Seattle.

The newest member of the Cruise International fleet, the Spirit of Puget Sound began operations this past year from Pier 70 on Elliot Bay. The vessel has an eye-catching megayacht appearance and striking window lines done in high gloss flag blue.

Each deck has a distinctive decor. The first deck is done in black and mauve, the second in black, gray, and chrome. Vista windows near the

large semi-circular bar on the second deck provide passengers with a panoramic view of the sights and scenery along the ship's course.

The boat was designed to have ceiling heights of eight feet and with widely spaced columns and oversized windows, passengers will enjoy a feeling of complete freedom. The cabins are temperature controlled by 62 tons of Carrier air conditioning, installed by Harris Refrigeration.

The two main Caterpillar 3408 TA engines, furnished by Carter Machinery Company, each generate 443 hp at 1,800 rpm. Two 180-kw Marathon Electric generators driven by a Caterpillar 3306 TA engine provide the vessel's electrical power. Bird-Johnson furnished the two 52-by 46-inch Tomcat-style propellers. The 150-hp bowthruster is a Schottel S-71-L driven by a Cummins 6BT5.9M with 210 hp at 2,600 rpm.

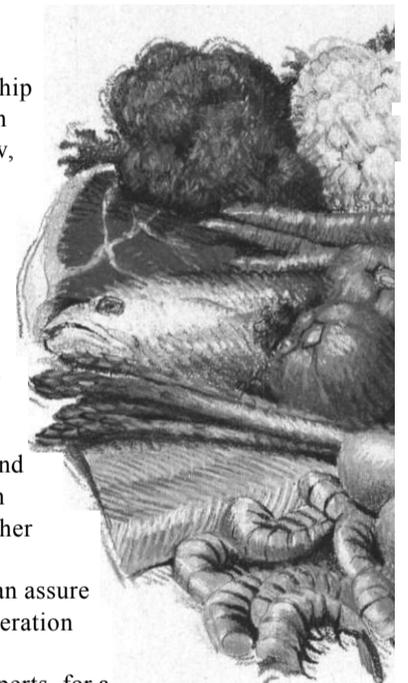
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BOATS & BARGES

Aluminum Boats Delivers 85-Foot Crewboat— Sixth Built For Land And Marine

Aluminum Boats, Inc., Crown Point, La., has delivered the Lanmar Cove, an 85-foot all-aluminum crewboat to Land and Marine Engineering Co. Ltd., Bromborough, Merseyside, England.

The new boat is the sixth built for Land and Marine by a Trinity Marine Group shipyard and the first all-aluminum vessel for the company. Previous crewboats were built with lightweight steel hulls and aluminum superstructures.

The new boat is 85 feet in length, with a 20-foot beam and 9-foot depth. Normal operating draft is 4 feet. It is powered by two Caterpil-

lar 34412TA turbocharged diesel engines developing 764 shp each at 2,100 rpm. They drive 36-inch, four-blade propellers through Twin Disc MG520 reverse/reduction gears with a ratio of 2:1.

Two 30-kw diesel generators each driven by a Detroit Diesel 3-71 engine provide electrical power.

In addition to the passenger and lounge spaces, the Lanmar Cove has accommodations and galley for a crew of six. The main cabin and lounge, pilothouse, and crew quarters are air conditioned and heated by a Carrier five-ton water-cooled system with 208-volt strip heaters.



Aluminum Boats' workboat Lanmar Cove has a flush 15-foot by 34-foot aft deck, providing 510 square feet of clear cargo area for a deck load of up to 20 long tons.

A partial list of navigation and communications equipment includes a Racal-Decca radar, a Kelvin Hughes Husun VHF radio, an ICOM SSB radio, and a Marconi depth recorder.

The Vessel is Bureau Veritas (BV) certified, Sea and Rivers, Gulf of Guinea.

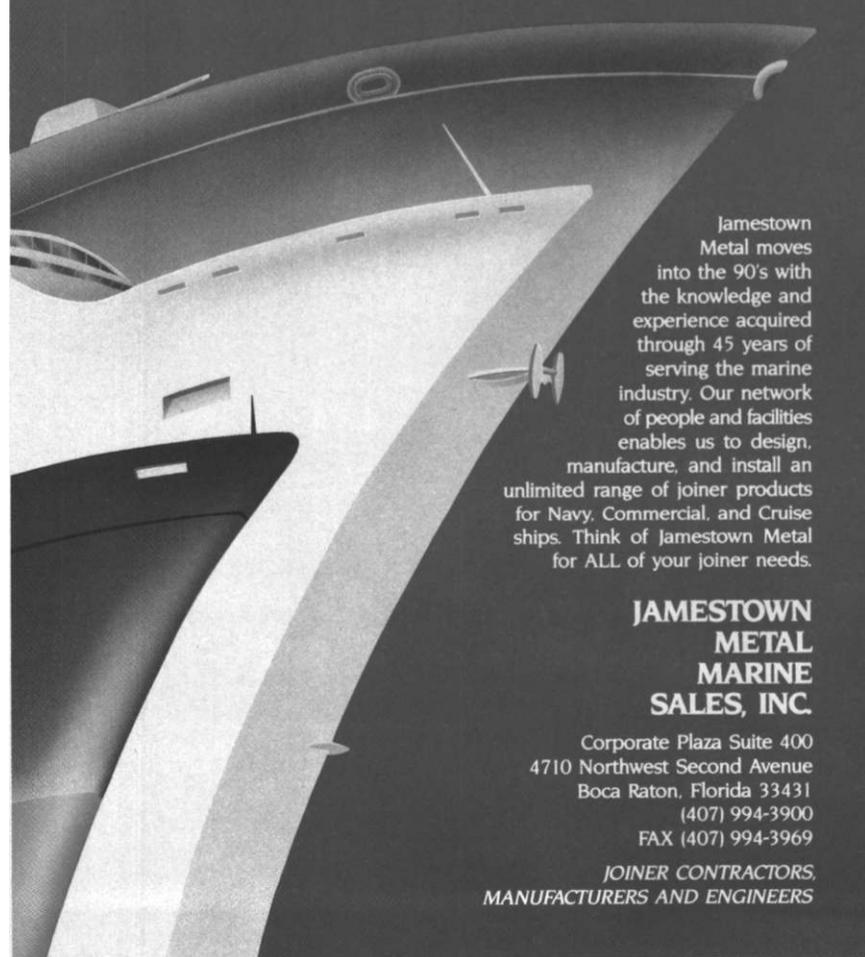
Aluminum Boats, Inc. is part of the Trinity Marine Group, Gulfport, Miss., which is owned by Trinity Industries, Inc., Dallas, Texas.

For free literature on the facilities and capabilities of the Trinity Marine Group,

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Maritime Reporter/Engineering News

**New York Chapter Names
Eugene F. McCormick
Maritime Man Of The Year**



Eugene F. McCormick

Eugene F. McCormick, president and chief operating officer of Lykes Bros. Steamship Co., Inc., New Orleans, La., has been named Maritime Man of the Year by the Port of New York Chapter of the U.S. Merchant Marine Academy Alumni Association.

Senator **John Breaux**, chairman of the Senate Subcommittee on Merchant Marine, and a long-time supporter of the American-flag merchant marine, was the featured speaker at the luncheon at the Roosevelt Hotel in New York City on December 7, 1990, when Mr. McCormick received the award.

**\$60 Million Order
For Hopper/Dredger
Received By Merwede**

The Dutch shipbuilder Sheeps-vertt De Merwede Shipyard received an order from the Belgian dredging company Jan de Nul in Aalst for the delivery of a suction hopper/dredger of 11,750 cubic meters.

Lykes Bros. Steamship Co. has been a leader in ocean transportation for 90 years. Lykes operates a U.S.-flag fleet of 30 vessels, including 12 cellular container vessels and 18 multipurpose vessels.

**Deway Marine & Industrial
Patents New Seal For
In-Water Shaft Repair**

Deway Marine & Industrial Craftsmen, Inc. Virginia Beach, Va., has introduced a new seal for in-water shaft repair.

SealChest Corporation has designed, developed, patented and proved the seal, Duclamp, for in-water propulsion shaft repair.

Conventional methods of performing this duty have been to execute a process called a "stern tube wrap." Maintenance is usually under water, using professional divers. The work can take up to 30 days for repairs and is dependent on ship hull configuration, water environment conditions and the amount of divers available.

The breakthrough Duclamp can save the maritime industry up to 300 percent in the time expended to make this particular repair in real time work comparison. A large logistics ship of the Merrimac class undergoing an underwater stern tube wrap consumed over 1,260 man hours, and because of certain conditions, the work had to be halted.

If the Duclamp had been used to start with, the savings would have been tremendous.

The Duclamp was created and constructed by the team of Holmes Brothers Enterprises of Hampton Roads, Va., and **J. Deway Salter**, also of Hampton Roads.

Recognized by the U.S. Patent Office, this American-made invention is specifically designed to work on any type of ship stern shaft, and is made for in-water repairs. The SealChest Duclamp can minimize downtime for any ship needed to stay on station at sea. Since the

Duclamp will fit any hull configuration, a minimum of divers and port time is needed.

Worn fittings, bearing problems, pitting, corrosion or leakage problems can be repaired without hauling a ship out of the water into a drydock.

For further information on the new seal for in-water shaft repair from Deway Marine & Industrial,

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(2) NTA-855-GC	Generator Sets	250 kW @ 1800 rpm
(1) 4BT3.9-G	Emergency Generator	40 kW @ 1800 rpm
(1) NT-855-M	Bow Thruster Engine	300 hp @ 1800 rpm

Cummins Engine Company, Inc., MC 60011, Box 3005, Columbus, IN 47202-3005



Former Leading U.S. Builder Becomes Leading U.S. Repairer

BMD Posts Successful Year; Eyes Retrofit Market

Maritime Reporter Staff

Following a period of transition and consolidation of its marine operations, Bethlehem Steel Corporation, at one time one of the leading shipbuilders in the nation, has made a successful transformation into one of the leading U.S. full service ship repairers.

From August 1989, after a four-month strike was settled at the yard, to October 1990, Bethlehem Steel Corporation's Baltimore Marine Division (BMD), located at Sparrows Point, Md., drydocked a total of 28 commercial and governmental ships. Twenty-one of the vessels, composed of U.S.-flag and foreign-flag commercial, U.S. Navy, Military Sealift Command and

Ready Reserve Force ships, were repaired during 1990.

In an interview with MARITIME REPORTER, BMD officials were particularly encouraged by the company's success in the cruise ship repair sector.

"We are one of the leading U.S. yards in the cruise ship repair market," said **James L. Joyce**, BMD's ship repair sales manager. "However, we're not looking for place or show. We're looking for first," he said.

NORSHIPCO, located in Norfolk, Va., with total ship-repair sales approaching \$250 million in 1990, is generally considered the leading U.S. cruise ship repairer.

According to Mr. **Joyce**, the Bal-



Carnival Cruise Lines' Celebration in drydock at Bethlehem Steel's Baltimore Marine Division, where she underwent 150,000 pounds of steel replacement in 16 days.

timore Marine Division already has firm bookings for drydocking four cruise ships for 1991 and eight tentative bookings as well. BMD plans to simultaneously drydock two cruise ships at the yard—one in its huge 1,200- by 200-foot basin and one in its 40,000-ton-lift-capacity floating drydock Bethpride.

During a tour of the yard, workers were observed performing repairs on the 47,000-gross ton Celebration, owned by Carnival Cruise Lines.

According to BMD's chief estimator **Thomas J. Young**, the project called for the replacement of 150,000 pounds of steel in 16 days. The Celebration project follows closely on the heels of the recently completed work on the ITB Francis Hammer—160,000 pounds of steel replacement in 21 days.

Besides the Celebration, BMD was also preparing the USS Waterford (ARD-5), a Navy submarine drydock normally operating out of Groton, Conn., for a mid-December delivery. The Waterford was undergoing steel, pipe and valve renewals under an \$8.7-million contract. BMD was replacing steel on the operating platforms on both pontoon decks. The Waterford was docked in BMD's huge 1,200- by 200-foot basin, which can handle vessels as long as 1,200 feet and wide as 192 feet. A two-position intermediate gate can divide the basin's length into sections measuring 300 feet and 900 feet, or 685 feet and 515 feet. This gate increases the yard's flexibility for handling a variety of jobs simultaneously.

The yard also recently completed 300,000 pounds of steel replacement on the ITBs New York and Jacksonville.

While the volume of work at BMD has been very good for 1990, business has slowed as of late due to Operation Desert Shield.

"The initial effect of Operation Desert Shield was a flurry of activity in reactivating ships from the reserve fleet," said Mr. **Joyce**. "Now, however, government work is being

delayed due to the uncertainties in budgeting for Operation Desert Shield. In addition, some commercial operators are deferring dockings in order to make their ships available for government charter," he said.

Despite their success in the ship-repair market, however, BMD officials were quick to emphasize the fact that they are *not* out of the vessel and barge new construction markets and are pursuing a number of tank barge and double-hull forebody tanker retrofit designs.

"We just completed the tests for a preliminary design of a 60,000-barrel tank barge and have plans for a 90,000-100,000-barrel design," said **Karl E. Briers**, BMD marketing manager. "We are also working on a double-hull forebody for two classes of tankers—one for a class built by Bethlehem Steel in the seventies. The trick is trying to make the forebody an attractive option for the owner."

According to **Robert A. Fiorelli**, BMD's manager of marketing, sales, planning and technical services, newbuilding double-hull tanker contracts spurred by the Oil Pollution Act of 1990 would probably start being awarded in 1992.

"Our facilities, as far as hull structure goes, are as good as any shipyard in this country. We are currently talking with two major operators about developing (tanker retrofit) designs," Mr. **Fiorelli** said. "We are interested in series construction and the multiple conversion market," he added.

Baltimore Marine Division's position was best summed up by Mr. **Briers** who said, "We are positioning ourselves for the possibility of a sustained upturn in new construction. We see that in the future for us."

Perhaps another transition lies ahead for Bethlehem Steel's Baltimore Marine Division.

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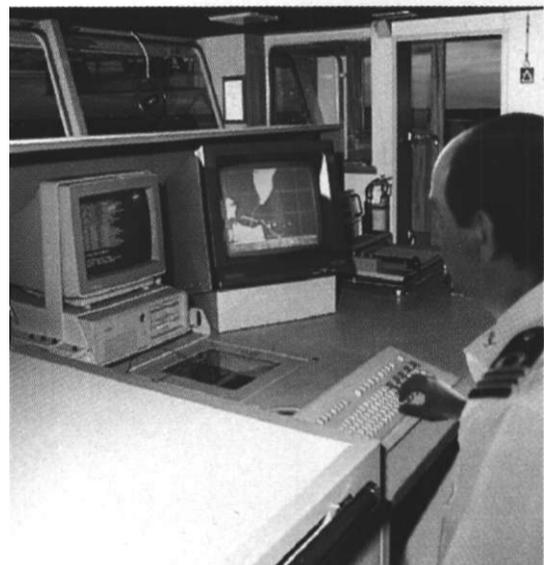
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Terpstra Named AAPA Chairman Of The Board

John Terpstra, executive director of the Port of Tacoma, has been named chairman of the board of the American Association of Port Au-

thorities (AAPA) for 1990-91. Mr. **Terpstra** was installed as AAPA chairman at the recently concluded 79th annual AAPA convention held in Nassau, the Bahamas. He succeeded **Dominic Taddeo**, Port of Montreal general manager and chief executive officer.

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National Association Of Passenger Vessel Owners Annual Convention And Exhibition

Honolulu, Hawaii, January 16-21, 1991

The Annual Convention of the National Association of Passenger Vessel Owners (NAPVO) will be held on January 16-21, 1991 at the Sheraton Waikiki Hotel in Honolulu, Hawaii. A post-convention meeting will occur on Maui Island on January 21-23.

Last year's convention in Boston drew more than 400 people. "There was definitely an upbeat feeling to the event," declared **Holly Agra**, NAPVO's president. Ms. **Agra**, vice president of Mercury Sightseeing Boats in Chicago, Ill., was elected the organization's president at the 1990 convention.

Vessel owners and their suppliers flocked to sessions dealing with business and regulatory issues. The 55 exhibit booths at the 1990 Annual Convention was the largest in NAPVO's history.

Twelve workshops led by knowledgeable NAPVO members and industry specialists informed the membership on the key issues in such areas as vessel maintenance,

Photo: The American Hawaii Cruises' U.S. flag liner Constitution off the Hawaiian coast.

drug testing, Coast Guard inspections, and new business opportunities.

This year's convention is expected to be just as informative. NAPVO has invited three special guest speakers to address the conference. Rear Adm. **Joel D. Sipes**, Chief, Office of Marine Safety, Security and Environmental Protection, Washington, D.C., **Frederick Muldoon**, Marsh & McLennan, and Dr. **Suzanne Cook**, executive director of the U.S. Travel Data Center, a national nonprofit center for travel and tourism research, are all scheduled to speak.

Admiral **Sipes** directs a coordinated federal port safety and security program; an active marine environmental protection program; a program for the construction, inspection and certification of merchant vessels; the development of comprehensive marine safety standards; the licensing and certifying of U.S. Merchant Marine personnel; and represents the U.S. in various related international maritime forums.

Mr. **Muldoon** joined Marsh &

McLennan in 1986. His particular area of expertise is in loss prevention, occupational health and fire protection, with specific emphasis on food processing, chemical operations, beverage manufacturing, and comprehensive risk studies.

Dr. **Cook** supervised the design of a computerized model to forecast vacation travel and frequently speaks at industry conference specializing in consumer marketing research related to travel and tourism.

This year's convention is ex-

pected to draw as many as 350 attendees representing the leadership of the small passenger vessel market in the U.S. Among the topics listed on the convention's program are: "How the Jones Act Applies to Passenger Vessels"; "Vessel Maintenance: Tips for Keeping the Ship Ship-Shape"; "Assessing the Impact of Gambling on the Passenger Vessel Industry"; and "Passenger Ferries: A Growth Segment of the Passenger Vessel Industry."

On Saturday, January 19, attendees will be able to take a special

NAPVO Convention Major Exhibitors

Company	Booth	Company	Booth
Caterpillar/Caterpillar Financial Services	1	Loomis & LaPann	31
Johnson & Higgins	3	Custom Interiors/Directions in Design	32
Nichols Bros Boat Builders	5	Rodney Lay & Associates	35
Leevac Shipyards	13	Blount Marine	36
Eckland & Associates	14	Envirovac	41 & 42
Wooster Products	16	Viking Life-Saving Equipment	43
Dejong & Lebet	17	Atlantic Marine	44
Cummins Engine	18	Marsh & McLennan	47/48
Ultra Poly	21	Walport USA	49
Trinity Marine Group	22	Multicom	50
Pacific Coast Marine Industries	27	J. Fisker-Andersen	66
Freeport Shipbuilding	28	Eastern Shipyards	69/70

cruise sponsored by Navatek Ships Ltd. aboard the SWATH vessel Navatek I. The cruise vessel is the first U.S. commercial passenger-carrying Small Waterplane Area Twin Hull ship.

For further details on the NAPVO Annual Convention, contact: **Eric Scharf**, executive director, National Association of Passenger Vessel Owners, 1511 K Street, NW, Suite 715, Washington, DC 20005; telephone: (202) 638-5310.

**1991 NAPVO
Convention Program**

Wednesday, January 16

9 a.m.-noon—Committee meetings.
9:30 a.m.-1:30 p.m.—Board of directors meeting.
Noon-6 p.m.—General registration.
7-9 p.m.—Icebreaker reception in the exhibition hall.

Thursday, January 17

8-9:30 a.m.—Captain's breakfast.
9:30 a.m.-1:30 p.m.—Exhibits and general registration.
9:30-10:30 a.m.—"Tour and Travel Industry Trends: How They Affect the Passenger Vessel Industry," by Dr. **Suzanne Cook**.
10:45 a.m.-Noon—Workshops and Panel Discussions.
"Computerizing Your Business."
"Safety: Avoiding Slips and Falls."
"How to Create Low-Cost Effective Advertising."
Noon-1:30 p.m.—Lunch with exhibitors in the exhibit hall.
4:15-8:30 p.m.—Dinner cruise on the Rella Mae, Windjammer Cruises.

Friday, January 18

8 a.m.-1:30 p.m.—Registration/exhibitor trade show.
8-10 a.m.—Plenary session—report from the public policy committee.
10:15 a.m.-noon—Plenary session—"Reducing Your Insurance Premiums Through Risk Management," by **Fred Muldoon**, Marsh & McLennan, Inc.
Noon-1:30 p.m.—Lunch in exhibit area.
1:30-3 p.m.—Exhibitor trade show—nonmembers only.
1:45-3 p.m.—NAPVO business meeting.
3-4 p.m.—Nonmember recruiting meeting.
3-4:30 p.m.—Workshops:
"Success in Gift Shops: How Does the System Work?"
"How the Jones Act Applies to Passenger Vessels."
"Marketing that Works: Tips for the Small Business."
6 p.m.—Dinner break.
8:30-10:30 p.m.—Evening cocktail cruise. Sail on the Paradise Cruise sponsored by the Western Region.

Saturday, January 19

9 a.m.—Breakfast in exhibit area.
8-10:15 a.m.—Registration/exhibitor trade show.
9-10:15 a.m.—Regional meetings and ferry boat council meeting.
10:30 a.m.-noon—Workshops:
"Interior Decorating: Keeping within Coast Guard Rules," by **Jane Ganz**, Directions in Design.
"Watching the Home Front: Addressing State Legislative Issues." Panel: Northwest Charter Boat Association, **Reg White**, Paradise Cruises.
"Drug Testing: Reports from the Waters."
Noon-1:30 p.m.—Congressional luncheon—Sen. **Daniel Inouye** (invited).
1:30-2:30 p.m.—Members best idea roundtables.
3-5 p.m.—SWATH Vessel Cruise sponsored by Navatek Ships Ltd.
Dinner break.

Sunday, January 20

8-11:30 a.m.—Exhibitor trade show/registration.

9-10:15 a.m.—Plenary session—Update on Marine Safety. Rear Adm. **Joel Sipes**, Chief, Marine Safety, USCG.

10:30-11:30 a.m.—NAPVO business meeting.

11:30 a.m.-1:15 p.m.—Lunch.

1:15-2:30 p.m.—Workshops:

"Vessel Maintenance: Tips for Keeping the Ship Ship-Shape," by **Gary Frommelt**.

"Assessing the Impact of Gambling on the Passenger Vessel Industry."

"Drug Testing: Current Legal Issues," by **Art Rogers**, Whiteford, Taylor & Preston.

2:45-4 p.m.—Workshops:

"Passenger Ferries: A Growth Segment of Passenger Vessel Industry," by **Fred Hall**.

"Voyage to Nowhere: The Status of U.S. and Foreign-Flag Activity," by **Larry Evans**, Transportation Institute.

"Working in a Family Business."

7-10 p.m.—Closing banquet/award presentations.

Monday, January 21

8:30-10 a.m.—Board of directors meeting and breakfast.

Post-convention program. Travel to Maui (additional fee).

6-8 p.m.—Welcoming reception.

Tuesday, January 22

9-11 a.m.—Brunch/plenary session—"Learn from Your Peers—Successful Marketing Tips."

11:30 a.m.-5 p.m.—Golf tournament/tennis outing.

6-10 p.m.—Boat event.

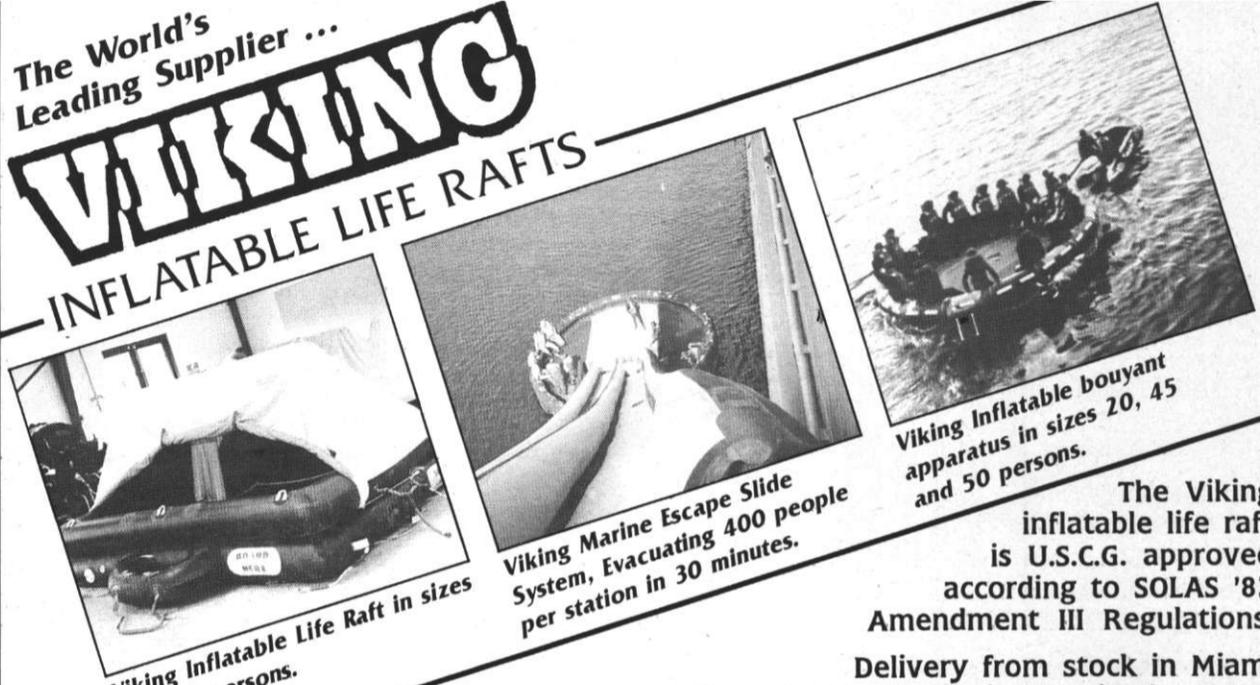
Wednesday, January 23

9-11 a.m.—Brunch/plenary session—"Learn from Your Peers—Developing New Ventures."

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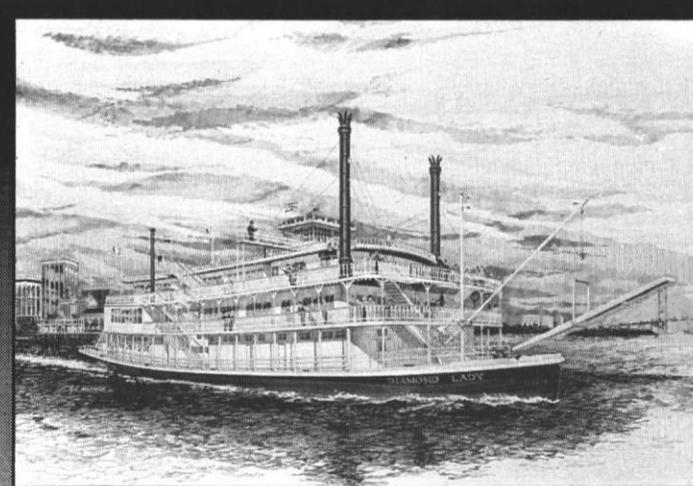
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ABS Forms Strategic Marketing Team To Promote LNG Expertise

The American Bureau of Shipping, one of the world's leading ship classification societies, has formed a Strategic Marketing Team to provide clients more timely access to its experience and technical expertise and to assist prospective clients in

the development of liquefied natural gas and liquefied petroleum gas (LNG/LPG) projects.

Established by ABS chairman **Frank Iarossi**, the team has been given the following directives: Present the LNG capabilities of ABS in large and small forums by speaking at technical conferences and by making specific, focused presentations to individual clients; Provide added technical expertise when

ABS's three regional companies (ABS Americas, ABS Europe, and ABS Pacific) are seeking new gas-carrier business opportunities; and Extend ABS gas-carrier expertise by assisting with ABS rule-development and R&D projects.

Since the classification of the first LNG carrier (Methane Pioneer) in 1958, ABS has been in the forefront of LNG technology. Presently the first two LNG carriers utilizing the

self-supporting prismatic type-B (SPB) containment system are being built by IHI in Japan for Marathon/Phillips to ABS class for delivery in 1993. ABS has 98 liquefied-gas carriers in class, and more than 40 percent of LNG carriers worldwide with capacities above 50,000 cubic meters have been built to ABS class.

Singmarine Launches RO/RO Container Vessel

Singmarine Industries Limited (Singmarine), through its subsidiary Singmarine Dockyard & Engineering Ptd Ltd. (Singmarine Dockyard), has successfully launched a 120-TEU roll-on/roll-off container vessel, Searoad Mersey, for its owner ANL Limited.

The contract, worth S\$23 million (about \$13.3 million) was awarded to Singmarine Dockyard in August 1989 by ANL Limited.

The Searoad Mersey, with a length of about 300 feet and a breadth of 60.6 feet, is fitted with a remote control ballast system and an automatic heeling control and stabilizing system. In addition, maneuverability and fuel economy of the vessel are enhanced by its two 4,400-bhp engines which run on heavy fuel oil, and two controllable pitch propellers.

The vessel has a service speed of 16 knots and can carry 120 trailers on its two vehicle decks. Accessibility for trucks and forklifts to each deck are through two stern ramp doors.

In clinching the S\$52 million contract (about \$30.2 million) recently for the world's largest well stimulation vessel for Western Petroleum Services International, Singmarine Dockyard is poised to develop a market niche in the building of such offshore vessels.

Jerald Tinkey Joins Ingram Barge Company

Jerald A. (Jerry) Tinkey has joined Ingram Barge Company, Nashville, Tenn., as vice president of operations. He will be headquartered the company's Paducah office.

In his new position, Mr. **Tinkey** will be responsible for vessel operations, purchasing and Great River Marine Service.

Mr. **Tinkey** began his career in 1952 as a deckhand. He comes to Ingram from Mid-America Transportation Company, St. Louis. Joining Mid-America Transportation in 1957, he rose through the ranks to become its president in 1985, and continued in that position until the company was sold earlier this year.

Ingram Barge Company is a subsidiary of Ingram Industries Inc., headquartered in Nashville, Tenn. Ingram is a privately-held diversified corporation engaged in inland marine barging and aggregate supply, consumer product distribution, coal production and sales, oil exploration and production, the manufacture of wellhead equipment, and insurance.

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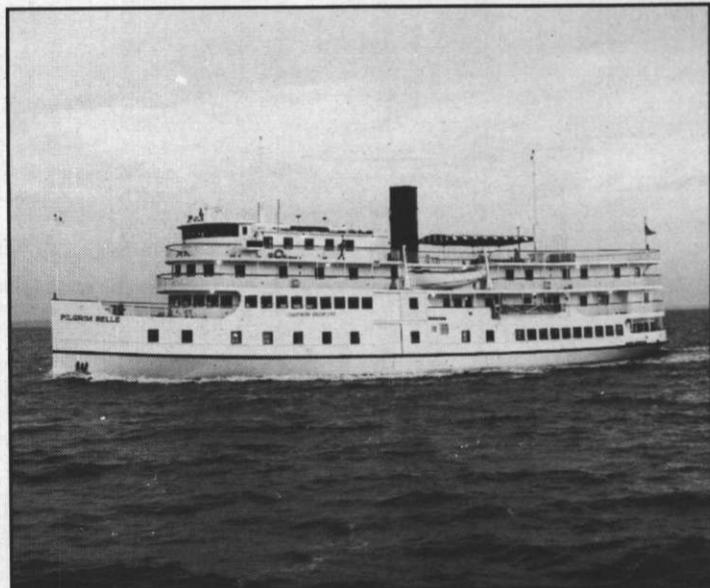
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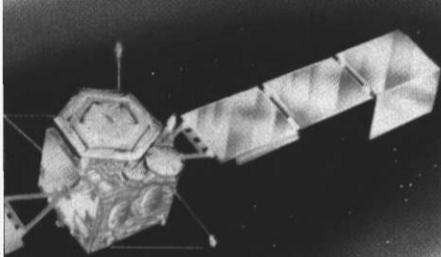
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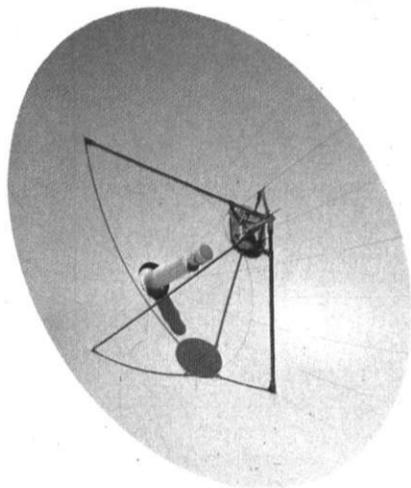
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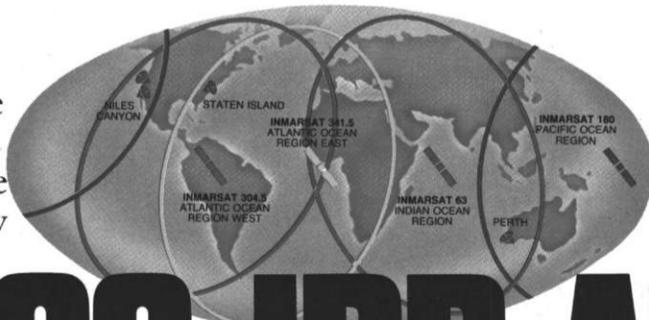


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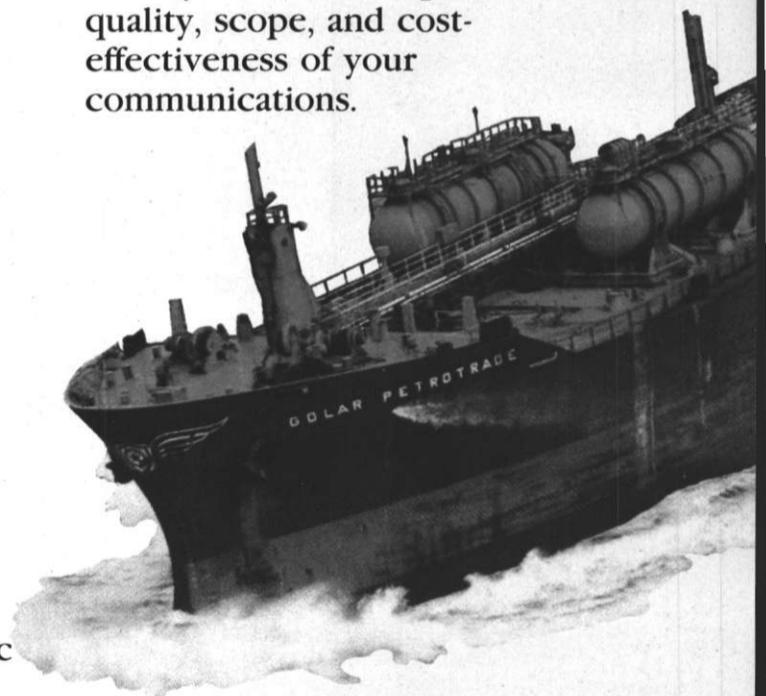


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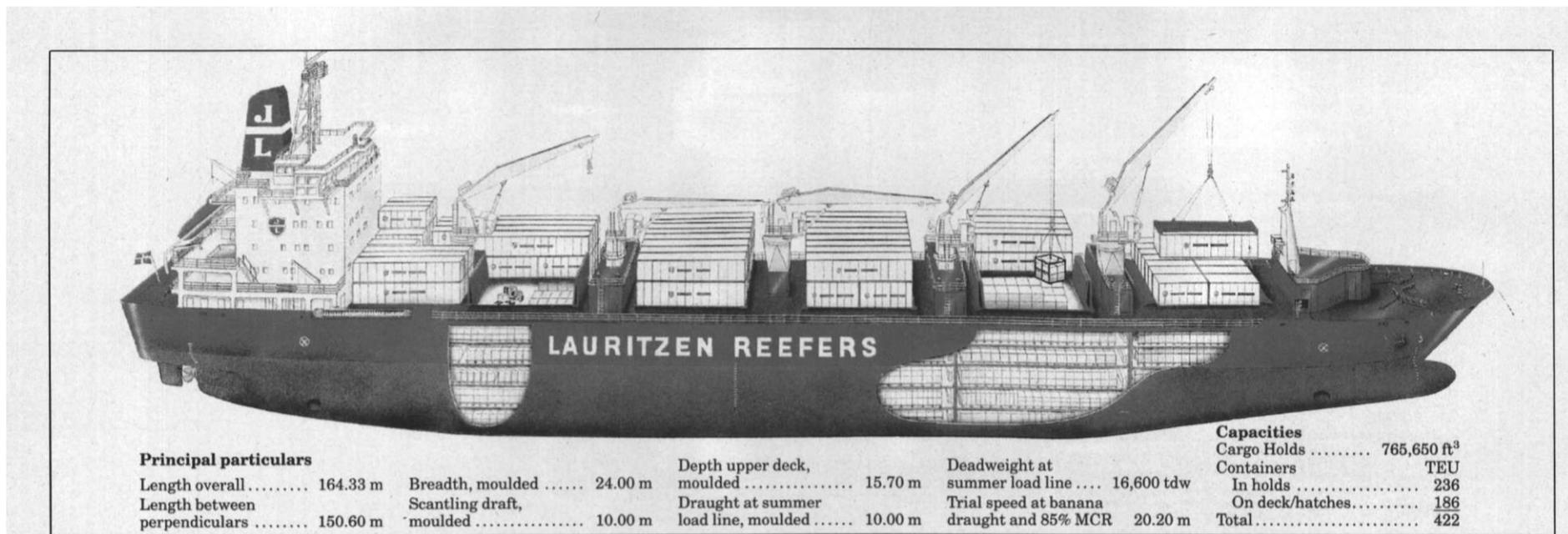
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DITLEV LAURITZEN

One-Man Control Of All Ship Functions, Port To Port Possible With Sperry Marine Route Control System Integrated With ICS System

The recent entry into service of the 765,650-cubic-foot reefer Ditlev Lauritzen can be described as historic for a number of very good reasons.

The ship, first of a class of four, is reported to be the largest dedicated reefer ever built. Her completion and acceptance marks the fulfillment of a unique project in which the Danish Ministry of Industry has acted as coordinator in the realization of the most advanced concepts of marine automation.

Through these concepts, applied in an Integrated Ship Control (ISC) System, one man can supervise the vessel's navigation and monitor and control all machinery and cargo systems. As a result, the Ditlev Lauritzen is approved for operation with a total crew of six. The new vessel, which was designed and developed as part of Denmark's ambitions Projekt Skib, or "Project Ships," program, is sailing under the Danish flag in the fleet of Lauritzen Reefers.

The technical director of Danyard, **Jens Viskinge Jensen**, was able to celebrate an anniversary together with the completion of the first Project Ship, refrigerated cargo

vessel number 25, in the history of the Lauritzen Group shipyards.

Mr. **Jensen** said, "A number of details from refrigerated ships previously built for J. Lauritzen have appeared again, but the project has still been different from earlier ships and has presented many challenges.

"From the beginning of the project we put an extraordinary amount of resources into our drawing office. We were particularly concerned with the high degree of automation involved and we were very pleased to see that everything worked the very first time."

A highly complex ship with a great number of large hatches and cargo holds placed demands on coordination, imagination and ingenuity.

"The Project Ship is not just a refrigerated cargo ship, it is one of the most advanced of its kind ever built. The shipyard, the shipping company, the authorities, the classification society and the suppliers have all worked in close cooperation with each other and this has been a pleasure. When you can add to this that all specifications such as weight, speed, carrying capacity, technique, noise and vibration levels, etc., were met with, we can also take pleasure in the fact that the ship has given the entire shipyard a

further technological boost and provided greater possibilities for the future," Mr. **Jensen** added.

An important aim of the Project Ship concept is the achievement of very low manning levels. The Integrated Ship Control (ISC) system designed and supplied by Soren T. Lyngso A/S has been developed to permit this.

ISC integrates navigation and the monitoring and control of machinery in a single computer system. The operator supervises and administers ISC from the ship's bridge.

By optimizing the use of the ship's main propeller and thrusters to achieve maximum maneuverability, ISC also eliminates the need for tug assistance.

The navigation system includes route planning and automatic adjustment of course and speed to conform with the planned route. Lyngso/Valmet Marine have supplied a bridge system in which a Sperry Marine Route Control System is integrated with the ISC system.

Features of the Sperry Marine RCS include a track-keeping module and an ETA pilot. Well before sailing, the watch-keeping officer can read-in the waypoint parameters for his proposed route, as well as the desired arrival time, at his Navigation Work Station.

The main engine is a MAN B&W

Type 6L60MC two-stroke, direct reversing diesel with turbocharging and freshwater-cooled cylinders. The engine is arranged for operation in heavy fuel oil, IF-380, and develops 15,300 bhp at 121 rev/min corresponding to a trial speed in excess of 21 knots.

A Renk-Tacke power takeoff gear box, with an integral coupling and multidisc clutch is mounted at the front end of the main engine.

The KaMeWa c.p. propeller is four-bladed and has a diameter of 5,400 mm.

Control of the main engine, including the c.p. propeller, is integrated in the ISC System, the machinery being fitted with all necessary transducers for temperatures, pressures, etc. Two terminal screens on the bridge are dedicated to main engine monitoring and control.

The bow and stern thrusters, rated at 1,000 kw each, are of Brunvoll Type SPR-VR. The electric motors are direct-starting. The thruster propellers, with a diameter of 2,000 mm each, exert an estimated thrust of 14.8 t at a speed of 295 rev/min.

The application of the ISC System for total ship operation has



Photo, left: To the right, the voyage management station with the Sperry Marine route control system. To the left, the communication panel.

Photo, right: The central ship-handling panel is the preferred location for ship handling during the voyage.



involved the inclusion of a large number of remote-controlled valves in the following subsystems: seawater cooling system, main engine; lubricating system; fuel oil system; bilge system; ballast system; and fire and deckwash system.

Each of the 23 'tweendeck compartments is served by a separate refrigerating system, divided into nine sections. It is thus possible to carry a great many products at different temperatures, down to -29 degrees C.

Sabroe Refrigeration has developed one of the world's most advanced refrigerating plants for this ship.

For free literature detailing the Lauritzen Group Shipyards,

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Freeport Shipbuilding Launches Paddlewheeler

Freeport Shipbuilding, Jacksonville, Fla., recently launched the paddlewheeler *Sandy Hook Lady* for a New Jersey owner. She is the first true paddlewheel-driven passenger vessel to be built by the yard in six years.

Under construction for owners Capt. **Ron Santee** and his son, **Ron Jr.** of Atlantic Highlands, N.J., the *Sandy Hook Lady* is scheduled for delivery in February.

Also being built by the yard is the 76- by 32-foot passenger vessel *Jack London Commerce* for a California owner. Due for completion in March 1991, the *Jack London Commerce* is certified to carry 450 passengers.

Other work underway at Freeport Shipbuilding includes the construction of the 124-foot all-aluminum megayacht *Webb Tide II* and the 110-foot steel megayacht *Alpha Centauri*.

For free literature detailing the boatbuilding facilities of Freeport Shipbuilding,

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Seventeen Additional RRF Vessels Activated For Persian Gulf Crisis

The Maritime Administration (MarAd) recently announced that 17 additional Ready Reserve Force (RRF) vessels, which are maintained by MarAd, have been ordered into activation by the Military Sealift Command (MSC) to help support the U.S. military men and women in the Persian Gulf. The total number of RRF vessels in activation status to date is 65 of the 96-vessel fleet. Of the 17 new vessels activated, 16 are breakbulk cargo ships with shipboard cargo gear to accommodate heavy military vehicles and a wide variety of supplies. The other vessel is an auxiliary crane ship which has the ability to offload military cargoes from gearless containerships.

Just prior to these latest activations, Maritime Administrator **Warren G. Leback**, speaking be-

fore the American Institute of Marine Underwriters in New York, declared that "there will be numerous lessons learned from our experience in [Operation] Desert Shield for reassessing our defense needs and preparedness. Already, however, Desert Shield clearly confirms that adequate and reliable sealift capacity is indispensable to projecting our military might to distant shores."

Maritime Administrator **Leback**

remarked that Operation Desert Shield has been the most "massive undertaking and the greatest challenge to U.S. sealift since Vietnam. In the first month of Desert Shield, sealift delivery was nearly 50 percent higher than during the first month of the Korean war." In the first few months after the August 2 Iraqi invasion of Kuwait, MarAd activated almost 50 vessels from the RRF fleet. This was the first major

activation of the fleet since it was established in 1976 to support the U.S. armed services.

Maritime Administrator **Leback** also emphasized the importance of the recent extension of war-risk insurance and reinsurance for all U.S.-flag vessels sailing in the Middle East region, of which MarAd has acted as the underwriter. To date, MarAd has underwritten over 250 war-risk policies.

Decisions...

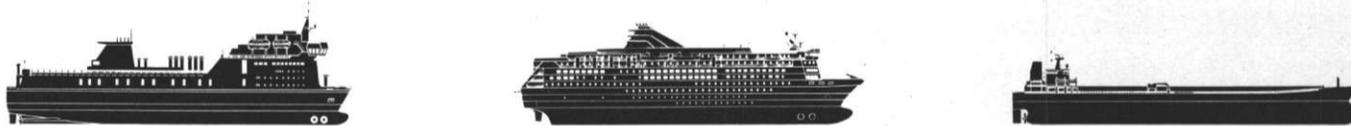
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Harbor Dredging Begins To Pay Off

According to industry sources, the billions of taxpayer dollars spent on dredging America's harbors in the last four years are already paying off for U.S. coal exporters. But the full benefit will come in the future.

According to **Joseph Lema**, vice president of the National Coal Association, a Washington lobby group, "We are in great shape now."

Referring to the harbor and channel deepening projects done since passage of the Water Resources Development Act of 1986, Mr. Lema asserts that U.S. coal exporters are more competitive with Australian and South African sellers, now that many projects are completed, or are near completion.

The reason is that the deeper channels allow the buyers and sellers of U.S. coal to hire large ships capable of carrying huge volumes of cargo in a single voyage.

The larger ships, which require deeper channels, mean U.S. exporters can unload coal in European and Far Eastern ports at prices not possible using smaller ships.

A shipping executive in the mid-Atlantic region, **C. Richard Foster**, vice president at John S. Connor Inc., Baltimore, has seen the

theory work in practice. Mr. Foster has overseen coal vessel loadings in Baltimore and Hampton Roads, Va.

Mr. Foster said, for example, "In Baltimore right now we have 41 feet of fresh water" as the depth in the channels connecting the coal piers at Curtis Bay and Sparrows Point to deep water. "But we are loading to 41 feet 6 inches, since we have brackish water," the salt content of which makes the ships more buoyant, he said.

Mr. Foster explained that just an extra few inches in the draft of the vessel can make a big difference to the ship operator. Each vessel carries a customized chart showing the relationship between tons of cargo carried and how much water the ship draws.

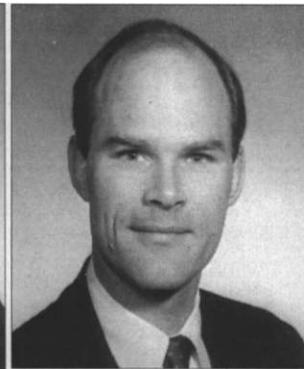
This measure, known in maritime circles as "tons an inch," can amount to 300 tons an inch on a so-called Cape Class vessel—those too large to transit the Panama Canal, Mr. Foster said.

A channel connecting the massive coal-loading complexes in Virginia's Hampton Roads area was deepened to 50 feet precisely to accommodate Cape Class vessels.

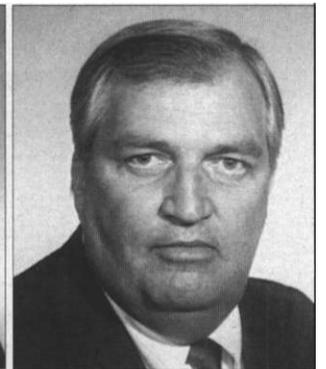
Marathon LeTourneau Announces Organizational Changes



Carl A. Wendenburg



N. Pharr Smith



Francis J. Fair

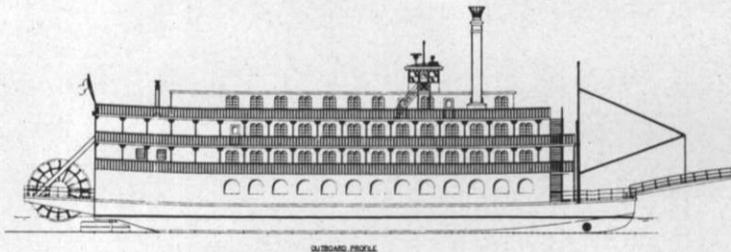
Three key personnel changes have been announced by **Dan C. Eckermann**, recently appointed president of Marathon LeTourneau Marine Company, division of Marathon LeTourneau Company.

Carl A. Wendenburg, formerly vice president of engineering for Marathon LeTourneau Marine Company, has been named vice president of marketing, with the primary responsibilities of defining and coordinating marketing efforts with engineering technology to satisfy the demands of customers and various regulatory agencies.

N. Pharr Smith, formerly manager of engineering, will assume the title of vice president of engineering with the primary responsibility of all administrative management of the Houston marine engineering design group, including the coordination from conceptual design to shipyard support engineering.

Francis J. Fair has been appointed to the new position of project director to capitalize on his 33 cumulative years of management experience in the shipyards. He will provide the liaison for assigned rig repair and newbuild contracts.

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Maritime Reporter/Engineering News

**American Merchant Mariners'
Memorial Dedication Set For
Spring '91 In New York City**

The American Merchant Mariners' Memorial, Inc. New York, N.Y., has announced that the monument honoring merchant seamen who gave their lives for America is expected to be ready in the spring of 1991.

Following selection of the renowned sculptress **Marisol Escobar** and her concept for the memorial, the artist is now under contract and at work on a larger-than-life clay representation which, upon approval by the Memorial Corporation, will be cast into bronze, transforming the clay into a permanent, durable tribute to America's merchant mariners.

Section D (9 feet by 28 feet) of the granite breakwater about 30 feet off the Port of New York's Battery Park is the memorial site. The breakwater was originally part of a protective shelter for thousands of immigrants who were transported to Manhattan by small vessels after their processing on Ellis Island, and who first set foot on Manhattan safely, thanks in part to the granite breakwater that will now be the site of the American Merchant Mariners' Memorial.

**Wm. F. Surgi Equipment Corp.
Acquired By Maritime Capital**

Wm. F. Surgi Equipment Corp. of Harahan, La., one of the Gulf South's leading distributors and fabricators of engineered systems for industrial, marine and offshore applications, has been acquired by Maritime Capital Corp., Metairie, La.

Simultaneously, Surgi acquired Southeastern Pump and Compressor Co., Mobile, Ala., a related company which had been owned and operated by Surgi principals.

The announcement was made by **Rick S. Rees**, president of Maritime Capital Corp., who said the acquisitions will expand the companies' product and geographical bases while providing them with financial resources to take advantage of current and projected growth opportunities.

Surgi also recently won an \$800,000 contract from the Shell Oil Co. for the engineering and fabrication of the compressor package to produce instrument air and rig bulk air for the first of eight planned offshore tension leg platforms in the Gulf of Mexico.

**Thordon's 'Thor-Lube' Bearing
System Combines Improved
Performance, Ecological Safety**

For the past four years, the Canadian marine bearing manufacturer Thordon Bearings Inc. has been hard at work developing the Thor-Lube bearing system—a stern bearing system which the firm feels answers today's demand for an ecologically safe environment while at the same time offering improved bearing performance.

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To date, the company has fitted the Thor-Lube bearing system to four vessels, and a Wart-sila polar antarctic icebreaking research vessel being built in Louisiana will be the fifth and largest.

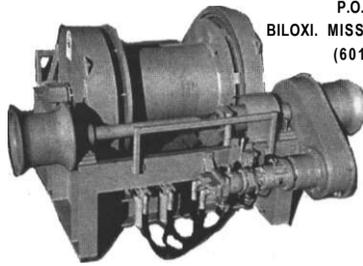
Thordon Bearings Inc., who build the bearing system in their Burlington, Ontario, plant, expect the system will be fitted to one shaft of the massive Soviet polar icebreaker Ural, and a retrofit to a large Soviet cargo ship in the near future.

For further information and free literature from Thordon Bearings,

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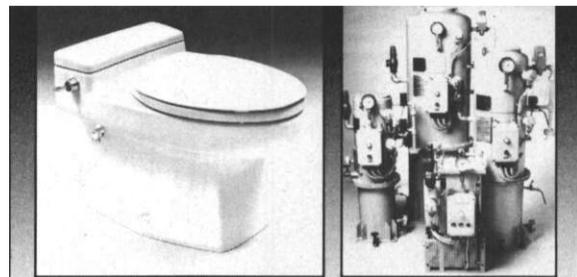
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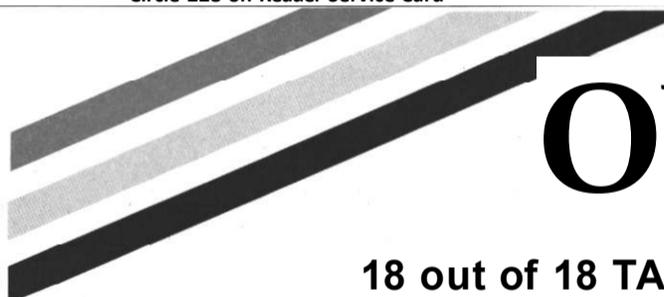
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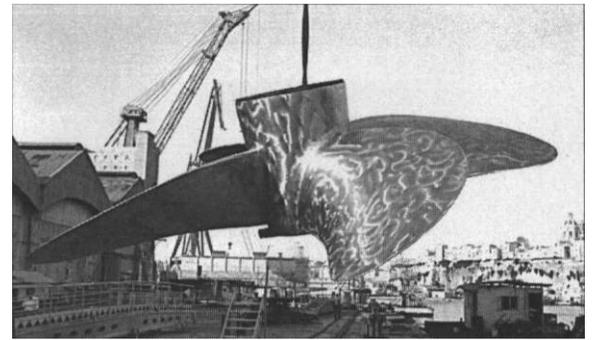
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Underwater Propeller Polish Produces 12 Percent Fuel Saving For QE2



The spare propeller of the Cunard liner Vistafjord after underwater polishing by UMC Malta.

A fuel saving of some \$7,000 a day has been achieved by the Cunard passenger liner Queen Elizabeth 2 after an underwater propeller polishing contract was completed by U.K. diving specialists UMC International Pic.

Monitoring on six voyages revealed fuel savings of some 12 percent or 48.5 tons per day, based on a steaming speed of between 27 and 29 knots.

UMC undertook the project on the liner's two five-bladed propellers while she was on a swift turnaround at her normal berth in Southampton.

UMC's underwater propeller polishing specification includes polishing each propeller twice, once with coarse grade abrasive and again with fine. The second polish is designed to produce a surface finish of 1 micron center line average, and it is this super-smooth finish that produces the spectacular increase in efficiency.

Cunard's recognition of the process has now extended to polishing replacement propellers underwater rather than in the conventional way.

For further information and free literature on UMC,

Circle 23 on Reader Service Card

Swiftships Launches Detroit Diesel-Powered Custom Motoryacht

Swiftships, Inc., recently launched their first privately owned custom motoryacht, the Safe Conduct II, just 16 months after commencing construction. This is the first vessel of its size and type to be built in Louisiana.

The overall length of the Safe Conduct II is 117 feet with a beam of 25 feet. The vessel is powered by twin Detroit Diesel 16V-92TA engines (total horsepower of 2,800), and the vessel is capable of trans-Atlantic cruises with its crew of five. The all-aluminum motoryacht was designed by Fryco of Houston, with the interior design by Global Marine Design and Construction.

The owner's stateroom is situated forward, across the full width of the vessel, and features a custom 7-foot silk batik surrounded by suede cloth walls and overheads. The split bath has inlaid marble walls and floor and a Jacuzzi tub. Twin guest staterooms, each with adjoining baths, are located amidship with a full-width VIP guest stateroom aft. The galley features Corian countertops with all modern conveniences.

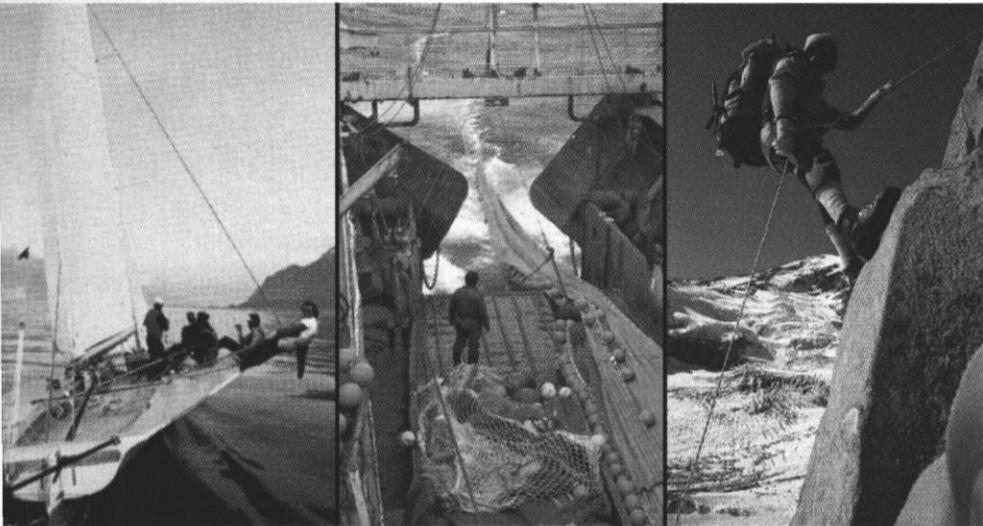
The captain's stateroom is located just off the main bridge.

The Safe Conduct II represents a tremendous accomplishment for the owner, Swiftships, and designers, incorporating the owner's wishes with craftsmanship, esthetics, engineering and technology.

For free literature on the facilities and capabilities of Swiftships,

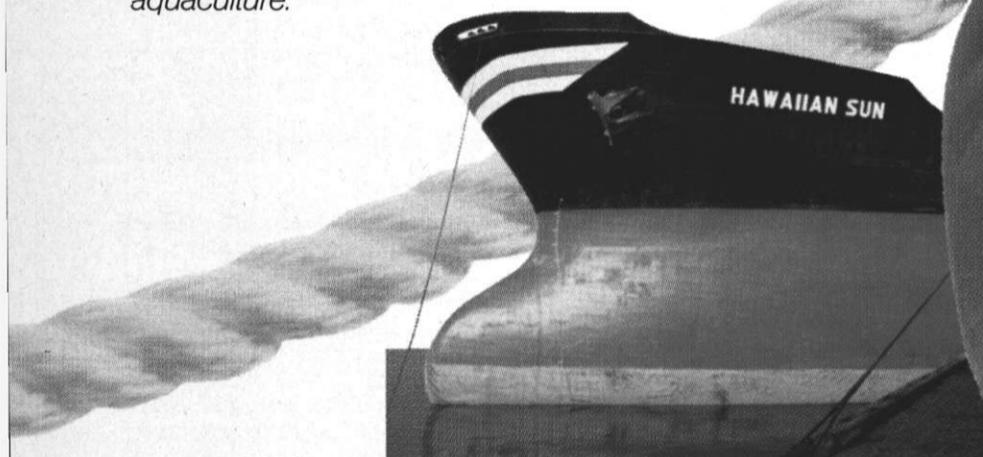
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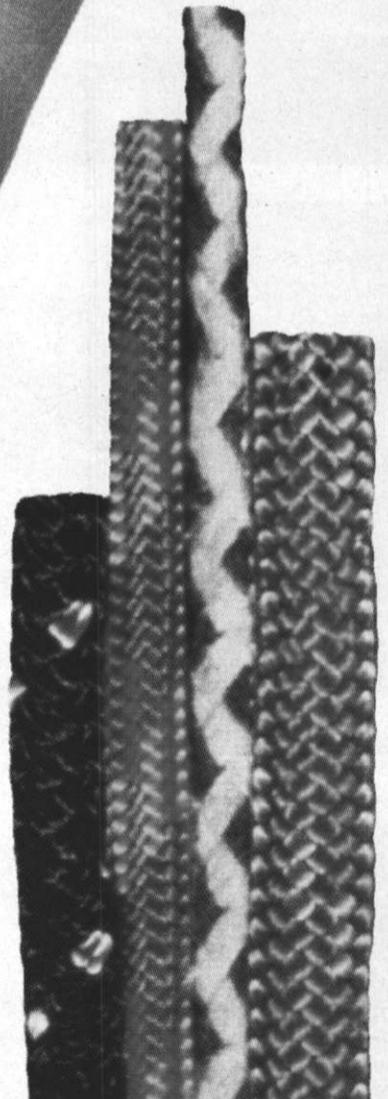
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**Keel-Laying Ceremony
For Double-Bottom Tanker
Held At IHI's Aichi Yard**

The Aichi Shipyard of Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI), Tokyo, Japan, recently held a keel-laying ceremony for a double-bottom tanker (145,000 dwt)

for delivery to the Greek owner Onassis.

Last July, a contract was concluded for building two ordinary single-hull tankers, but the specifications were later changed to the double-bottom hull design for added safety on Onassis's proposition. The first ship is scheduled to be completed in May 1991. The sec-

ond vessel's completion is set for September 1991.

The Aichi Shipyard, one of the world's most modernly equipped, is scheduled to continuously build 150,000-dwt-class tankers and SPB-type LNG carriers.

For free literature detailing the facilities and capabilities of IHI,

Circle 37 on Reader Service Card

**MarAd Transfers Title
To Three LNG Carriers**

The Maritime Administration recently transferred title to three liquefied natural gas carriers, the Arzew, Southern and Gamma.

The new owners, Argent Marine I, Argent Marine II, and Cabot LNG Shipping, expect to move the ships soon from layup in Rhode Island to Virginia, where they will undergo extensive refurbishment in a U.S. Shipyard.

This sale will enable these long-idled ships to once again operate under the U.S. flag, with U.S. crews, bringing energy supplies to the United States.

**Malaysian Shipping Line
And NYK Jointly Order
LNG Carrier From NKK**

A new LNG carrier was recently jointly ordered from Japan's NKK shipyard by Nippon Yusen Kaisha and Malaysia's Perbadanan Nasional Shipping Line Berhad. The vessel will be used to carry liquefied natural gas between the two countries.

Value of the contract is about 10 billion yen, or \$77.5 million at current exchange rates.

NKK hopes that the carrier will be the first of several such ships as smaller utilities in Japan begin importing gas directly.

The new 427-foot vessel, which will be double-hulled, will fly the Malaysian flag. The Malaysia LNG Sdn. Bhd. gas company will charter the ship under a 20-year contract for voyages between Malaysia and Saibu Gas Co.'s system on Japan's southern main island of Kyushu. Saibu is Japan's first medium-sized utility to import LNG directly.

**Subtech '91 Issues
Call For Papers**

The theme of Subtech '91, scheduled for Aberdeen, November 7-9, 1991, will be "Back to the Future." The conference, organized by AODC (the International Association of Underwater Engineering Contractors) and the Society for Underwater Technology, will demonstrate how current technology using ROV and diver intervention is based on that vast reservoir of invaluable knowledge culled over the intervening years.

A call of papers has been issued, abstracts to be submitted to SUT, 18 Farburn Terrace, Dyce, Aberdeen AB2 ODT, by no later than January 31, 1991. The call for papers lists a range of topics under five main headings: Safety; Are We Going Overboard With Inspection; Pipelines; Subsea Field Developments; and Tomorrow's World.

Copies of the call for papers leaflet are available from AODC at 28/30 Little Russell Street, London, WC1A 2HN, telephone (071) 405 7045, fax (071) 831 2581; or from the SUT at 18 Farburn Terrace, Dyce, Aberdeen AB2 ODT, telephone 0224 770533, fax 0224 723192, or 76 Mark Lane, London EC3R 7JN, telephone (071) 481 0750, fax (071) 481 4001.

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Two Models Of Zodiac's Rigid Inflatable Boats (RIB) Chosen By U.S. Navy

Zodiac of North America, Stevensville, Md., recently announced that through their representative Menge Marine Equipment Group, New Orleans, the U.S. Navy has chosen two models of Zodiac's Rigid Inflatable Boats (RIB) to equip the new AGOR 23 currently under construction by Trinity Marine at the Halter Marine Shipyard in Moss Point, Miss.

The RIB-S, Zodiac's USCG SOLAS-approved craft, will be the AGOR 23's rescue boat, and their H730 outboard has been approved as the ship's workboat.

The Navy will be outfitting their T-AGS 51 and 52, also being built at Trinity, with RIB-S USCG SOLAS-approved models as rescue boats. Zodiac's RIB model H530 will be put into service as the ship's workboat.

According to the company, the RIB models feature the speed, maneuverability and fuel economy of a fiberglass hull while providing the stability and holding capacity of Zodiac's world-famous inflatable boats.

For further information and free literature from Zodiac,

Circle 35 on Reader Service Card

PSRY Accomplishes A 'First'—Shortens And Lightens A Vessel

Portland Ship Repair Yard (PSRY) and contractors Cascade General, Northwest Marine, and West State Inc., who have added capacity to ships, done major overhauls, repowering and many other specialized projects, recently accomplished a "first" with the removal of 50 feet and 40,000 deadweight tons of capacity from the ship Keystone Canyon. The change, making the vessel shorter and lighter, was necessary to enable trading to Puget Sound and San Pedro Bay.

PSRY Dry Dock No. 4's size and capability was a key to this project.

For more information on the facilities and capabilities of PSRY and its contractors,

Circle 14 on Reader Service Card

12-Page Exxon Brochure Offered On UNIVIS N Hydraulic Oils

Exxon Company, U.S.A., has introduced a new 12-page brochure on its UNIVIS N hydraulic oils.

UNIVIS N is a line of premium anti-wear hydraulic fluids designed for high performance in widely varying temperature conditions as found in the marine, construction and public utility industries, for example. The oils help ensure pump startup at low temperatures, while maintaining oil viscosity at high ambient temperatures.

For a copy Exxon brochure,

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Furuno Again Honored At Annual NMEA Awards Banquet In Florida

The National Marine Electronics Association (NMEA), during their annual awards banquet at the Tradewinds Hotel in St. Petersburg, Fla., again honored Furuno prod-

ucts for outstanding performance and reliability. At this year's ceremonies, industry sales and technical personnel chose eight Furuno units as "top of the line" products, a near repeat of the honors received last year.

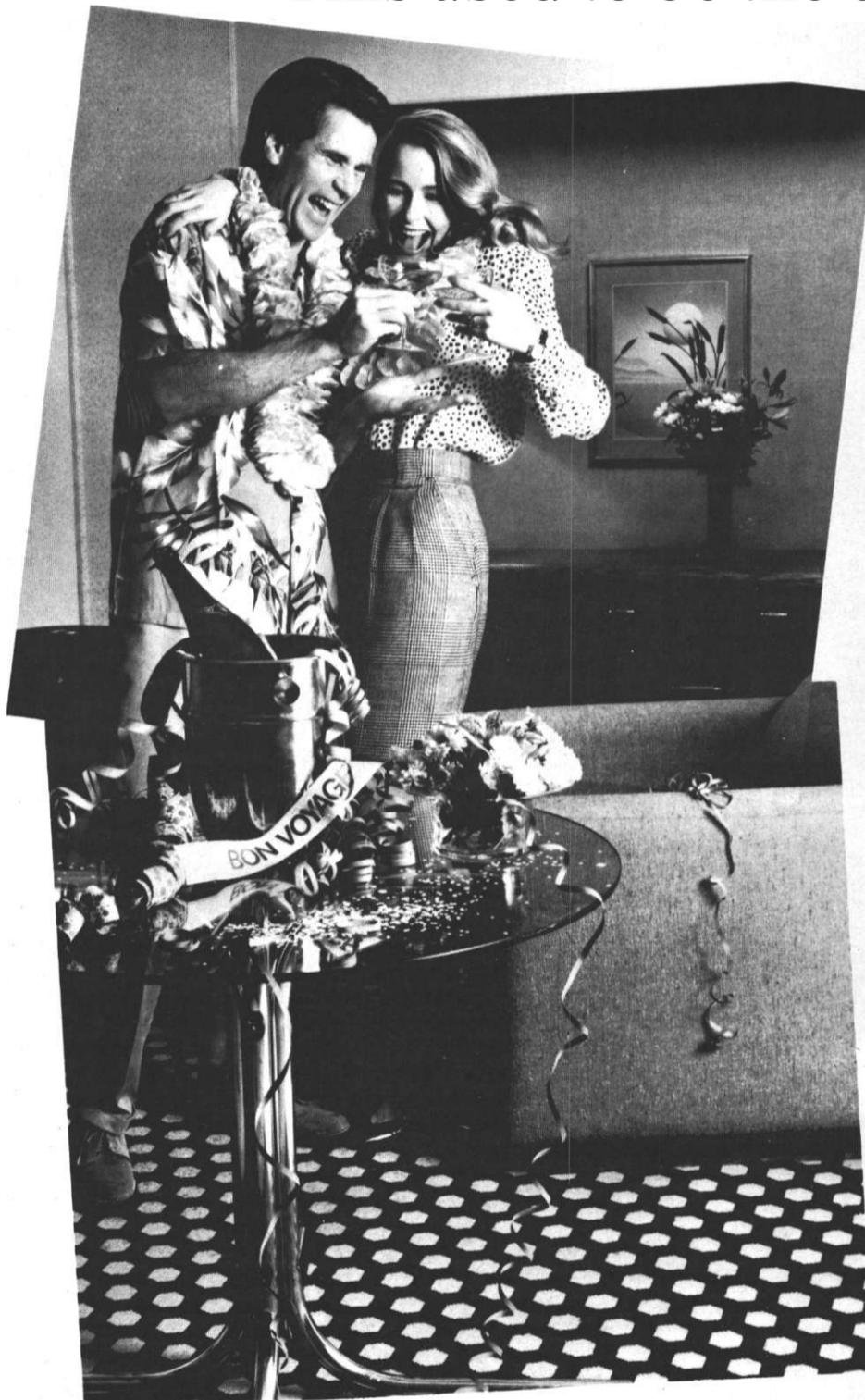
Receiving awards in eight of the 26 categories, Furuno won both radar awards, one for units of 24 miles or less, the other for units of more

than 24 miles. This is the 14th straight year Furuno has won for radar. Furuno also dominated the fishfinding category, receiving the recording sounder award for the 17th straight year, video sounders for the 7th time and sonars for the 10th time.

For free literature on products from Furuno,

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U.S. Merchant Fleet Development Urged By Shipping Executive At New Orleans Conference

Philip Shapiro, president and CEO of Liberty Maritime Corp. and Liberty Shipping Group, New York, offered a number of prescriptions to modernize and strengthen the U.S.-flag liquid and dry bulk fleet when speaking recently at a maritime conference in New Orleans, La.

"U.S.-flag shipping can once again become a dominant force on the world's oceans within today's fiscal constraints," Mr. Shapiro contended, "[and] this can be accomplished only as long as realistic and politically achievable goals are pursued."

One mechanism Mr. Shapiro recommended to encourage modernization and expansion of the fleet is to lower capital cost. He

remarked, "The U.S.-flag fleet cannot at this time compete in a completely free and open system—U.S. costs will necessarily be higher than our foreign competitors. However, given productivity levels, currency devaluations, state-of-the-art vessels, and union cooperation, crew costs are really not much higher in the United States now than in many other countries, albeit that there remain certain foreign crews that we will never be able to compete with."

To strengthen the U.S. merchant fleet, Mr. Shapiro suggested increasing to 100 percent U.S.-flag cargo preference requirements, currently at 75 percent for agriculture cargoes, such as P.L. 480/Food for

Peace.

"The International bulk fleet currently contains some 4,700 dry bulk ships. The U.S. is the world's largest bulk commodity trader and yet its U.S.-flag dry bulk fleet numbers barely 20 vessels. Cargo preference is virtually the only remaining support program for U.S.-flag bulk shipping. Without a necessary stream of cargo to support those ships, there is little doubt that we would not have any dry bulk vessels," he asserted.

Mr. Shapiro went on to note the importance of a U.S.-flag fleet for national security, stating that "the primary requirement is that the vessel be U.S. documented, and thus U.S. manned and controlled."

"[Cargo preference] is a relatively inexpensive method to insure a constant replenishment of the fleet. I would strictly enforce the cargo preference laws as they now exist and would reverse the drain of preference cargoes that have resulted from the cash transfer program," he declared.

Tenth Maritime Seminar Set For New Orleans, January 10, 1991

The Tenth New Orleans Maritime Seminar is scheduled to be held on January 10, 1991, at the Bourbon Orleans Hotel, 717 Orleans Street, New Orleans, La.

The seminar will focus on "The Oil Pollution Act of 1990, Its Impact Upon Underwriters and Marine Operators in the Gulf of Mexico and on the Inland Waterways."

Registration is scheduled for 8:00-8:45 a.m. (fee is \$250). Topics to be discussed throughout the one-day meeting are: "The Oil Pollution Act of 1990" from 9:00-10:00; "Response and Clean-Up Following an Oil Spill Incident—Contingency Plans and Effective Liaison with Federal and State Agencies," 10:15-12:15; "Liability Under the Oil Pollution Act of 1990 and State Legislation," 1:30-3:00 p.m.; "Insurance Coverage for Oil Pollution Claims," 3:15-4:15; and "Jurisdictional Issues Under the Oil Pollution Act of 1990," 4:00-5:00.

Tulane/AWO will host a cocktail reception following the Maritime

Seminar from 6:00-8:00 at the Omni Royal Orleans Hotel for all seminar registrants.

The Tuiane/AWO New Orleans Maritime Seminar will be held in conjunction with the U.S. Coast Guard Industry Day and the AWO Regional Meeting in New Orleans. The seminar is sponsored by Tulane University Continuing Legal Education and the American Waterways Operators, Inc. in cooperation with the U.S. Coast Guard.

Marine Training School To Use S/S Annabella As LNG/LPG Training Ship

Chemikalien Seetransport (CST) of Hamburg, Germany, and Hanseatic Shipping Co. Ltd. of Limassol, Cyprus, have entered into a joint venture to establish the LNG/LPG carrier S/S Annabella as a training ship for the training of LNG/LPG seagoing personnel.

The joint venture stems from the fact that the world's gas tanker fleet is facing a dramatic shortage of qualified seagoing personnel, both in the officers and ratings categories. The two companies have a sub-

stantial interest in this type of tonnage and have decided to use the expertise of the Hanseatic Marine Training School in Cyprus, which has previously conducted LPG training courses.

It is the first time worldwide that an active LNG/LPG carrier engaged in shorthaul trading patterns will be utilized as a training ship. The vessel is capable of training 25 officers and ratings accommodated in double and single cabins at any one course of approximately two months' duration.

CST and HSC have agreed on a cost-sharing formula of the considerable initial and running costs.

The vessel will commence training activities in February 1991.

Zapata Gulf Names Crawford President, Quality Shipyards

Houston-Zapata Gulf Marine Corporation has named **James W. Crawford** president of Quality Shipyards, Inc. in Houma, La.

As president, Mr. Crawford will be responsible for the operation of Quality's two shipyards, both lo-

Mr. Shapiro opposes the cash transfer method of foreign aid to needy countries because U.S. assistance is given in cash, rather than through the commodity import program and project-type assistance.

He pointed out that "fundamental to giving project-type assistance or providing aid-in-kind through the commodity import program is that the donating government analyzed the needs of the foreign recipient ... [and] when the United States provided the aid, the U.S. origin was evident. The general populace in the recipient country could see U.S. aid: U.S.-built heavy equipment; bags of grain with 'U.S.' stamped on it; and commodities of all kinds arriving on U.S.-flag ships."

He further noted that U.S. cash assistance often enables recipient nations to purchase foreign, rather than American, agricultural commodities.

"Cash aid, with no 'buy American' requirement, generates no economic activity or benefit to the U.S.," he argued.

cated in Houma. One yard specializes in construction and the other in repairs.

Mr. Crawford comes to Zapata Gulf after 24 years as vice president and general manager of Fredeman Shipyards in Lake Charles, La., followed by three years as president and CEO of its parent company, Port Arthur Towing.

Quality Shipyards is a wholly owned subsidiary of Zapata Gulf Marine Corporation, one of the world's largest international marine offshore support companies, whose headquarters are in Houston, Texas.

ACL Appoints Butler Chief Operating Officer

Olav Rakkenes, chairman and chief executive officer of ACL, recently announced the appointment of **Tom Butler** as chief operating officer effective January 1, 1991.

In his new capacity, Mr. Butler will be responsible for overseeing the day-to-day management of ACL, ensuring budget goals, and improving the operating and business systems for the company.

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Maritime Reporter/Engineering News

Goudy & Stevens Shipyard Integrates Automated Layout, Cutting Processes In Building Largest U.S. Oil Skimmer



The Valdez Star, constructed by Goudy & Stevens under contract for JBF Scientific, glides into the Damariscotta River.

Goudy & Stevens Shipyard, East Boothbay, Maine, recently launched the Valdez Star, largest oil skimmer ever built in the U.S. Constructed under contract for JBF Scientific Company, Inc., the 600-ton, 123-foot-long, 31-foot-wide vessel is destined for duty in Prince William Sound, Alaska.

The Valdez Star and smaller ships designed and built by JBF Scientific effectively recover floating oil, relying on a concept called the dynamic inclined plane (DIP). The DIP takes advantage of a head wave to allow the oil to flow onto an underwater conveyor. Recovery rates can exceed 90 percent with little or no entrained water.

The Valdez Star and its sister ship Shearwater, being built for delivery to the Clean Sound Cooperative on Puget Sound, Wash., are the largest DIP vessels JBF Scientific has designed.

Pete Sarnacki, JBF Scientific staff engineer, explained that because the two DIP vessels required greater yard capacity, the company

turned to Goudy & Stevens, known for its craftsmanship in building research vessels, tugs, barges and commercial fishing boats up to 200 feet and more, and a yard which "has had a reputation for building excellent quality vessels for many years." In order to fulfill their shipbuilding contracts, Goudy & Stevens, which occupies six acres on the Damariscotta River, maintains complete fabrication, machine, pipe and electrical shops, with skilled lead men in all crafts. With the mul-



K.N. Aronson Servograph cutting machine demonstration at Goudy & Stevens.

ti-ship oil skimmer contract in hand, they purchased a personal computer, Auto-Cad software and a K.N. Aronson Servograph® VP-96 cutting machine outfitted with a Hybrid D6-B controller, high-speed plasma and oxy-fuel torches and zinc plate marking capability. They hired James Kalian, a veteran production engineer and naval architect to pull together the new layout and cutting processes.

Virtually all of the ship's steel cutting is now performed on the K.N. Aronson Servograph VP-96

cutting machine.

The first of the oil skimmers contained perhaps 10 percent computerized precut parts. The second ship has 75 percent precut parts. "It translates into an approximately 15 percent reduction in production time, allowing us to launch quicker and deliver quicker and better," said Mr. Kalian.

For free literature detailing the facilities and capabilities of Goudy & Stevens Shipyard,

Circle 43 on Reader Service Card

\$8.13 Million Conversion Contract Awarded Keppel

Keppel Shipyard of Singapore has been awarded a \$8.13 million contract (about \$8.13 million) contract to convert the M/V Audax, a 32,452-dwt bulk carrier into a self-discharging bulk carrier.

The conversion will involve replacement of existing cranes with advanced bulk-lift, self-discharging equipment. Major modifications will be made to the entire ballast system to allow for automatic operations from the engine control room.

The vessel, owned by Australian National Line Limited, is scheduled to arrive at Keppel in late 1990 and will be delivered to her owners approximately three months later.

Current conversion projects at Keppel include the Conkouati (formerly the Enterprise I), being converted from a storage tanker into a floating production storage offloading facility, and Sovietskaya Rossiya, a former whaling vessel being converted into the world's largest fish factory ship.

Another Keppel company, Singmarine Industries, will soon complete building a 120-TEU roll-on/roll-off container vessel for Australian National Line.

EMD Announces First 'GA' Series Engine Order

Electro-Motive Division (EMD), General Motors Corporation, recently announced the sale of their

first 710GA Series engines to the Hartley Marine Corporation, a subsidiary of Midland Enterprise, Inc. of Cincinnati, Ohio.

EMD, through its distributor, Western Detroit Diesel Allison, was selected as the supplier for two 20-cylinder 710GA engines to repower the towboat M/V Jim Ludwig. The "GA" Series incorporates EMD's most recent refinements to the "G" Series engine, of which there are in excess of 1,000 engines in service.

Delivery of the 20-cylinder GA Series engines is scheduled for April 1991. Hartley has indicated its interest in purchasing additional "GA" Series engines in 1992.

For more information and free literature on EMD engines,

Circle 11 on Reader Service Card

Phoenix Products Names Devic Marketing Manager, Metal Products Division

Michael Devic has been appointed marketing manager of the Phoenix Products Co., Inc. Metal Products Division.

The Milwaukee-based company makes heavy-duty industrial, marine and mining lights as well as Dryrod® ovens that hold, recondition and rebake welding electrode rods and flux to protect welds.

In this new position, Mr. Devic will direct sales, marketing, customer services and marketing services activities.

For free literature from Phoenix Products,

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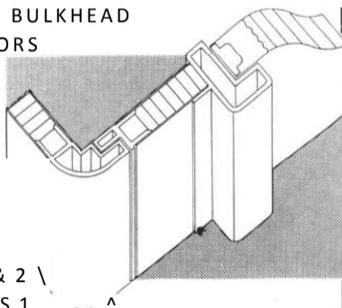
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Great Lakes Dredge Buys Barker Boys Creek Towing

In a move that both diversifies and broadens its offerings in the maritime arena, Great Lakes Dredge & Dock Co. has purchased the assets and contracts of Barker Boys Creek Towing of West Nyack,

N.Y., it was recently announced.

"The business unit will be a division of Great Lakes Dredge & Dock Co.," said Witt Barlow, Great Lakes' president, in making the announcement. "It will be known as Great Lakes Towing & Transport—GLT&T. The new division will coordinate the use of Great Lakes' tug fleet in the Northeast market. Expansion of the unit's activity into the Great Lakes region is antici-

pated as well."

The acquisition brings the Great Lakes fleet in the Northeast to a total of eight vessels.

Great Lakes Dredge & Dock Co. was founded in 1890, and this year is celebrating its centenary. The company has domestic offices in New York, Baltimore, Jacksonville and Tampa, Fla., New Orleans, Oak Brook, Ill., Oakland, Calif., and Cleveland.

Leading Industrial Spanish Bank Backs Astilleros Espanoles

Banco de Credito Industrial, the leading industrial bank of Spain, and Astilleros Espanoles, S.A. have signed agreements that will reinforce the shipbuilder financial structure.

The bank has opened a line of technical guarantees up to 25 billion pesetas that will enable Astilleros Espanoles to guarantee the completion of contracts of newbuildings, repairs and conversions from foreign purchasers.

The bank also has given a loan of three billion pesetas to be used by Astilleros Espanoles to guarantee the completion of contracts of newbuildings, repairs and conversions from foreign purchasers.

The bank has also given a loan of three billion pesetas to be used by Astilleros Espanoles for its eventual current assets needs.

Conceptual Design For High-Speed Ferry Completed By IHI

A conceptual design of a 200-dwt-class super high-speed car/passenger ferry with super slender twin hulls (SSTH), applicable to coastal and bay services, was recently completed by Ishikawajima-Harima Heavy Industries Co., Ltd. of Tokyo, Japan.

Since the vessel is of displacement hull type, it is able to have a larger deadweight tonnage when compared with existing high-speed ships like hydrofoils utilizing surface effect.

Under the design concept, SSHT will be built by using an aluminum alloy for the hull (steel is also applicable according to requirements). It will be powered by four high-speed diesel engines, each with an output of 5,800 hp; they will be mounted within twin hulls. The design allows adoption of screw propelling or water jet propulsion systems.

Stearns Offers 12-Page, Full-Color Catalog On Industrial Products

Stearns Manufacturing, St. Cloud, Minn., one of the top U.S. producers of personal flotation devices, is offering a free 12-page, full-color catalog on the industrial products produced by the company.

Titled "Men Who Know The Sea, Know Stearns," the well-illustrated catalog discusses quality control and gives descriptive text on flotation vests and coats, including sizes; cold water anti-exposure suits, also including sizes; products complying with SOLAS 74/83 requirements; fishing and industrial dry wear as well as commercial fishing and heavy-duty industrial dry wear; inflatable flotation products; and flotation accessories.

For more information and a free copy of the industrial products catalog from Stearns Manufacturing,

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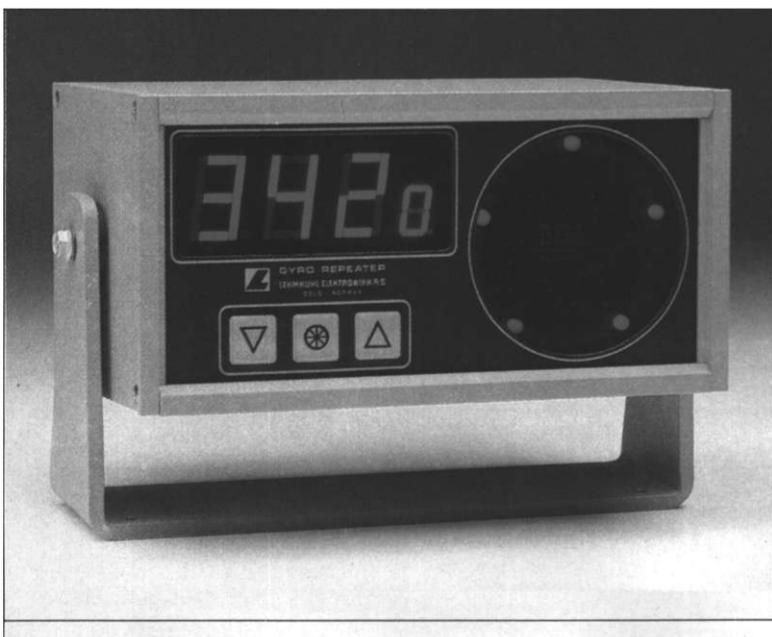
References:

M/S Nordic Prince	M/S Sovereign of the Seas
M/S Sun Viking	M/S Seaward
M/S Song of Norway	M/S Seabourn Pride
M/S Song of America	M/S Seabourn Spirit
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Art Anderson Awarded U.S. Navy Contract

The Supervisor of Shipbuilding, Conversion and Repair, USN Seattle, has awarded Art Anderson Associates of Bremerton, Wash., a contract to provide naval architecture and marine engineering design services to support the modernization and repair of U.S. Navy ships and craft in the Northwest.

The \$1.4 million contract, for one year with two one-year options, will provide work for designers, drafters and other technical personnel. **Chris Crowson**, contract manager for previous Supship contracts, will again direct Art Anderson Associates' efforts.

Bender Accepted As Regulars Member Of Shipbuilders Council

Bender Shipbuilding & Repair Company, Inc. of Mobile, Ala., was recently accepted as a Regular Member of the Shipbuilders Council of America by the board of directors at its quarterly meeting.

The owner of 12 shipyard facilities, Bender holds Master Ship Repair certifications from the U.S. Navy and Military Sealift Command, and also does conversion and repair work on commercial vessels, such as fishing trawlers and offshore supply vessels. The company builds new-construction vessels such as patrol boats as well.

For free literature on the facilities and capabilities of Bender Shipbuilding & Repair,

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IDB-A Joins CruisePhone To Offer Services To Leisure Markets

IDB Aero*Nautical Communications, Inc. (IDB-A), a supplier of mobile communications services via Inmarsat satellite to the maritime industry, has signed a contract with CruisePhone, Ltd., a leading supplier of cellular telecommunications to the cruise industry, for the exclusive provision of services to the pleasure cruise and private yacht markets worldwide.

CruisePhone will act as IDB-A's exclusive agent for the marketing, operation and accounting of IDB-A's phone, facsimile and telex satellite communications services to the cruise line and megayacht industries. Maritime operators outfitted with CruisePhone cellular equipment and satellite communications terminals will be allowed access to IDB-A's satellite earth station network from any ocean region. Interface equipment provided by CruisePhone will automatically switch calls originating from outside cellular operating areas to IDB-A's facilities. IDB-A's mobile telecommunications network provides worldwide ocean coverage via the Inmarsat satellite system.

For further information and free literature,

Circle 15 on Reader Service Card

EES Announces New Sewage Treatment System

Houston-based EES Corporation has developed a new addition to their extensive line of marine sewage treatment systems, specifically to meet the needs of the commercial shipbuilding industry.

The Omnipure® Model 7ME is a

safe, ready-to-install sewage treatment system utilizing a unique patented electrocatalytic process. According to EES, the price of the 7ME is extremely competitive because the system uses standardized components and materials.

The Omnipure systems are completely sealed to prevent any leakage or contamination. The unique flow-through process, featured in all

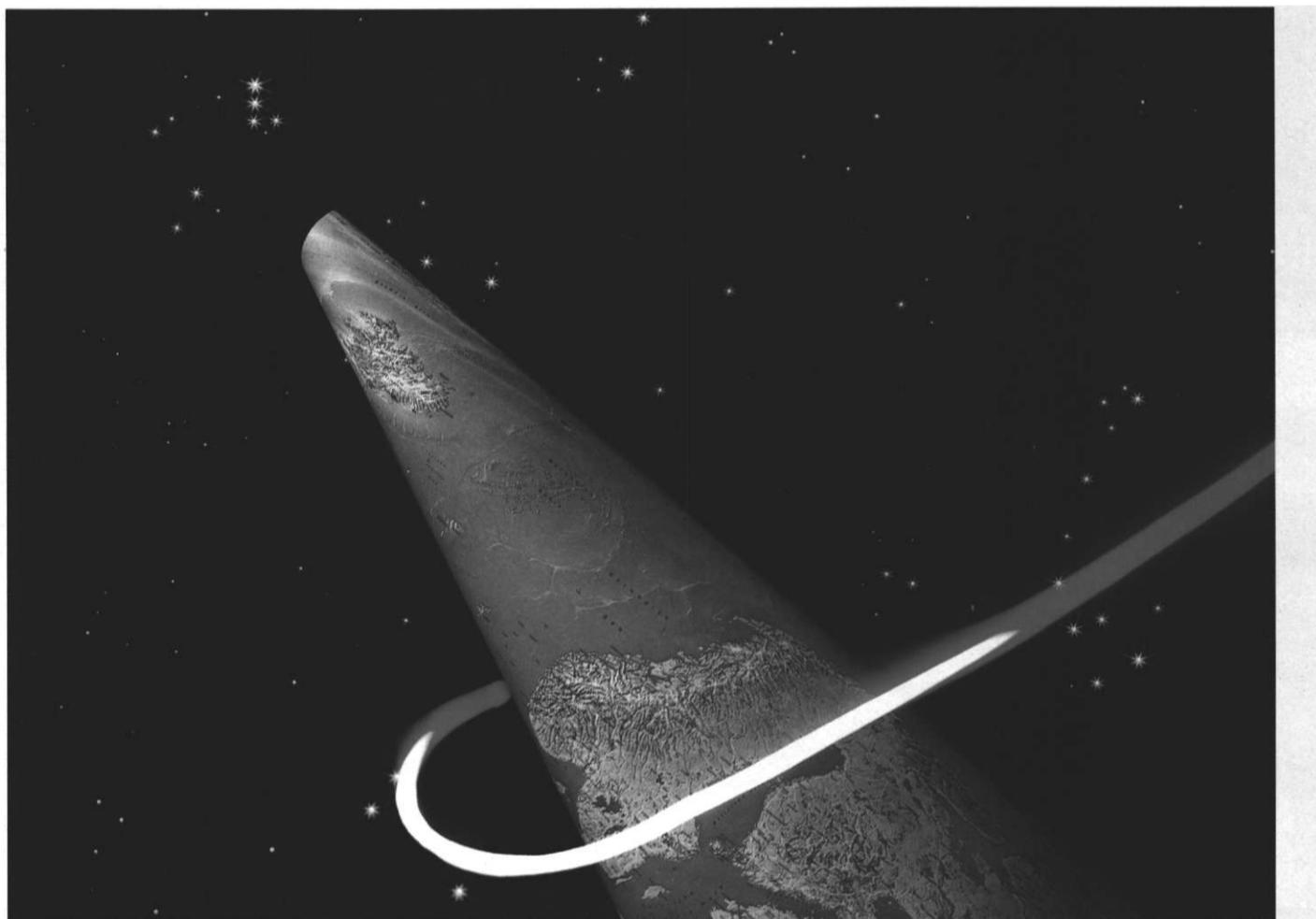
Omnipure systems, eliminates the potential for the formation of deadly gases. No additives are required as with all Omnipure units, the sodium hypochlorite used for disinfecting the sewage effluent is generated from seawater.

For more information and a free brochure on the Model 7ME or Omnipure in general,

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Spectra Composites Take Undersea Exploration To Greater Depths

The Naval Ocean Systems Center (NOSC) is now using Spectra® fibers for reinforced composites in the fairing—or hydrodynamic hull—and in the internal mounting structure of its unmanned submarines,

which are technically called Advanced Underwater Search System Vehicles (AUSS).

Spectra fibers, engineered by Allied-Signal Inc., provide unique combination of a high strength-to-weight ratio and minimal signal distortion for undersea applications. Pound for pound, Spectra fibers are 10 times stronger than steel. And, its near-zero dielectric constant per-

mits excellent signal transparency. In addition, Spectra fibers exhibit outstanding chemical/abrasion resistance and low moisture regain.

Other undersea applications being considered or now utilizing Spectra composites in structural support systems include: unmanned submarines and submersible robots used for mine detection, sea floor mapping, geological testing and

photography, plus vessel recovery equipment.

For further information and free literature,

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International Conference On Underwater Welding Set For New Orleans

The "International Conference on Underwater Welding" will be presented by the American Welding Society, March 20-21, 1991, in New Orleans, La.

State-of-the-art presentations about the underwater industry will cover welding equipment and processes, mechanical and internal weld properties, maintenance and inspection procedures, and welding applications in shallow and deep water.

Fifteen papers will explore a wide range of current interests, including "State-of-the-Art Developments in the Underwater Welding Industry"; "New and Future Underwater Welding Equipment"; "Underwater Nondestructive Testing Techniques"; "Semi-Automatic Wet Welding"; "History of Structures in Service—Followup Inspections"; "Underwater Welding Applications in Shallow and Deep Water"; "Proven Procedures for Underwater Project Management"; and "Automation and Robots in Underwater Welding."

For further information, contact the AWS Education Department, 550 LeJeune Road, P.O. Box 351040, Miami, Fla. 33135.

Aqua-Chem To Move To New Location In Milwaukee, Wis.

Aqua-Chem, Inc., Milwaukee, Wis., recently announced plans to move to a new office facility in Trammell Crow's Park Place on the northwest side of the city. The glass and brick structure, now under construction, will house Aqua-Chem's corporate staff and two of its divisions, Cleaver-Brooks and Water Technologies.

The announcement was made by **Bob Agnew**, president and CEO of Aqua-Chem, Inc., who explained that consolidating the company's 325 Milwaukee employees in one central location will be very useful in improving communication and overall effectiveness.

Aqua-Chem has been solving tough problems with innovative technology for nearly 50 years. The company pioneered portable battle-field distilling plants to purify salt water and brackish water during World War II. It then developed the first of thousands of distilling plants for ships, offshore oil rigs, power plants and major land-based desalination systems.

For more information and free literature on products from Aqua-Chem,

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Atlantic Marine Acquires Floating Drydock With 225,000-DWT Lift Capacity

Atlantic Marine, Inc., Mobile, Ala., recently purchased a floating drydock for use at its Mobile, Ala., shipyard, with a capability to lift ships up to 225,000 deadweight tons.

The drydock is being prepared for tow and it is expected to enter the Port of Mobile in mid-winter. It is anticipated to become fully operational in Mobile in early spring.

This new drydock, formerly the Big T owned by Todd Shipyards, will enable Atlantic Marine to drydock significantly larger ships than at present at its Mobile shipyard. The new drydock has an 853-foot length and 164-foot clear inside width. The new dock will complement the existing Atlantic Marine drydock, which is capable of lifting ships up to about 40,000 dwt.

Atlantic Marine has been in operation in Mobile at the former ADDSCO facilities on Pinto Island for slightly less than two years. During that time the company has shown steady growth. This new drydock significantly increases the yard's capabilities.

For free literature detailing the Atlantic Marine's facilities and capabilities,

Circle 53 on Reader Service Card

PSRY Facility Agreement Approved By Commission

The Port of Portland Commission recently gave its approval to enter into a Portland Ship Repair Yard (PSRY) Facility Agreement with the ship repair contractors who do business at the shipyard.

The PSRY Facility Agreement, the principal contract between the port and the ship repair contractors for the common use of PSRY, runs through June 30, 1993.

The agreement is between the port and Northwest Marine, Inc.; West State, Inc.; and Cascade General, Inc., who concluded their facility agreement with the port last September.

Aqua Signal Supplies Lighting Systems For Cruise Ships

About 20,000 or more light sources are needed for equipping a modern passenger ship. Even a freighter has between 500 and several thousand lighting points. Therefore, the responsibility of equipping a modern commercial vessel is no small task.

One of the most successful marine lighting technology companies is Aqua Signal AG of Bremen. Founded in 1868, Aqua Signal has designed and delivered complete lighting systems for vessels ranging from passenger boats and fishing

vessels to drill rigs, naval ships and cruise ships. Aqua Signal has had particular success in the cruise vessel and ferry sector, supplying marine lighting packages for the Crown Princess, Homeric, Horizon, Robin Hood, Olau Britannia and Seabourn Spirit.

A typical Aqua Signal solution is the decentralized concept for emergency lighting on board ships. In

emergency situations, the electronic emergency lighting systems developed by Aqua Signal, which comply with the SOLAS guidelines, offer on-board light—and thus safety—even after complete failure of the electricity supply. The most prominent feature of the decentralized supply concept is integrated or retrofittable external electronic battery units. These existing light

sources can easily be upgraded without necessitating any modifications to the overall appearance of the lighting equipment. This is especially important in a cruise vessel which requires form as well as function.

For full details on the marine lighting systems offered by Aqua Signal,

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The listings above are an editorial service provided for the convenience of our readers.

Diesel Tech Appoints Bolger As Marketing And Sales Representative

Diesel Tech, Inc. of Norfolk, Va., has appointed **James D. Bolger** as marketing and sales representative. Mr. **Bolger** contributes over 18 years of diesel and marine-related experience.

Founded in 1985, Diesel Tech provides maintenance and repair services to the marine industry. Services have been provided on foreign and domestic medium and low-speed diesel engines. Extensive experience with Alco, Fairbanks Morse, S.E.M.T. Pielstick, EMD and General Electric engines, Diesel Tech offers 24-hour availability

from their Norfolk, Va., location for emergency requirements as they occur.

For further information and free literature on Diesel Tech,

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Port Facilities Engineering Seminar Set By AAPA For January 28-30, 1991

The American Association of Port Authorities (AAPA) will conduct a port facilities engineering seminar January 28-30, 1991, in Los Angeles, Calif. The theme of this program is "Dynamics in Design for an Industry on the Move." A wide range of major facilities engineering issues critical to port management profes-

sionals will be addressed.

Topics to be discussed during the two and one-half day seminar include: trends in shipping, including the move to post-panamax vessels; automation and its effect on terminal design; what's new and foreseen in breakbulk, neo-bulk and bulk facilities; the latest in crane design; intermodal trends and resulting facility design considerations; plans for an electronic graphics manual; and reducing dredging costs at river facilities.

Founded in 1912 and headquartered in Alexandria, Va., AAPA's membership includes public port authorities and firms with related interests from throughout the Western Hemisphere. This seminar is part of the Association's 1991 education and training program.

'Call To Action' Sounded For U.S. Maritime Industry At 'Sea Lines' Seminar

The Greater New York Chapter of the Surface Navy Association and the U.S. Naval Institute recently cosponsored a "Sea Lines of Communication" seminar at the U.S. Merchant Marine Academy, Kings Point, N.Y.

The keynote address was given by Vice Adm. **Paul D. Butcher**, USN, Deputy Commander-in-Chief, U.S. Transportation Command.

The seminar served as a "call to action" for the U.S. maritime industry as the demands of Operation Desert Shield demonstrate serious U.S. sealift shortcomings.

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.

ABRASIVES

Chesapeake Specialty Products, Inc., 5055 Northpoint Blvd., Baltimore, MD 21219

AIRBORNE ULTRA-SOUND INSTRUMENTS

UE Systems, Inc., 12 West Main Street, Elmsford, NY 10523

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

Adrick Marine Corp., 320 Cantor Ave., Linden NJ 07036
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001
Stal Refrigeration AB, Butangsgatan 16, S-601 87 Norrkoping, SWEDEN
York Int'l, P.O. Box 1592-083G, York, PA 17405

BALLAST

Chesapeake Specialty Products, Inc., 5055 Northpoint Blvd., Baltimore, MD 21219

Genstar Stone Products, Executive Plaza IV, Hunt Valley, MD 21031
Mineral Research & Recovery Inc., 4565 S. Palo Verde, Ste 203, Tucson AZ 85714

BARGE BUILDING

Conrad Industries, P.O. Box 790, Morgan City LA 70381

BARGES—Leasing

McDonough Marine Service, 2300 Surekote Road, New Orleans, LA 70117
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

BASKET STRAINERS

Beaird Industries, P.O. Box 31115, Shreveport, LA 71130
Cleveland Gear, 3249 E. 80 St., Cleveland OH 44104

BEARINGS—Rubber, Metallic, Non-Metallic

B.F. Goodrich, P.O. Box 5550, Akron, OH 44313
B.F. Goodrich, Marine Products Group, 6061 B.F. Goodrich Boulevard, Jacksonville, FL 32226
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Thomson Gordon Ltd., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6

Waukesha Bearings, P.O. Box 1616, Waukesha WI 53187

BOILER CLEANING

Thomas C. Wilson, Inc., 21-11 44th Ave., Ste. 1, Long Island City, NY 11101

BOILERS—Manufacturers

Aalborg Ciserv (Miami), Inc., 1539 SW 21st Avenue, Ft. Lauderdale, FL 33312

BROKERS

Captain Astad Company, Inc., P.O. Box 350486, Ft Lauderdale, FL 33335
2900 Energy Centre, 1100 Poydras Street, New Orleans, LA 70163-2900
Jack Faulkner, 2419 Caddy Lane, P.O. Box 371, Flossmoor IL 60422
Mowbray's Tug & Barge Sales Corp., 35 De Hart St., Morristown NJ 07960

BUNKERING

Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

CARGO ACCESS EQUIPMENT

Morgan Crane Co. Inc., 1300 Normandy Place, Santa Ana CA 92705

CHAIN

Baldt, Inc., 6 M. Butler St., Chester, PA 19013
Crandall Dry Dock Engineers Inc./Marit Chain, 21 Pottery Lane, Dedham MA 02026

Lister Chain & Forge, 3810 Loomis Trail Road, Blaine, WA 98230
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston TX 77020
Washington Chain & Supply, P.O. Box 3645, Seattle WA 98124

CHEMICAL CLEANERS

Charlie Chemical & Supply, Inc., P.O. Box 4639, Greenville, MS 38704-4639

CHOCKING COMPOUNDS

ITW Philadelphia Resins, 130 Commerce Drive, Montgomeryville, PA 18936

CLAMPING—Pipe, Tubes, Hose

ZSI, 32497 Schoolcraft Road, Livonia, MI 48150

COMPACTORS

International Compactor, Inc., P.O. Box 5918, Hilton Head, SC 29938
Thorne Compactors & Trash, Inc., 1601 Highway 13 E. #207, Burnsville, MN 55337-2957

A/S Vesta, Skudehavnsvej 27, DK-2100 Copenhagen, DENMARK. Sales Agents: American United Marine Corp., 5 Broadway, Rt 1, Saugus, MA 01906, USA

COMPUTERIZED INFORMATION SYSTEMS

TIMSCO, P. O. Box 91360, Mobile AL 36691

CONDENSERS/SEPARATORS

Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130
IMO Delaval Inc., P.O. Box 6550, Lawrenceville, NJ 08648
Wright Austin Co., 3250 Franklin St., Detroit MI 48207

CONTROL SYSTEMS—Monitoring

Autronica Marine USA, 234 Industrial Parkway, Northvale, NJ 07647
The Clark-Reliance Corporation, 16633 Foltz Industrial Parkway, Strongsville OH 44136

Eldec Corp., P.O. Box 100, Lynnwood, WA 98046-0100
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IMO Industries, Gems Sensors Division, One Cowles Rd., Plainville CT 06062
MMC International, 60 Inip Dr, Inwood NY 11696
NAMCO Controls, 7567 Tyler Blvd, Mentor OH 44060
Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006

TANO Marine Systems Inc., 4301 Poche Court West, New Orleans LA 70129

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

CRANES—HOISTS—DERRICKS—WHIRLEYS

The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101
Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood NJ 07607
Liebherr-Werk Nenzing GES.mbh, P.O. Box 10, A-6710 Nenzing, AUSTRIA
Marine Travellift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
Morgan Crane Co. Inc., 1300 Normandy Place, Santa Ana CA 92705
J.D. Neuhaus Hebezeugue GmbH, D-5810 Witten, GERMANY
Pettibone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883
Reco Crane Co., 5734 Jefferson Highway, New Orleans LA 70181
Westmont Industries, 10805 Painter Ave., Santa Fe Springs, CA 90670
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

CYROGENICS

Technigaz, Division of Bouygues Offshore, 3 rue Stephenson, 78884 St. Quentin en Yvelines, FRANCE

DECK MACHINERY—Cargo Handling Equipment

All Set Marine Lashing AB, P.O. Box 14112, S-161 14 Bromma, SWEDEN
Braden Carco Gearmatic, P.O. Box 547, Broken Arrow, OK 74013
Gearmatic—see 'Braden Carco Gearmatic' above.
Markey Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788

McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454
Morgan Crone Co. Inc., 1300 Normandy Place, Santa Ana CA 92705
Seattle Crane & Equipment Co., Inc., 4403 20th Street East, Fife, WA 98424

Willem Pot b.v., P. O. Box 29102, 3001 GC Rotterdam, The Netherlands

DECKS

Boatlife, 205 Sweet Hollow Road, Old Bethpage, NY 11804

DEHUMIDIFIERS

L&C Associates, 216 Lafayette Rd., North Hampton NH 03862

DIESEL ACCESSORIES

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Diesel America Inc., 5217 River Rd., New Orleans LA 70123
Gearhardt's Inc., P.O. Box 10161, Jefferson, LA 70181
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360
Kiene Diesel Accessories, 325 S. Fairbanks St., P.O. Box 386, Addison IL 60101

DIESEL ENGINE—Spare Parts & Repair

Aalborg Ciserv (Miami) Inc., 1539 SW 21st Avenue, Ft. Lauderdale, FL 33312

Alaska Diesel Electric, P.O. Box 70543, Seattle, WA 98107
Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN 47202-3005

Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315
Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
Grace Dearborn, W.R. Grace & Co., 300 Genesee Street, Lake Zurich, IL 60047

Hatch & Kirk, 5111 Leary Avenue NW, Seattle, WA 98107

KHD Canada, Inc., 4420 Garand, Ville St-Laurent, Quebec, CANADA H4R 2A3

Kim Hotstart Mfg Co., E 5724 Broadway Ave, P.O. Box 42, Spokane WA 99210

MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1, GERMANY

MAN B&W Diesel, 50 Broadway, 18th FL, New York, NY 10004
MTU of North America, 10450 Corporate Drive, Houston, TX 77478
Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, GERMANY
S.E.M.T. Pielstick, 2 Quai de Seine, Saint Denis, Paris, FRANCE 93203
Sulzer Brothers Inc., 200 Park Ave., New York, N.Y. 10166

DIVING & SALVAGE

H.J. Merrihue, P.O. Box 23123, New Orleans LA 70183
Muldoon Marine Services, Inc., P.O. Box 3221, Terminal Island, CA 90731

DRY DOCKS-Design

Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Marine Design Services, P.O. Box 928, Bonita CA 92002
MAN GHH Sterkrade, P.O. B. 110240, D-4200 Oberhausen 11, GERMANY

ELECTRICAL EQUIPMENT

Consolidated Switch Gear Inc. P.O. Box 8745, Mandeville, LA 70470-8745
Eldec Corp., P.O. Box 100, Lynnwood, WA 98046-0100
L. F. Gaubert & Co., Inc., P. O. Box 50500, New Orleans LA 70150
MMC International, 60 Inip Dr, Inwood NY 11696
P.J. Plishner Marine/Radio Research Instrument Co., 584 N. Main St., Waterbury, CT 06704-3506
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116

ELECTRONIC DISPLAY

Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolboten, NORWAY

ELECTRONIC ENCLOSURES

A&J Manufacturing, 14131 Franklin Ave., Tustin CA 92680

ELECTRONIC INFORMATION SUPPORT

Inventory Locator Service, 3965 Mendenhall Road South, Suite 10, Memphis, TN 83115

ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360
Instruments, Computers, & Controls, Inc., 6942 Haven Creek Dr., Katy TX 77449

EPIRBs

Alden Electronics, 40 Washington St., Westborough, MA 01581

EQUIPMENT—Marine

Byrne, Rice & Turner, Inc., 1172 Camp St., New Orleans LA 70130
Dynabrade, 72 E Niagara St., Tonowanda NY 14150
Gladsky Marine, Garvies Point Road, Glen Cove, NY 11542
Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

EVAPORATORS

Alfa-Laval, Desalt A/S, Stamholmen 93, DK-2650 Hvidovre, Copenhagen, DENMARK

Aqua-Chem, Water Technologies Div., P.O. Box 421, Milwaukee WI 53201
Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130

FANS—VENTILATORS—BLOWERS

Carling Turbine Blower Company, 10 Nebraska St., P.O. Box 88, Worcester MA 01613

Jon M. Liss Associates, Inc., 411 Borel Ave., San Mateo, CA 94402

FASTENERS

Non-Ferrous Bolt & Mfg Co., 4085 Nevso Dr., Suite C, Las Vegas NV 89103

FENDERING SYSTEMS/BUOYS—Dock & Vessel

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston TX 77020
Rowe Bumpers, Conveyor & Caster Corporation, 3501 Detroit Avenue, Cleveland, OH 44113
Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook VA 22624

FUEL ADDITIVES, CONDITIONING

Fuel Conditioning, 2500 Hampton Blvd., Norfolk VA 23517
U.S. Borax/Industrial Chemicals, 3075 Wilshire Boulevard, Los Angeles, CA 90010

GALLEY EQUIPMENT

Cospylod Refrigerator Co., 949 Industry Rd., Kenner LA 70062
Gaulord Industries, 10900 S W Avery St, P.O. Box 1149, Tualatin, OR 97062

McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454

GANGWAYS, LADDERS

Coast Marine & Industrial Supply Inc., 398 Jefferson St., San Francisco, CA 94133

Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32966

Sea Systems Inc., 65 Avco Road, Ward Hill, MA 01835
Westmont Industries, 10805 Painter Ave., Santa Fe Springs, CA 90670
Wooster Products Inc., 1000 Spruce St., P.O. Box 896, Wooster, OH 44691

GEARS

IMO Delaval, Inc., P.O. Box 6550, Lawrenceville, NJ 08648

HEAT EXCHANGERS

Alfa-Laval, Desalt A/S, Stamholmen 93, DK-2650 Hvidovre, Copenhagen, DENMARK

Alfa-Laval Separation Inc., 2115 Linwood Avenue, Fort Lee, NJ 07024
Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130

Thomas C. Wilson, Inc., 21-11 44th Avenue, Long Island City, NY 11101

HORNS/WHISTLES

Kohlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

HOSE

HBD Industries, Inc., 1801 S. Railroad Street, Salisbury, NC 28145-0948

HYDRAULICS

Aeroquip Corporation, 3000 Strayer, P.O. Box 631, Maumee, OH 43537-0631

Cunningham Marine Hydraulics Co., 201 Harrison St., Hoboken NJ 07030
Del Gavio Marine Hydraulics Inc., 207 W Central Ave., Maywood NJ 07607

INCINERATORS

Teamtec A/S, P.O. Box 100, N-4912 Gjeving, NORWAY
IMAC AB, Berga Alle 1, S-252 55 Helsingborg, SWEDEN

U.S. Rep: Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031
Walz & Krenzer Inc., 1390 Mt. Read Blvd., Rochester NY 14606

INSULATION

Soundcoat Company, 1 Burt Drive, Deer Park, NY 11729

JOINER—Watertight Doors—Paneling—Ceiling Systems—Decking

Cupples Products, 2650 S. Hanley Rd., St. Louis, MO 63144
ES Marine Systems Corp., 550 S. Fulton Avenue, Mount Vernon, NJ 10550
IMAC AB, Berga Alle 1, S-252 55 Helsingborg, SWEDEN
U.S. Rep: Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

The Walter Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307

LEGAL SERVICES

American Maritime Correspondents, One Embarcadero Center, Suite 330, San Francisco, CA 94111

John Jozwick, c/o Bryan, Schiffrin & McMonagle, First & Cedar Bldg., Suite 350, 2701 First Ave., Seattle WA 98121

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

Carlisle & Finch, 4562 W. Mitchell Ave., Cincinnati OH 45232
Phoenix Products, 6161 N 64th St., Milwaukie WI 53218

LINE BLINDS

American Piping Products Inc., Box 1056, New Hyde Park, NY 11040
Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474

LOGISTICS

VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs MS 39564
QED, 4646 N. Witchduck Road, Virginia Beach, VA 23455

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

Del Gavio, 207 W. Central Ave., Maywood, NJ 07607
Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315
Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231

MACHINING—On Site Repair

Furmanite, 535 London Bridge Road, Virginia Beach, VA 23454
Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315

MARINE ACCOMMODATIONS

Hopeman Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22980

MARINE FURNITURE

Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA 98102

METAL PRODUCTS

Williams & Co., Inc., 901 Pennsylvania Avenue, Pittsburgh, PA 15233-1495

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy., Arlington, VA 22202

Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356
Amirikian Engineering Co., P.O. Box 15210, Chevy Chase MD 20815
B.C. Research, 3650 Wesbrook Mall, Vancouver, B.C. CANADA V6S 2L2

CDI Marine Co., 9487 Regency Square Blvd., Suite 500, Jacksonville, FL 32225

CT Marine, 18 Church Street, Georgetown, CT 06829
Childs Engineering Corp., Box 333, Medfield, MA 02052

Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, MA 02026
Crane Consultants, 15301 First Ave S., Seattle WA 98148

C.R. Cushing, 18 Vesey St., New York, NY 10007
Arthur D. Darden, 3200 Ridgelande Dr., Suite 403, Metairie LA 70002

Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129

Designers & Planners, 2611 Jefferson-Davis Highway, Suite 3000, Arlington, VA 22202

Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320
E.Y.E. Marine Consultants, Suite 7, 327 Prince Albert Road, Dartmouth, NS B2Y 1N7, CANADA

Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706

Fisher Maritime Transportation Counselors, Inc., 71 Valley Street, South Orange, NJ 07079

GHM Inc. (Industrial Measurement Consultants), P.O. Box 1836, Newport News, VA 23601

Gibbs & Cox, Inc., 50 West 23rd Street, New York, NY 10010
The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104

Morris Guralnick Associates, Inc., 130 Sutter Street, Suite 400, San Francisco, CA 94104

C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110
Hydrocomp, Inc., 45 James Farm-Lee, P.O. Box 865, Durham, NH 03824

JJH Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08034

R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
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

McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
John J. McMullen Associates, Inc., 1 World Trade Center, Suite 3000, New York, NY 10048

MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090
 Fendatl Marbury, 9 Neal Street, Annapolis MO 21401
 Marine Design & Operations, Inc., 520 Westfield Ave., Elizabeth, NJ 07208
 Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902
 Marine Power Associates, 1010 Turquoise St., Ste 217, San Diego, CA 92109
 Maritech, Seadiff, Bay Road, Newmarket, NH 03857
 Maritime Design, Inc., 3020 Hartley Rd., Jacksonville, FL 32257
 R.J. Mellusi & Co., 71 Hudson St, New York, NY 10013
 Nautical Designs, Inc., 2101 S Andrews Ave, Suite 202, ft Lauderdale FL 33316
 Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
 Northern Marine, P.O. Box 1169, Traverse City, MI 49685
 Ocean Oil International Engineering Corp., 3019 Mercedes Blvd, New Orleans LA 70114
 Omega Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1200, Houston TX 77079
 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, 225 Baronne St., Suite 1405, New Orleans LA 70112
 Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702
 Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 205, Solomons MD 20688; 2 Skyline Pl., 5203 Leesburg Pike, Suite 700, Falls Church VA 22041; 1305 Franklin St., Suite 210, Oakland, CA 94612.
 Seaworthy Electrical Systems, 17 Battery Pl, N.Y. N.Y. 10004
 George G. Sharp, Inc., 100 Church St., New York, NY 10007
 R.A. Steam, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
 Systems Engineering Associates (SEACOR), 200 East Park Dr., Suite 600, Mt Laurel NJ 08054
 TIMSCO, P. O. Box 91360, Mobile AL 36691

NAVIGATION & COMMUNICATIONS EQUIPMENT
 Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
 Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
 Hose McCann, 9 Smith Street, Englewood, NJ 07631
 Kelvin Hughes Ltd., New North Rd., Hainault, Ilford, Essex IG6 2UR ENGLAND
 Hull Electronics, 7563 Convoy Court, San Diego, CA 92111
 Mackay Communications, 441 US Highway #1, P.O. Box 331, Elizabeth NJ 07207
 Magnavox MSS, 2895 Maricopa St., Torrance CA 90503
 Mobile Telesystems, Inc., 300 Professional Drive, Gaithersburg, MD 20879
 Naval Electronics, 5417 Jetview Circle, Tampa FL 33634
 Radio Holland USA B.V., 8943 Gulf Freeway, Houston, TX 77017
 Robertson Marine Systems, 3000 Kingman Street, Suite, 207, Metairie, LA 70006
 S.P. Radio A/S, DK-9200, Aalborg SV, DENMARK
 Simrad, 620 Northwest Bright Street, Seattle, WA 98107
 Singapore Telecom, Orchard Point Post Office, P.O. Box 38, SINGAPORE 9123
 Sperry Marine Inc., 1070 Seminole Trail, Charlottesville VA 22901
 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
 Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086
 Watercom Communications Systems, 453 E. Park Place, Jeffersonville, IN 47130

NOZZLES
 Nautican Enterprises Ltd., 407 Mountain Highway, North Vancouver, B.C. V7J 2L1

OILS—Marine—Additives
 Castrol, Inc., Raritan Plaza II, Raritan Center, Edison, NJ 08837
 Chevron, USA, 575 Market Street, San Francisco, CA 94105
 Exxon Company International, 200 Park Ave., Bldg 222, Room A279, Florham Park NJ 07932, P.O. Box 4706, Houston, TX 77210-4706
 Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001
 Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

OIL/WATER SEPARATORS
 Alfa-Laval Separation, Inc., 955 Meams Rd., Warminster, PA 18974-0556
 Centrica, Inc. (Westfalia Separators), 100 Fairway Court, Northvale NJ 07647
 FAST Systems, Inc., 3240 N. Broadway, St. Louis, MO 63147
 Jofra, 22 Manhasset Ave., Port Washington, NY 11050
 MMC International, 60 Inip Dr, Inwood NY 11696

PAINTS—COATINGS—CORROSION CONTROL
 American Abrasive Metals Co., 460 Coit St, Irvington NJ 07111
 Ameron, 201 N. Berry St., Brea, CA 92622
 Chugoku Marine Paints (USA) Inc., 1610 Engineers Road, Belle Chasse, LA 70037
 Enviro Coatings, Inc., 4560 Belt Line Rd., Suite 300, Dallas, TX 75244
 Esgard, Inc., P.O. Drawer 2698, Lafayette, LA 70502
 International Paint (USA) Inc., 6001 Antoine Dr., P.O. Box 4806, Houston TX 77210-4806
 LTC International, 101-G Executive Dr., Sterling VA 22170
 Microphor, Inc., Marine Division, 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490
 Sigma Coatings, 8979 Market St., Houston, TX 77029, 330 Rover Road, Harvey, LA 70059, 1100 Adams St., Hoboken, NJ 07030
 Unitor Ships Service, Unitor Marine Chemicals Division, 3 High St., Rickmansworth, Herts, WD3 1SW UNITED KINGDOM

PIPE FITTINGS/CONNECTING SYSTEMS
 Aeroquip Corporation, 3000 Strayer, P.O. Box 631, Maumee OH 43537-0631
 Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248

PORT SERVICES
 Port of Iberia, P.O. Box 897, New Iberia LA 70561
 Port of Orange Texas, P.O. Box 516, Orange, TX 77630
 Port of Portland, 5555 N. Channel Ave., Portland, OR 97217

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
 American Air Filter, P.O. Box 35690, Louisville, KY 40432
 ASE Brown Boveri, 1460 Livingston Ave., North Brunswick NJ 08902
 ASE Brown Boveri (Stromberg), P.O. Box 185, 00381 Helsinki, FINLAND
 Argo International, 140 Franklin Street, New York, NY 10013
 Bergen Diesel A/S, P.O. Box 924, N-5002, Bergen, NORWAY
 Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081
 CWF Hamilton & Co., Ltd., P.O. Box 709, Christchurch, NEW ZEALAND
 Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320
 Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
 Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
 Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN 47202-3005
 Electro-Motive Division of GM, 9301 W 55th St., LaGrange, IL 60525
 Fincantieri, Diesel Engines Division—GMT, Bagnoli delta Rosandra 334, Trieste, ITALY

GE Marine & Industrial, 1 Neumann Way N-158, Cincinnati OH 45215
 GE Naval & Drive Turbine Systems Department, 166 Boulder Dr., Fitchburg MA 01420
 General Motors, Allison Gas Turbine, P. O. Box 420, U-6, Indianapolis IN 46206
 KaMeWa, P.O. Box 1010, S-681 01 Kristinehamn, SWEDEN
 Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
 Krupp MaK, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9
 Mapeco Products Inc., P.O. Box 6, 725 Glen Cove Ave., Glen Head NY 11545
 Marine Gears, Inc., P.O. Box 689, Greenville MS 38707
 Marine Systems Inc., 2032 Atlantic Ave., Chesapeake VA 23324
 Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY
 MAN B&W Diesel, 50 Broadway, New York, NY 10004
 MAN B&W Diesel A/S, Ostervej 2, DK-4960 Holeby, DENMARK
 MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15. DK-9900 Frederikshavn DENMARK
 MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1 GERMAN
 MTK Magnetek Inc., 11150 Santa Monica Blvd., Los Angeles CA 90025
 New Sulzer Diesel, Ltd., CH-8401, Winterthur, SWITZERLAND
 Northwest Marine Services Corp., 6452 So. 144th St., Tukwila WA 98168
 Omnithruster Inc., 9515 Sorensen Ave., P.O. Box 2144, Santa Fe Springs, CA 90670
 Ovako Steel Couplings AB Sweden, S-813 00 Hofors SWEDEN
 Propulsion Systems, 1441 N Northlake Way, Seattle WA 98103
 Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND
 Rolla SP Propellers USA, 4030 Mustang Road, Melbourne, FL 32934, USA
 Karl Senner Inc., 25 W Third, Kenner LA 70062
 Schottel-Werft, D-5401 Spay, GERMANY
 Stewart & Stevenson, 1400 Destrehan, P.O. Box 8, Harvey LA 70059-0008
 Sulzer/Escher Wyss, Ravensburg GERMANY
 Ulstein International, A/S, N-6065 Ulsteinvik, NORWAY
 J. M. Voith GmbH, Dept. Werbung, Postfach 1940, 7920 Heidenheim/Brenz GERMANY
 Oy Wartsila Ab, Vasa and Abo Divisions, Vasa Factory, FINLAND
 Oy Wartsila, Stork Division, P.O. Box 244, SF 65100 Vasa, FINLAND
 WesTech Gear Corp., 2600 E. Imperial Highway, Lynwood, CA 90262
 ZF of North America, Marine Sales, 500 Barclay Blvd, Lincolnshire IL 60069

PROTECTIVE WRAPS
 FANA (Film Applicators of North America), 1260 E Woodland Ave., Springfield PA 19064

PUMPS—Repairs—Drives
 Coffin Turbo Pump, Inc., 326 S. Dean Street, Englewood, NJ 07631
 Del Gavio, 207 W. Central Ave., Maywood, NJ 07607
 Goltner Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
 Houser Marine, Lario Division, 1713 S McKenzie St., Foley AL 36535
 Imo-Delaval, Inc., IMO Pump Division, Box 447, Monroe NC 28810
 Jim's Pump Repair, 48-55 36th St., Long Island City NY 11101
 Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
 Vita Motivator, 99 W Hawthorne Ave., Suite 622, Valley Stream NY 11580

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

ROPE—Manila—Nylon—Hawesers—Fibers
 Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018
 Columbian Rope Corp., P.O. Box 270, Guntown, MS 38849
 Dupont, Montgomery 403, 1011 Centre Road, Wilmington, DE 19805

SANITATION DEVICES—Pollution Control
 Jered Brown Brothers, P.O. Box 2006, Troy, MI 48007
 Byrne, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130
 Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
 FAST Systems, Inc., 3240 N. Broadway, St. Louis MO 63147
 Microphor, Inc., 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490
 Research Products/Blankenship (Inciolet), 2639 Andjon, Dallas, TX 75220

SCAFFOLDING
 Spider Staging Corp., 12720 Gateway Dr., Seattle WA 98168

SCALE MODELS
 Sturgeon Bay Model Shop, 187 N Ninth Ave., Sturgeon Bay WI 54235

SCUTTLES/MANHOLES
 L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211

SHIPBUILDING EQUIPMENT
 MAN—GHH, Sterkrade Werfsrabe 112 D-4100 Duisburg 18, GERMANY
 MAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, GERMANY
 NEI Syncrolift, Inc., 8970 S W 87th Ct., Miami FL 33176
 Offshore Industries, Inc., 144 Railroad Ave., Suite 206, Edmonds WA 98020

SHIPBUILDING—Repairs, Maintenance, Drydocking
 Astilleros Espanoles S.A., Padilla 17, 28006 Madrid, SPAIN
 Atlantic Marine, Inc. (Atlantic Dry Dock), 8500 Heckscher Drive, Jacksonville, FL 32226
 Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150
 Bellingier Shipyard, Division of Jacksonville Shipyards, Inc., 13911 Atlantic Boulevard, Jacksonville, FL 32225
 Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601
 Bethlehem Steel, Martin Tower, Bethlehem PA 18106
 Bethlehem Steel, Baltimore Marine Div., Sparrows Point Yard, Sparrows Point MD 21219
 Blount Marine, Box 368, Warren RI 02885
 Bollinger Lockport & Larose, P.O. Box 250, Lockport, LA 70374-0250
 Brodospilt Shipbuilding Industry, Put Udarnika 19, P.O. Box 17, 58000 Split YUGOSLAVIA
 Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
 Curacao Drydock (USA), Inc., P.O. Box 3012, Curacao, Netherlands Antilles
 Eastern Shipyards, Inc., Energy Centre, Suite 2900, 1100 Poydras Street, New Orleans, LA 70163
 Equitable Shipyards Inc., Trinity Marine Group, Box 29266, New Orleans LA 70189
 Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
 Galveston Shipbuilding, 6800 Port Industrial Boulevard, P.O. Box 2660, Galveston, TX 77553
 Gladding-Hearn Shipbuilding, The Duclos Company, One Riverside Avenue, Box 300, Somerset, MA 02726
 Hitachi Zosen, Hitachi Shipbuilding & Engineering Co., 1-1-1 Hitotsubashi, Chiyoda-ku Tokyo 100, JAPAN
 Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530
 In-Place Machining Co., 1929 N. Buffam Street, Milwaukee, WI 53212-3793
 Jeffboat, Inc., P.O. Box 610, Jeffersonville IN 47130
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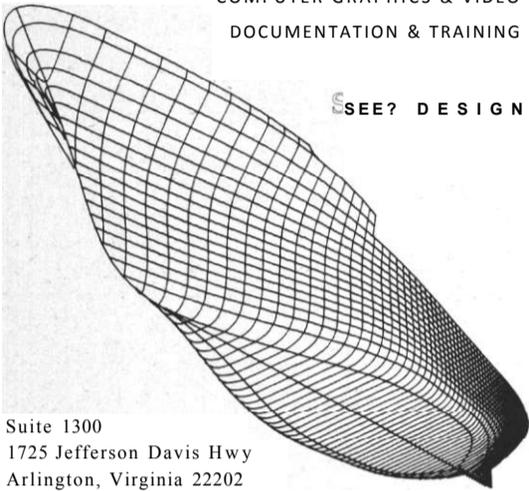
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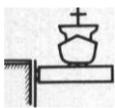
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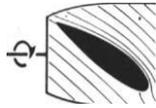
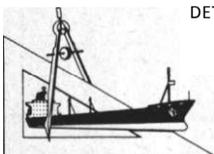
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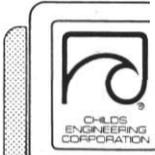


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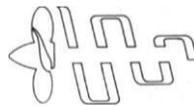
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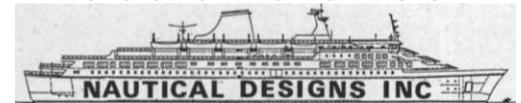
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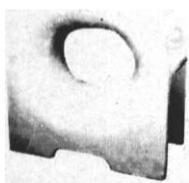
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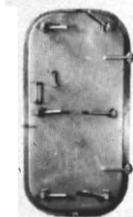
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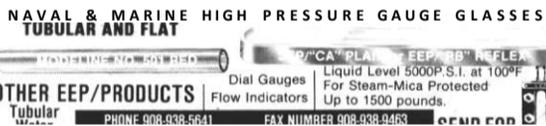
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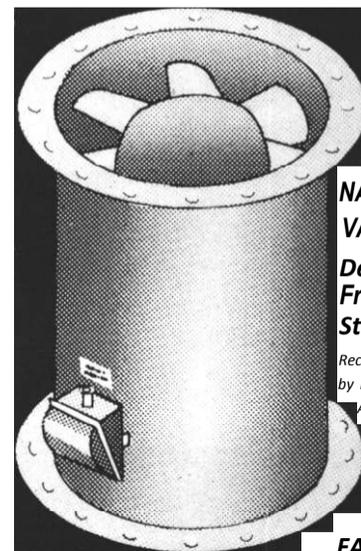
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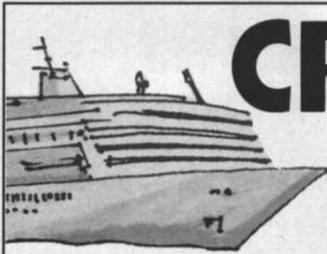
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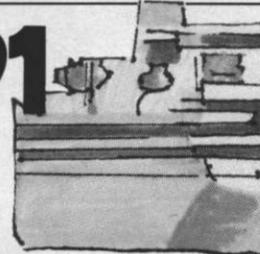
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LONDON 29-30-31 MAY 1991



Event Programme

Day 1 May 29

Cruise + Ferry Exhibition Opens 09.00h
Conference Registration 09.00 - 12.00h
Cruise + Ferry Conference Opens 14.00h

Session 1: Markets and Marketing
Session 2: Destination Development

Welcome Reception for all Delegates and Exhibitors

Day 2 May 30

Cruise + Ferry Exhibition open 09.00 - 18.00h

Session 3: Shipboard Revenue
Session 4: Interior Design

Lunch for Registered Delegates

Session 5: Operational Efficiency
Session 6: Fast Ferries

Official Evening Reception for Delegates and Spouses

Day 3 May 31

Cruise + Ferry Exhibition open 09.00 - 17.00h

Session 7: Passenger Terminals and Handling
Session 8: Ship Design and Regulations

Conference Sessions end: 12.30h

Lunch for Registered Delegates

Please note that the conference sessions may be expanded and their order amended.

Advance Registration

The conference advance registration fee of £348.00 (inclusive of £38.00 VAT) per person applies to registrations received up to 1 February 1991. After that date the full fee is £382.00 (inclusive of £42.00 VAT). Conference fee includes conference papers, participants lists, exhibition catalogue, lunches, coffee breaks and invitations to the Welcome Reception and the Official Evening Reception.

Name _____

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Tel: _____ Fax: _____

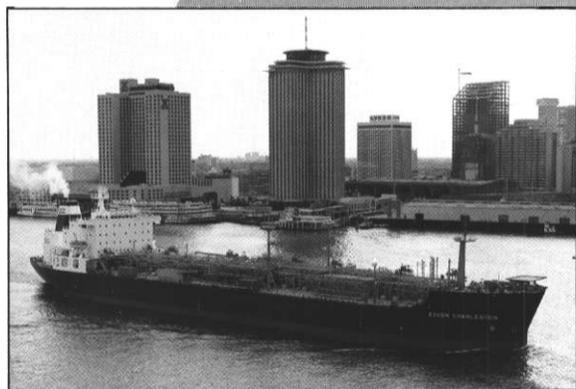
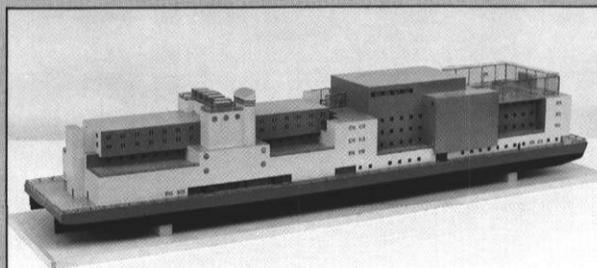
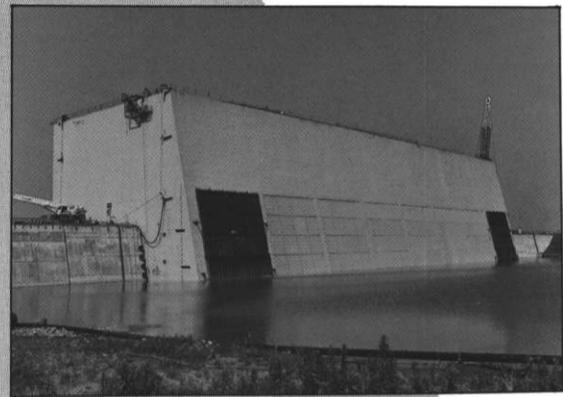
To register for the conference send fee with above form to:
Cruise + Ferry Secretariat, 2 Station Road, Rickmansworth, Herts WD3 1QP, England
Tel: (0923) 776363 Fax: (0923) 777206 Telex: 924312

Exhibitors

- | | |
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| Colmer & Co (Fabrications) Ltd | Maritime Progress Limited |
| Rockment A/S | MTU Motoren und Turbinen Union |
| Oceanclean Ltd | Swedish National Group |
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| Firth Carpets Ltd | SWATH Ocean Ltd |
| GEC Alsthom Chantiers de l'Atlantique | BMEA - British Marine Equipment Association |
| C-Tech Systems | HMS |
| Jade Werft | Castrol Overseas Ltd |
| McNeece | Uson Marketing AB |
| TrioVing AS | Port of London Authority |
| Safeware Ltd | Bremer Vulkan AG |
| BPS Brand -u. Personenschutz | Gryffe Boats |
| Danish National Group Display | Spectec |
| Tankard Carpets Ltd | Kelvin Ross Engineering Ltd |
| Dampa A/S | Royal Schelde |
| Casino Coin | Port of Canaveral |
| Electrolux | Deep Sea Seals Ltd |
| Vulkan Couplings | Schichau Seebeckwerft |
| Portland Design Associates | Regency Marine |
| Oliver Design | Norwegian National Group |
| Solaglas | APS-Material Services Oy |
| Blöhm + Voss | Brian Shaw Management |
| Ruston Diesels Ltd | Brodosplit Shipbuilding Ind. |
| Deerberg-Systeme | Port of Tilbury |
| Maine Engineering Ltd | Aldo-Manta Ltd |
| Marinteknik Verkstads AB | Brax Shipping AB |
| Societa' Esercizio Cantieri (SEC) | Tecnotile Ltd |
| FBM Marine Ltd | TNT Shipping & Development |
| Finnish National Group Display | French National Group |
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| Skopos Fabrics Ltd | Amatol |
| NQEA Australia Pty Ltd | Advanced Multi-Hull Designs |
| Primo Furniture | RFD Ltd |
| Resopal GmbH | Comsat World Systems |
| Italian National Group Display | CLC Marine Services |
| Neutrik (UK) | Lloyd Werft |
| Merlin Gerin | Metro Marine |
| Architects Group Practice | Ross Services |
| Mitsubishi Heavy Industries Ltd | Polyrey |
| Gaylord Industries (Europe) Ltd | Marine Trading |
| German National Group Display | Varialine Metallprofile und Systeme |
| H & T Marlow Ltd | W... |
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