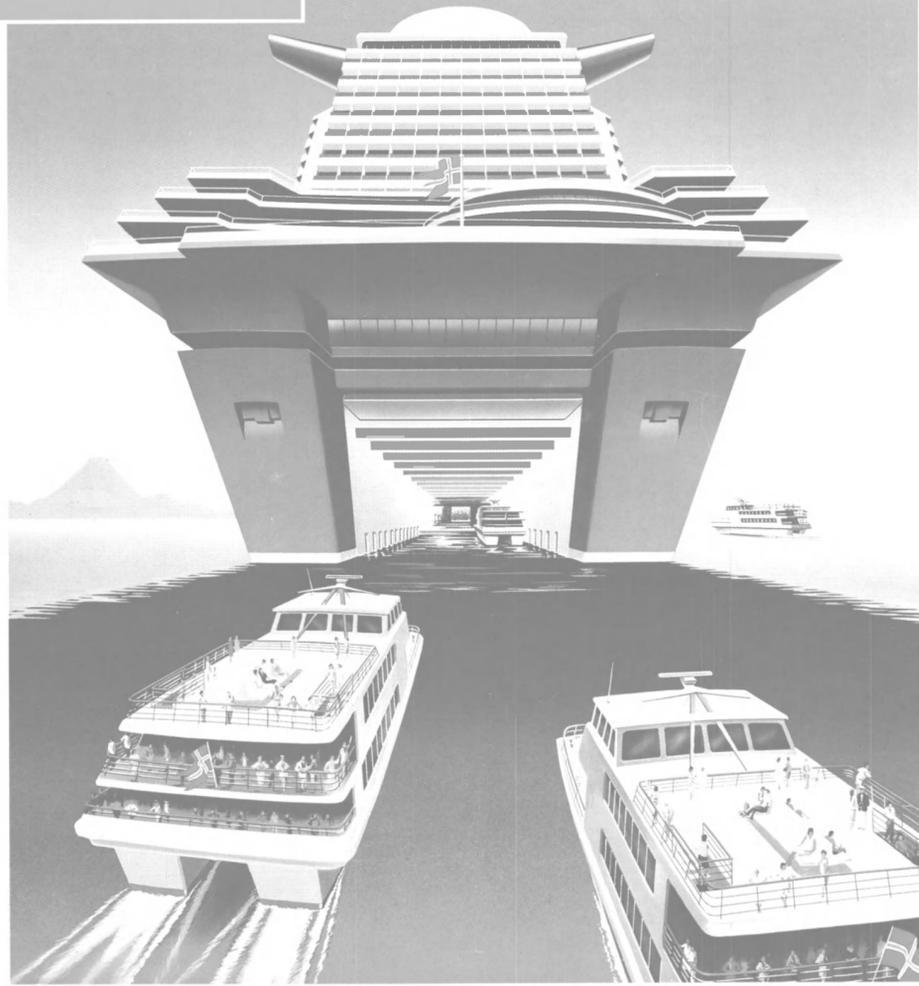
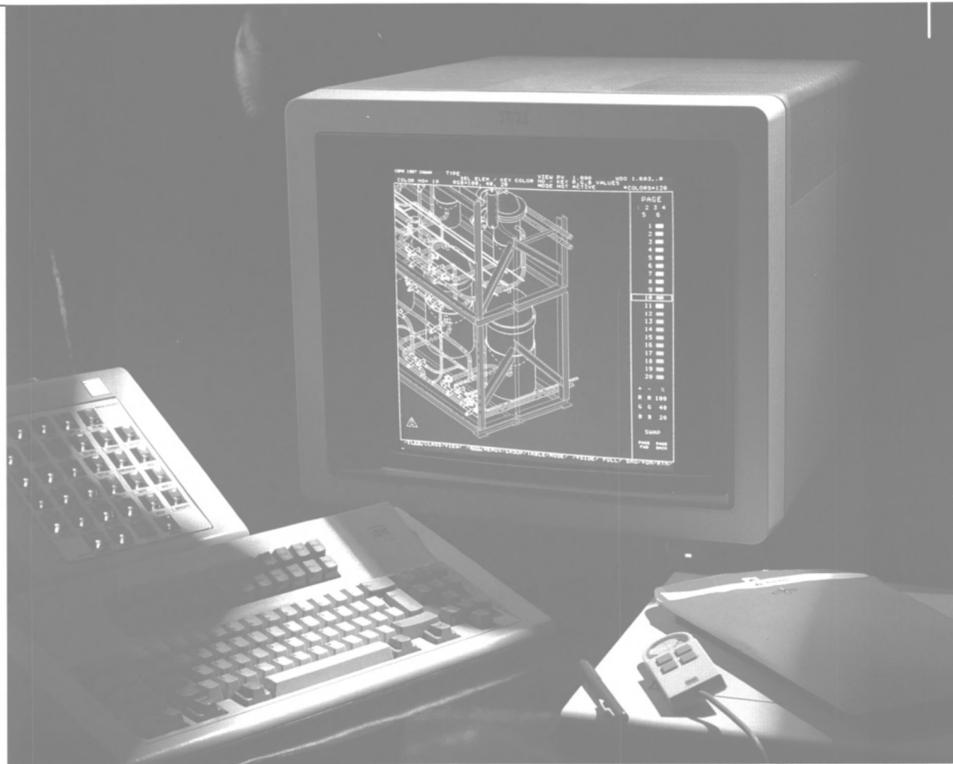


**MARITIME
REPORTER**
AND
ENGINEERING NEWS



Cruise + Ferry *and* Nor-Shipping
NAVAL TECHNOLOGY & SHIPBUILDING

MAY 1989 ISSUE



Avondale draws on its past to fabricate America's future.

When heavy industry was being written off as passe in America, the executive team of Avondale Industries, Inc., went quietly about the business of securing a bright future in heavy, industrial manufacturing.

Avondale first strengthened its traditional leadership position as the nation's finest marine fabricator by adopting the leading edge technology...modular construction and assembly.

Avondale mastered the technology and then sought ways to maximize its

value, applying it successfully to diverse land-based industries.

Today, heavy industry is back in style because critical systems for transportation, defense, electric power and environmental protection need upgrading and expanding...now.

Because of extraordinary foresight and aggressive action, Avondale today provides components and complete facilities to upgrade the country's infrastructure quickly and inexpensively.

Avondale is refabricating America.



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(504) 436-2121

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Operated Company*



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From our point of view.



IMAC was created when two world leaders in marine accommodation systems — Pers-torp and Isolamin/Ecomax — joined forces. The company represents a new, unique factor in the field of marine interior design. Its objective is to offer naval architects, interior designers and other specifiers the world's most comprehensive range of high quality, purpose designed outfitting materials and components.

Associated to IMAC are E-MODUL — specialized in design and manufacturing of factory built, pilferage-proof sanitary units for marine accommodation — and MOMEK, with a complete range of marine doors and deck covers together with associated furniture and fittings.

IMAC Total Package.

IMAC has the unique capability to offer you:

- Specification service for the fully coordinated accommodation products according to your safety, comfort and design requirements.

- The component package. Complete with matching doors, sanitary units, floating floors and furniture etc.

Supervision during erection of the system. Everything at fixed prices and delivery times, according to your time schedule.

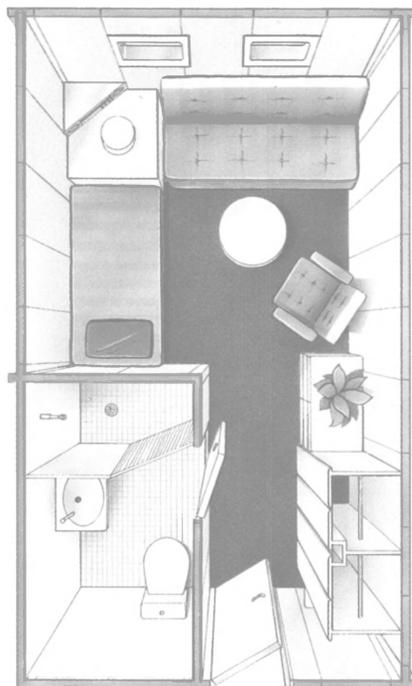
From our point of view this is what you are entitled to when you deal with the world leader in marine accommodation.

On the face of it.



It is difficult to visualize the interior of a modern ship without decorative laminates. IMAC offers the complete range of Pers-torp laminates for marine applications. We also supply these laminates bonded to a variety of core materials, including mineral wool, and the wellknown Navilite N.

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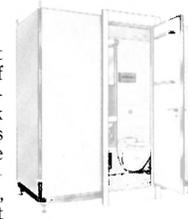
Self-supporting panelling.

The IMAC marine accommodation systems were designed specifically to rationalize outfitting work. The standard basic module is a bulkhead panel of sandwich construction with an insulating core of noncombustible material between facings of either laminate or sheet steel clad with vinyl film. Though light, the panels have high strength and can support heavy fixtures.

The modular system is very flexible and adapts readily to varying installation parameters.

Ready-made units.

Prefabrication ashore is the most effective way of speeding up interior fitting work onboard ship. This is particularly true in the case of sanitary units — bath, shower and toilet modules — where many trades are involved. E-MODUL specializes in prefabricated marine sanitary units that feature a high standard of furnishings and fittings as well as fast and simple installation. IMAC is now able to offer the complete E-MODUL range on a worldwide exclusive basis.



Purpose engineered doorsets.

The IMAC exclusive selection of marine accommodation systems includes the entire range of purpose-designed doorsets from the specialist manufacturer MOMEK. The MOMEK modular range comprises fully approved constructions for cabin doors, fire doors, sliding doors etc. The doors provide a high level of sound and thermal insulation.

Do you need to know more about complete marine accommodation systems? Send away for a full presentation of the IMAC programme!

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 Contact me! I want to discuss a specific project.

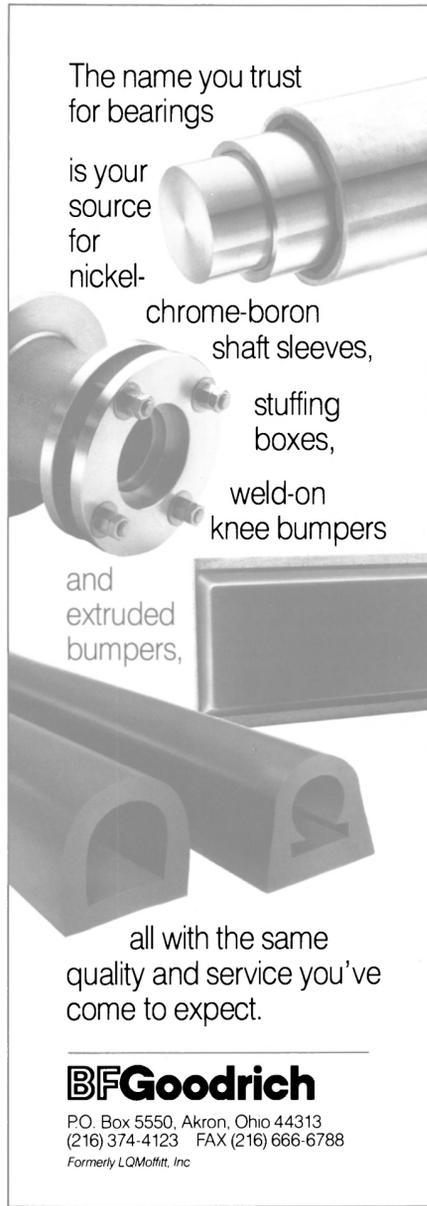
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ON THE COVER

Photos: Cover—Artist concept of the 250,000 grt cruise ship, Phoenix. See story page 11. Page 12, cruise ship, Holiday. Photo-Carnival Cruise Lines. Naval Technology & Shipbuilding supplement cover—Amphibious Assault Ship USS Wasp (Ingalls photo) see story page 38. Page 33, Destroyer USS Oldendorf (US Navy photo).

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Cruise & Ferry '89
PAGE 12

The Expanding Cruise
Industry
PAGE 14

NAVAL TECHNOLOGY
& Shipbuilding
PAGE 31

Nor-Shipping '89
Preview
PAGE 54

Next Month
1989 JUNE YEARBOOK

Keppel Lengthening Five Semi-Container Vessels For Danish Company

Keppel Shipyard in the process of completing the lengthening of the first of five semi-container vessels for the Danish company Knud i Larsen. This is the first time Keppel has been awarded five lengthening contracts from one company, the collective value of which is estimated at S\$14 million (about US\$7.1 million).

The M/V Bravo Sif was lengthened by 13 meters (about 42.6 feet), increasing the container intake from 356 TEUs to 426 TEUs. The vessel's deadweight has increased by 1,100 tons to 5,500 mts, incorporating 250 tons of steelwork. Delivery time took approximately four weeks.

The Bravo Sif also underwent reinforcement of the steel structure and hull to enable the vessel to be used in the future as both an open and closed shelterdecker.

Similar conversion and lengthening work will be carried out on four other sister vessels which are due to arrive at Keppel within the next few months.

For free literature giving full information on the facilities and capabilities of Keppel Shipyard,

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NAPVO To Review Subchapter T Proposal

The National Association of Passenger Vessel Owners (NAPVO), which represents the interests of more than 360 passenger vessel companies, recently announced that it intends to thoroughly review and provide comments to the Coast Guard on the recently proposed re-

vision to "Subchapter T," the federal regulations concerning the small passenger vessel industry.

Released earlier this year, the proposed rules contain sweeping changes to the way that boats shall be constructed and operated. The Coast Guard has been working on the revisions for more than three years and is now seeking public comment on the proposal before moving to implement them.

NAPVO president **Coe Sherrard** commented, "We are examining the proposed regulations carefully to determine what their full impact on the industry will be. We fully support the need to update a set of regulations written 30 years ago, however, we want to be sure that the rules represent the best of current technology and operating procedure. This industry has a stellar safety record. We see little need

to stiffen safety requirements, without a documented need to do so."

The NAPVO Public Policy Committee met in Washington recently to develop a draft position paper and plan a strategy for public response. "We are seeking to fully involve all aspects of the industry in providing comments to the Coast Guard," said public policy committee chairman **Alan Bernstein**. "All NAPVO members are being encouraged to read subchapter T and provide written comments to the committee. These comments will then be incorporated into our position paper. Additionally, we will actively encourage our members to participate in the public hearings and to send comments to the Coast Guard," he said.

The small passenger vessel regulations were originally written in the late 1950s in response to several accidents resulting in the loss of life. Developed originally for vessels carrying relatively small passenger capacities, they have not kept up with new building standards and methods of operation. The average vessel capacity has increased greatly, outstripping the applicability of the current rules. Among major provisions in the new rules are a requirement that vessels operating in cold waters will have to carry inflatable buoyant apparatus, tougher construction standards, and new operating procedures.

For further information on NAPVO, contact NAPVO executive director **Eric G. Scharf** at (202) 638-5310.

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Circle 259

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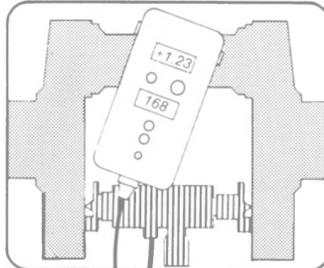
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New Lubricant Treatment From Ferrous Corporation Reduces Bearing Wear —Literature Available

Ferrous Corporation, manufacturer of Ferrous Combustion Catalyst FE-4 Marine Grade, recently announced the availability of Sea-L-Saver. Sea-L-Saver is a lubricant treatment that conditions seals and reduces bearing wear while protecting against the corrosive effects of seawater—important concerns in stern tubes and bowthrusters. According to the manufacturer, Sea-L-Saver is safe to use with all seals.

For more information and free literature on Sea-L-Saver from Ferrous Corporation,

Circle 17 on Reader Service Card

Frank Clark Named Director, Marine Division, Port Of Seattle

Frank H. Clark has been named director of the Port of Seattle's Marine Division, according to deputy executive director **John G. Belford**. Serving formerly as director of the port's marine terminals department, Mr. Clark has worked for the port since 1967.

Maritime Reporter/Engineering News

Trinity Industries To Buy Bethlehem Steel's 74-Acre Beaumont, Texas, Facility

Bethlehem Steel Corporation recently confirmed that it has signed a letter of intent with Trinity Industries, Inc. of Dallas, Texas, for the sale of its 74-acre Beaumont facility.

David H. Klinges, president of Bethlehem's marine construction division, said that Bethlehem is pleased that a major Texas-based company is purchasing the former ship repair yard with its buildings, shops, machinery, and other facilities, since it should provide new job opportunities for local residents and help stabilize the economy of the City of Beaumont.

Mr. Klinges acknowledged the assistance and efforts by Beaumont's Mayor Maury Meyers, as well as State Representative Mark Stiles, in attracting Trinity Industries as the potential buyer, and the involvement of Congressman Jack Brooks and U.S. Senators Bentsen and Gramm in helping to identify alternative uses of the yard.

Located on the Neches River, the Beaumont facility was purchased by Bethlehem Steel in 1947. The facility was used to design, build and repair commercial and military vessels and mobile offshore drill rigs, and fabricate industrial products. The yard was closed in August 1988.

In connection with this divestiture, Bethlehem recorded a restructuring charge in the fourth quarter of 1987.

For free literature giving full information on Trinity Industries,

Circle 14 on Reader Service Card

Kiene Diesel's Fuel Injection Nozzle Tester Features Dual Scale Gauge—Literature Available

The DT-1300 fuel injection nozzle tester from Kiene Diesel, Addison, Ill., is now equipped with an easy-to-read dual English/metric gauge for expanded use on domestic and foreign measures up to 345 bars, the English scale up to 5,000 psi.

The DT-1300 features pump and gauge control valves to check for proper operation, and quick connect discharge fittings for standard fuel system components. Ideal as a portable or bench-operated unit, the DT-1300 need not be clamped for testing and comes with a self-contained reservoir and carrying handle.

An essential tool for professional diesel maintenance, the DT-1300 tests all types of diesel fuel injection components as well as hydraulic circuit relief valves. It is available with a complete set of nozzle connectors, adapters and interchangeable gauges for special applications.

Maintenance supervisors, mechanics and fleet owners can send for more information, specification sheets, etc.

Circle 33 on Reader Service Card

May, 1989

Caterpillar Announces New Trademarks

Caterpillar Inc., a multinational company headquartered in Peoria, Ill., recently announced it has adopted two new trademarks. These marks will identify the corporation and its products and services by the two words associated with the com-

pany throughout the world—Caterpillar and Cat.

The new marks capitalize on the traditional Caterpillar and Cat names by adding a stylized triangle design incorporated into the first "A" in each word.

The "CAT" mark will be the main identifier for products and services and the dealers who sell and support them. The "CATERPILLAR" mark

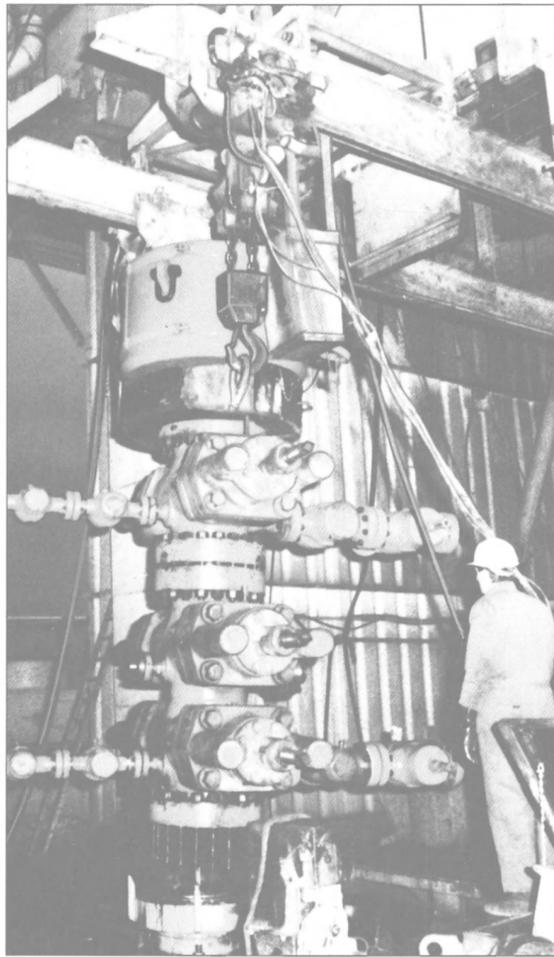
will identify the company, its subsidiaries, its products and services, and will double as the official corporate signature.

The company manufactures earthmoving, construction and materials-handling machinery, engines, parts and components.

For free literature detailing Caterpillar products and services,

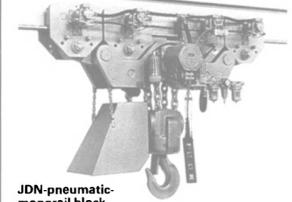
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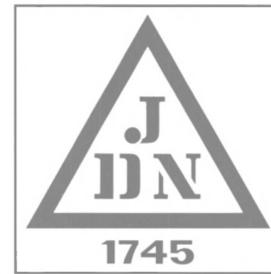
They are for instance standard built for application in areas where there is a risk of explosion. Explosion proof requirements are especially high on drill platforms. For this reason increased sparking protection is possible as an optional extra. JDN-pneumatic hoists are available with carrying capacities from 0,1 to 100 tons.

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Comsat Maritime Services Publishes Cruise Ship SatCom Brochure

Comsat Maritime Services recently announced the publication of its new brochure, "Cruise Calling" (SM). This valuable reference guide provides instructions on placing ship-to-shore and shore-to-ship sat-

ellite calls and includes a directory of telephone numbers for cruise ships worldwide.

Comsat Maritime Services recently conducted a national research study among travel agents and cruise travelers and found that most of those surveyed were not aware of the availability of satellite communications aboard ship. The survey also revealed that passengers perceive access to a telephone while on a cruise as a benefit.

Comsat's "Cruise Calling" brochure responds to this need for information about cruise communications by providing step-by-step instructions for placing private, high-quality satellite telephone calls to and from cruise ships.

For more information and free copies of the "Cruise Calling" brochure from Comsat Maritime Services,

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CE&MCO Receives Order For Three Portainers From Maersk Container

Coast Engineering & Manufacturing Company (CE&MCO), formerly PACECO, Inc., recently received an order for three 50-long-ton-capacity PACECO Portainers from Maersk Container Service Co., Inc. The post-Panamax cranes will be designed and manufactured at the company's 100-acre facility in Gulfport, Miss., and then delivered to three different locations.

The first crane, featuring an outreach of 140 feet, backreach of 75 feet and span of 50 feet, is scheduled for delivery to Long Beach, Calif., in April 1990. The second crane, with an outreach of 135 feet, backreach of 75 feet and span of 50 feet, will be delivered to Newark, N.J., in May 1990. The last crane, which will have an articulating boom, outreach of 150 feet, backreach of 30 feet and span of 110 feet, will be delivered to Oakland, Calif., in June 1990.

CE&MCO, a subsidiary of the Fruehauf Corporation of Detroit, Mich., has been building container-handling cranes since 1959. The company is recognized as one of the South's leading manufacturers of custom-designed heavy machinery for defense, space, power generation, material-handling and marine applications, in both the government and commercial sector.

For further information, including a free four-color brochure and video presentation,

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The Norwegian Trade Fair Foundation and Lloyds of London Press are collaborating to stage the most positive and forward looking conference programme for a decade. In addition the International Marine Purchasing Association will stage their 9th conference at the exhibition site.

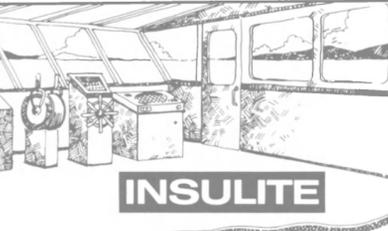
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CDI Marine Promotes Michael R. Gluse To VP



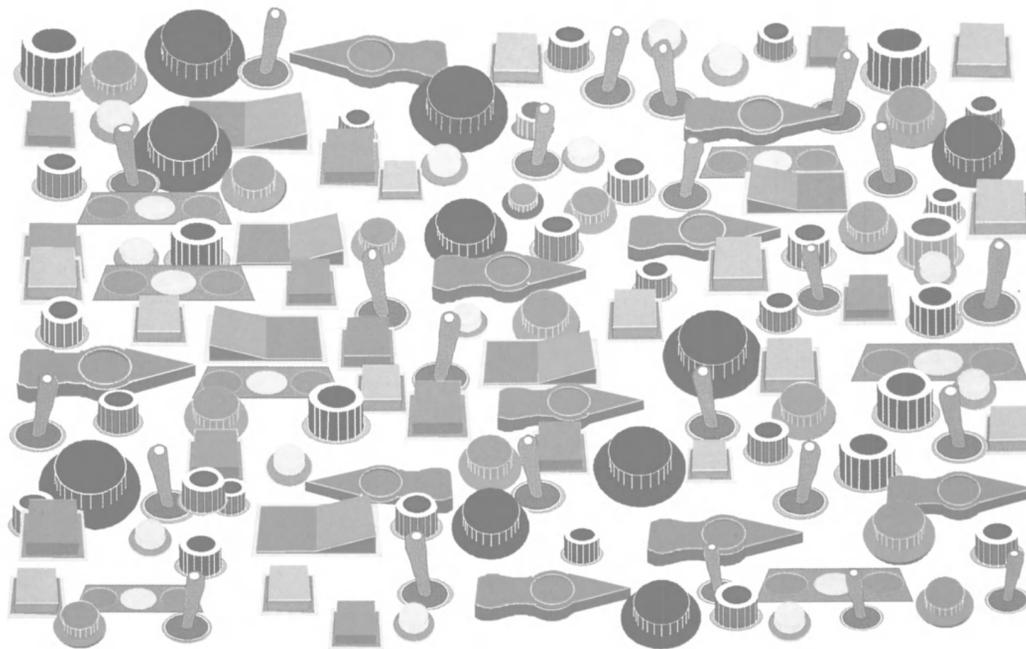
Michael R. Gluse

CDI Marine Company of Jacksonville, Fla., recently announced the promotion of **Michael R. Gluse** to the position of vice president.

Mr. Gluse will be responsible for contracted work in the Tidewater area as well as new business development in design and engineering. He will head the Systems Support Services Division which augments the traditional naval architecture and marine engineering services of CDI Marine Company.

Mr. Gluse is active in numerous civic organizations including the Military and Legislative Affairs Committees of the Hampton Roads Chamber of Commerce, the Norfolk Naval Shipyard-Portsmouth Association and the Friends of the Portsmouth Naval Shipyard Museum.

Maritime Reporter/Engineering News



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For more information about Propulsion Systems or Heimdal Propellers,

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The Fairwind in drydock at the Brooklyn facility of New York Shipyard Corporation. While at the facility, the cruise ship underwent shaft and exterior repairs. Her name was also changed to the Dawn Princess due to a livery change.

**N.Y. Shipyard Drydocks
925-Passenger Cruise Ship**

—Brochure Available—

The Brooklyn, N.Y., facility of the New York Shipyard Corporation recently completed shaft repairs and exterior work on the P&O Cruises Ltd. passenger vessel Dawn Princess.

New York Shipyard completed the drydocking of the 606-foot, 925-passenger vessel in 17 days. The yard installed new stern tube bearings, removed and realigned her intermediate shafts, rebabbitted the pedestal bearings, replaced the exterior ventilation ducts and rebuilt the plenum chambers.

The Dawn Princess had entered the Brooklyn yard as the Fairwind, operated by Sitmar Cruises Inc., Los Angeles, Calif., a P&O Cruises subsidiary. However, because of a livery change, the vessel's stack logo and ship name were removed by the yard via water blasting. Shipyard workers then created giant stenciling forms for her new design.

New York Shipyard, formerly

Rodermond Industries, has been in the repair business for over 70 years. It is located in the former Todd Shipyard Brooklyn facility.

Located six miles from Ambrose Channel of the Port of New York, New York Shipyard performs all types of repairs, alterations, and drydockings for a wide range of vessels, from cruise ships, cargo vessels and tankers to barges and tugs. It operates on a 24-hour basis with three fully staffed shifts and is capable of performing full turnkey repair operations. Located on 48 acres, the Brooklyn facility has a 32,000-ton graving dock, two floating docks, five piers, crane facilities, and plate, fabrication, machine and other shops.

For a free color brochure fully detailing the ship-repair services and facilities of New York Shipyard Corporation,

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**MAN B&W Diesel To Takeover
Sulzer's Diesel Activities**

**MAN B&W Increases Market Share
In Two-Stroke Engine Sector**

Diesel engine manufacturers MAN B&W Diesel AG, Augsburg, West Germany, a subsidiary of MAN Aktiengesellschaft, Munich, and Sulzer Brothers, Ltd., Winterthur, Switzerland, have agreed that Sulzer business activities in the diesel sector will be transferred to MAN B&W. For this purpose, a new company will form around Sulzer's diesel activities, which will subsequently be taken over by MAN.

The agreement envisions the further full employment of the roughly 850 worldwide Sulzer diesel staff.

The merger creates a corporate group with an approximate turnover of DM1.3 billion (about \$694.5 million), of which 70 percent is generated by the present MAN B&W Diesel companies and 30 percent from the current Sulzer diesel sec-

tor. The group will manufacture marine diesel and stationary engines, while generating revenue through synergies in the development and service sectors.

The merger is subject to the approval by the antitrust commissions, whose decision is expected sometime in mid-1989.

According to a recent report by *Lloyd's Ship Manager*, MAN B&W crosshead range had a 50.6 percent or 1.646-million bhp share of all low-speed machinery on ships completed in 1988.

Sulzer's share of the low-speed engine market in 1988 was about 39 percent, based on 1,266 bhp installed.

In other news, MAN B&W Diesel

(continued on page 11)

ON THE COVER



Artist's conception of the Phoenix, a 250,000-grt cruise ship which would have a passenger capacity of 5,600, and be crewed by 1,800.

Port Canaveral Offers Homeport Development Package To 'Phoenix' Cruise Ship

The Canaveral Port Authority Board of Commissioners recently approved and offered a proposal to World City Corporation for the Florida port to homeport the luxury cruise ship Phoenix World City. The proposal also provides for the leasing of port property to the World City Corporation for development of a large complementary resort, business, and convention complex. The offer is firm until September 30, 1989.

The World City Corporation is planning to build the Phoenix World City, which would be the largest cruise ship ever constructed. With a passenger capacity of 5,600, the 250,000-grt ship would be 1,260 feet long, with a 300-foot beam and carry a crew and staff of 1,800. Scheduled for a final construction contract this year, the ship would be built by a consortium of four major West German shipbuilders—Höwaldtswerke Deutsche Werke AG (HDW), Bremer Vulkan AG, Blohm & Voss AG and Thyssen Nordseewerke—at a cost estimated to be over \$1 billion. Operation of the ship is scheduled to commence in 1993.

Described as a "city of tomorrow," the Phoenix World City is distinguished by three hotel towers rising above her main deck. The ship will feature an unprecedented array of facilities including spacious state-rooms—most with balconies or panoramic windows, broad streets and village squares lined with shops and restaurants, theaters, cinemas, libraries, museums, university campus, television broadcast center, health and fitness complex, convention hall, banquet and meeting rooms, casino, and an internal marina.

The Canaveral Port Authority resolution offers development rights to 95 acres of land within the port to the World City Corporation, and gives them the option on the land until September 30, 1989.

Support facilities proposed in the 95 acres to complement the ship include several hotels, recreational,

entertainment and retail area, a festive retail marketplace, a world trade center, and an office, meeting, and convention complex.

The board approved the proposal subject to the port authority obtaining acceptable financing. A member of the port's auditing firm addressed the question of whether the proposal would generate enough revenue to justify full coverage by a bond issue. Charles Rowland, executive director of the Canaveral Port Authority, commented that the port expects to have two or three additional cruise ships homeported at Canaveral by mid-1993, and this would produce an extra \$3 million to \$4 million in revenue which would well cover the issue.

Mac McLouth, port authority chairman, said, "The economic impact on our area for these two projects (homeporting of the Phoenix and the accompanying complex) would be over \$500 million per year and would add at least 1,500 jobs to the port."

The World City Corporation is expected to select a homeport site this summer.

BoatLIFE Supplies Deck Caulking Compound For Cruise Ship Fantasy

BoatLIFE of New York and Southampton, England, recently concluded a major contract with Finnish shipbuilder Wartsila Marine Industries for the supply of deck caulking compound for the 70,000-grt cruise ship Fantasy.

BoatLIFE, specialists in marine sealants, supplied Life Calk® two-part deck caulking compound for the decks of the Fantasy, one of the largest cruise ships ever constructed. Working closely with one of Wartsila Marine's top naval architects, Jarmo Seppale, BoatLIFE provided a complete installation system including filling and application machinery and extensive technical advice. The total run of

the teak deck seam is over 40 miles. The liner, which is due for completion later this year, is owned by Carnival Cruise Lines, Miami, Fla., and will cruise in the waters of the Caribbean.

Additionally, a specialized non-curing underlayment compound was manufactured to bed the teak onto the metal deck structure. This underlayment compound is additional insurance against seepage and ultimately corrosion.

Commenting on the order, Edwin Kehrt, president of BoatLIFE said, "The decision to use Life Calk was based on the quality and well-proven track record of our two-part polysulfide."

BoatLIFE offers an extensive line of products, with a total range of deck maintenance and restoration products for the heavy marine industry.

For free literature detailing the BoatLIFE product line,

Circle 105 on Reader Service Card

Marine Acoustics Opens Two New Offices

Marine Acoustics, Inc. (MAI) recently announced the opening of a new central operations and technology office in Crystal City-Arlington, Va., and an arctic research and analysis office in Mystic, Conn.

The company has broad experience in arctic and deep-ocean experimental planning and operations direction, custom acoustic sensor design and testing, seismic-acoustic ambient noise and wave propagation, and naval hydrodynamics.

Marine Acoustics, Inc. can be reached at (703) 979-6241/Arlington, Va.; (508) 420-0907/Woods Hole, Mass.; and (203) 572-9950/Mystic, Conn.

MAN B&W/Sulzer

(continued)

announced it had strengthened its market share in 1988 to almost 53 percent on a bhp-installed basis in the two-stroke engine market. According to published statistics covering low-speed engine installations in merchant vessels of 2,000 dwt and up commissioned worldwide, 165 MAN B&W Diesel engines aggregating around 2.3-million bhp accounted for 53 percent of the market share.

The large market share enjoyed by MAN B&W reflects the popularity of the company's MC two-stroke engine series. The MC series covers a large power band, from just under 1,000 bhp to over 67,000 bhp. The company reports that to date, 1,370 engines are in service or on order, with an aggregate output of 17.9 million bhp. MAN B&W points to the economic merits of the progressively refined design of the MC series as one reason for its strong market position. The engines can be found installed in vessels ranging from large fishing trawlers to new generation VLCCs and fast container-ships.

Installation highlights last year included the prototype seagoing S26MC model—the smallest low-speed two-stroke engine offered by MAN B&W—making its debut in a 126-TEU Japanese feeder container-ship; and a 10-cylinder K90MC engine powering the first of a series of 3,900-TEU advanced container-ships for A.P. Moller.

The MC two-stroke engine series along with MAN B&W Diesel's other engines are detailed in company brochures and literature. For your free copies,

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CRUISE + FERRY '89

May 24-25, London, England

Cruise + Ferry 89, the international conference and exhibition on the passenger cruise and ferry industry, will be held at the Kensington Exhibition Center in London, England, on May 24-25, 1989.

With unprecedented growth forecast for the cruise industry as it approaches the 1990s, Cruise + Ferry 89, now established as a major international forum for the passenger ship industry, will feature its largest-ever exhibition of ship, product and service developments in the booming cruise and ferry market.

Cruise + Ferry 89 will be an exciting international showcase for the latest design, product, and service developments and will bring to London hundreds of senior cruise executives to discuss new ideas for the future and to generate new business. Topics will include: cruise ship and ferry operation; cruise programs and itineraries; cruise destinations; port and passenger terminals; duty-free supplies; cabin design and manufacture; tax-free outlets and operation; entertainment systems; refrigeration and air conditioning; ship furnishing; carpeting and floor coverings; waste treatment plant; lifesaving and survival equipment; fire-protection systems; ship

classification; interior design; paints and coatings; passenger reservation systems; cruise ship and ferry design; shipbuilding; stabilizing systems; navigation equipment; safety equipment; galley and catering equipment; heating and ventilation systems; accommodation systems; cruise and ship repair and conversion; noise and vibration control; lighting systems; and security systems.

This is the age of the super cruise liner and cruise ferry—and the multimillion-dollar cruise market offers huge sales opportunities for companies seeking to increase their share of this rapidly expanding industry.

During the last 10 years, more new passenger ships have been introduced into the cruise industry than ever before. Between 1980 and 1989, no fewer than 40 ships have entered the booming cruise market.

Some 3.5-million passengers enjoyed cruising in 1988, and the increase in cruise business is forecasted to continue in 1989 with the introduction of six large new ships and, in all, the 1980s will have seen the addition of almost 31,000 new cruise berths and the extensive refurbishment of almost 43 ships.

In addition to developments in the market for cruise ships, Cruise

+ Ferry 89 will again focus on the design and operation of luxury passenger ferries.

As cruise vessels in their own right, this sector is also showing rapid expansion with a number of major operators recently announcing new orders for additional jumbo ferries.

At this period of massive growth, the Cruise + Ferry 89 exhibition will be a unique marketing opportunity for operators, destinations, shipbuilders, architects, designers, equipment and on-board suppliers to promote their specialist services and will be a focal point at which decision-makers engaged in the whole range of cruise liner and cruise ferry operations can view the latest industry developments.

As visitors to their displays, exhibitors will not only have more than 600 participants registered for Cruise + Ferry 89 but can also exploit a London venue on the doorstep of hundreds of major companies involved in passenger shipping.

The conference program will be divided into eight key sessions—"Markets and Marketing"; "Destination and Development"; "Shipboard Revenue"; "Interior Design"; "Operational Efficiency"; "Fast

Ferries"; "Passenger Terminals"; and "Ship Design."

Of particular interest will be "Fast Ferries," which is new for Cruise + Ferry 89. The conference will highlight developments in this specialist ferry market while the exhibition will provide further support for shipbuilders, designers and equipment suppliers meeting future capacity, speed, stability and comfort requirements in this sector.

For vessels with speeds of up to 55 knots and carrying up to 500 passengers, this is again a rapidly expanding and valuable market with newbuildings worth £250,000,000 a year.

On Friday, May 26, as part of the post-conference program, a special cruise aboard the latest Scandinavian cruise ferry has been arranged by the Cruise + Ferry secretariat. Interested delegates will have the opportunity to take a 24-hour cruise aboard the Athena, Royal Viking Line's new 2,200-passenger cruise ship built by Wartsila Marine Industries of Finland which will enter service on the Stockholm-Mariehamn-Stockholm route this spring. The Athena is one of Viking Line's five new jumbo class vessels ordered for the traffic of the 1990s.

The visit has been arranged to provide participants with a unique understanding of the Scandinavian 24-hour trip concept.

Described as "a ship to break all records in Baltic cruising luxury," the Athena offers passengers many "firsts." Most cabins are located on the upper decks, with 70 luxury cabins. A large congress area totals 475 seats, including the main 210-seat auditorium.

Sponsored by Rederi AB Slite, Wartsila Marine and the shipbrokers Simonship AB, the Cruise + Ferry delegates will experience the complete 24-hour cruise on the Athena for a joining fee of £45.

The voyage begins on May 26 at 7 p.m. when the Athena departs from Stockholm. The ship will be back in Stockholm on May 27 at 7 p.m. Delegates who wish to participate must arrange for their own air travel between London and Stockholm.

For details on Cruise + Ferry 89, contact: Cruise + Ferry Secretariat, 2 Station Road, Rickmansworth, Herts WD3 1QP, England; telephone: 923-776363; fax: 923-777206; telex: 924312 gastec.

CRUISE + FERRY 89 Conference Program

WEDNESDAY, MAY 24

9 a.m.-Exhibition opens.

9:15 a.m.-Conference opens.

Session 1:

Markets and Marketing

"The Short Cruise Market-Europe and North America," by **S. Buchin**, vice president, Temple, Barker & Sloane, Inc.

"The Cruise Ferry-Responding to the Market," by **K. Levander**, senior vice president, Wartsila Marine.

"Cruise Line Pricing and Distribution: An Analysis of Industry and Technological Changes," by **D.L. Tatzin**, senior consultant, Arthur D. Little International.

Papers discussed by ship operator panel—**G. Hughes**, managing director, Canberra Cruises and Princess Voyages; **B. Crisp**, UK director, Cunard Line Ltd.; **E.T. Phippin**, director, CTC Lines; and **N. Costa**, chairman, Costa Crociere SpA.

Coffee.

"The Theme Cruise Concept," by **P.J. Compton**, Zeller Compton Stafford & Associates, Inc.

"Niche Marketing in the Cruise Business (Opportunities for New and Existing Cruise Lines)," by **J. Lewis**, president and **D. Sarel**, director, Market Scope.

Papers discussed by ship operator panel. Lunch for registered delegates.

Session 2: Destination Development

"Cruise Tourism Infrastructure—Onshore Satisfaction," by **R.V.P. Kaufman**, executive vice president, TC International Inc./Concorde Group.

"Destination Development," by **R.J. Zeller**, Zeller Compton Stafford & Associates, Inc.

"Development of the Underwater Leisure Industry," by **M. Mouton**, president, Sea Designers, Inc.

Coffee.

Session 3: Shipboard Revenue

"Shipboard Revenues—Meeting the Challenge of Change," by **F. Taylor**, director, retail operations and development, Allders International Ltd.

"The Control of Shrinkage (Theft, etc.)," by **K.P. Dullieu**, managing director, Capitol Consultants.

"Hotel Maritime Catering for Cruise Vessels," **L.A. Fraser**, formerly, chief executive officer, Poseidon Services.

"Casino Management on Land and Sea: Oceans Apart?" by **P. Hoetzing**, vice president, Casinos Austria International.

Session 4: Interior Design

This session will be held in parallel to Ses-

May, 1989

sion 2. Speakers and panellists to be announced.

Official evening cocktail reception for all delegates and spouses.

THURSDAY, MAY 25

Session 5: Operational Efficiency

"Ferry Goes Cruising—The Development of Common Denominators Between Ferry and Cruise Shipping," by **F. Widell** and **K. Brogren**, Marine Trading.

"A Hotel Approach to Shipboard Management and Operation," by **U.F. Baur**, presi-

dent and managing director, Flototel Management Service AG.

"Shiphandling Simulators for Optimization of Maneuvering Strategies of Cruise Ships in Ports. A Case Study for the M.S. 'Fantasy' of Carnival Cruise Lines," by **V. Fabietti**, chief coordinator, newbuildings, Carnival Cruise Lines; **S.M. Payne**, naval architect, technical marine planning, London; **Th. Elzinga**, head port and traffic analysis department; and **A. Rem**, project manager, MARIN, Wageningen, The Nether-

lands.

Coffee.

Session 6: Fast Ferries

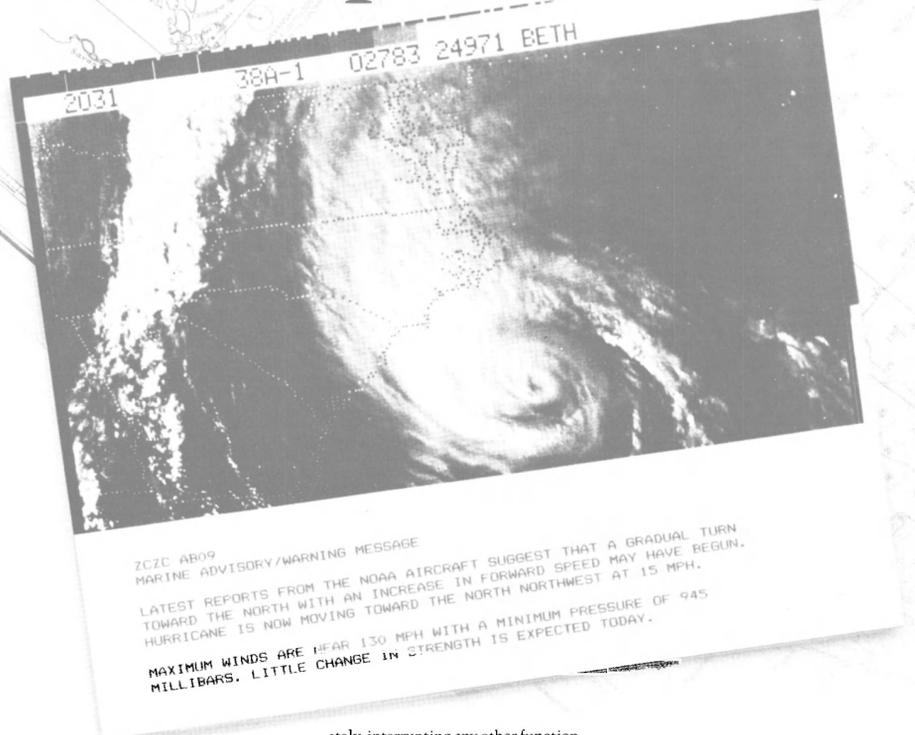
Held in parallel with Sessions 5 and 7.

"Swath Ocean—Now a Serious Market Contender," by **T.D. Kelly**, corporate secretary, Swath Ocean Systems, Inc.

"Jetfoils on the Ostend-Dover Route. A technical and Commercial Appraisal," by **J.J. Charlier**, research associate NFSR, In-

(continued)

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THE EXPANDING CRUISE INDUSTRY—STILL MORE ROOM FOR GROWTH

By James G. Godsman, President*
Cruise Lines International Association

With nearly 3 million people taking a cruise during 1988 (4 million, including one-day cruises), the cruise industry is one of the fastest growing sectors of the travel industry. With Cruise Lines International Association (CLIA) reporting excellent bookings for its member cruise lines, 1989 should be no different. Excluding one-day cruise passengers, CLIA forecasts 3.4 million passengers will take a cruise during 1989. The outlook over the next five years continues to be "modest growth."

According to association estimates, the average growth of passenger travel from 1980-1987 was 10.5 percent annually. The peak period was 1985 and 1986, when passenger travel increased 14 percent each year.

Growth figures such as this have led CLIA, a New York-based marketing/promotional trade organization comprised of 35 of the major cruise lines serving North America, to state that the 1980s "will go down in history as the most prolific in a generation—and perhaps of this century—for new passenger introductions."

Some of the hottest destination growth areas based on percent capacity increases are: South America, 150 percent; Far East, 70.1 percent; Southeast Asia, 62 percent; east coast of Mexico, 54 percent; coastal



James G. Godsman

U.S., 43.4 percent; Bermuda, 35.3 percent; South Pacific, 31 percent; Canada/Northeast, 29.9 percent; Mediterranean, 14.5 percent; Caribbean, 11 percent; and Europe, 10.1 percent.

The Caribbean, for example, a long-time cruise travel favorite, was served by a record 55 ships during 1988, carrying about 60 percent of all passengers traveling on North American-based cruise lines, according to CLIA. There has been a steady increase in the number of passengers as well as the number of ships serving the area, and this

trend is expected to continue into the near future.

One explanation for the rise in Caribbean travel, is the recent trend towards shorter periods of travel. About 32 percent of all passengers carried by CLIA member lines take cruise vacations of seven days or less. Because more passengers are selecting shorter cruises, the viable traveling range becomes severely restricted. This makes the Caribbean, with its favorable proximity to the booming ports of Miami and Port Everglade, and emerging port of San Juan, an attractive cruising location to the consumer.

During this decade, there has been a significant increase in capacity and passenger berths in the North American cruise market. Thirty-five to forty new ships have been built or planned during this decade. Over the next three years alone, about 20 ships will be added to the cruise fleet, representing more than 17,500 new passenger berths. This year should see eight new liners added, totaling 5,220 berths. Next year, nine ships will be added, with over 7,000 berths.

From 1989-1992, CLIA statistics indicate that as many as 35 new ships have been planned or contracted for. This represents a possible 33,566 new berths and an increase of 9.1 percent in passenger capacity.

Although this decade has witnessed a significant increase in cruise passenger travel, recent research indicates that there is still substantial room for growth. Less than 5 percent of the U.S. population has been on a cruise, and cruises represent only 2 percent of U.S. leisure trips of three or more days.

CLIA's National Cruise Market Profile study of 1988 sampling 2,000 vacationers, indicated a potential market of around 45 million people and a \$50 billion to \$60 billion revenue potential.

There are some very good reasons why the prospective outlook for the cruise industry looks excellent for the near future.

Firstly, about 88 percent of cruisers surveyed expressed satisfaction with the cruise vacation—a higher rate of satisfaction than most other vacation alternatives. Additionally, the cruise trip seemed to appeal to all groups, with 87 percent of singles expressing satisfaction, 89 percent of married couples, and 82 percent of families.

Furthermore, satisfaction of cruise travel has led to a significant amount of repeat cruisers. Travel agents are quick to recognize the long-term benefit of cruise vacations.

Another excellent reason for the

popularity of cruise travel is the excellent facilities offered to cruisers. Of the 120 cruise ships serving the North American passenger, 85 percent are either new or have been recently been refurbished. With cruise ships ranging from the 2,000+ passenger superliners to the smaller passenger vessels—such as the new luxurious 212-passenger Seabourn Pride—consumers are faced with a fantastic cross-section of choices.

Special interest cruises, fare incentives such as air/sea packages, and special amenities/facilities should all help increase cruise passenger travel.

Other factors which can not be overlooked are the prime role played by the travel agency community and the steady increase in advertising by the cruise industry. During 1985, media spending for the industry was \$128.7 million. By 1987, this figure rose to \$208 million (\$2,425 per berth), an increase of 61 percent.

Through strategic, aggressive marketing and new product development, cruise lines can expect to draw about 10-million first-time cruisers to the marketplace by 1993. This combined with the present trend for repeat cruise travel can only indicate a prosperous and profitable future for the cruise industry.

*Editor's Note: With more than 25 years' experience in sales, marketing and general management in both the consumer packaged goods and transportation industries, Mr. Godsman has been president of CLIA since October 1985. He has been a prime reason for the increased visibility of both CLIA and the cruise product.

Cruise + Ferry 89

(continued)

stitute of Geography UCL, Louvain-la-Neuve, Belgium.

"Thames Riverbus—Innovation in a Traditional Environment," by R.M. Mabbott, Thames Line Plc.

"The 71-Meter Wave Piercer Ferry—Comes of Age," by P.C. Hercus, managing director, International Catamarans Designs Pty. Ltd.

"Application of Waterjet Propulsion Systems to Fast and Slow Passenger Ferries," by A. Gasparri, Riva Calzoni SpA.

"45-Knot/800-Passenger Ferry—A New Realistic Alternative for Ferry Routes," A. Ulvesaeter, vice president, Cirrus a.s.

Coffee.

Session 7: Passenger Terminals
"London's New Cruise Facilities and their Impact on Tourism in the 1990s," by J. McNab, chief executive, Port of Tilbury, and D. Jeffrey, chief executive, River Division, Port of London Authority.

"Multipurpose Passenger Terminals in the 1990s," by C.T. Burke, Port Everglades Authority, Fort Lauderdale, Fla.

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by **S.M. Kowleski**, marine consultant, K&W International.

Lunch for registered delegates.

Session 8: Ship Design

"Naval Architecture and Cruise Ship Design—the Design Process," by **B. Naerstad**, manager, Platou Ship Design.

"Fire Safety in Passenger Vessel Design," by **M. Murtagh**,* chief, and **B. Cameron**, staff engineer, Fire Protection Section, Ship Design Branch, Marine Technical and Hazardous Materials Division, U.S. Coast Guard Headquarters, Washington, D.C.

***Marjorie Murtagh** is also chairman of U.S. SOLAS Working Group on Fire Protection.

"Features of the First Modern Cruise Vessel Built by Japan, 'Fuji Maru,'" by **K. Keiji**, general manager, technical division, Mitsui O.S.K. Lines, Ltd., and **M. Kobayashi**, deputy manager, ship design department, Kobe Shipyard and Machinery Works, MHI.

"How the New Pollution Regulations Affect the Cruise Industry," by **F. Hovland**, manager, Norsk Hydro AS.

"Ferry Vessel Stretch—Efficiency through Modernization (A Limited Budget does not Necessarily Preclude the Satisfaction of a Rising Demand on Ferry Space)," by **R.S. Dossett** and **W.J. Owens**, Ferry Division, North Carolina Department of Transport.

5:30 p.m.—Conference closes.

EXHIBITION SCHEDULE

Wednesday, May 24

9 a.m.-6 p.m.

Thursday, May 25

9 a.m.-5:30 p.m.

Exhibitor List

ABB Stromberg
Ahlmann-Machinenbau
Alba International
Aldo-Manta
Alders International
Alstom Atlantique
Ametex Fabrics
Apeils Group Holdings
APS Material Services
Aqua Signal
Atlas Danmark
BMK
Brax Shipping
Bremer Vulkan
Brian Shaw Management
Brintons
British Marine Equipment
Cairns Port Authority
Capitol Consultants
CLC Marine Services
Coloroll Crossley
Comfort Mate
Comsat World Systems
Dampa
Dansk Wilton
DDSG
Deerberg Systeme
Desso
Durastic
Dwinger Marineconsult
Ecolab
Elomatic
Fassmer
FBM Marine
Finne & Co.
Firth Carpets
Fisher Marine
Fiskars
Flakt Marine
Gothenburg Tourist Board
GPT Data Systems
Gryffe Boats
Harding Safety
Hattapa
Hernis Electronics
HI-PRES
HMS
Hugh Mackay
Hydro Aluminum
Iain Pattoe Associates
ICL Data
IES Cruise Management
Insulation Equipment
Jets Systemer
Jos. L. Meyer

JSN
KaMeWa
Lloyd Werft
Marconi Software
Marine Jet Power
Marine Trading
Marinteknik
Market Scope
McNeece Design Consultancy
Metos Marine
Metron
Minitech
Mitsubishi Heavy Industries

Neue Jadewerft
Nippon Kokan KK
Novenco
Nucleus
Ocean Satellite
Oceanclean
Odegaard & Danneskiold-Samsøe
Platou Ship Design
Port of Brisbane
Port of London Authority
Port of Townsville
Queensland Tourist Authority
Regency Marine

Reverse Osmosis
Rockment
Sabroe Marine
Safeware
SBA Interior
Schichau Seebeckwerft
SeaKing
Sembawang Shipyard
Signal Marine
Simonship
Stal Refrigeration
STC International Marine
Struik & Hamerslag

Studio Acht
Tankard Carpets
Technotile
TL Communications
Trimline
Trioving
Valmet Automation
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OCEANGOING CRUISE SHIPS DEPARTING FROM U.S. PORTS
(2,000 gross tons & over)

OWNER/OPERATOR Ship	GT	Length (feet)	# of Passengers	Year Built	OWNER/OPERATOR Ship	GT	Length (feet)	# of Passengers	Year Built
ADMIRAL CRUISES Miami, Fla.					CARNIVAL CRUISE LINES Miami, Fla.				
Azure Seas	14,623	603	780	53	Carnivale	27,250	640	950	56
Emerald Seas	24,458	622	980	44	Celebration	47,262	733	1,486	87
Stardancer	26,747	606	1,000	82	Festivale	26,632	757	1,400	86
ALOHA PACIFIC CRUISES Alexandria, Va.					Jubilee				
Monterey	21,051	563	635	52/88	Mardi Gras	46,052	728	1,452	85
AMERICAN HAWAII CRUISES San Francisco, Calif.					Tropicale				
Constitution	30,090	682	798	51/88		47,262	733	1,486	86
Independence	30,090	682	798	50/88		18,261	597	906	61
AMERICAN STAR LINES New York, N.Y.					CHANDRIS FANTASY CRUISES New York, N.Y.				
Betsy Ross*	6,268	436	496	53/84	Amerikanis	16,485	576	649	52
*Operated by Dolphin Hellas Shipping					Azur				
BERMUDA STAR LINE Teaneck, N.J.					Britanis				
Bermuda Star	23,500	616	830	57	Galilee	19,000	466	700	71
Queen of Bermuda	23,500	616	830	57	Victoria	26,000	642	1,150	32
Veracruz I	10,500	485	730	57		29,000	700	1,100	66
					COMMODORE CRUISE LINES Miami, Fla.				
					Caribe				
					23,000				
					610				
					900				
					53				
					COSTA CRUISES Miami, Fla.				
					Carla Costa				
					20,477				
					600				
					770				
					68				
					Costa Riviera				
					31,000				
					700				
					984				
					63				
					Danae				
					9,603				
					531				
					464				
					55				
					Daphne				
					9,436				
					531				
					464				
					55				
					CROWN CRUISE LINES Boca Raton, Fla.				
					Crown del Mar				
					6,421				
					421				
					600				
					366				
					67/88				
					64/85				
					CUNARD LINE LTD. New York, N.Y.				
					Cunard Countess				
					17,593				
					534				
					800				
					75				
					Cunard Princess				
					17,586				
					534				
					947				
					74				
					Queen Elizabeth 2				
					67,139				
					961				
					1,810				
					69				
					Sagafjord				
					24,800				
					616				
					588				
					65				
					Sea Goddess I				
					4,253				
					341				
					116				
					84				
					Sea Goddess II				
					4,260				
					341				
					116				
					85				
					Vistafjord				
					24,116				
					626				
					736				
					73				
					DISCOVERY CRUISES Fort Lauderdale, Fla.				
					Discovery I				
					12,244				
					489				
					446				
					70/85				
					DOLPHIN CRUISE LINE Miami, Fla.				
					Dolphin				
					13,007				
					501				
					586				
					56				
					ex-Starship Royale				
					15,483				
					603				
					1,255				
					58				
					EPIROTKI LINES New York, N.Y.				
					Jason				
					3,719				
					318				
					325				
					65				
					World Renaissance				
					8,665				
					492				
					516				
					66				
					EXPLORATION CRUISE LINES Seattle, Wash.				
					North Star				
					3,095				
					295				
					156				
					66				
					HAPAG-LLOYD New York, N.Y.				
					Europa				
					33,819				
					652				
					758				
					81				
					HOLLAND AMERICA LINE Seattle, Wash.				
					Nieuw Amsterdam				
					33,930				
					702				
					1,214				
					83				
					Noordam				
					33,930				
					702				
					1,214				
					84				
					Rotterdam				
					38,644				
					748				
					1,114				
					59				
					Westerdam				
					42,000				
					669				
					1,030				
					86				
					IVARAN AGENCIES INC. New York, N.Y.				
					Americana				
					20,000				
					580				
					110				
					87				
					NORWEGIAN CRUISE LINE Coral Gables, Fla.				
					Norway				
					70,202				
					1,035				
					1,800				
					61				
					Seaward				
					42,000				
					700				
					1,534				
					88				
					Skyward				
					16,254				
					525				
					728				
					69				
					Southward				
					16,607				
					541				
					750				
					71				
					Starward				
					16,107				
					525				
					750				
					68				
					Sunward II				
					14,110				
					485				
					696				
					71				

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OWNER/OPERATOR Ship	GT	Length (feet)	# of Passengers	Year Built
OCEAN CRUISE LINES/PEARL CRUISES Ft. Lauderdale, Fla.				
Ocean Islander	3,570	364	250	56
Ocean Pearl	12,456	502	425	67
Ocean Princess	12,218	488	550	67
OCEAN QUEST INTERNATIONAL New Orleans, La.				
Ocean Spirit	8,496	457	350	66/88
PAQUET FRENCH CRUISES Palm Beach, Fla.				
Mermoz	13,804	531	530	57
P&O/PRINCESS CRUISES Los Angeles, Calif.				
Canberra	44,807	816	1,702	61
Island Princess	19,907	554	600	72
Pacific Princess	20,636	551	626	71
Royal Princess	44,348	754	1,200	84
Sea Princess	27,670	659	720	66
PREMIER CRUISE LINES Cape Canaveral, Fla.				
ex-Sun Princess	17,370	534	700	72
S/S Atlantic	19,337	669	1,600	82/88
S/S Oceanic	19,500	780	1,562	65
REGENCY CRUISES New York, N.Y.				
Regent Sea	22,000	631	722	57
Regent Star	24,413	642	950	57
Regent Sun	25,000	627	816	64
ROYAL CARIBBEAN CRUISE LINE Miami, Fla.				
Nordic Prince	23,200	637	1,038	71
Song of America	37,584	705	1,575	82

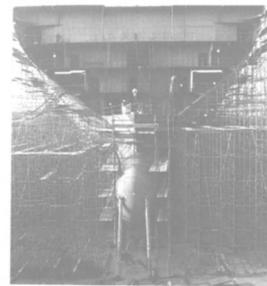
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Construction Of First Of Two 70,000-GRT Cruise Ships Under Way At Fincantieri-Monfalcone Yard

The construction of two 70,000-grt cruise ships ordered by Astramar of Genoa, which will be among the largest in the world upon completion, is well under way at the Monfalcone yard of Fincantieri Cantieri Navali Italiani.

The first of these two diesel-electrically powered ships is to be delivered to Astramar in the spring of 1990, with the second to follow in 1991. Each 1,950-passenger liner, with a service speed of 19.5-knots, will feature extensive passenger facilities including lounges, night clubs, disco, casino, shopping arcades, cafeteria, conference room/cinema, swimming pools and other amenities. About 80 percent of the 792 passenger cabins will have outer balconies. There will also be 355 cabins for the crew of 700.

Designed for worldwide cruising, the vessels will be powered by a highly advanced diesel-electric plant. There will be four 6.6KV, 60-Hz main alternators driven through a flexible coupling by a MAN B&W eight-cylinder, in-line L58/64 four-stroke, medium-speed engine, with a maximum continuous rating of 9,720 kw at 400 rpm. These alternators will supply power through transformers to the two 12,000-kw, three-phase synchronous-type pro-



Astramar's 70,000-grt cruise ship, yard newbuilding No. 5839, taking shape at the Monfalcone, Italy, shipyard of Fincantieri Cantieri Navali Italiani. The 1,950-passenger vessel will feature diesel-electric propulsion.

pulsion motors, each directly driving a fixed-pitch propeller via shafting. In addition to supplying 6,600/450 volt, 60 Hz electrical power to the propulsion motors, this same power is fed to the motor-driven thrusters and air conditioning compressors, while other motors are

(continued on page 19)

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OWNER/OPERATOR Ship	GT	Length (feet)	# of Passengers	Year Built
Song of Norway	23,005	637	1,196	70
Sovereign of the Seas	74,000	874	2,600	87
Sun Viking	18,556	563	740	71
ROYAL CRUISE LINE San Francisco, Calif.				
Crown Odyssey	40,000	616	1,221	88
Golden Odyssey	10,250	426	509	74
ROYAL VIKING LINE San Francisco, Calif.				
Royal Viking Sea	28,018	676	710	73
Royal Viking Sky	28,078	676	710	73
Royal Viking Star	28,221	672	710	72
Royal Viking Sun	36,000	669	740	88
SEABOURN CRUISES San Francisco, Calif.				
Seabourn Pride	10,000	440	212	88
SEA CLOUD CRUISES Coconut Grove, Fla.				
Sea Cloud	2,517	360	69	31/88
SEAESCAPE LTD. Miami, Fla.				
Scandinavian Saga	5,259	433	900	74/88
Scandinavian Sky	8,200	416	926	72
Scandinavian Star	10,513	465	1,000	71
Scandinavian Sun	9,902	441	1,100	68

OWNER/OPERATOR Ship	GT	Length (feet)	# of Passengers	Year Built
SITMAR CRUISES Los Angeles, Calif.				
Dawn Princess	25,000	606	925	57
Fair Princess	25,000	606	925	56/84
Fairstar	23,764	609	1,390	57/83
Sky Princess	46,000	788	1,200	84
SOCIETY EXPEDITIONS Seattle, Wash.				
Society Explorer	2,398	250	100	69
World Discoverer	3,153	285	140	74
SUN LINE CRUISES New York, N.Y.				
Stella Maris	3,500	300	180	53
Stella Oceanis	5,500	350	300	65
Stella Solaris	18,000	540	620	53
TROPICANA CRUISES Miami, Fla.				
Tropicana	5,000	400	1,000	66/88
WINDJAMMER BAREFOOT CRUISES Miami, Fla.				
Fantome	2,400	282	126	27
WINDSTAR SAIL CRUISES Miami, Fla.				
Wind Song	5,307	440	150	87
Wind Spirit	5,307	440	150	88
Wind Star	5,307	440	150	86
WORLD EXPLORER CRUISES San Francisco, Calif.				
Universe	13,950	563	626	59/83

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The Fantasy, one of three 70,000-grt cruise ships being built for Carnival Cruise Lines, under construction at Wartsila Marine's Turku shipyard.

70,000-GRT Superliner Takes Shape At Wartsila Marine's Turku Yard

The first of three giant 70,000-grt Superliners, the Fantasy, under construction at the Turku, Finland, shipyard of Wartsila Marine Industries, for Carnival Cruise Lines, Miami, Fla., has been launched and is nearing completion. The 855-foot, 2,600-passenger vessel is one of the most expensive ships ever built. The Fantasy and her sister ships, the Ecstasy and the Sensation, are being constructed under a \$600-million contract. The Ecstasy is expected to join the CCL

fleet in 1990 and the Sensation in 1991.

One of the spectacular design features of the Fantasy and her sisters is a six-deck atrium.

The Grand Spectrum was conceived by Miami architect **Joe Farcus**, who was involved in the design of the interiors of Carnival's first three Superliners, the Holiday, Jubilee and Celebration. On the Fantasy, Mr. Farcus has created an atrium which rises six full decks, crowned by a skylight.

FANTASY
Ship's Data

Builder	Wartsila Marine
Yard No.	479
Flag	Panama
Keel laying	January 18, 1988
Launch	December 7, 1988
Delivery	October 1989
Particulars	
Length, Overall	855 feet
Breadth, Overall	118 feet 1 inch
Mean Draft	25 feet 5 inches
Maximum Draft	25 feet 9 inches
Internal Gross Tonnage	70,367
Internal Net Tonnage	43,450

"No ship has ever had a space of such extraordinary proportion opening to the sky, giving passengers a breathtaking view as well as access to the major facilities aboard," said Mr. Farcus.

The Fantasy and her two sister cruise vessels under construction at Wartsila Marine will each feature 2 x 14 MW Cyclo propulsion drives, 6.6 kv switchboards, four 10.3 MVA main and two 6.8 MVA auxiliary generators, plus six thruster motors and the main transformers, all engineered and supplied by ABB Marine of Helsinki. Six Wartsila-Sulzer diesel engines with a total of more than 57,000 bhp are the prime movers of the diesel-electric propulsion system.

The inaugural voyage of the Fantasy is scheduled for December 11, 1989. She will depart from Miami for a four-day cruise to Freeport and Nassau. The Fantasy will assume the Carnivale's itinerary offering Friday and Monday departures from the Port of Miami year round.

"All of our new ships introduced in recent years have gone into seven-day service. We thought it was time for a Superliner in the three- and four-day market," said **Bob Dickinson**, senior vice president of sales and marketing.

Cabins aboard the Fantasy and her sisters will be among the largest afloat among the cruise industry's new generation of mega-ton ships, according to CCL.

"There has been concern expressed among agents that with some of the new large capacity cruise ships, cabins seem to be getting smaller in order to accommodate more passengers," said Mr. **Dickinson**. "At Carnival, however, we are continuing our policy of providing the largest, most spacious cabins available in the contemporary segment of the industry. Our cabins are typically 40-50 percent larger than those of other new ships which have entered the Miami market."

The Fantasy is scheduled to be delivered in October 1989.

For free literature detailing the shipbuilding services of Wartsila Marine,

Circle 92 on Reader Service Card

70,000 GRT Cruise Ships

(continued from page 17)

generally powered by 440 volts, 60 HZ AC. Other electrical equipment is served by 440/220/115 and 24 volt DC circuits.

Among the reasons given by Fin-

May, 1989

cantieri for the selection of the economical diesel-electric power plant is the availability of the new generation of medium-speed diesel engines able to burn low-grade, low-cost fuel oil and resilient mountings for the engines. Another key factor stressed by Fincantieri was the availability of large thyristor converters to operate large synchronous propulsion

motors at variable speeds as required to drive fixed-pitch propellers and improve the maneuverability of the ship by faster response of the electric propulsion motors.

The four-engine configuration gives sufficient flexibility in matching the generating capacity with the actual load under all operating conditions with acceptable load factors.

To save weight and headroom, the engines are directly mounted on the ship's structure by resilient rubber elements.

For free literature detailing the shipbuilding capabilities of Fincantieri,

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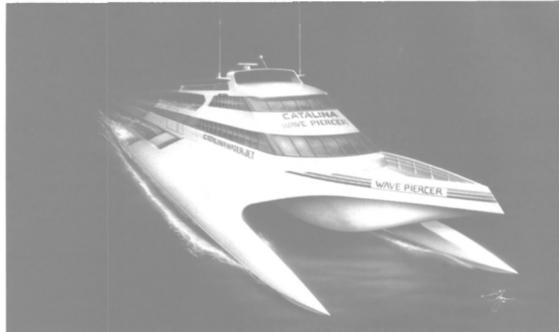
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Circle 211 on Reader Service Card



The 32-knot Wave Piercer, built by Nichols Bros. and originally scheduled to run between San Diego and Catalina Island, will instead provide service between Boston and Nantucket. Bay State Cruises is calling the Deutz MWM-powered vessel Nantucket Spray.

Nichols Bros.' Deutz MWM-Powered Ocean Catamaran Goes Into Service Between Nantucket And Boston

Bay State Cruises of Boston, Mass., recently put the Nantucket Spray, an "ocean catamaran" built by Nichols Bros. Boat Builders of Whidbey Island, Wash., in service

between Nantucket and Boston. Nichols Bros. delivered the \$4.5-million, 121.5-foot vessel to Bay State via the Panama Canal. **Joe Pallotta**, president of Bay

State Cruises, said the vessel makes the 100-mile trip between Boston and Nantucket in three hours. Top speed for the vessel with a full load of passengers is 32 knots. The Nantucket Spray leaves the World Trade Center in Boston at 8 a.m., skirts Cape Cod, and arrives in Nantucket at 11 a.m. She leaves Nantucket for the return trip at 4:30 p.m.

Bay State will operate on this route from May until October, accommodating 360 passengers in airline-type seating. The fully heated and air-conditioned vessel will offer full galley and bar service.

The Nantucket Spray is what the designer, International Catamarans (INCAT), calls a "wave piercer." The advanced technology vessel has been described as a cross between a catamaran and a hydrofoil.

INCAT developed the prototype of the wave piercer in 1983 in Australia. Five of these vessels, which have proven to be superior performers in the open ocean, are now in service in Australia. The Nantucket Spray, however, is the first of the type to be built in the U.S.

Unlike a traditional catamaran, in which the passenger cabin is mounted directly to two hulls, the wave piercer suspends the superstructure on angled struts attached to widely spaced, long narrow hulls.

The angled struts place the hulls outboard of the superstructure; extreme beam of the Nantucket Spray is 51.2 feet.

The vessel is powered by a pair of Deutz MWM TBD604V-16 diesel engines developing 2,371 hp at 1,800 rpm. The engines will drive KaMeWa Model 63 S-62/60 waterjets.

Bay State Cruises also operate the Vinyard Spray catamaran that runs between Boston and Martha's Vinyard from May until October. The Vinyard Spray was built by Bay State last year by Gladding-Hearn Shipyard of Massachusetts.

Other vessels under construction by Nichols Bros. include six catamaran ferries for Puerto Rico.

For free literature giving complete information on the facilities and capabilities of Nichols Bros. Boat Builders,

Circle 61 on Reader Service Card

Gladding-Hearn Building Another High-Speed INCAT Ferry

Sixth Vessel Of Popular Design Sold By Yard

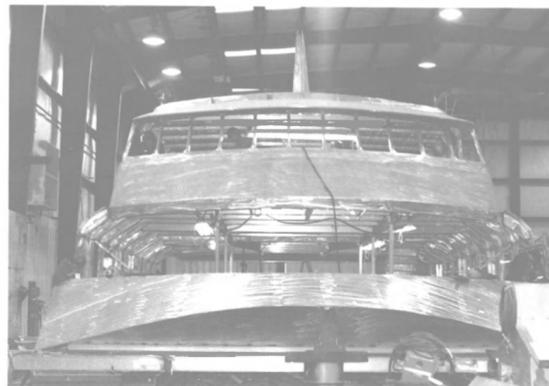
Gladding-Hearn Shipbuilding, The Duclos Corporation, Somerset, Mass., recently signed a contract with Put-In-Bay Transportation Co. of Ohio, for the construction of a high-speed passenger ferry based on Australian designer Philip Hercules's International Catamarans (INCAT) design. It is the sixth INCAT vessel sold by the yard.

For service on the Great Lakes, the catamaran M/V Jet Express, which is under construction at Gladding-Hearn, will be 95 feet long, have a molded beam of 28-1/2 feet and draft of 3-1/2 feet. She will be powered by twin Deutz MWM 12V 604B diesel engines, rated at 1,730 bhp each, with ZF reduction gears and KaMeWa waterjets. With a design speed of 33 knots, the twin-hulled, welded-aluminum Jet Express will be one of the fastest com-

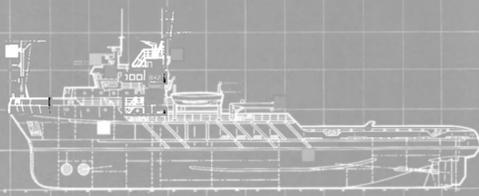
JET EXPRESS Equipment List

Main engines (2)	Deutz MWM
Reduction gears	ZF
Generators	Lister
Waterjets	KaMeWa
Muffler	Cowl
Compass	Ritchie
Radar	Furuno
Loran	Digital Marine
VHF radio	ICOM
Depthsounder	Datamarine
Horn	Buell
Bilge pump	Gould
Cellular phone	Motorola
Cellular pay phone	Railfone
Navigation lights	Aqua-Signal
Battery charger	Professional Mariner
Searchlight	Phoenix
Extinguishers	Walter Kidde
Halon system	Walter Kidde
Wipers	American Bosch
Seating	Marine Interiors
Paint	Awlgrip
Paint	Sterling
Paint	International Paint

Like the other licensed yards in the International Catamaran group, Gladding-Hearn builds its high-speed ferries in modules. Once completely finished, the main and upper decks are lifted onto the hulls just before launch date, thus allowing the workers to build all three components concurrently. Here, Put-In-Bay's 95-foot M/V Jet Express begins to take shape.



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mercial ferries operating in North America.

According to **George Duclos**, president of Gladding-Hearn, the ferry should be completed shortly. Put-In-Bay expects to begin operating the Jet Express in June. The 380-passenger catamaran will run seasonal ferry service daily from Port Clinton, Ohio to Lake Erie's Put-In-Bay Island. Mr. Duclos expects the M/V Jet Express to be able to make the 12-mile trip in about 20 minutes.

For the comfort of the passengers, 80 rubber shock absorbers will be mounted between the hulls and the two passenger cabins to dampen engine noise and vibration. On-board accommodations will include upholstered seats, heating and bike racks.

At present, one Gladding-Hearn-built INCAT vessel is in operation on the Great Lakes. The 82-foot, 365-passenger Mackinac Express was delivered by the Massachusetts yard to Arnold Transit Company in 1987.

One hundred and ten International Catamarans are operating in 15 countries and on San Francisco Bay, Alaska's Yukon River and Boston Harbor. One of Gladding-Hearn's newest INCATs began ferry service last summer between Boston

and the island community of Martha's Vineyard.

For free literature detailing the shipbuilding services of Gladding-Hearn,

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McDermott Reopening New Iberia Facility To Serve Offshore Industry

McDermott Marine Construction is reopening its New Iberia, La., yard to serve the offshore industry. The operations of the facility is being managed by **W.E. Earles**. McDermott Marine Construction is a major operating unit of McDermott International, Inc., a leading worldwide energy services company. The company and its subsidiaries provide engineering and construction services for industrial and utility facilities onshore, and to the oil and gas industry offshore. They also manufacture steam-generating equipment, defense products, tubular products, and process control systems.

For free literature on the facilities and capabilities of McDermott,

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Artist's conception of the newbuilding for Silja Line. The vessel's machinery consists of four Wartsila Vasa 9R46 main engines and four Wartsila Vasa 6R32 auxiliary engines.

Selecting Machinery For High-Powered Cruise Ships

—Literature Available—

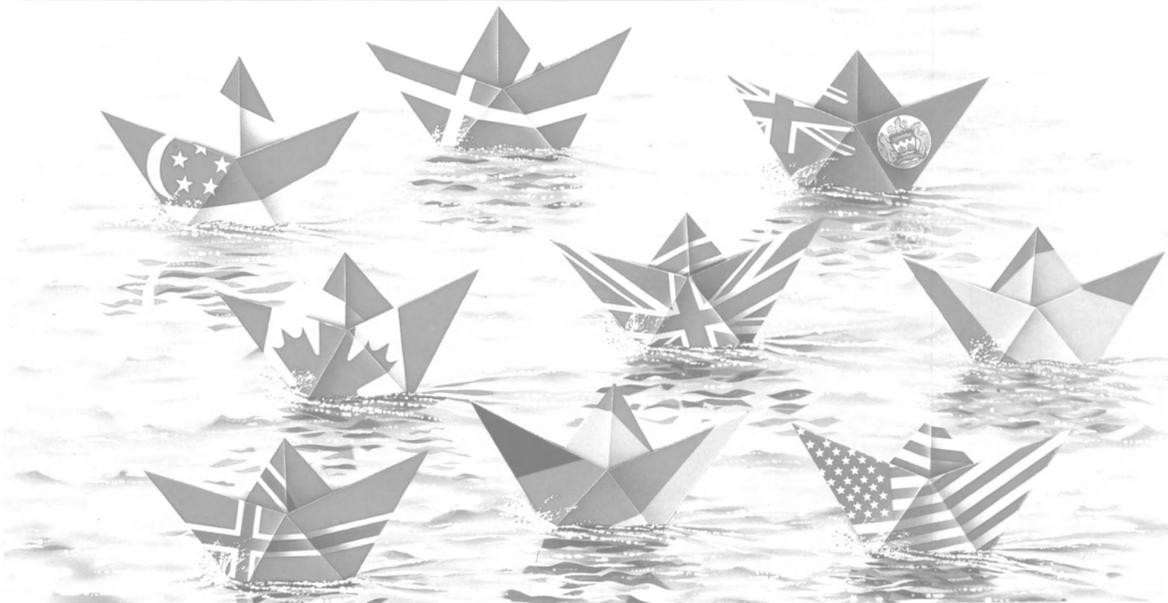
Machinery selection for a cruise ship is a demanding task. Compared with other ship types, there are many unique requirements for cruise ship machineries. Passenger demand must be given the highest priority when selecting machinery concepts.

The machinery should not be obvious from the passengers' point of view. Three of the most important passenger requirements are: no vibration, no noise and no smoke.

From the interior designer's point of view the machinery should be small and compact. The shipowner is responsible for the rest: to ensure

that the ship keeps the itinerary economically and safely. He not only has to comply with the wishes of his customers, but also must make sure that the machinery provides highest reliability, high flexibility, low operating costs and low investment costs.

At first glance all these requirements might seem difficult to comply with. Fortunately, experience has shown that all of them can be met. The latest trends in cruise shipping clearly indicate that one of the most rational alternatives in a cruise liner is a medium-speed power (continued on page 26)



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21



The American Skimmer operates in commuter service between Glen Cove, Long Island, and Manhattan. The hover ferry, powered by Cummins marine engines, is able to make her commuter run in 55 minutes.

Fast SES Ferry Used In New Commuter Service Between L.I. And Manhattan

Maritime Reporter Staff

A new rush-hour commuter service utilizing a high-speed hover ferry was recently inaugurated between Glen Cove Marina, Glen Cove, Long Island, and Pier 11 at the foot of Wall Street in Manhattan.

tan.

The new Monday-to-Friday rush-hour service utilizes a 62-passenger SES (Surface-Effect Ship) built by a Titusville, Fla., plant, under license from Hover Marine International, Ltd. of Southampton, U.K. Called the American Skimmer, the hover ferry has an overall length of 51 feet, beam of 20 feet and draft on cushion of 2 feet 10-1/2 inches. Based on Hover Marine International's HM.2 design, the ferry is powered by two Cummins turbocharged VT 8-370 M marine propulsion engines rated at 320 bhp each and one Cummins 186-bhp V6 215M lift fan engine. She is fitted with two 3-bladed, 21-inch propellers and five direct-driven centrifugal-type fans.

The unique boat accommodates passengers in comfortable airline-style seating in its spacious 22-foot by 16-foot carpeted cabin. Color TV, VCR and stereo are also offered on board during the 55-minute commute. Use of quiet marine diesels and water screws also add to passenger comfort.

At present, the American Skimmer departs once per day from Glen Cove Marina at 7:30 a.m., arriving at Pier 11 in Manhattan at 8:25 a.m. The boat makes its return trip from Manhattan at 5:30 p.m., arriving at Glen Cove Marina at 6:25 p.m.

According to Nancy Sutherland, operations manager for American Skimmer, Massapequa Park, N.Y., the service has been very successful and she anticipates the addition of other scheduled runs.

American Skimmer owner Shashi Tejpau said that the company is presently in the process of negotiations to obtain a second vessel similar to the American Skimmer. Mr. Tejpau said the second vessel may be large enough to carry as many as 150 passengers. He expects to have a second vessel operating as early as this summer.

The GRP-hulled American Skimmer, which can reach speeds as high as 35 knots, rides on a cushion of air contained fore and aft by flexible skirts and along her sides by narrow rigid keels, or sidewalls, which always remain in contact with the water. These twin sidewalls provide high resistance to side slippage in crosswinds and when turning, thus positive directional control is maintained in all conditions at all speeds. Little wash is created by the vessel even at maximum speed.

Because of her twin rudders, the boat has excellent maneuverability and a tight turning circle, which is important when operating in congested waterways and harbors.

Literature On Onboard Potable Water Disinfection Available From Everpure

Everpure, Inc., of Westmont, Ill., is offering free literature on the onboard potable water disinfection systems marketed by the company.

Everpure Bromination Systems, which represent the state-of-the-art in onboard potable water disinfection, are in use worldwide on offshore production platforms, drilling rigs, and supply vessels, as well as onboard U.S. Navy surface vessels and many USCG and U.S. Army Corps of Engineers vessels. Two models are available; one treats the water as it is produced by a water-maker, and one has the ability to treat water stored in a tank.

Everpure Bromination Systems disinfect the water, making it safe to drink. Completing Everpure's Water Treatment Systems are Marine Duty point-of-use filters that go at drinking fountains, ice machines, the galley sink, or wherever the crew may take drinking water. The filters remove suspended dirt particles as small as 1 micron in size, as well as all offensive tastes and odors associated from water stored in steel tanks, leaving the water fresh and clean tasting.

For further information and free literature on how Everpure Bromination Systems can keep crews safe from waterborne illness and on the job,

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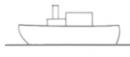


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World Maritime Journal

FLEETS FIND FIX TO MARPOL-V NIX

A pioneer manufacturer of maritime waste and refuse compactors for nearly two decades has sold hundreds of units to Western shipping fleets to help comply with the recently enacted MARPOL-ANNEX V Regulations.

TFC Corporation, Mpls., MN, reports that many of the major merchant and tanker fleets have ordered multiple units of Pollution Packer Compactors since last fall.

While many thousands of these compactors have been sold to food service, health care and lodging businesses, the first maritime units were installed in U.S. Naval and Coast Guard ships in 1974.

Subsequent maritime sales for these compactors include offshore oil rigs and cruise ships. The worldwide popularity of the Pollution Packer line is due, in part, to the ability to Bag, Box, Cube or Bale all types of waste and refuse, wet or dry, into sealable packages.

Recent design advances in the maritime models include a rug-

ged "Heavy Seas" Door Stop and, also, a "Sea Legs" design that permits compactors to be welded or bolted to the ship's deck.

Besides facilitating the collection of plastic wastes at sea, compactors permit the collection and packaging of for portside removal. Items of safety and minimized and waiting and storage on port are more finished. The first four models

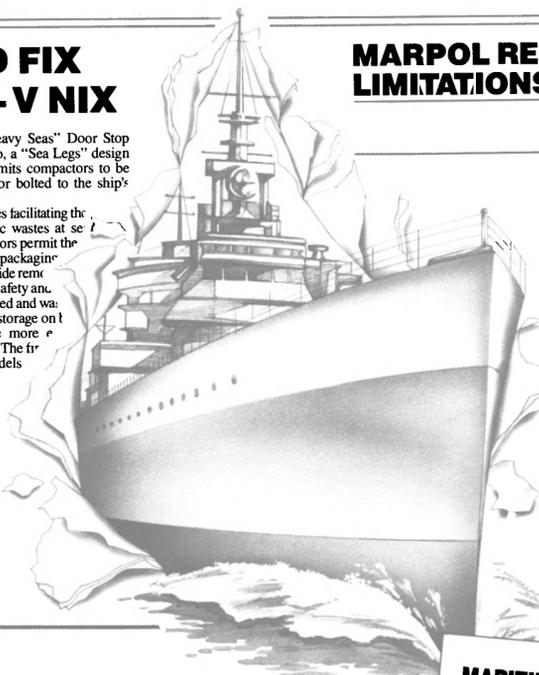
MARPOL REFUSE DISCHARGE LIMITATIONS All Vessels

Refuse Type	Outside Special Areas	Inside Special Areas
Plastics	Dumping Prohibited	Dumping Prohibited
Floating, Packing, Lining Material	25 miles offshore	Dumping Prohibited
Paper, Rags, Metal, Bottles, Crockery	12 miles	Dumping Prohibited
Ground paper, rags, glass, etc.	3 miles	Dumping Prohibited
Food	12 miles	12 miles
Ground Food	3 miles	12 miles

RESTRICTIONS APPLY TO ALL

MARPOL-ANNEX V applies to all watercraft of any type, including tugs, barges, fishing vessels, and recreational and commercial craft both foreign and U.S. flag.

An Advance Notice of Proposed Rulemaking will be published in March, 1988 and a notice of Proposed Rulemaking in July, 1988. After a 60 day comment period, the Final Rule will be published in November, 1988. The rules will be effective on December 31, 1988.



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S/T Western Lion
S/T Southern Lion
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Mackay, C.Plath Announce U.S. Sales, Service Pact

Mackay Communications and C. Plath recently announced the signing of a sales and service agreement covering the U.S. and Puerto Rico. Through the agreement, Mackay hopes to improve services to commercial shipping and other markets.

C. Plath is a major manufacturer of navigation equipment including gyrocompasses, automatic pilots, electric main steering systems, etc.

Mackay Communications is a major manufacturer of communications equipment.

The product lines of the two companies are complementary and will allow Mackay to provide a complete package of communications and navigational equipment. Service engineers, factory-trained and certified by C. Plath, are on location at most ports throughout the U.S. and Puerto Rico.

For free literature detailing the full line of marine electronics offered by Mackay,

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The ultramodern Spirit of Norfolk II, built by Service Marine Industries of Morgan City, La., for Cruise International. The sleek-hulled vessel will serve the Norfolk area.

Service Marine Launches Modern 500-Passenger Dinner Boat For Cruise International

One of the largest excursion/dinner boat builders in the U.S., Morgan City, La.-based Service Marine Industries, Inc., recently launched an elegant 500-passenger dinner cruise boat for Holiday Cruises, Inc., a subsidiary of Cruise International, headquartered in Norfolk, Va.

The 175-foot-long, 36-foot-wide vessel, christened the Spirit of Norfolk II by **Barbara B. O'Leary**, wife of Cruise International president **Richard D. O'Leary**, features two fully enclosed decks for dining and dancing.

"In Norfolk, our research indicates the desire of local residents for more spacious accommodations, table seating for four, and contemporary facilities," said **Mr. O'Leary** at a recent press conference. "Our new ship will more than meet these desires and will feature an extremely modern entertainment and restaurant design. The Spirit of Norfolk II will comfortably seat almost 500 passengers versus the 350 passengers accommodated on the inside decks of our former dinner cruise ship, the New Spirit."

The Spirit of Norfolk II is based on a concept by **Mr. O'Leary**, and is similar to an Italian yacht design. Service Marine designers evolved his concepts into the ultramodern megayacht Spirit of Norfolk II. The cruise boat has a boldly shaped bow, sleek hull lines and a swept-back superstructure, capped by a pilot-house with the latest electronic communication and navigation equipment.

"The shape of the bow is both dramatic and functional," said **Tom Hensley**, president of Service Marine. "It gives a distinctive design element to the vessel, but also serves as an open deck area for panoramic sightseeing during day cruises and stargazing on dinner cruises."

The interior of the three-deck vessel was designed by **Mrs. O'Leary** in shades of gray and burgundy, accented by brass, mirrors, and a variety of textures.

Mechanically, the Spirit of Norfolk is as modern as her design. Superstructure design, stability, and related engineering tasks were performed by **DeJong & Lebet**, naval architects and marine engineers from Jacksonville, Fla.



Mrs. **Barbara O'Leary**, wife of Cruise International president **Richard O'Leary**, breaking the traditional bottle of champagne on the boldly shaped bow of the Spirit of Norfolk II at christening ceremonies at Service Marine Industries, Inc.

She is powered by a pair of Caterpillar 3408 DITA Series B 430 diesel engines with Twin Disc MG-516 gears and can cruise at speeds of about 10 knots. "The vessel handled very well on sea trials," said **Mr. Hensley**. "In military craft terms, the boat has the responsiveness of a destroyer, yet cruises with the stability of a battleship." Part of the vessel's outstanding maneuverability is due to a 150-hp hydraulic bow-thruster powered by a PTO from the starboard genset.

Electrical power for the vessel is supplied by a pair of KATO 180-kw generators driven by Caterpillar 3306 engines. Power Panels of Morgan City, La., supplied the main electrical control panel. All four engines were supplied by Virginia Caterpillar dealer, Carter Machinery, Inc.

A three-station hydraulic orbital system is used for steering. Electric, non-follow-up control levers are located at wing stations placed at either end of the pilothouse. The third station is in the center of the wheelhouse above a 32-inch destroyer-type wheel. Hydraulics for the steering and bowthrunder were supplied by Skipper Hydraulic, Harvey, La.

Other important systems onboard the Spirit of Norfolk include 60 tons of Carrier air conditioning, installed by Harris Refrigeration, and electric

(continued)

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Avondale Industries Wins Floating Prison Contract

Mayor Edward I. Koch recently announced that the City of New York will contract with Avondale Industries, Inc. of New Orleans, La., for the construction, delivery and mooring of an 800-bed floating correction facility by June 1990. The cost for the floating jail net of the site is \$125,639,285. At the City's request, Avondale submitted a bid to complete mooring and pier work at a Bronx site for an additional \$4,843,320. The final site has not yet been decided, but will likely be at one of two under consideration in the Bronx.

The Avondale proposal, already fully designed and ready to begin construction, calls for a detention facility 625 feet long and 125 feet wide, five stories high, supported on a floating foundation. It will be a fully self-contained adult detention institution, with 700 beds in 50-man dormitories and 100 single cells. The facility will utilize all-steel ship type construction. There will be four gangways connecting to the mainland. The project design team includes David Elliott Leibowitz/Gonchor and Sput, associated architects, both of whom have previously designed jails for the NYC Department of Correction, and M. Rosenblatt and Son, Inc., associated naval architects, who will prepare naval construction drawings and help to ensure that the facility will receive the approval of the U.S. Coast Guard, which will regulate its occupancy.

Avondale Industries is 70 percent owned by its employees through an Employee Stock Ownership Plan (ESOP); the remaining 40 percent of the stock is traded over the counter. Avondale has been a successful shipyard for 50 years, engaged in the design and construction of naval ships, commercial vessels, offshore oil rigs and other marine projects. It currently has eight ships under construction for the U.S. Navy. The firm has pioneered the concept of modular floating-facility construction and has several such facilities, including a 192-megawatt hydroelectric plant nearing completion for the town of Vidalia, La.

For more information and free literature giving full details on the facilities and capabilities of Avondale Industries,

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Seaco/Elliott Offers Improved Inflatable Rafts—Literature Available

Seaco/Elliott manufactures and sells a full product line of superior quality inflatable life rafts and related products for oceangoing vessels, offshore platforms, commercial fishing vessels, corporate and commercial aircraft and various military applications.

In its 29 years, Elliott inflatable

life rafts have been instrumental worldwide in saving hundreds of lives at sea. Originally manufactured in England, the Elliott life raft was brought to the U.S. in 1958, where it underwent extensive design changes for U.S. Coast Guard and SOLAS testing approvals.

In 1960, Elliott was recognized as one of the first inflatable life raft manufacturers in the U.S. to be awarded USCG and SOLAS approvals.

In 1974, Elliott modified and redesigned its inflatable life raft to meet the new USCG and SOLAS 1974 requirements and standards.

Elliott has passed the latest USCG and SOLAS 1983 amendments for their redesigned and improved life rafts. The company once again was recognized as one of the first U.S. inflatable life raft manufacturers to have approval for its full line of inflatable life rafts, including its 25-man, davit-launched life rafts.

Seaco/Elliott offers sales and servicing facilities worldwide through its extensive network of factory-authorized distributors. All Elliott-approved servicing facilities are USCG approved with servicing technicians trained at the firm's factory.

For literature completely detailing the Seaco/Elliott line of inflatable life rafts,

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the Masters



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There is always a risk that good products are copied. Unfortunately, many users have paid a high price to discover that copies do not always measure up to the performance of the genuine product. As a result, most shipowners, power stations and other users specify genuine OK Couplings and Supergrip bolts. Often, our service program is also a key factor in the decision to select our couplings and bolts. Whether your vessel is docked at Shanghai, Hamburg or San Francisco, we can be on the spot within 24 hours. We are represented by SKF's global sales and service network so, whatever your port of call, we are always near at hand.

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Service Marine

(continued)
over mechanical engine controls, supplied by MMC of Seattle.

Service Marine also has a second vessel under construction at its Morgan City yard for Cruise International. Called the Spirit of Mount Vernon, this 145-foot three-deck

vessel will offer tour service to the Mount Vernon home of George Washington. The 400-passenger vessel will dock on the Potomac River in Washington, D.C., using the same facilities as the Spirit of Washington. This vessel is set for a June 1989 delivery.

Cruise International has become one of the largest operators of dinner cruise ships in the country,

grossing over \$25 million annually. In 1989, nine Spirit ships, located in eight different cities will employ over 1,200 people nationally, and will entertain nearly 1.3 million passengers.

For free literature fully describing the facilities and capabilities of Service Marine,

Circle 3 on Reader Service Card

Selecting Machinery

(continued from page 21)

er plant. But what are the most efficient and most flexible solutions available?

There are two general trends in machinery concepts. Both point in the same direction but achieve their goals in slightly different ways: diesel mechanical machinery; and diesel electric machinery.

It is generally believed that diesel-electric propulsion is the only way to reduce vibration levels on-board a cruise ship. But the latest development in medium speed diesel engines have also made it possible to put very large main engines on resilient mountings, thereby meeting the strictest comfort requirements. Wartsila Diesel has developed this technology for its complete engine range, unit sizes from 700 to 19,500 bhp. It is possible for these to be directly mounted on the engine block without the need for a separate intermediate foundation. This is possible because of the sturdy design of the engine block. This drastically reduces the required height in the engine room and the weight of the installation.

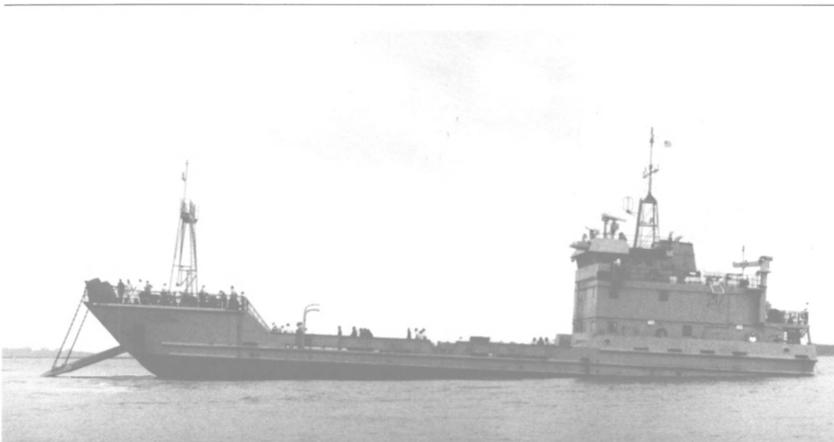
There are basically two different ways to install a main engine resiliently: under-critical mounting; and over-critical mounting.

The final selection depends mostly on the requirements. The best isolation of the main engines is achieved by the over-critical mounting, although this mounting is a little more complex to achieve.

However, many of the most recent Wartsila Diesel cruise ship references are based on over-critically mounted main engines. This is the case with the Future Seas being built by Atlantique and the latest newbuildings for Birka Cruises and Silja Line at Wartsila Marine Industries.

Since a cruise ship has an extremely wide speed range, there are huge demands on the flexibility of the machinery. A trial speed of 21 knots requires more than twice the output compared with a cruising speed of 16 knots. If the machinery is optimized for the trial speed condition, the machinery will be far from optimal at normal cruising speed, i.e., the speed where most of the fuel is burned. To solve such a dilemma, it is advantageous to have the machinery divided into at least four main engines. In this way there are a multitude of operating modes to choose from, depending on the cruising speed. It should be noted that contrary to the practice of many ship operators, there are operation modes where there is an advantage in having two engines in operation on one shaft and one engine on the other shaft. The energy loss coming from the counter rudder is only in the order of 2 to 3 percent, which can easily be won back with optimal engine loading.

In many types of ships there might be an advantage to produce all or part of the electricity onboard with shaft generators. Due to the huge electricity demand combined with a relatively low propulsion requirement on cruise ships it is usually advantageous to avoid shaft



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Power Specifications

(2) KTA50-M	Main Propulsion Engines	1250 hp @ 1800 rpm
(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



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generators on cruise ships. The use of shaft generators on a cruise ship means that high propeller speed must be maintained at small propeller pitch when cruising. This seriously decreases propulsion efficiency and increases the level of propeller-induced vibration.

For cruise ships it is therefore important to sail according to a combinator curve. Tremendous savings in fuel consumption at partial speeds as well as a lower vibration level will be the results. On many of the most recent deliveries the electrical power is produced by auxiliary engines that burn heavy fuel oil. Examples of such references are the Sovereign of the Seas, Birka Princess and Amorella.

Diesel electric machinery is a very elegant and sophisticated way to propel a ship. The main advantage is the flexibility achieved in this way. If the ship has machinery built according to the power house concept, there are several engines connected to a common electrical system from where both propulsion and auxiliary power are taken. By dividing the machinery into several units, it is relatively easy to program a load control system that will keep the engine loadings on optimal levels at all times. This is particularly successful if the machinery comprises engines of different unit sizes. In this way harbor conditions will be covered by the smaller engines and cruising condition by the larger engines or by a combination of different sized engines.

Diesel electric machinery usually has higher initial costs, but on the other hand it offers possibilities for secondary savings. It is all too easy to disqualify the diesel electric machinery by looking at initial costs alone. However, these advantages may be difficult to estimate. There is more freedom to place the machinery in areas of the ship where a diesel mechanical machinery could not be placed. The machinery can be placed for optimal stability and space utilization. In this way the total cost of the ship can be reduced. There are some recent Wartsila Diesel references with diesel electric propulsion: Wartsila Marine Industries' newbuildings for Carnival Cruise Line and the sail cruisers for Wind Star Cruises and SMT built by Ateliers et Chantiers du Havre in France.

In conclusion, even if selection of machinery for cruise ships has traditionally been difficult in the past, the latest developments in medium-speed engine technology have made this job considerably easier. Wartsila has developed a complete range of medium-speed engines well suited to all sizes and types of cruise ships, and Wartsila Diesels have become one of the prime choices in high-class, high-powered cruise ships.

For free literature giving full information on Wartsila engines,
Circle 62 on Reader Service Card

Skinner Names Gaughan Chief Of Staff At DOT

Department of Transportation Secretary **Samuel K. Skinner** recently named **John Gaughan** as
May, 1989

his chief of staff at the DOT. Mr. **Gaughan** is the former Maritime Administrator, a position he held since 1985.

The appointment of Mr. **Gaughan** means that two top level posts at the DOT have been filled by personnel from the maritime sector. Prior to Mr. **Gaughan's** appointment, President **Bush** named **Elaine Chao**, chairman of the Federal Maritime Commission, as Deputy Transportation Secretary.

Marine Interiors To Supply Seating For 300-Passenger Boat

Marine Interiors, Whidbey Island, Langley, Wash., a division of Aluma-Feather Corporation, has been selected as the manufacturer for all interior seating on board a new 300-passenger catamaran. Called the Wave Piercer, the

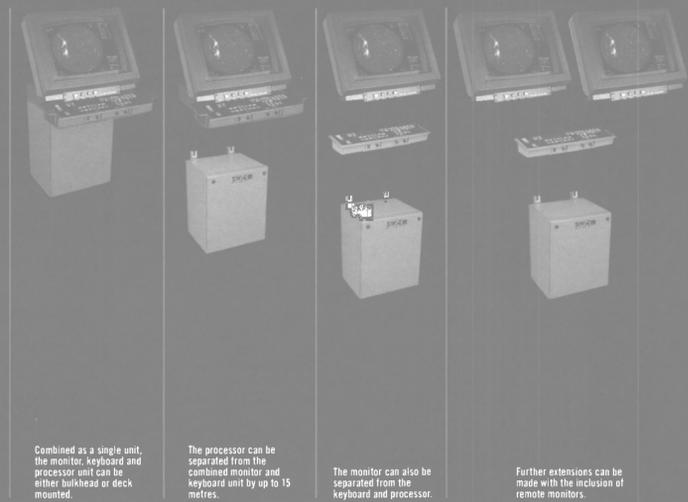
high-speed luxury ferry will be built by Nichols Brothers Boat Builders of Whidbey Island, Wash., for use between Nantucket and Boston, Mass.

Marine Interiors selection provides another addition to its recognition as an industry leader in the marine transit area.

For free literature describing Marine Interiors products,

Circle 4 on Reader Service Card

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Circle 221 on Reader Service Card

27

Liebherr Wins Large Gantry Crane Order From Japanese Shipbuilder

Liebherr-Werk Nenzing, Austria, recently received a large ships gantry crane order from Japanese shipbuilder Tsuneishi. The order, for three plus one multipurpose container-handling, jib-type gantry cranes of Liebherr's well-known

type MPS with lifting capacities of 45 tons, underlines this maker's expertise in the field.

The portal cranes will be installed on three container feeder vessels of 950-TEU capacity, contracted between A.P. Moeller and the shipyard.

This latest order for Liebherr follows other recent contracts for six type CCB gantry cranes, delivered to the Danish shipyard Odense for USA owner Crowley, and a further

four CCB gantries supplied to Italian Fincantieri shipyard in Trieste, again for an American owner, namely Castle & Cook.

The current work load in Liebherr's Nenzing factory includes 48 high-speed deck cranes of seven tons capacity, a special design denominated BW to be installed in 12 reefers presently under construction at the Kleven yard in Norway for a consortium of Scandinavian owners. Further orders for the high-capacity

BW cranes are presently being executed, including six 25 toners and 40 of 50 tons capacity.

On the offshore crane side, a considerable number of cranes for the British, Norwegian and Dutch sectors of the North Sea are in hand, not only in Nenzing but also in Liebherr's newest setup in Sunderland, where production started at the beginning of this year.

For more information and free literature on Liebherr cranes,

Circle 28 on Reader Service Card

LQMoffitt Merges With BFGoodrich

With the recent merger of Lucian Q. Moffitt, Inc., with the BFGoodrich Company, LQMoffitt operations have become part of the Dynamic Polymer Products business unit of the BFGoodrich Aerospace Division.

While BFGoodrich assumes the ongoing business relationships of former LQMoffitt, the previous company's sales and customer service personnel will continue to handle inquiries and orders. Manufacturing facilities for Cutless® brand bearings and related marine industry products remain at their same locations. Field warehouse operations will also be maintained and continually upgraded.

The Dynamic Polymer Products business unit is also responsible for Torsilastic® springs and other specialty molded products for transportation, commercial, industrial, and government markets.

The change was made to enhance customer service and product quality through more efficient operations and coordination under a unified management structure, according to Ian R. Stopps, new general manager of BFGoodrich Dynamic Polymer Products.

Marketing, sales and engineering offices have been moved to a new BFGoodrich location. They may be contacted at BFGoodrich, P.O. Box 5550, Akron, Ohio 44313, phone (216) 374-4123, telefax (216) 666-6788.

For more information and free literature,

Circle 29 on Reader Service Card

Ferrous Offers BT-7 Marine Bunker Treatment —Literature Available

Ferrous Corporation now offers BT-7 Marine Bunker Treatment. Based on decades of actual use in the chemical process industry, BT-7 disperses sludge and reduces compatibility problems with today's marine fuels from MGO and IFOs to the heaviest of resids. According to Ferrous, the use of BT-7 will keep tanks, lines, fuel heaters and burner tips or fuel injectors clean.

For further information and free literature from Ferrous Corporation,

Circle 18 on Reader Service Card

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Circle 236 on Reader Service Card

**Bender Awarded \$549,549
Drydocking/Repair
Contract On 'Gulf Farmer'**

Bender Shipbuilding & Repair Co., Inc. was recently awarded a \$549,549 contract for the drydocking and repair of the S/S Gulf Farmer, a 495-foot by 69-foot general cargo ship based in the Maritime Administration's Ready Reserve Fleet in Beaumont, Texas.

Bender is a full-service shipyard that builds, converts and repairs vessels for commercial and governmental owners and operators.

For free literature giving full details of the facilities and capabilities of Bender Shipbuilding & Repair,

Circle 12 on Reader Service Card

**ZF Of NA Introduces
Extended Service Plan
For Marine Transmissions**

One of the first extended service programs for marine transmissions has been introduced by ZF of North America, Inc., Lincolnshire, Ill.

ZF, a worldwide manufacturer of major power train components, offers a Buyer Assurance Plan that pays 100 percent parts and labor for any original or like replacement part that fails to perform in normal use. The plan also pays for service due to defects in materials and workmanship.

The Buyer Assurance Plan covers ZF Marine Transmissions for 24, 36, 48 or 60 months.

For a low upfront investment, the Buyer Assurance Plan offers owners of boats with ZF transmissions a number of important benefits, according to Kenneth Petrowski, manager of sales and marketing for the company's marine division.

"The plan allows customers to budget accurately for warrantable service costs by paying one, affordable, preset fee," Mr. Petrowski said. "You lock in your cost for covered parts and service for up to five years. It's an excellent hedge against inflation—a way of keeping costs down no matter what happens to the economy."

The coverage may be transferred for a small fee when the boat is sold—an option which enhanced resale value, Mr. Petrowski said.

For information on ZF's Buyer Assurance Plan,

Circle 9 on Reader Service Card

**Directions In Design
Completes Interior Work
On Two Sister Vessels**

Directions In Design (DID), Inc., a St. Louis, Mo.-based ship interiors firm, has recently completed the redesign and interiors installation of two sister ships, the Huck Finn and the Tom Sawyer, both operated by Gateway Riverboat Cruises, Inc. and berthed on the St. Louis riverfront.

DID's work on the boats included

the selection of new wall coverings, flooring materials, and window treatments. The assignment was completed on a fast-track schedule of eight weeks. In the past four years, DID has orchestrated 20 ship installations across the U.S.

DID provides clients with comprehensive space planning and design, project management and installation capabilities. The firm is experienced in designing tasteful excursion, dinner cruise, and theme

vessel interiors with materials that meet strict USCG safety requirements. In addition to custom bar, cabinetry, glass, and lighting design capabilities, DID offers clients access to a nationwide network of specialty workrooms, suppliers, and installers who specialize in ship interiors.

In addition to Gateway Riverboat Cruises, other clients for which DID has completed projects include The

World Yacht Fleet in New York City Harbor; The Gateway Clipper Fleet in Pittsburgh, Pa.; Seattle Harbor Tours in Seattle, Wash.; Uncle Sam Boat Tours in Alexandria Bay, N.Y.; Massachusetts Bay Lines in Hingham, Mass.; and Pacific Marine Yacht Charters in Mill Valley, Calif.

For a free brochure detailing the ship design capabilities of DID,

Circle 34 on Reader Service Card

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The name for cranes

Circle 315 on Reader Service Card

ELECTRONICS UPDATE

COMSAT's 'Cruise Calling' Makes Telephone Calls To And From Ship Easy, Clear, Direct And Private

Communicating to or from a cruise ship used to be a complex and time-consuming task. Traditional high-frequency (HF) radio calls take time to place and once achieved, connections can be impaired by bad weather and calls often fade in and out. Moreover, since anyone with a receiver can tune into the ship's frequency, HF radio calls are not private.

COMSAT's "Cruise Calling" via satellite has changed all that.

State-of-the-art satellite connections have revolutionized land and sea communications. Satellite telephone signals travel between shore and ship in just 250 milliseconds. A shore-to-ship call is automatically routed to one of COMSAT's Coast Earth Stations which relays the signal through a satellite positioned over the ocean. A satellite receiver aboard ship then picks up the signal. The process is reversed for ship-to-shore calls.

Satellite telephone calls are immediate, convenient, reliable and private. With Cruise Calling you can make radio-officer-assisted satellite telephone calls from your stateroom or dial direct from CruisePhoneSM, a direct-dial, 24-hour credit card telephone conveniently located in public areas aboard many cruise ships. Some ships even offer direct-dial features from the stateroom.

Cruise Calling is more than telephone service at sea. Passengers may use other satellite services aboard ship, including Satellite Telex Service and Satellite Facsimile Transmission.

COMSAT has free full-color literature available, including the publication "Cruise Calling—Satellite Communications To and From Ship," containing complete instructions on how to call from shore to a ship and how to call ship-to-shore. Also being offered in connection with Cruise Calling is a free "Cruise Ship Telephone Directory," listing



COMSAT has developed a Business Service Center concept which provides passengers or crew members access to communications services most often found in shore-based offices.



COMSAT Maritime Services CruisePhone allows the caller to make high-quality, private calls instantaneously and directly. Calls are billed directly to a passenger's credit card.

names of vessels and telephone/telex/fax numbers.

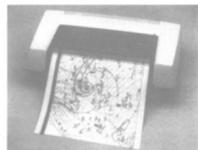
For further information on Cruise Calling and free copies of the literature from COMSAT,

Circle 59 on Reader Service Card

Alden's New Marine Fax Recorder Receives Weather Charts As Well As Navtex And Radioteprinter Data

Alden Electronics, Inc., Westborough, Mass., recently announced the introduction of the Marinefax TR-IV, a complete weather information center capable of receiving weather and oceanographic charts, as well as Navtex and radioteprinter data.

Navtex as a marine information service for a variety of weather and navigational messages. The Ma-



Alden's New Marinefax Recorder.

rinefax TR-IV is designed to accept and store all selected Navtex messages for later printout even while receiving routine weather charts or radioteprinter data. The Marinefax prints emergency Navtex messages such as storm and navigational warnings and search and rescue information the moment they are received, overriding any other data being printed.

The Marinefax also features a radioteprinter (RTTY) mode for receiving alphanumeric plain language weather messages, coded weather information and even news agency reports.

The Marinefax TR-IV features a new fully programmable radio that "locks on" to the desired frequency, thereby eliminating drift. A programmable memory allows the operator to select the time on, time off and frequency desired. The Marinefax will then automatically turn itself on, record the programmed transmission and turn itself off. Up to 250 on/off sequences can be programmed.

Radiofax frequencies may be selected manually; or simply by keying in the code for a transmit site, the Marinefax automatically selects the best frequency for the conditions and time of day.

Weather charts and Navtex/RTTY messages are printed on crisp, white thermal paper. The Marinefax meets the international World Meteorological Organization

recording speeds of 60, 90 and 120 scans per minute and can operate at 12, 24 or 32 VDC. An optional AC adaptor is available for 110 or 220 VAC operation. An optional 4-foot all-wave antenna completes the package.

The Marinefax TR-IV complements Alden's current line of Marinefax recorders.

For more information and free literature from Alden Electronics,

Circle 106 on Reader Service Card

National Specialty Products To Open Tampa Office—Literature Available

National Specialty Products, Inc., a Houston-based industrial manufacturer of marine gangways and fiberglass safety enclosures, life jacket boxes, fire hose cabinets and fire extinguisher cabinets, recently announced that they will open a Tampa, Fla., office.

The new office, which is expected to be opened early this summer, will be located on 3rd Avenue and 22nd Street, three blocks north of the Port of Tampa. The new location should enable the company to better serve its East Coast clients.

For a free catalog detailing the company's product line,

Circle 104 on Reader Service Card

PROPULSION UPDATE

New WD 234 Is Notable Addition To Line Of Deutz MWM High Performance Boat Propulsion Units

The new WD 234 is another outstanding addition to the line of Deutz MWM high performance boat propulsion units.

The engine is a result of the cooperation between Deutz MWM and Wizeemann Marine. The task of this cooperation is to have Deutz MWM basic engines matched by Wizeemann at its marine center at Hochberg on the Neckar River (near Remseck) to the particular requirements of high performance boat applications. All activities regarding sales and service backup worldwide for these engines are being undertaken by the Deutz MWM organization.

With a power output of 810 kw (1,100 hp), the 12-cylinder engine, introduced in summer 1988, is setting standards in terms of weight and installation volume. After the first engines were delivered to Starships Yachts Ltd., Malta, orders were secured for 10 engines destined for U.S. passenger boats.

The Deutz MWM range of high performance boat propulsion units comprises extremely compact, high- and medium-speed diesel engines. They meet the demands for low



The entire auxiliary equipment is located in the immediate vicinity of the engine block on the new propulsion engine WD 234 V12 TI from Deutz MWM. The advantages offered by the 60-degree configuration thus remain fully effective. The intake air cleaners are also integrated in the engine contour.

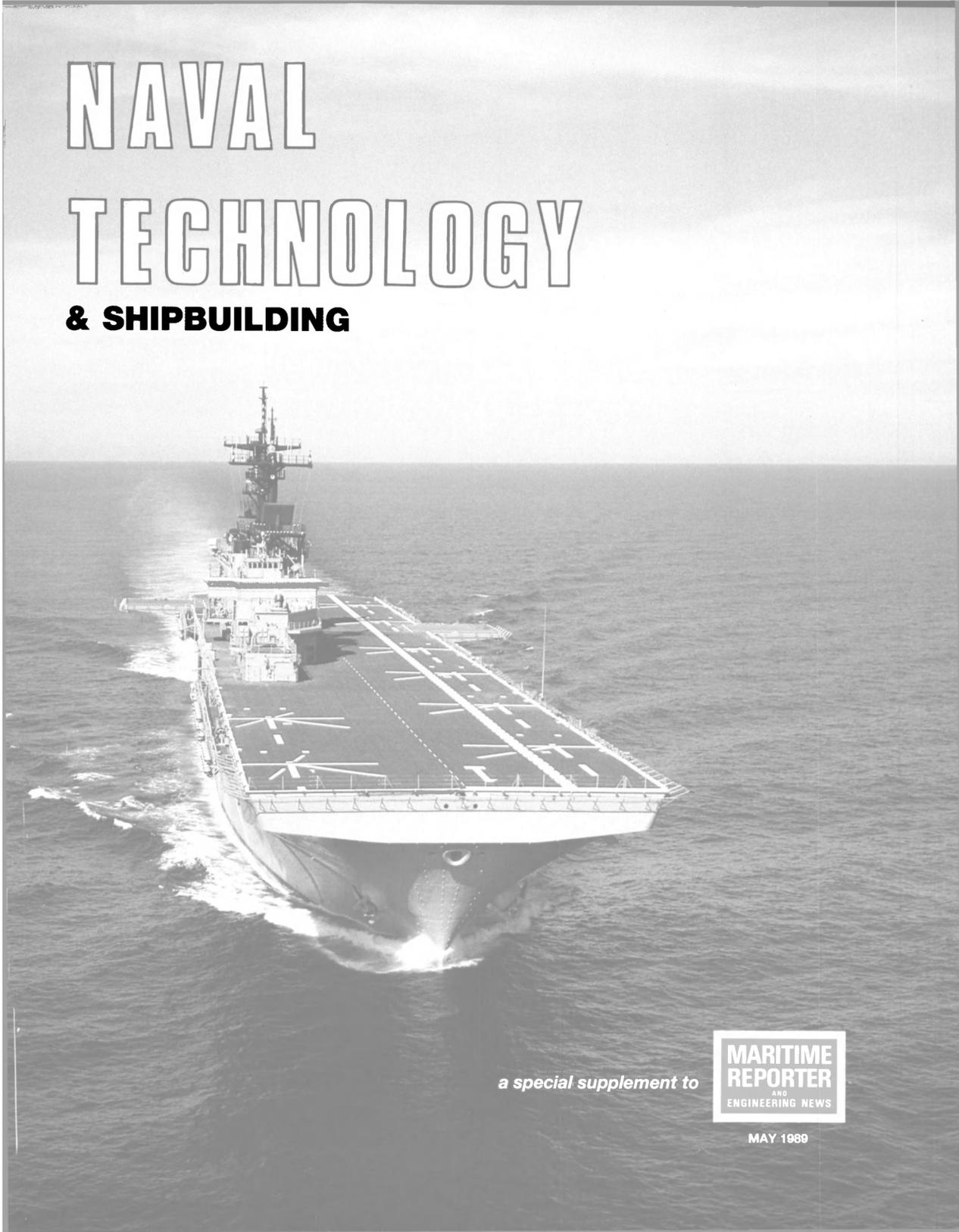
weight, small installation volume and smooth-running characteristics, as well as operating economy and environmental compatibility.

Four engine series are available to cover a power spectrum from 20 to 3,680 kw (27 to 5,005 hp).

For further information and free literature on the new Deutz MWM WD 234 engine,

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NAVAL TECHNOLOGY & SHIPBUILDING



a special supplement to

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REPORTER**
AND
ENGINEERING NEWS

MAY 1989



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Circle 265 on Reader Service Card



AN UPDATE ON U.S. NAVY SHIP AND EQUIPMENT PROCUREMENT

By Dr. James R. McCaul, President
IMA Associates, Inc.

The U.S. Navy continues to be the major driver of business for shipyards and marine equipment suppliers in the United States. A status report for shipbuilding programs and a summary of the FY 1990/91 Navy ship procurement budget is provide below.

STATUS OF MAJOR PROGRAMS

Exhibit 1 shows naval ships on order as of 1 December 1988. Since then contracts for an additional eight ships have been awarded: three DDG-51s (Arleigh Burke Class destroyers) to Bath Iron Works, one SSN-21 (Seawolf Class attack submarine) and one SSN-688 (Los Angeles Class attack submarine) to General Dynamics-Electric Boat, one SSN-688 to Newport News Shipbuilding and two DDG-51s to Ingalls Shipbuilding.

Cost growth—The Navy now estimates that 22 of 38 current fixed-price-incentive contracts will exceed contract target costs by a total of \$3.2 billion. This is substantially greater than the \$2 billion cost growth figure estimated last year for these 22 contracts. The Navy expects to absorb approximately \$1.4 billion of the cost growth. This

leaves \$1.8 billion presumably to be absorbed by the industry.

SSN-21 (Seawolf Class attack submarine)—The construction contract for the lead ship was awarded to GD-Electric Boat in January 1989. A program of 30 ships is planned. Newport News and GD-Electric Boat will compete for future work.

SSN 688 (Los Angeles Class attack submarine)—A total of 63 SSN-688 Class submarines have been ordered by the Navy. GD-Electric Boat has received 34 of these awards. Newport News has been awarded 29 SSN-688s. Forty units have been delivered. The remaining units will be delivered by the mid-1990s. The two awards last December could mark the end of the program—though at this time two additional ships are included in the FY 1990 budget to complete the program.

CVN (Nimitz Class aircraft carriers)—Construction of four nuclear aircraft carriers is in progress at Newport News. The USS Abraham Lincoln (CVN-72) delivery is scheduled for October 1989. CVNs 74 and 75 are scheduled for

delivery in December 1995 and June 1998, respectively.

CG 47 (Ticonderoga Class cruiser)—The last of the 27 ship Aegis cruisers were funded in FY 1988. Thirteen have been delivered and the remaining 14 are in various stages of construction at Ingalls and Bath Iron Works. The last ship of this class is scheduled for delivery in 1994.

DDG-51 (Arleigh Burke Class destroyer)—Funding for eight DDG-51 Aegis destroyers has been provided. Bath, the lead shipbuilder for this class, has been awarded contracts for five Aegis destroyers. Ingalls has received awards for three ships. The lead ship is scheduled for delivery in 1991.

LSD-41—Nine LSD-41 landing ship docks have been funded. Lockheed built and delivered the first three ships. The remaining six ships are contracted to Avondale. Avondale's last contract (a cargo variant) includes options for four additional ships.

LHD-1 (Wasp Class amphibious assault ship)—Litton has been awarded contracts for four ships in this class. The USS Wasp (LHD-1) was delivered in March

1989. LHDs 2, 3 and 4 are scheduled for delivery in April 1992, January 1993, and March 1994, respectively. Additional ships in this class are to be competitively procured in three ship lots starting FY 1992.

LCAC—Fifteen air cushion landing craft were awarded last December to Textron Marine Systems and Avondale Gulf Marine. These awards bring the number of craft under contract to TMS to 36 units. Twelve units are under contract to Avondale. A project is underway to perform detailed design of Arctic configured LCACs.

MCM—Eleven mine counter-measure ships have been funded. Peterson Builders has received contracts for eight units. Three units have been awarded to Marinette Marine. Three units remain to be funded to complete the program objective.

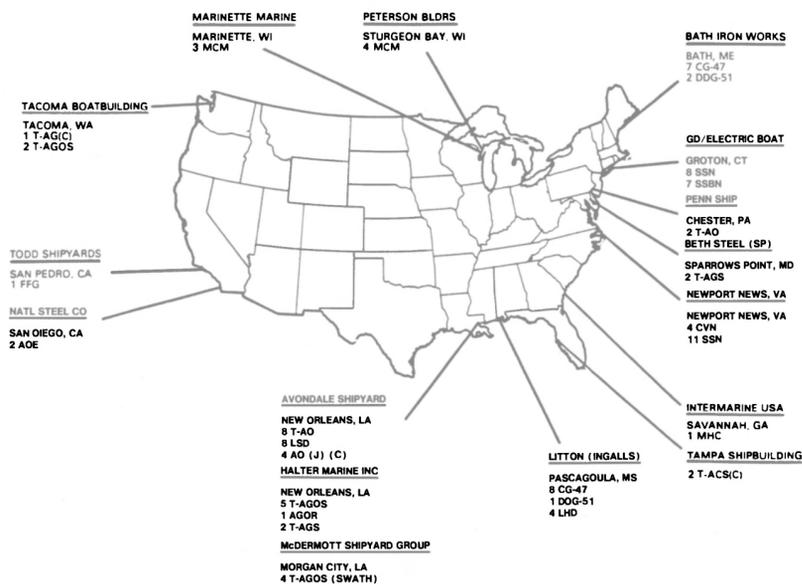
MHC—Contracts for two coastal minehunters have been awarded to Intermarine USA. Open competition for the third ship will be conducted to select a second source builder. Intermarine and the second source will compete for the remain-

(continued)

U.S. NAVY

Exhibit 1

PRIVATE SHIPYARDS WITH NAVY CONSTRUCTION PROGRAMS (1 December 1988)



(continued)
ing 14 ships in the 17-ship program.

AOE-6—Contracts for two combat support ships have been awarded to NASSCO. The first ship is scheduled for delivery in July 1991. NASSCO has fixed price options for two additional ships.

TAO-187 (Henry J. Kaiser Class fleet oiler)—Avondale has scooped up all but two of the ships in this 18-ship program. The remaining two fleet oilers have been awarded to Penn Ship. No further orders are planned.

T-AGOS—Contracts for eighteen monohull ocean surveillance ships have been awarded. Tacoma Boatbuilding has been awarded contracts for 12 units. Halter Marine has received awards for six ships. McDermott Shipbuilding has received contracts for four twin hull (SWATH) versions of the ocean surveillance ship. Delivery of the first SWATH ship is scheduled for February 1990. A new SWATH design (T-AGOS-23) is in the contract design stage with ship construction award planned in FY 1990.

T-AGS—Four ocean survey ships are under construction. T-AGSs 39 and 40 are being built by Bethlehem Steel-Sparrows Point, with delivery of both ships scheduled this year. In November 1988, Halter Marine was awarded a contract to build two T-AGSs.

AO-177 Jumboization—Avondale has been awarded a contract to add a 108-foot midbody to each of five AO-177 Class fleet oil-

(continued)

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34

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Maritime Reporter/Engineering News

MAJOR NAVY CONTRACTS

Compiled By Maritime Reporter Staff

January 10

Vitro Corporation, Silver Spring, Md., was awarded a **\$6,441,595** modification to a previously awarded cost-plus-fixed-fee contract for technical engineering services for the Aegis shipbuilding program. Work is expected to be completed by January 1990. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-86-C-5506).

January 12

Continental Maritime of San Diego, San Diego, Calif., was awarded a **\$3,262,844** firm-fixed-price contract for Drydocking Selected Restricted Availability (DSRA) for USS Fanning (FF-1076). Work is expected to be completed by April 28, 1989. The Supervisor of Shipbuilding, Conversion and Repair, San Diego, Calif., is the contracting activity (N00024-85-8212).

January 13

Samson Tug & Barge Company, Sitka, Alaska, was awarded a firm-fixed-rate, indefinite delivery, indefinite quantity contract under the Small Business set-aside program to transport containerized and breakbulk cargo between Seattle, Wash., and the Naval Air Station, Adak, Alaska. The estimated cost over the term of the contract is **\$8,563,443**. The contract performance period is 24 months. The Military Sealift Command, Washington, D.C., is the contracting activity (N00033-88-C-8503).

AT&T Technologies Incorporated

Greensboro, N.C., was awarded a **\$23,885,779** cost-plus-fixed-fee contract for oceanographic services. Work is expected to be completed September 30, 1989. The Space and Naval Warfare Systems Command, Washington, D.C., is the contracting activity (N00039-89-C-0067).

January 19

AAI Corporation, Hunt Valley, Md., was awarded a **\$5,151,138** cost-plus-fixed-fee contract to modify and improve the operational suitability, effectiveness and safety of the Pioneer Unmanned Air Vehicle (UAV). The contract also provides for the shipboard integration of the vehicle. Work is expected to be completed in January 1990. The Naval Air Systems Command, Washington, D.C., is the contracting activity (N00019-89-C-0090).

January 24

Ingalls Shipbuilding Incorporated, Pascagoula, Miss., was awarded a **\$3,901,000** modification to a previously awarded cost-plus-fixed-fee contract for planning yard support for CG-47 class cruisers. Work is expected to be completed by September 30, 1989. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-87-C-2031).

Westinghouse Electric Company

Cleveland, Ohio, was awarded a **\$77,400,000** modification to a previously awarded firm-fixed-price contract for 96 MK-48 Advanced Capability (ADCAP) torpedoes. Work is expected to be completed on November 1, 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-6325).

January 26

Magnavox Government and Industrial Electronics Company, Fort Wayne, Ind., was awarded a **\$7,283,933** firm-fixed-price modification to a previously awarded contract for 36,068 AN/SSQ-53B sonobuoys. Work is expected to be completed in December 1989. The Naval Avionics Center, Indianapolis, Ind., is the contracting activity (N00163-88-C-0002).

February 2

Unisys Corporation, Shipboard and Ground Systems, Great Neck, N.Y., was awarded a **\$4,092,228** modification to a previously awarded cost-plus-fixed-fee contract for design engineering support for the MK-92 fire control system. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-5626).

February 10

Metal Trades Incorporated, Hollywood,

S.C., was awarded a **\$4,474,813** firm-fixed-price contract for Restricted Availability (RAV) for Los Alamos (AFDB-7). Work will be performed in Holy Loch, Scotland, and is expected to be completed August 20, 1989. The Supervisor of Shipbuilding, Conversion and Repair, Charleston, S.C., is the contracting activity (N00024-85-H-8686).

February 14

Todd Pacific Shipyards Corporation, San Pedro, Calif., was awarded a **\$3,282,422** firm-fixed-price contract for Phased Maintenance Availability (PMA) services for USS Ogden (LPD-5). Work is expected to be completed by June 2, 1989. The Supervisor of Shipbuilding, Conversion and Repair, Long Beach, Calif., is the contracting activity (N00024-85-H-8237).

Robert E. Derektor of Rhode Island Incorporated, Middletown, R.I., was awarded a **\$7,178,447** firm-fixed-price modification exercising an option to a pre-

viously awarded contract for Phased Maintenance Availability (PMA) services for USS Ogden (LPD-5). Work is expected to be completed by June 2, 1989. The Supervisor of Shipbuilding, Conversion and Repair, Long Beach, Calif., is the contracting activity (N00024-85-H-8237).

(continued)

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U.S. NAVY

Exhibit 2—Shipbuilding and Conversion Budget
(in millions of \$)

	FY 1988		FY 1989		1990		1991	
	Qty	\$	Qty	\$	Qty	\$	Qty	\$
Construction								
Trident Submarine (SSBN)	1	\$1,260.8	1	\$1,196.2	1	\$1,228.6	1	\$1,254.5
Carrier Replacement (CVN)	2	6,225.0	—	—	—	—	—	—
Attack Submarine (SSN 688)	3	1,676.9	2	1,364.6	2	1,520.3	—	—
New Attack Submarine (SSN 21)	—	257.6	1	1,533.0	—	866.0	2	3,161.9
Aegis Cruiser (CG 47)	5	4,100.7	—	—	—	—	—	—
Destroyer (DDG 51)	—	5.5	4	2,826.1	5	3,600.7	5	3,604.7
Mine Countermeasure Ship (MCM)	—	—	—	—	3	341.5	—	—
Coastal Minehunter (MHC)	—	—	2	196.7	3	230.3	3	214.9
Amphib. Landing Craft (LSD 41)	1	258.0	—	—	1	229.3	1	232.7
Amphib. Assault Ship (LHD 1)	1	752.9	1	733.1	—	—	—	35.8
Ocean Surveill. Ship (TAGOS)	—	—	3	158.9	1	155.8	—	—
Fleet Oiler (TAO-187)	2	256.4	5	689.9	—	—	—	—
Fast Combat Support Ship (AOE)	—	—	1	363.1	1	356.4	1	357.7
Ocean. Research Ship (AGOR)	—	—	—	—	3	278.1	1	41.9
Landing Craft (LCAC)	—	35.3	(15)	305.5	(9)	219.3	(12)	284.0
Ship Modernization/Conversion								
Carrier Modernization (CV SLEP)	1	729.9	—	62.7	1	651.2	—	76.6
Crane Ship Conversion (TAC)	2	53.1	—	—	—	—	—	—
Fleet Oiler Lengthening (AO 177)	1	44.1	2	75.0	1	35.7	—	—
Moored Training Ship	—	—	—	—	(1)	220.0	—	—
Other costs	—	319.6	—	376.8	—	486.4	—	500.7
Total Budget	19	\$15,975.7	22	\$9,881.6	22	\$10,419.6	14	\$9,765.4

Source: Department of the Navy

Exhibit 3—Navy Shipbuilding and Conversion
Five-Year Plan
(FY 1990-1994)

	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994	FY 1990-94
Ship Construction						
Trident Submarine (SSBN)	1	1	1	1	1	5
Attack Submarine (SSN 688)	2	—	—	—	—	2
New Attack Submarine (SSN 21)	—	2	3	3	3	11
Destroyer (DDG 51)	5	5	5	5	5	25
Mine Countermeasure Ship (MCM)	3	—	—	—	—	3
Coastal Minehunter (MHC)	3	3	4	4	—	14
Amphib. Landing Craft (LSD 41)	1	1	1	1	1	5
Amphib. Assault Ship (LHD 1)	—	—	1	1	—	2
Ocean Surveill. Ship (TAGOS)	1	—	2	1	2	6
Ammunition Ship (AE)	—	—	—	1	2	3
Fast Combat Support Ship (AOE)	1	1	1	1	1	5
Ocean. Research Ship (AGOR)	3	1	2	2	1	9
Ocean Surveill. Ship (AGOS)	—	—	1	—	—	1
Repair Ship (AR)	—	—	—	—	—	—
Salvage Ship (ARS)	—	—	—	—	1	1
SOF Landing Craft	—	—	—	(1)	(6)	(7)
Landing Craft (LCAC)	(9)	(12)	(12)	(12)	(12)	(57)
Total Construction	20	14	21	20	20	95
Ship Modernization/Conversion						
Carrier Modernization (CV SLEP)	1	—	—	1	—	2
Fleet Oiler Lengthening (AO 177)	1	—	—	—	—	1
Moored Training Ship	(1)	—	(1)	—	—	(2)
Total Modernization/Conversions	2	—	—	1	—	3
Total Number of Ships	22	14	21	21	20	98

Note: Figures in parentheses not included in totals

Source: Department of the Navy

(continued)

ers. In December 1988, the Navy negotiated a contract modification with Avondale which provides ammunition capability as well as increased oil capacity in the midbody.

PROPOSED SHIP PROCUREMENT BUDGET FOR FY 1990/91

For FY 1990, \$10.4 billion has been requested to fund construction of 20 new ships and perform two major conversions. In FY 1991, \$9.8 billion was requested to build 14 ships—including two follow ships in the SSN-21 attack submarine program.

Shown in Exhibit 2 is the breakdown of the shipbuilding budget request for the FY 1988-91 period. Exhibit 3 shows the five-year shipbuilding plan.

A major change in the future program has been the deletion of three SSN-688 submarines originally planned for FY 1991 and 1992. There had been criticism of the Navy's plan to overlap construction of the SSN-21 and SSN-688. The current plan is to end the SSN-688 program in FY 1990—and order two SSN-21s in FY 1991, maintaining a construction rate of three SSN-21s per year thereafter.

The Navy plans to build DDG-51 Aegis destroyers at the rate of five per year over the next five years. However, due to budget pressures, this program is a target for stretch-out. The Congressional Budget Office has estimated that buying three DDG-51s per year versus five per year would produce cumulative savings of \$7.3 billion over the next five years.

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Major Navy Contracts

(continued)

viously awarded contract for one large tug boat for the U.S. Army. Work is expected to be completed in February 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-2136).

Continental Maritime of San Diego, San Diego, Calif., was awarded a **\$4,903,501** firm-fixed-price contract for Drydocking Selected Restricted Availability (DSRA) for USS Dixon (AS-37). Work is expected to be completed September 1, 1989. The Supervisor of Shipbuilding, Conversion and Repair, San Diego, Calif., is the contracting activity (N00024-85-H-8212).

Newport News Shipbuilding and Drydock Company, Newport News, Va., was awarded a **\$35,000,000** firm-fixed-price contract to inactivate and defuel SSN-585 and SSN-590. Work is expected to be completed by July 1990. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-89-2150).

Peterson Builders Incorporated, Sturgeon Bay, Wis., was awarded a **\$185,129,296** firm-fixed-price contract to construct three mine countermeasures ships (MCM-9, 10, 11). Work is expected to be completed by October 31, 1992. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-89-C-2126).

Intermarine USA, Savannah, Ga., was awarded a **\$41,300,000** modification defining a previously awarded contract to construct one coastal minehunting ship (MHC-51). Work is expected to be completed by July 31, 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-87-C-2136).

February 17

Intermarine USA, Savannah, Ga., was awarded a **\$55,300,000** fixed-price-incentive contract for the construction of one coastal minehunting ship (MHC-51). Work is expected to be completed by April 30, 1992. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-89-C-2152).

February 23

Magnavox Government and Industrial Electronics Company, Fort Wayne, Ind., was awarded a **\$19,555,195** firm-fixed-price contract for 62,156 AN/SSQ-53D sonobuoys. Work is expected to be completed in September 1990. The Naval Avionics Center, Indianapolis, Ind., is the contracting activity (N00163-89-C-0012).

February 24

Raytheon Company, Submarine Signal Division, Portsmouth, R.I., was awarded a **\$46,609,927** firm-fixed-price contract for the production and refurbishment of AN/SQQ-32 minehunting sonar systems. Work is expected to be completed by July 1993. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-89-C-6115).

Honeywell Incorporated, Everett, Wash., was awarded a **\$6,369,054** firm-fixed-price contract for high volume modules for AN/UYS-1 advanced signal processors. Work is expected to be completed by March 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-89-C-5217).

IBM Corporation, Manassas, Va., was awarded a **\$8,889,209** firm-fixed-price contract for high volume modules for AN/UYS-1 advanced signal processors. Work will be performed in Manassas, Va. (40 percent), and Owego, N.Y. (60%), and is expected to be completed by March 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-89-C-5201).

Avondale Awarded \$319-Million Contract To Build Three Oilers

Avondale Industries Inc., New Orleans, La., was recently awarded a \$319-million contract by the U.S. Navy to construct three T-AO-187 Class fleet oilers. Each of the Henry J. Kaiser Class

oilers will have a displacement of 40,700 tons, length of 677-1/2 feet, and beam of 97-1/2 feet.

According to Avondale chairman and chief executive officer **Albert L. Bossier Jr.**, with the inclusion of the latest award, the firm has been contracted to build a total of 16 T-AOs since 1982, amounting to \$1.9-billion in work.

Avondale Industries, Inc., headquartered in metro New Orleans, is

one of the nation's leading marine fabricators and its Shipyards Division has just completed its 51st year in business. In addition to its shipbuilding operations, the company specializes in boat and Landing Craft, Air Cushion vehicle (LCAC) construction, and is a major repair contractor for commercial and Navy ships. For free literature detailing the yard's services,

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Ingalls Shipbuilding Readies USS Wasp (LHD-1) For Delivery

Ingalls Shipbuilding, Inc., Pascagoula, Miss., is preparing to deliver the lead vessel of the new amphibious assault ship class, the USS Wasp (LHD-1), for delivery to the U.S. Navy. The Navy expects to

take delivery of the Wasp shortly, and commission her into the fleet July 29 in Norfolk, Va.

The 40,500-ton amphibious assault ship will have the primary mission of embarkation, deployment, landing and support of a Marine landing force. The Wasp is 844 feet long, with a beam of 106 feet. Two Westinghouse steam propulsion plants, developing a combined 70,000 horsepower, will drive the ship at speeds of more than 20 knots.

In carrying out this mission, the LHD-1 will mount an assault force of helicopters, landing craft, and other amphibious vehicles in various combinations. The Wasp and her sister vessels to follow are specifically designed to accommodate the air cushion landing craft (LCAC), which are presently under construction at Textron Marine Systems, New Orleans, La., and Avondale Gulfport Marine, Gulfport, Miss., and Harrier II (AV-8B) STO/VL (Short Takeoff/Vertical Landing) jets, which will provide close-in air support of the assault force. The ship will also carry a full range of Navy and Marine Corps

helicopters, conventional landing craft and amphibious vehicles.

LHD-1 will have more than 22,000 feet of vehicle space, and 100,000 cubic feet of cargo space. Accommodations for nearly 3,000 troops and crew members (98 officers and 983 enlisted men) are provided in the ship's living areas. The Wasp is also fitted with six fully equipped operating rooms and a 600-bed hospital.

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Derektor Receives \$7.2-Million To Build Another Army Tug

Robert E. Derektor of Rhode Island, Inc., Middletown, R.I., recently received a \$7.2-million firm-fixed-price modification exercising an option to a previously awarded contract for the construction of a large tugboat for the U.S. Army. The work is expected to be com-

pleted in February 1991. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-88-C-2136).

Wyle Labs Wins \$6-Million Navy Pact

The Scientific Services & Systems Group of Wyle Laboratories, Hampton, Va., has been awarded a three-year contract valued at over \$6 million by the U.S. Navy's David Tay-

lor Research Center in Bethesda, Md.

Wyle will automate the center's instrument calibration, repair and inventory operations and develop calibration procedures for complete measurement systems at research facilities in Carderock and Annapolis, Md. Wyle will also calibrate, repair and maintain the center's cast complement of instruments, computers and measurement systems.

Albert L. Bossier Jr. Named 1989 Nimitz Award Winner



Albert L. Bossier Jr.

Albert L. Bossier Jr., chairman and chief executive officer of Avondale Industries, Inc., has been chosen to receive the 1989 Fleet Admiral Chester W. Nimitz Award given by the Navy League of the United States, a 70,000-member civilian organization dedicated to America's maintaining a strong and viable maritime defense through the Navy, Marine Corps, Coast Guard and merchant marine.

In announcing the selection, Jack H. Morse, national president of the Navy League, stated: "Mr. Bossier's dynamic leadership, personal commitment, and unyielding dedication to both professional and community excellence during his 32 years with Avondale Industries exemplify the very principles on which this nation was founded."

Mr. Bossier is the ninth recipient of the Nimitz Award, which is presented annually to an individual who has made outstanding contributions to U.S. maritime strength and national security.

Under Mr. Bossier's leadership, Avondale Industries has pioneered innovative technological advances—such as modular ship assembly—and implemented modernization and cost control programs which have made it possible for military ships and boats to be built at reasonable cost.

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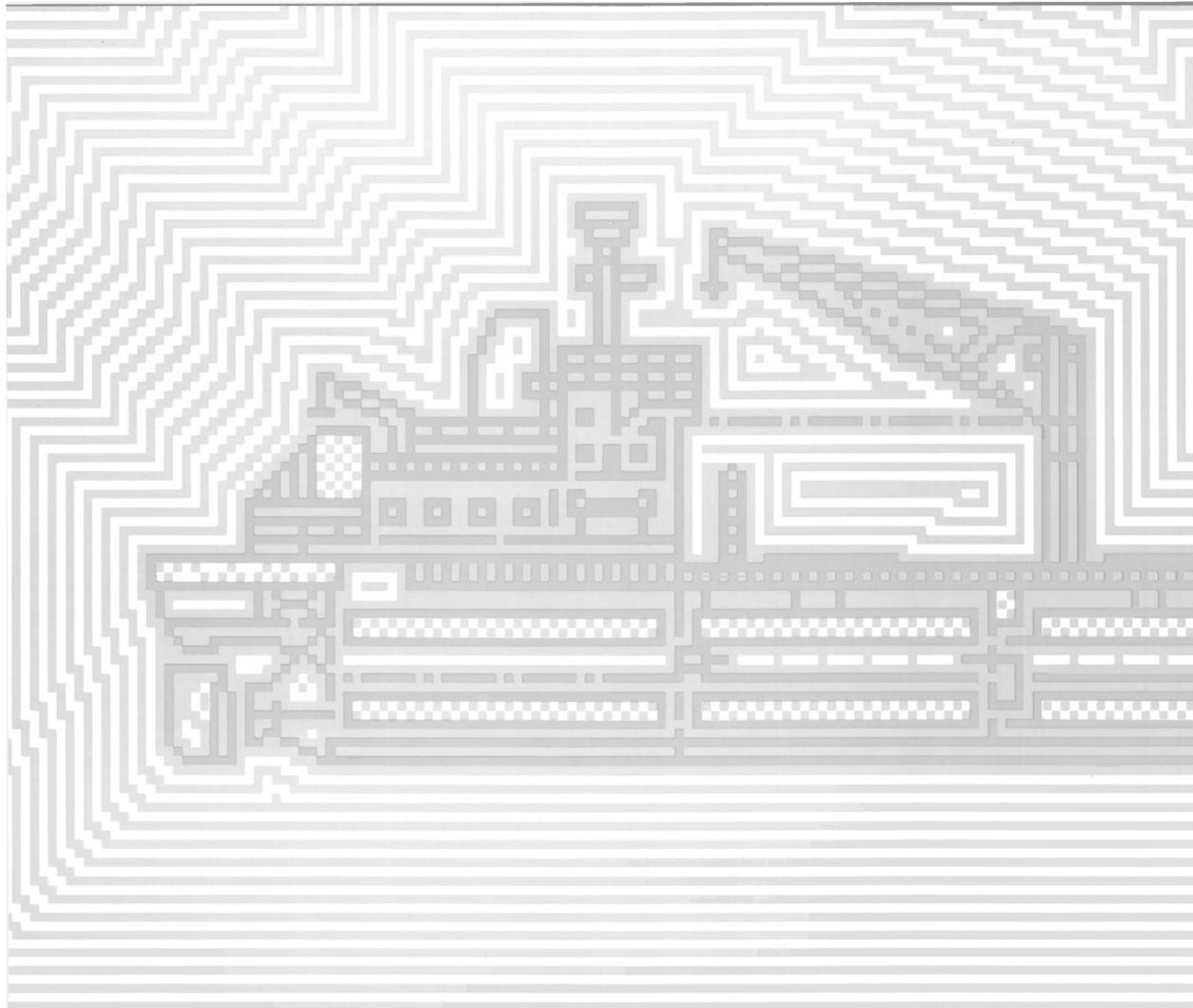
Circle 243 on Reader Service Card

Subs To Be Deactivated By Newport News Under \$35-Million Pact

Newport News Shipbuilding & Drydock Co., Newport News, Va., recently received a \$35-million firm-fixed-price contract to inactivate and defuel two submarines, the USS Skipjack (SSN-585) and the USS Sculpin (SSN-590). The work is expected to be completed by July 1990. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-89-C-2150).

Intermarine USA Receives Additional \$41.3 Million To Build Minehunter

Intermarine USA, Savannah, Ga., recently received a \$41.3-million modification definitizing a previously awarded contract to construct one coastal minehunter ship (MHC-51). The work is expected to be completed by July 31, 1991. The Naval Sea Systems Command, Washington, D.C., awarded the contract (N00024-87-C-2136).



About being technically competitive.

Our marketing managers are well known, and we hope appreciated, by shipowners all over the world. But even the best marketing man cannot succeed in this harsh and competitive shipbuilding business if he is not backed, among others, by the most appropriate technology.

Did you know that the five 140.000 dwt. tankers under

construction include superoptimised hydrodynamic shapes leading to large reductions in installed power over conventional systems?

Did you know that Astilleros is building nine freezers for Del Monte that consume only 124,5 gr bhp/h and can burn fuel up to 6000 Redwood No. 1 at 100°F?

Did you know that through engine room automation, automatic manoeuvring (AUT-PORT notation) and

control systems including CRT's for monitoring all spaces, some of our constructions may be operated by between 10% and 22% less crew than in conventional constructions?

While some yards complain about lack of orders, our yards are growing steadily in newbuildings.

Astilleros continues to make a genuine contribution to the expansion of Spain, the fastest growing economy in Europe... Marketing? Technical excellence?

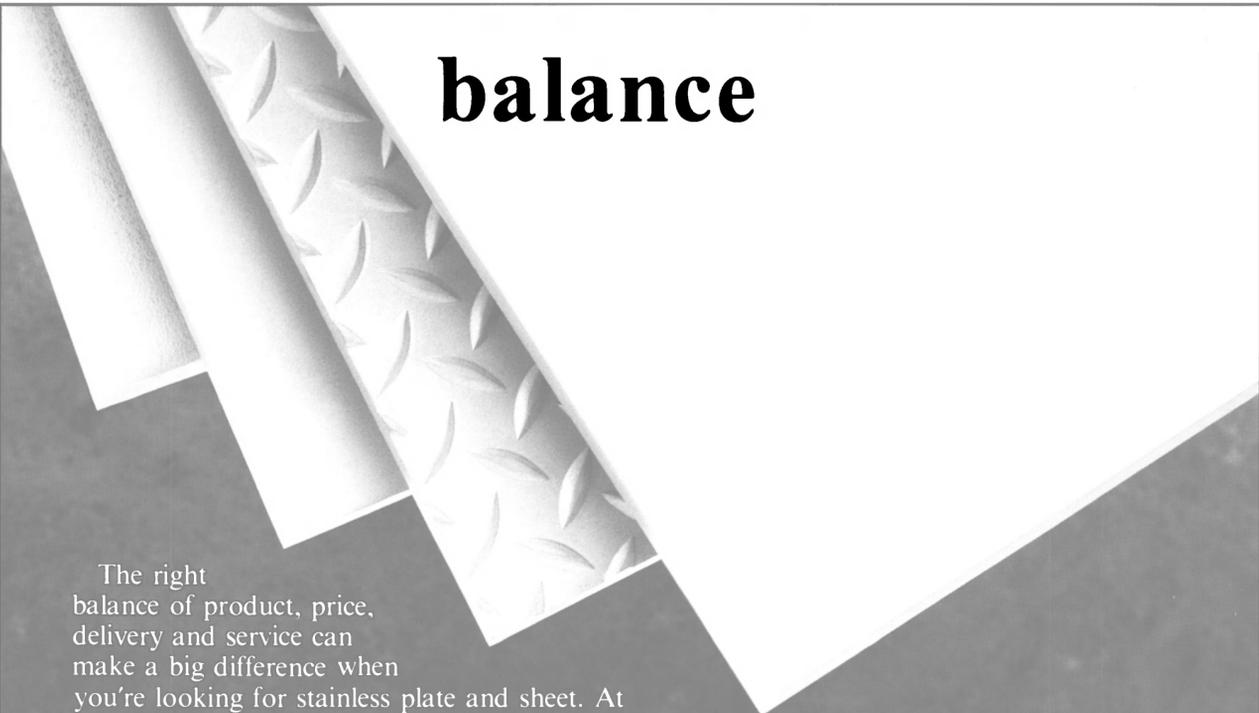
The answer is Astilleros.
Check on us.

**ASTILLEROS
ESPAÑOLES**

For further information: Astilleros Españoles, S.A.
Padilla, 17
28006 Madrid
Tel. (3411) 435 78 40
Telex: 27648 ASTIL E
Fax: (3411) 276 29 56

Circle 153 on Reader Service Card

The Shipbuilders of Spain



balance

The right balance of product, price, delivery and service can make a big difference when you're looking for stainless plate and sheet. At Eastern Stainless, we understand this and work with our customers to develop just the right balance of all the elements that go into a purchasing decision. It's one of the reasons why Eastern is America's number one stainless plate producer.

Balance starts with the right equipment: a state-of-the-art electric furnace and AOD that assure prescription-precise chemistry; a continuous caster, the first ever installed exclusively for producing stainless flat-rolled; and other processing equipment to ensure that every customer specification is met, exactly. Our plate is available in a broad range of finishes, such as Eastern Silver (HRAP), French, and Super French, a cold-reduced plate up to 72 inches wide with a bright or dull finish. It all adds up to the most complete line of grades, sizes, gauges and finishes you'll find from any plate supplier.

But that's only part of the reason why Eastern remains America's largest stainless plate producer. Another reason is Eastern's attitude: Our on-time delivery performance is at a new high. Our customer service people make sure that you get kid-glove care. Whether it's a quick status report or technical support, we work with you to make your job easier.

Now, as part of Cyclops, we're working to expand and improve our facilities and processes to meet increasing requirements for world-class stainless steels.

When you need stainless plate or sheet, call one of America's leading producers, as well as the largest stainless plate producer. Call Eastern Stainless.

Eastern Stainless

Eastern Stainless Corporation
P.O. Box 1975
Baltimore, Maryland 21203
(301) 522-6200
FAX: (800) 445-6324



Circle 226 on Reader Service Card

Sperry Marine, Philips To Cooperate On German ESM/ADF System

Sperry Marine Inc., Charlottesville, Va., and Philips GmbH Unternehmensbereich Systeme und Sondertechnik, Kiel, West Germany, recently announced the signing of a cooperation agreement for jointly pursuing the ESM/ADF system requirements of the new Federal Republic of Germany U212 submarine program.

Sperry Marine, the manufacturer of the Guardian Star periscope-mounted ESM/ADF system, and Philips GmbH, a supplier of Integrated Logistic Support, training and installation services to the German Navy, have signed a cooperation agreement which offers their mutual strengths to the U212 program.

The Guardian Star is an advanced, high-speed, ESM/ADF system incorporating a lightweight, low radar cross section antenna, raster-scan touchscreen technology, and system flexibility unparalleled in other submarine ESM systems today. The advanced technology of the Guardian Star, coupled with Sperry Marine's experience as one of two suppliers of periscopes to the U.S. Navy, make the Guardian Star system unique. The system incorporates design features which overcome the problems normally associated with periscope-ESM/ADF integration.

Philips GmbH brings to the team a wealth of experience servicing the FRG Navy in the areas of installation, commissioning, service and ILS; e.g., training and Navy-approved documentation. Located in Kiel, one of the two possible sites for construction of the U212, Philips GmbH is ideally located for immediate support during the U212 ESM/ADF installation and sea-trial phases of the program.

Sperry Marine Inc. and Philips GmbH together will provide an excellent combination of strengths to the U212 program, supplying decades of experience and quality products and service in their mutual fields of expertise.

For more information and free literature,

Circle 43 on Reader Service Card

Datrex Introduces Hydrostatic Release For Inflatable Life Rafts

Datrex, Inc., Miami, Fla., has introduced the U.S. Coast Guard-approved/SOLAS 74/83 Hammar H20 two-year disposable hydrostatic release for commercial marine inflatable life rafts.

Datrex reports the new Hammar H20 release is safe, reliable, and through simplicity of design, offers a substantial cost savings.

A glass fiber-reinforced nylon housing holds a pressure chamber which activates a spring-loaded, razor

knife when the unit reaches a depth between 1.5 m to 4 m. As the knife is released it cuts through a rope sling in which the lashing of the life raft is attached thereby allowing the life raft to float free of its stowage set up while still being attached to the vessel by the activation line of the life raft and the weak link of the Hammar H20 release. As the life raft continues to float upward toward the surface, the activa-

tion line is drawn out until reaching the operating wire connection of the gas cylinder which then ignites the inflation system and the life raft breaks the weak link connection of the Hammar H20 as the vessel continues to sink. The Hammar H20 allows fully automatic operation of the inflatable life raft in the event that one cannot manually launch the life raft.

The Hammar H20 Hydrostatic

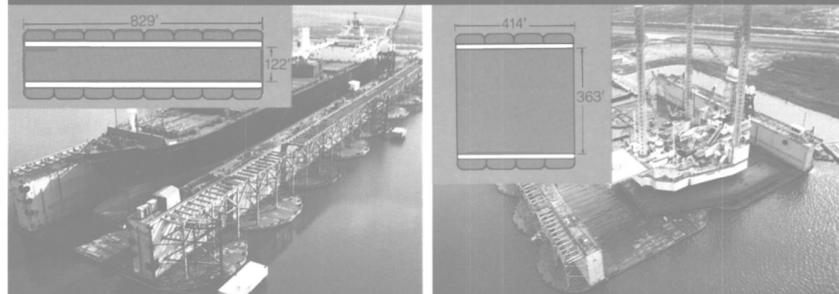
Release is designed for a period of two years of service on board the vessel without any maintenance. Each release is marked with an expiration date and is easy to install.

Datrex offers a dealer and distributor program in the U.S. for the Hammar H20 release.

For free literature detailing the Hammar H20 Hydrostatic Release,

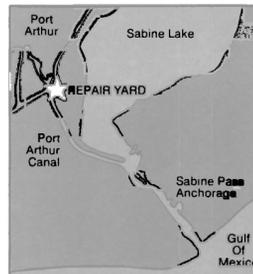
Circle 6 on Reader Service Card

Business Opportunity... available by the Yard



Gulf Coast Yard handles both Ship and Offshore Drill Rig Repairs

Bethlehem's Sabine Yard in Port Arthur, Texas, is a full-service maintenance and repair facility with a drydock having the unique capability to handle large ships or mobile offshore drill rigs. Here's an attractive opportunity to purchase an ongoing business with all skilled trades readily available.



Yard Activity—Drydock Usage on the Rise

- 96% Drydock utilization in 1988
- T-pier for alongside work
- Certified under NAVSEA MilStd 1675B through August 1990
- Closest drydock to MARAD Ready Reserve Fleet at Beaumont
- 40-ft. deep dredged channel to the Gulf

Excellent Location— Central to Gulf of Mexico Shipping

- Only 8 miles upstream from the Sabine Pass Anchorage with unobstructed easy access to and from the Gulf.

Specifications— One of the Largest Drydocks in the U.S.

- Clear docking area: ships—122' x 829' drill rigs—363' x 414'
- Lifting capacity: 64,000 long tons
- Water depth over the keel blocks: 30 ft.
- Gantry and crawler cranes up to 150-ton capacity on the dock

For more information, contact:

Robert D. Joyce
Bethlehem Steel Corporation
Martin Tower
Bethlehem, PA 18016 USA
Telephone: 215-694-7464
Fax: 215-694-1447



Circle 20 on Reader Service Card

**Poppe To Head
Bailey Refrigeration's
Miami Branch Operation**

Bailey Refrigeration Co., Inc., Avon, N.J., has appointed **Oscar F. Poppe Jr.** as its Miami branch manager.

Mr. **Poppe** comes to Bailey from Bermuda Star Line where he was vice president of operations.

A marine engineer from Miami, Mr. **Poppe** has considerable experience in the marine industry and, in particular, cruise ships. He has spent many years handling operations for various companies in Florida including Eastern Cruise Lines, where he began as port engineer and advanced to vice president marine operations, before leaving to join Bermuda Star Line.

Commenting on the appointment

of Mr. **Poppe**, company president **Ben Bailey** said, "Oscar is one of the most respected people in his field. And with his expertise and our company's 42 years of experience, no one can match our service. Now in the crucial Port of Miami, we are more qualified than ever to handle the refrigeration and air conditioning needs of cruise ships and commercial vessels."

For free literature detailing the

marine and refrigeration services of Bailey Refrigeration,

Circle 84 on Reader Service Card

**SPD Awarded Contract
To Supply Electric Plant
Control Panel For Seawolf**

SPD Technologies, Philadelphia, Pa., has been awarded the contract to produce a special-design electric plant control panel for installation in the first of the U.S. Navy's new Seawolf Class nuclear submarines.

The contract was awarded by the Electric Boat Division of General Dynamics, prime contractor for the Seawolf submarine construction program.

The SPD-designed submarine control panel includes a combination of meters, switches, relays and other equipment to receive and display data to control the operating status of the submarine's electrical generation and distribution system.

Scheduled for delivery in June 1991, the control panel will be produced at SPD's switchgear manufacturing plant in Montgomeryville, Pa.

SPD president **George M. Gordon** said the Seawolf contract was a landmark in that it is the company's first for submarine control panel development, although similar systems have been developed by SPD engineers for surface combatants.

Mr. **Gordon** noted that SPD's expansion in electric plant control panel design and production is an outgrowth of its 1988 acquisition of the Brown Boveri's naval switchgear division.

He said the company planned additional expansion in fabrication and assembly of advanced electrical distribution equipment, control panels and specialty shipboard consoles for military applications.

SPD Technologies is one of the largest producers of military circuit breakers and a leader in advanced electrical protection equipment designed for harsh operating environments.

Headquartered in Philadelphia, the company has service, repair and overhaul facilities across the U.S. and serves military markets throughout the world.

For free literature detailing the products and services of SPD,

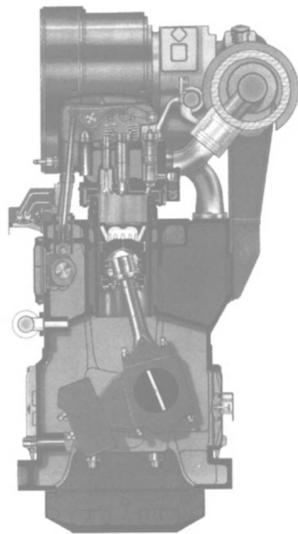
Circle 71 on Reader Service Card

**Robert A. Spoerl Named
Chief Executive Officer
At Coast Engineering**

Coast Engineering & Manufacturing Company (CE&MCO), formerly PACECO, Inc., has announced the retirement of **Robert D. Teece Sr.**, as president and chief executive officer, effective immediately. Mr. **Teece** will continue to serve on CE&MCO's board of

Circle 246 on Reader Service Card

ZA



ZA 40 S cross-section.

The Vital Difference

The unique rotating piston in the ZA40S medium-speed engine gives:

- longer times between overhauls
- constant, low lubricating oil consumption
- dependable safety from scuffing

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SULZER

directors and as senior executive consultant on a limited time basis.

The company further announced that **Robert A. Spoerl**, currently executive vice president and chief operating officer, has been elected to succeed Mr. Teece.

With over 30 years' experience in heavy manufacturing, Mr. Spoerl joined CE&MCO in April 1984 as vice president of operations. He was named executive vice president and chief operating officer in April 1988, which gave him direct line responsibility for the major functions of manufacturing, technical services, project management, government services, the marine equipment business unit and operations, including engineering, purchasing, estimating and quality assurance.

"CE&MCO entered 1989 with a record \$66 million backlog of sales orders," Mr. Spoerl said. "In the coming year, we are confident that the company will begin to realize our full profit potential and continue on into a bright future."

Coast Engineering & Manufacturing Company, a subsidiary of Fruehauf Corporation of Detroit, Mich., maintains a 100-acre manufacturing facility in Gulfport, Miss. A leading designer and manufacturer of container-handling cranes, the prime government contractor is also recognized as one of the South's leading manufacturers of custom-designed heavy machinery for defense, space, power generation, material handling and marine applications.

Port Of Portland Names D'Agrosa Marine Director

The Port of Portland has selected **Daniel D'Agrosa** as its marine director. Mr. D'Agrosa comes to the port from a position as vice president for the Maritime Services Division of The Pasha Group, Corte Madera, Calif.

Mr. D'Agrosa replaces **Del Pearson**, who resigned as marine director in February 1989 to enter private business.

Mr. D'Agrosa is a graduate of the U.S. Merchant Marine Academy. He has been with The Pasha Group since 1979. He held several positions with the transportation company, including division superintendent for northern California, manager of administration, and general manager. As vice president of the Maritime Services Division, he was responsible for The Pasha Group's Richmond and Long Beach auto terminals and Oakland and Los Angeles breakbulk terminals.

Advanced Joiner Systems From Rockment Featured On New Cruise Vessels

Rockment A/S reports that Rockwool TNF Systems are now some of the most popular soft core systems in the world, with installations on over 1,150 vessels.

Rockwool Modular TNF Systems have been supplied for some of the world's most modern and advanced

passenger cruise vessels and ferries. The reference list includes Royal Caribbean's 2,600-passenger Sovereign of the Seas and her sister ship, the Future Seas; Carnival Cruise Lines' 70,000-gt Fantasy, under construction at Wartsila Marine; the cruise ferry Norsun, built by Nippon Kokan K.K.; and the cruise ship Crown Odyssey, delivered by Meyer Werft.

In addition, Rockwool Modular TNF systems have been installed on cargo vessels, tankers and offshore rigs.

The tailor-made TNF systems (knock-down type) have very high noise reduction capabilities, are aesthetically appealing, and easy to install.

In nearly all types of accommodations, the specifications call for a

noise reduction value of better than 40 db. Rockwool TNF Bulkhead Systems are tested for values of 44 db, and with Rockwool CSS self-supporting ceiling systems, requirements can be easily fulfilled.

For free literature detailing the full advantages of Rockwool TNF systems,

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It's bright orange for high visibility, lighter for easier handling, stronger for better performance and terrifically, cost effective. It's UltraLine™ from American.

American, the largest manufacturer of fiber rope in the U.S., presents the most technically advanced rope ever offered to the marine industry. UltraLine™.

UltraLine™ is a unique copolymer extrusion fiber made up into rope that is 5 percent lighter and 30 percent stronger than even our best conventional rope. You can actually save money by buying a far better product.

UltraLine™ is available in a wide range of sizes and constructions and, in many ways, is much like polypro: it floats, stores wet, will

not rot or mildew. In other ways, UltraLine™ is much better: it has 50 percent more abrasion resistance than regular yarn or monofilament because it develops a "feathered" surface that protects it against further abrasion, plus it has lower elongation, better creep

resistance and much higher UV resistance. UltraLine™, 100 percent American made from 100 percent American virgin resins. Better performance and lower cost add up to a product unmatched anywhere else. Send for complete information.

Cir.	CONVENTIONAL POLYPROPYLENE		ULTRALINE™	
	Weight/100 ft. (lbs.)	Minimum Breaking Strength (lbs.)	Weight/100 ft. (lbs.)	Minimum Breaking Strength (lbs.)
7"	92	62,000	88	81,000
8"	120	81,000	115	105,000
9"	153	103,000	145	133,000
10"	190	123,000	180	160,000

AMERICAN
MANUFACTURING COMPANY, INC.
CORDAGE DIVISION

P.O. Box 88000, Lafayette, LA 70598
Tel. 318-837-9241 / Telex 586638

Circle 20 on Reader Service Card →

**Mike Mitchell Appointed
Raytheon Marine Company
Marketing Manager**

President of Raytheon Marine Company Stanley L. Clark recently announced that Michael J. Mitchell has been promoted to marketing manager, North America, with responsibilities for marketing all marine products in the U.S. and

Canada. Formerly North American sales manager based in Seattle, Wash., Mr. Mitchell has relocated to Raytheon's headquarters in Hudson, N.H. He replaces Carsten Peters, who has been appointed managing director of European operations, based in Copenhagen, Denmark.

Mr. Mitchell has 23 years of marine electronics sales and engineering experience. He joined Ray-

theon in 1966, and has served in marketing and management positions in Raytheon's Tampa, New York, and Manchester offices prior to assuming his most recent position in Seattle.

Raytheon produces and distributes one of the most complete lines of advanced navigation and communication equipment available for vessels of all kinds. Among these products are radar and bridge inte-

gration systems, fishfinders, radiotelephones, GPS, Loran, SatNav, SatCom, autopilots, gyrocompasses, plotters, weather facsimile receiver/recorders, and more.

Best known for its superior radars, Raytheon introduced two new series of radars in 1989, the R80 and R70 Series radars, which set new high levels of performance for commercial, sportfishing and yachting navigators. Raytheon's RAYSTAR 920 GPS navigator, with new multiplexed scanning technology and advanced software, emulates the five-channel performance of military units costing tens of thousands of dollars more.

For more information and free literature on Raytheon products,
Circle 40 on Reader Service Card

**Free Eight-Page
Solenoid Valve Brochure
Available From Circle Seal**

Circle Seal Controls of Anaheim, Calif., is offering a free eight-page brochure that provides technical data and specifications on the company's line of 2-way and 3-way, 2-position Solenoid Valves.

Circle Seal's Solenoid Valves provide bubble tight shutoff and operate from vacuum to maximum pressure rating of 6,000 psi available for either DC or AC use.

For further information and a copy of the eight-page Solenoid Valve brochure from Circle Seal Controls,
Circle 11 on Reader Service Card

**New Free Brochure
From Graboski Associates
Details Graphics Work**

A new free, color brochure from Tom Graboski Associates, Inc. Design, fully details the company's architectural signage and graphics work.

The Coconut Grove, Florida-based firm specializes in architectural signage and graphics, and has worked extensively with cruise lines, both on newbuilding and refurbishment projects.

At present, Tom Graboski Associates is working on a complete signage/graphics program for Admiral Cruises' new ship Future Seas, and the new RCCL 74,000-grt sister ship of the Sovereign of the Seas, under construction at Alstom's Chantiers de L'Atlantique shipyard in St. Nazaire, France. The company recently completed a renovation and graphics project for the riverboat Mississippi Queen. TGA has also designed signage aboard the RCCL cruise ships Sun Viking, Nordic Prince, Song of Norway and Song of America.

The brochure is illustrated with a number of excellent color photographs that detail the firm's work aboard cruise ships, at shopping malls, office buildings, retail shops, hospitals, etc.

For a free copy of this well-illustrated brochure,
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**SAVE up to 300 barrels
of oil per year!**
ELIMINATE THAT OLD STEAM HORN

The Kahlenberg TRITON Piston Horn is a unique sound producing unit because it requires no compressed air and no diaphragms yet utilizes air vibrations in a tuned sound column. The unit consists of an electric motor driving a piston with a cylinder similar in appearance to an air compressor. Very economical to operate and install. Write for bulletin. 92C. The KB-20 electric horn is available in 110 volt, A.C. or 24 volt, D.C. for vessels up to 246' in length.



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at Sea!**

**VIKING
INFLATABLE LIFERAFTS**

**4 to 50
PERSONS**

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Conforms
to U.S.
Coast
Guard &
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35 Person
Conventional &
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**THE WORLD'S LEADING SUPPLIER
IN MARINE EQUIPMENT SAFETY OFFERING ...**

- Musk Ox Immersion & Work Suits
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- Single & Dual Track Marine Escape Slides
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Miami, Florida 33136 TELEX: 522899 SAFETY MIA

Circle 254 on Reader Service Card

**Coritz Appointed
New VP And GM
At IMO Pump Division**

Fred J. Coritz has been appointed vice president and general manager of IMO Pump Division of Imo Delaval Inc., succeeding **J.K. (Ken) Lippincott**, who is retiring later this year after 42 years of service with the company.

Mr. Coritz, who had been general manager of Delaval Condenser Division, has been with IMO for 28 years. He has also served as general manager of the Delroyd Worm Gear and Aerproducts Divisions. "**Fred Coritz's** working knowledge of both Navy submarine programs and worm gear manufacturing techniques," group vice president **Jack Carr**, said, in making the announcement, "will be especially helpful in this new assignment."

Ken Lippincott, "whose distinguished career," **Mr. Carr** noted, "represents the finest tradition of service to our company," will work with **Mr. Coritz** to facilitate a smooth management transition.

IMO Pump Division manufactures a wide range of high-performance, rotary, positive displacement pumps, used to lubricate machinery, transfer crude oil, fuel gas turbines and power elevators. The IMO three-screw pump is the leading low-noise level pump used in the U.S. Navy and most commercial vessels.

For free literature detailing the products and services of IMO Pump Division,

Circle 94 on Reader Service Card

**J.M. Martinac To Build
2,560-Bhp Z-Drive
Ship-Berthing Tug**

Hawaiian Tug & Barge Corporation have ordered delivery of a 2,560-bhp ship-berthing tug from **J.M. Martinac Shipbuilding Corporation** of Tacoma, Wash. The new tug, designed by **Robert Allan Ltd.** of Vancouver, B.C., Canada, is scheduled for completion in September 1989, and will be put into service docking ships in the Port of Honolulu.

The vessel is modeled on **Robert Allan Ltd.'s** highly successful series of tug designs for **C.H. Cates & Sons Ltd.**, operating in Vancouver.

The tug will be powered by a pair of **CAT 3512 TA** marine diesels, each rated 1,280 bhp at 1,600 rpm. Each engine drives a **Niigata** model **ZP-2A** azimuthing drive, through a reduction gear and **Gieslinger** torsional coupling.

The new tug, like her predecessor **Charles H. Cates No. 1**, has a unique electric control system. Electric power is provided by two 75-kw diesel generators. Utilizing **Mechtronics 5900** series frequency modulating motor drives, fully variable speed control of the steering motors and winch drive motor from the AC power generations units is achieved.

May, 1989

Another feature is the adoption of an articulated line-handling crane. An **Atlas AK 4003 CV-14** hydraulic knuckle-boom crane is located on the foredeck utilized to pass the tug's own line up to the decks of attended vessels. The crane is controllable from deck or from the wheelhouse. The 3-inch diameter **Nystron** braid line is stowed aboard a specially designed winch by **Burrard Iron Works Ltd.**, incorporating an under-slung spooling gear and

line protection pan. The winch is electrically driven, and is also controllable from deck or from the wheelhouse.

The vessel is designed to be operated by a crew of two, with a fully automated engine room.

Robert Allan Ltd. is one of western Canada's most experienced firms of consulting naval architects, operating continuously in Vancouver since 1930. The firm has established a reputation for innovative

designs in all fields of tug and barge design, and from a 20-year close association with the firm of **C.H. Cates & Sons Ltd.** have developed designs for a range of highly efficient and cost-effective ship-assist tugs.

For a free brochure illustrating the range of ship-assist tug designs by **Robert Allan Ltd.**,

Circle 35 on Reader Service Card

Building On A Proud Tradition

Colonna's Shipyard, founded in 1875, is the oldest family-owned private shipyard in the United States. Today, **Colonna's** is a forward-looking full-service ship repair facility with a 17,200-ton steel drydock, three marine railways and complete shop and pier facilities. The company's reputation is built on a long tradition of quality workmanship, on-time completions and solid business management.



400 East Indian River Road, Norfolk, VA 23523
(804) 545-2414 • Fax (804) 545-5475 • Telex 823639 DIESEL NFK

Circle 230 on Reader Service Card

PROPULSION UPDATE

First Allison Gas Turbine Genset Shipped For DDG-51 Installation

Genset Performs Well In Shock Tests

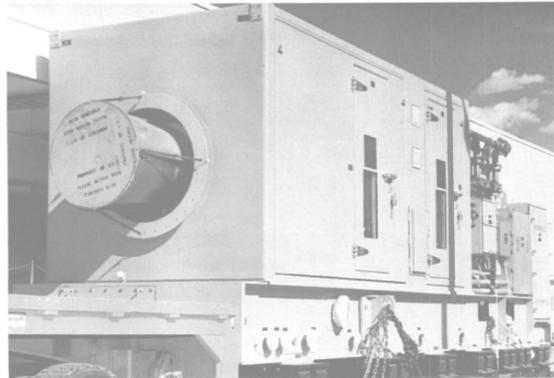
The first of Allison Gas Turbine's new generator sets has been shipped to Bath Iron Works, Bath, Maine, for installation in the lead ship of the U.S. Navy's Arleigh Burke (DDG-51) Class destroyers. The model AG9130 ship service gas turbine generator will provide all shipboard electrical power on the new destroyers.

The generator set is a result of a design and production contract with Bath Iron Works. The U.S. Navy contracted with Bath Iron Works in 1985 to design and construct the lead ship in the Arleigh Burke Class.

Allison and Bath have an agreement for the generator sets for the follow ships.

The shipment to BIW follows the successful completion of qualification tests on the generator set. One of the most stringent, the shock test, was passed in June 1988.

The generator set was subjected to four different ranges during float barge testing in an abandoned Virginia quarry. "There was no damage at all. No rework or redesign was necessary. That's very unusual for this type of equipment," said Al



An Allison Gas Turbine generator set, model AG9130, such as the one shown, will provide all shipboard electrical power for the new Arleigh Burke Class destroyers.

Wells, manager of marine sales at Allison.

The generator set incorporates a redesigned Allison engine capable of producing up to 3,000 kilowatts of electrical power on a 100-degree day

with 12 percent improved fuel economy.

The AG9130 generator sets are powered by Allison 501-K34 engines, a marine derivative of the U.S. Navy's T56-A-427 turboprop en-

Shipshape in 15 seconds.

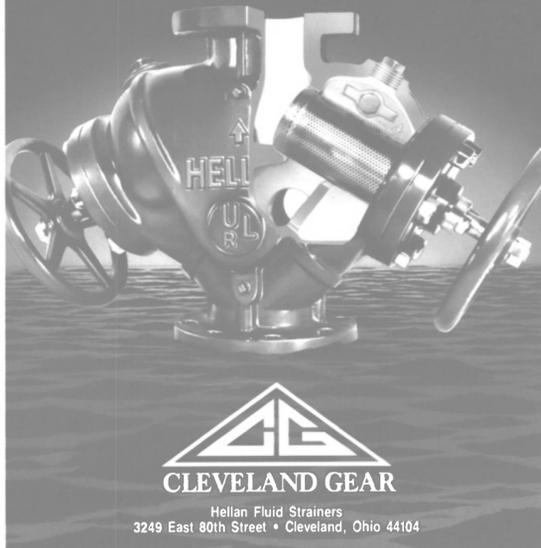
Hellan fluid strainers are designed for easy cleaning—you simply rotate the strainer element against the built-in scraper bar.

15 seconds. That's how long it takes to clean the Hellan fluid strainer. Compare that to the hours it takes with any other strainer to remove the basket and dump the contents.

You save time. You save trouble. And you save money, because Hellan strainers have a unique self-cleaning feature. They're made of corrosion-

resistant materials to withstand the harshest environments, including salt water. They're virtually maintenance-free. Various sizes are available to fit 2" to 16" pipelines, and can be mounted in vertical or horizontal configurations.

Hellan delivers more than you expect with product, quality, price. For answers to your questions, call our toll-free Applications Hotline. 1-800-827-4327.



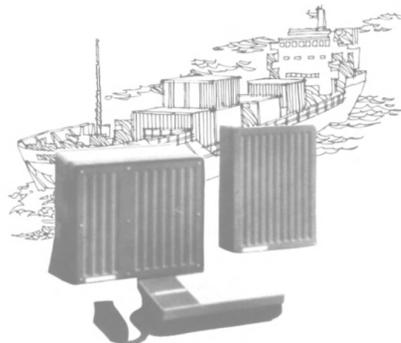
CLEVELAND GEAR

Hellan Fluid Strainers
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48

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MARINE COMMUNICATIONS
BY PROFESSIONALS
FOR PROFESSIONALS



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- Full function operator controls
- Programmed frequency scanning
- Automatic tuning
- Flexible three-unit installation
- Dual control stations available
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Mackay Leaders in maritime communications electronics for over 60 years

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- Authorized service agents for most manufacturers of marine electronic equipment
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- Mackay Service Fast and Dependable

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gine. The T56 has been in production since the 1950s. The 501-K34 is the fourth generation version of this engine.

Allison Gas Turbine is division of General Motors and is based in Indianapolis, Ind.

For free literature detailing the marine gas turbines from Allison Gas Turbine,

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St. Louis Ship Filling Order For 43 Barges; Installs High-Tech Cutter

St. Louis Ship, St. Louis, Mo., is currently filling an order for 43 open hopper coal barges for M/G Transport Services, Inc., Cincinnati, Ohio.

Company president **Richard A. Coonrod** said the inland waterway transportation industry has improved substantially in the past few months, and the shipyard has more than doubled its workforce.

In addition, St. Louis Ship has installed plasma burning equipment, known as the Oxyfuel Plasma Shape Cutting Machine, for faster and more accurate sheet metal cutting at its Caruthersville, Mo., shipyard. The new computer-controlled and driven cutting equipment provides faster and cleaner cuts of steel plate in the manufacture of barges.

Acquired from Enron Corporation of Houston, Texas, which had operated the yard as a subsidiary of Pott Industries, Inc., under the name of Caruthersville Shipyard Inc., St. Louis Ship is one of the most modern barge building facilities in the U.S.

For free literature detailing the barge-building facilities of St. Louis Ship,

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Universal Marine Medical Offers Reliable Source For Medical Supplies



Dr. Julius R. Nasso

For over 14 years, Universal Marine Medical Supply Co., with its main headquarters in Brooklyn, N.Y., has served the marine industry, both the commercial and naval sectors, with a reliable, economical and efficient distribution system for marine medical supplies.

Founded in 1975 by Dr. **Julius R. Nasso** and **John Rossi**, both graduates of St. John's University,

May, 1989

College of Pharmacy, Universal Marine Medical Supply has grown to become one of the largest independent wholesalers and distributors of marine medical supplies and equipment to the marine industry.

"We recognized that the marine industry was lacking a uniform (medical) supply system," said Dr. **Nasso**. "We offer a full line of pharmaceuticals to the industry—a uniform price and a uniform product."

According to Dr. **Nasso**, Universal Marine Medical Supply has five service locations in the U.S.—Brooklyn, N.Y.; Miami, Fla.; Houston, Texas; and San Francisco and Los Angeles, Calif.—as well as 47 agents worldwide. Through this extensive network, Universal Marine Medical is able to guarantee delivery within 24 hours on domestic orders and 48 hours on international orders.

Universal Marine Medical serves

a number of major cruise lines including Bermuda Star Lines, Costa, Chandris, Regency Cruise Lines, Royal Cruise Lines and Cunard. In addition, the company also supplies tugs, freighters, tankers and offshore rigs, as well as naval and government vessels.

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**Mid-Coast Delivers
Cummins-Powered
Crabber-Tender**

Mid-Coast Marine recently delivered the 88-foot combination crabber-tender Controller Bay, designed for Southeast Alaska. The new Mid-Coast boat was designed and built for **Dick Miller** and **Dennis**

Freed of Seattle. Her length overall is 88 feet 2 inches, beam 25 feet 8 inches and molded depth is 12 feet 4 inches.

The main engine, 800 hp 1,800 rpm, is a Cummins KT 38M with a Twin Disc MG 530 marine gear at 4.94:1. The intermediate shaft at 4-1/2 inches diameter and tail shaft at 5 inches diameter are both Aquamet 17 stainless steel running through a

Cooper split-type roller bearing. West Coast Propeller provided the four-blade 79-inch bronze propeller.

The long list of auxiliary equipment is headed up by the main auxiliary generator set, which is a Cummins NT 855, 320 hp continuous, fitted with a Lima 175-kw generator on the back end and twin double Dennison hydraulic pumps on the



The Cummins-powered combination crabber-tender Controller Bay, recently delivered by Mid-Coast Marine of Coos Bay, Ore.



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front, driven by a Twin Disc two-pump drive. The number two generator set is a Cummins N855 with a Lima 100-kw generator and an identical pump set to the #1 generator. In addition to the large generators, a 30-kw Isuzu light plant was installed. All four engines are cooled by Fernstrum grid coolers and the exhaust is handled by Harco mufflers.

The engine room is protected by a manual Halon fire suppression system with automatic engine and vent fan shutdowns. As for E.R. ventilation, a 3,600 CFM tube axial fan does the job of keeping the engine room air fresh and cool. For pumps, the vessel was equipped with two 1-1/2-inch bilge pumps, one electric, and one engine driven, a 15-gpm positive displacement fuel transfer pump, a crab pot washer pump, and two crane Demming 20 hp 4360-M5 RSW/crab circulation pumps 1,200 gpm each. To cool the seawater for RSW, PSER Inc. supplied a 40-hp Carrier refrigeration system with 60 tons capacity, plumbed through a galvanized box-type chiller.

Back outside on the deck, the boat was outfitted with a Slattery MCK 630 six-ton knuckle/squirt deck crane capable of reaching any point on deck and then some. The anchor winch is a Thompson 3224 fitted with 600 feet of 3/4-inch galvanized wire, one shot of 1-inch galvanized chain and a 900-pound Stockless bow roller. Other deck gear included a Marco JO 117 crab pothauler on a Mid-Coast Marine articulated davit and a Hansen king crab pot launcher.

As far as other work going on at Mid-Coast, the yard is presently pulling plate on a new 72-foot crabber for **Joe Merino** of Westport, Wash. In addition, the 170-foot longliner Yukon Queen is on the dry-

**CONTROLLER BAY
List of Suppliers**

Main engine	Cummins
Marine gear	Twin Disc
Shafts	Aquamet
Roller bearing	Cooper
Propeller	West Coast Propeller
Generators	Cummins/Lima
Pumps	Dennison
Pump drive	Twin Disc
Light plant	Isuzu
Grid coolers	Fernstrum
Mufflers	Harco
Fire System	Halon
Refrigeration	Carrier
Deck Crane	Slattery
Anchor winch	Thompson
Crab pothauler	Marco
Davit	Mid-Coast Marine
Crab pot launcher	Hansen

dock being assisted in a major processing conversion.

For free literature giving full information on the facilities and capabilities of Mid-Coast Marine

Circle 58 on Reader Service Card

Markey Supplies Four Research Winches For Monitoring Vessel

Markey Machinery Co., Inc., recently delivered four small winches for service aboard the newly constructed City of Los Angeles research and monitoring vessel Lamer. The 84-foot fiberglass boat is outfitted with three below-deck science-duty winches and a drum windlass.

The science-duty winches include level winds which provide signals for line speed, line tension, and scope paid out to Markey three-winch display units located on the deck and in the laboratory. The other science winches are fitted with 3/8-inch wire rope and 3/16-inch electro-mechanical cable.

The fiberglass boat required winches which were as light-weight and compact as possible, at no sacrifice in quality, life, or reliability. Markey Machinery responded with winches that fulfilled everyone's expectations.

For free literature detailing the full line of deck machinery offered by Markey Machinery,

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Trinity Marine Group Delivers Two Crew Boats To Saudi Arabia

Halter Marine, Inc., of the Trinity Marine Group, has completed a three-boat contract with the delivery of two identical 101-foot, all-aluminum crew boats to Marine and Transportation Services, Saudi Arabia (LTD) Dammam, Saudi Arabia.

The new boats, the Atco Marwa and Atco Daina, are now working for the Arabian American Oil Company (ARAMCO) out of Ras Tanura, Saudi Arabia.

A prominent feature of both boats is a large 55- by 17-foot aft deck which can carry up to 25 tons of cargo.

While Trinity boats of this type usually carry 55 passengers, these vessels were designed to carry 25 riding on aircraft-type reclining seats.

The new boats are each 101 feet 8 inches long, with a 21-foot 8-inch beam and a 9-foot 6-inch molded depth. Normal operating draft is 5 feet. Each is powered by three Stewart & Stevenson-Detroit Diesel 12V71T1 engines developing 510 bhp each at 2,100 rpm. They turn through Twin Disc MG514 reverse/reduction gears with a ratio of 2.0:1. A partial list of equipment in their pilothouses includes two Sailor RT-

144 VHF radios, an ICOM SSB radio, a Danforth compass, a Raytheon R-20 radar, a Ross depth recorder, and a Sperry SR-130 gyro-compass.

Each of the air-conditioned crew boats has accommodations for up to six crew in three staterooms. They can carry 3,400 gallons (U.S.) of fuel, 1,000 gallons of potable water, and over 4,600 gallons of ballast water. Both are also fitted with a reverse osmosis 300 gallon per day

water maker.

They are each equipped with two electrohydraulic steering stations, one facing aft for operations stern-to-rig. Two Detroit Diesel 3-71 diesels drive two Delco 30-kw generators with nonparallel capability.

Classed by the American Bureau of Shipping, the new boats were preceded by an identical sister vessel, the Atco Hebah. Halter Marine Inc. also designed and built two other 101-foot crew boats for Marine and

Transportation Services. They are the Matts Salwa, built in 1983, and the Matts Leila, delivered in 1984.

Both new boats were built by Halter Marine Inc. personnel at Equitable Shipyards, Inc. in New Orleans, La. Both companies are part of the Trinity Marine Group.

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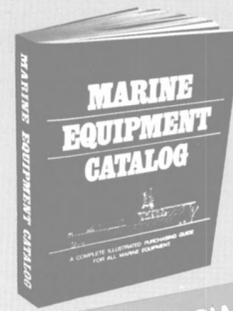
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Peters Named Managing Director, Raytheon Marine European Operations



Carsten Peters

Stanley L. Clark, president of Raytheon Marine Company, headquartered in Hudson, N.H., recently announced that **Carsten Peters**, formerly marketing manager in the U.S., has been appointed managing director of Raytheon Marine Sales & Service Company, based in Copenhagen, Denmark.

Mr. Peters will be responsible for sales and distribution of all Raytheon, Apelco, JRC, and Yokogawa Navitec marine electronics for recreational, fishing, and high seas markets in Europe and the Middle East. These products include a full range of radar and bridge integration systems, fishfinders, radiotelephones, GPS, Loran, SatNav, SatCom, autopilots, gyrocompasses, plotters, weather facsimile receiver/recorders, and more.

Mr. Peters has 27 years of engineering and sales experience in the marine electronics field, serving such companies as ITT Decca Marine and the Arnessen Corporation in the U.S., and DEBEG in West Germany, prior to joining Raytheon Marine Company in 1982. He has made significant contributions to Raytheon's product development program, and also served as the company's international marketing manager.

Raytheon's worldwide sales and service network is made up of over 100 international agents and 200 U.S. dealers.

Jeffboat To Construct Three River-Tank Barges In \$3-Million Contract

Jeffboat recently announced the signing of a \$3-million contract with Hines, Inc. to construct three large river-tank barges. The contract will accelerate plans to resume manufacturing at the Jeffersonville, Ind.-based shipyard.

Construction of the 300-foot by 54-foot tankers is scheduled to start this month, with delivery targeted to begin in late 1989. Negotiations are also under way for additional new construction.

The contract with Hines will result in the reopening this month of Jeffboat's shipyard and a concurrent recall of about 60 employees. In addition to the employee recall, Jeffboat still plans to add approximately 140 more employees to its work force later in the year. Previously, the company had projected

reopening its towboat and barge construction operations and adding about 200 new jobs during the third quarter. Vessels have not been built at Jeffboat's shipyard since 1986.

Hines, Inc., headquartered in Bowling Green, Ky., provides transportation for large volumes of chemicals moving on the inland waterways system. The company was established in 1939, making it one of the oldest in the business.

An affiliate of American Com-

mercial Lines, Inc., Jeffboat is part of the nation's largest network of inland marine transportation businesses, including marine construction and repair, barging and communications. American Commercial Lines is a subsidiary of CSX Corporation, Richmond, Va.

For free literature giving complete details on the facilities and capabilities of Jeffboat,

Circle 27 on Reader Service Card

Port Of Iberia Launches \$2-Million Improvement And Expansion Program

The Port of Iberia recently launched a new two-pronged program of expansion and improvement, priced at nearly \$2 million, while continuing to seek a deepwater channel to the open Gulf of Mexico.

Louisiana Governor **Buddy**

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Roemer took part in a groundbreaking ceremony in New Iberia to inaugurate one program to expand the port's waterfront industrial property by 70 acres, and a second project to extend rail facilities of the Louisiana & Delta Railroad almost half a mile to serve established manufacturing and service industries.

For free literature giving full information on the Port of Iberia,

Circle 24 on Reader Service Card

Conrad Industries Delivers Second Set Of Twin Barges

Conrad Industries, Inc. of Morgan City, La., recently delivered twin deck barges, the Mobro 128 and Mobro 129, to their owner, Moody Bros. of Jacksonville, Fla. The twin deck barges, each measuring 120 feet long by 45-foot beam, are both equipped with two 22-inch-diameter spud wells.

These barges are only two of the latest projects completed by Conrad Industries in the last six months. Other vessels include two floating drydocks, an automobile ferry, and another set of twin barges.

In addition to these domestic vessels, now operating in Missouri, New York, Florida, and California, respectively, Conrad Industries has designed and built vessels for its international clientele. Within the last year and a half, Conrad has

designed and built vessels now operating in Peru, the Bahamas, the French West Indies, and the Caribbean. Domestic contracts, however, remain Conrad's broadest clientele base.

Moody Bros. of Jacksonville will use these twin deck barges for various construction projects.

For free literature giving full details on the facilities and capabilities of Conrad Industries,

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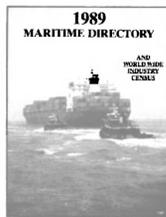
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Unitor Group Reports 1988 Was Best Year Ever



Karsten Houm, Unitor's managing director.

The Unitor Group's total operating revenue for 1988 reached NOK 682.5 million compared with NOK 513.9 million in 1987. This represents an increase of 33 percent. One third of this increase in turnover is attributable to the purchase of Gamlen Marine Chemicals.

The Group's operating profit in 1988 was NOK 68.4 million as compared to NOK 36.1 million in 1987.

Unitor had a net financial income of NOK 1.7 million. This is due to the fact that Unitor has received NOK 4.2 million of the certificate loan to Bugge Eiendoms A/S which was written off in full with NOK 15 million in 1987.

The improvement in net finance was also caused by improved liquidity together with a favorable development of Unitor's foreign currency loans.

The result after financial items was thus a profit of NOK 70.1 million compared to 13.2 million in 1987. This corresponds to a profit of 10.3 percent on sales and NOK 12.50 per share before tax.

No extraordinary income or expenses were incurred in 1988.

Unitor has a unique network of 52 branch offices and 220 agents covering 730 ports worldwide servicing the international shipping and shipbuilding industries. The company serves annually more than 15,000 vessels from 70 nations. Main products are welding gases and equipment, refrigerants and equipment, refrigeration service, airtools, high pressure cleaning systems, marine chemicals, firefighting, rescue, safety equipment and services, nitrogen inert gas systems, fixed firefighting systems, ship's hospital and first aid equipment.

For more information and free literature from Unitor,

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NOR-SHIPPING '89 Exhibition And Conference Oslo, Norway, June 13-16

Nor-Shipping '89, an international shipping and maritime offshore exhibition and conference, will be held at the Sjolyst Exhibition Center in Oslo, Norway, from June 13-16, 1989. So far, 300 firms have registered at 150 stands for participation in the biennial Nor-Shipping 89. There is renewed enthusiasm in the shipping world, particularly in Norway, as, over the last two years, Norwegian shipowners have been involved in 50 percent of all buying and selling of ships internationally. Nor-Shipping, which is being held for the 12th time, has regularly attracted 8,000 shipowners, brokers, manufacturers and many other specialists in the marine and offshore field. Nor-Shipping 87 attracted 650 manufacturing companies from 25 different countries. At the exhibition, specialists from over 40 countries took the opportunity to make contacts and do business, underlining the international stature of the event.

At Nor-Shipping 89 there will be national pavilions representing such nations as Japan, South Korea, Spain, France, the Netherlands, the Federal Republic of Germany, the German Democratic Republic, Poland, Yugoslavia, Denmark, Finland and Norway. Several others are expected to hire stands from now until the exhibition opens, although the formal application deadline has expired.

The exhibitors will represent all aspects of the shipping and maritime offshore market, such as ship management, classification societies, marine underwriters, shipbrokers, shipping and export organizations, shipbuilding and ship-repair companies, ships' gear suppliers, etc.

The organizer of Nor-Shipping 89 is the Norwegian Trade Fair Foundation, and major Norwegian and international organizations.

H.M. King Olav V recently inaugurated the Sjolyst Exhibition Center's new exhibition halls and parking facility. The center is now able to offer a total display area of more than 25,000 m² spread over seven halls, and around 2,000 indoor and outdoor parking places. During Nor-Shipping 89, the radar, electronics and computer section will be in the new Hall G.

Norwegian shipping companies own and operate one of the largest merchant fleets in the world. After the establishment of the Norwegian International Ship Register (NIS) in 1987, 27 new shipping companies were established in Norway, and several more have arrived on the scene since then. The positive trend in Norwegian shipping is due largely to the establishment of NIS. Nor-

way is second in the world in marine insurance. Nearly 13 percent of the world fleet is classified in Det norske Veritas. Norwegian shipowning companies have the world's second largest fleet of offshore vessels.

There are also major land-based maritime activities, and this industry considerably increased its supplies in 1988, exporting goods and services for NOK 8 billion.

All in all, the situation in the shipping industry in Norway has undergone major and very positive changes since Nor-Shipping 87. The prospects for the future have not been so bright for decades, and exhibitors and visitors to Nor-Shipping 89 will be able to take advantage of that.

The theme of this year's biennial conference is the future challenges facing Norway's maritime community.

"The Challenge of Change" conference, organized by Lloyd's of London Press and sponsored by *Lloyd's Ship Manager & Shipping News International* and *Lloyd's Shipping Economist*, will examine the thinking behind Norway's initiative in forming the Norwegian International Ship Register, and explores the future course for the country's entrepreneurial shipping community and its likely affect on international shipping markets.

During 1988, Norway's shipping and offshore industry employed 72,000 individuals and had a gross turnover of \$6.9 billion. Its shipping companies own or operate 1,500 vessels totaling 51 million dwt—of which, over two-thirds are engaged in international trade.

Last year, Norwegian owners purchased \$2.3 billion worth of new and second-hand ships, and currently have 55 newbuilding orders at shipyards in 10 different countries.

The conference is structured as a series of five half-day sessions, examining the business, technical and operational challenges. Under the chairmanship of **Jens Ulltveit-Moe**, vice president of the Norwegian Shipowners Association, leading speakers will discuss "The Business Challenge" in Sessions 1 and 2.

Dr. Tor-Chr. Mathiesen, director of Det norske Veritas, will chair the first two sessions exploring "The Technical and Operational Challenge"; with the final session chaired by **Julian Parker**, secretary of the Nautical Institute.

Fees for "The Challenge of Change" conference are UK£70 plus VAT, NK986, or \$145 per session, which includes attendance, documentation and light refreshments. Lunch is included for those attending a full day's program.

For information on Nor-Shipping 89, contact: the Norwegian Trade Fair Foundation, P.O. Box 130, Skoyen, 0212 Oslo 2, Norway; telephone: 47-2-43 80 80; telex: 78 748 messe n; and telefax: 47-2-43 19 14.

CONFERENCE PROGRAM

Tuesday, June 13

Welcome reception for all delegates at the city hall, Oslo.

Wednesday, June 14

Chairman: **Jens Ulltveit-Moe**, vice president, Norwegian Shipowners Association

Session 1 (Morning)

THE BUSINESS CHALLENGE

Keynote address—"Capitalizing on the challenge of change," by **Jens Ulltveit-Moe**, vice president, Norwegian Shipowners Association.

"How can Norway's Maritime Industry Ensure Long-Term Profits from International Shipping?" by **Odd Christopher Hansen**, partner, McKinsey & Co., Inc.

"Has the NIS Really Enabled Norwegian Owners to Compete for International Cargo?" by **Frank Chao**, Wah Kwong, Hong Kong, and vice chairman, Intercargo.

"1992—An Opportunity or an Omen for Norway's Shipping Community?" by a senior spokesman from the European Commission, Brussels.

Session 2 (Afternoon)

THE BUSINESS CHALLENGE

"Newbuildings for Norwegian Owners—How many Ships of which Type will Norwegian Owners Need in the 1990s?" speaker to be announced.

"Who will Build Them?" speaker to be announced.

"Where will the Money Come From?" by **Boris Nachamkin**, managing director, Bankers Trust Company, Ltd., London.

"Norway's Strategy in the Sale and Purchase Market—An Overseas View," by **Minas Karageorgis**, Karageorgis Lines, and chairman, Intercargo.

"Safety and the Ageing World Fleet" "The Insurers' Perspective," by a senior spokesman from the American Institute of Marine Underwriters, New York.

"The Classification Society's Perspective," by **Stein Verle**, managing director, Det norske Veritas Ship Classification A/S.

"The Charterers Perspective," speaker to be announced.

Thursday, June 15

Chairman: **Dr. Tor-Chr. Mathiesen**, director, Det norske Veritas

Session 3 (Morning)

THE TECHNICAL & OPERATIONAL CHALLENGE

"A New Approach to Extending the Life of Today's Merchant Vessels," by **Helge Roe**, fleet manager, Norwegian Ship Management A/S.

"The Skills Shortage: More Technology or More Crew? What's the Answer? What's the Answer?" by **Terje Gloersen**, technical director, Barber International, and **Arnold Hansen**, managing director, Marintek A/S.

"How Should Ship Operations be Regulated?"

"The Owner's Perspective," by **Rolf Saether**, deputy managing director, Norwegian Shipowners Association.

"The Maritime Directorate's Perspective," by **Emil Janssen**, deputy director, Norwegian Maritime Directorate.

"Vessel Manning, Long Term Problems and Solutions," by **John Spruyt**, director, Wescol International Marine Services, London.

Session 4 (Afternoon)

THE TECHNICAL & OPERATIONAL CHALLENGE

"Tomorrow's Ship Design," speaker to be announced.

"Tomorrow's Ship Automation," by **Jakob Lyngso** and **Soren T. Lyngso**, Copenhagen.

"Tomorrow's Diesel Engine and Tomorrow's Fuel," by **Daniel Paro**, vice president and general manager, Oy Wartsila AB, Diesel Technology, and **Kjell Haugeland**, general manager, Veritas Petroleum Services.

"Tomorrow's Ship Equipment—Hi-Tech and High Cost or Function Without Frills?" by **Erik Anderson**, technical director, L. Gill Johannessen, **Magnar Foerde**, managing director, ship equipment division, Ulstein International A/S.

6-8 p.m.—Reception hosted by Det norske Veritas and the Norwegian Shipowners Association at the DnV Headquarters, Hovik, Norway.

Friday, June 16

Chairman: **Julian Parker**, secretary, Nautical Institute, London.

Session 5 (Morning)

TECHNICAL & OPERATIONAL CHALLENGE

"Making the One-Man Bridge Work," by **Capt. Per Larsen**, principal nautical surveyor, Det norske Veritas, and **Hans Rasmussen**, general manager, Sperry Marine, Copenhagen.

"Towards a New Safety Radio System," by **Trygve Scheel**, special adviser, Norwegian Maritime Directorate.

"The Benefits of Electronic Charts to Safer Navigation," by **Oivind Stene**, director general, Norwegian Maritime Hydrographic Institute.

Exhibitor List

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Antares Consult
Astilleros Espanoles
Autronica Marine
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Barwil Agencies
Beha-Hedo
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Deerberg-Systems
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Diesel Power
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Fekete
 Fortschritt Butzow
 Frydenbo-Mjolner
 GF Marine
 Giertsen
 GKL (Gummi A/S K. Lund & Co.)
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**Marine Insurance Seminar
 Set For September 17-19
 In Houston, Texas**

The Planning Committee of the Houston Marine Insurance Seminar recently announced that the 24th

meeting will be held on September 17, 18 and 19, 1989, at the Adams Mark Hotel, 1900 Briarpark at Westheimer in Houston, Texas.

This seminar is operated on a nonprofit basis with profits donated to educational institutions, scholarships and library funds for the betterment of education of insurance/maritime law students.

For more information, contact Capt. Jack Roberts, 2918 Green Tee, Pearland, Texas 77581, phone (713) 485-2464.



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MWH Offers High-Quality, Inlet And Exhaust Valves For Marine Engine Applications

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West Germany-based Markisches Werk Halver (MWH) has more than 50 years' experience in the design and production of high-quality inlet and exhaust valves. MWH offers a complete range of valves, valve cages, valve rotators, accessories and complete exhaust valve assemblies for diesel engines in ship propulsion and generator applications.

Two characteristics of the company's products are high quality and precision manufacturing, both of which result in a longer service life, lower maintenance costs and higher profitability for MWH customers.

Specially designed modifications and general improvements are constantly introduced by MWH engineers in an effort to increase cost-effectiveness for the company's customers. Examples of this, according

to MWH, are its improvements in the area of cylinder heads for gas engines and in its development of Nimonic valves.

MWH reports that its bi-metal Nimonic valves have proven to be the best solution for heavy fuel operation use because they show better resistance against corrosion and high material strength at high temperatures. MWH Nimonic valves have already been in use for over 20,000 running hours.

To protect against corrosion, MWH valves are chromed, nitrided, coated with Molybdenum or other special alloys. The company has developed special techniques to polish the valves so as to take account of all the special forces and gas flows to which the valves are exposed during operation.

Markisches Werk maintains strict manufacturing and production controls to ensure the quality of its products. These controls begin with the receipt of the raw materials.

Each shipment is checked against the requested nominal values. In case where these values are not achieved, the shipment is rejected.

During the manufacturing process, each worker checks and controls his own work. MWH reports that this system has proven to be a highly successful practice for maintaining quality standards.

In addition, MWH's modern process equipment ensures a quality product. Each piece is checked 100 percent before it is packed for shipment. This checking includes, of course, crack testing by fluorescent penetrants.

Quality assurance is the direct responsibility of senior management as well as line management. This ensures tight control and underlines the importance given to quality assurance at MWH.

The company's new laser marking machine protects against imitation and also reduces cost.

MWH also has developed water-

cooled exhaust valve cages. The cooling water flows a few millimeters from the valve seat, substantially reducing temperature. Consequently, the service life of the valve spindle and valve cage are increased.

Another area where MWH's precision engineering is of particular importance is in the supply of complete valve assemblies. All components are specifically made to achieve the best match possible.

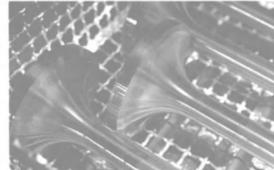
The company also offers a new valve cage reconditioning service. The valve cages are first checked in order to determine if the repair is economically viable. Repair work is carried out at the company's facilities. MWH can also supply reconditioned cages on an exchange basis.

For free color literature detailing the complete line of valves, valve cages, valve assemblies, etc., offered by MWH,

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MWH modern laser marking machine.



Each valve is checked for cracks by MWH. Crack detection testing includes the use of fluorescent penetrants.



MWH offers valves, valve cages, valve rotators, inserts, complete valve assemblies and other valve accessories.



Erik L. Johnsen

Gary L. Ferguson

Eugene M. Kelly

International Shipholding Appoints Two VPs And Promotes A Third

International Shipholding Corporation (ISC) recently announced the appointment of two vice presidents and the promotion of a third vice president.

Erik L. Johnsen, vice president of ISC and its principal subsidiary, Central Gulf Lines, Inc., has assumed a new position to handle administrative and planning functions. He will work with the president on matters affecting all corpo-

rate departments.

Gary L. Ferguson has been named vice president, controller and chief financial officer of ISC and Central Gulf Lines, Inc. He was also elected a director of Central Gulf.

Eugene M. Kelly has been named vice president-marine of Central Gulf Lines, Inc., a position formerly occupied by Mr. Johnsen.

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Maritime Reporter/Engineering News



The new M-Class Royal Netherlands frigate Willem van der Zaan at her recent christening at the Royal Schelde shipyard. Her propulsion plant will consist of two Rolls Royce marine gas turbine engines and two SWD cruise engines.

Royal Schelde Launches Second Frigate In New Series

M-Class Design Candidate For ANZAC Program

The Royal Schelde shipyard of the Netherlands recently christened and launched the second in a series of eight new class frigates for the Royal Netherlands Navy.

The Willem van der Zaan is the second multipurpose frigate of the new Karel Doorman Class (M-

Class). She is 401 feet long, has a beam of 47 feet, draft of 14 feet and design displacement of 3,320 tons. Her propulsion system consists of two Rolls Royce marine gas turbine engines and two SWD engines for cruising. She has a maximum speed of more than 29 knots with her gas

turbines and 21 knots with her cruise diesels. She will be crewed by 16 officers, 32 chief petty officers and 106 lower-ranked personnel.

The class was designed by the Royal Netherlands Navy in close cooperation with Royal Schelde, the design bureau NEVESBU and with HSA as an important supplier of sensor and command systems.

The Willem van der Zaan and her sister ships will be equipped with some of the most advanced navigation, communication, defense and combat systems in the world. The main mission of the class is antisubmarine warfare, surface warfare and local air defense. The Sensor-, Weapon-, and Command System (SEAWACO) also makes the M-frigates highly suitable for crisis management operations. Some of weapons and sensor systems aboard the Doorman Class will include: PHS hull-mounted sonar; active and passive electronic warfare; satellite communication; Decca navigation and sea-warning radar; passive, long-range sonar; Oto Melara 76-mm gun; multiple weapon control system with two fire control radars; two 20-mm guns; eight Harpoon surface to surface missiles; two by two torpedo tubes; 16 Vertical Launch NATO Sea Sparrow missiles; Goalkeeper Close-In Weapon System; and medium helicopter with torpedoes and radar.

Several foreign countries have shown interest in the design of the M-class frigate. For example, the

M-frigate is the basis of the design being proposed as one of two candidates for the \$5-billion, 12-ship Australian-New Zealand Frigate program (ANZAC). Royal Schelde is highly involved in this project through its participation in the AWS (Australian Warship Systems) consortium.

For free literature detailing the design, engineering and shipbuilding services of Royal Schelde,

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Barebo, Inc. Introduces New Floating Pump —Literature Available

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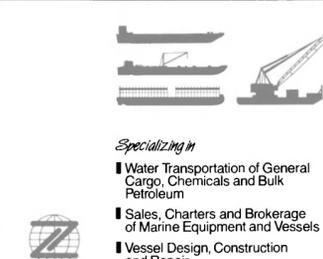
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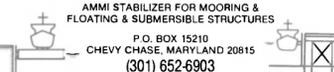
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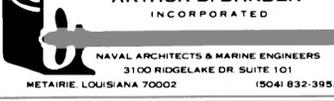
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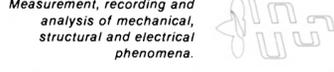


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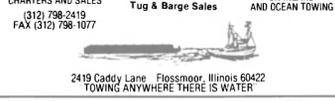
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ELECTRONICS UPDATE

Goldstar Precision Introduces New Generation Of Mono Radar

—Literature Available—

Goldstar Precision, Cerritos, Calif., recently introduced its new generation mono radar with improved navigation and safety features for small commercial boats.

The new generation of mono scan radars, models GS924 M, GS932 M, and GS948 M, has a number of outstanding features. Some of the new features incorporated into the firm's new generation mono radar models include: echo plotting track history to observe the momentary movements of other ships at a glance; all push button control; daylight pictures presented on 9-inch green monochrome CRT; built-in 2 Electronic Bearing Line (EBL) and 2 Variable Range Marker (VRM) and 3 User's Defined Guard Zone with an audible alarm available; 5-kw transmitter output power; variable anti-clutter rain/sea; picture freeze, FTC, STC, IR available; on-screen readout of all operational information; and interfacing with magnetic compass NMEA0183 to supply ship's course.

The three lightweight, compact radar models cover three ranges. The GS924 M with dome, covers up to 24 nautical miles; the GS932 M



The new model GS924 mono scan radar from Goldstar Precision.

with a 3-foot open array, covers 32 nm; and the GS948 M, with a 5-foot open array, covers 48 nm.

In related news, Goldstar introduced a new radar junction unit, RJU-001, designed to work with the new generation mono radar series. This "J" box will distribute the various radar control and target information signals between a single scanner transceiver antenna unit and two full function display control units.

For free literature detailing the new generation of mono scan radars from Goldstar,

Circle 91 on Reader Service Card

Elomatic Group, Design Specialists, Offer Brochure On Engineering Services

Elomatic Group of Turku, Finland, one of the leading design offices in Europe specializing in shipbuilding and marine engineering, is offering a free 12-page full-color brochure on its engineering expertise.

Elomatic Group, which serves the international market, performs innovative cost-effective engineering, design services, project management, a procurement specification service, contract administration and full supervision of construction.

The company provides feasibility/conceptual studies; techno-economic studies; research and development; project services; design work; detailed engineering; procurement; supervision; CAD software and workstations; CAD applications and training; and physical engineering models.

The designers are experienced in plant design; product economy; structural and strength calculations; power generation; electricity, automation and instrumentation; hydraulics; HVAC; drilling technology; naval architecture and marine technology; and computer programming. One of the company's latest projects is the total design work for a series of four 170-passenger luxury cruise vessels under construction at the Nuovi Cantieri Apuania Shipyard in Italy. The work began with an evaluation of the project for the owner and continued with the shipyard consisting of design materials acquisition, weight control, etc.

Another recent project included

the total design package for the cruise ship Royal Viking Sun, built by the Turku shipyard of Wartsila Marine. The project included participating in the basic design up to the total responsibility for work drawings, design project management and purchasing.

For further information and a free copy of the well-illustrated 12-page full-color brochure from Elomatic Group,

Circle 21 on Reader Service Card

Global Marine Group, New Company, Formed

George B. Efthimiou, formerly president of Atco Technical Services, Inc., recently announced the formation of The Global Marine Group, Inc., 603 Dean Street, Brooklyn, N.Y. 11238, phone (718) 857-1240; fax (718) 398-4143.

Joining him in the new company are J. Christopher Neylon, operations, and John Mellos, engineering.

The group will engage in (A) the marketing of offshore/marine products per IMO, MARPOL and SOLAS requirements; engine room and steering gear mechanical/hydraulic equipment; deck machinery and mooring equipment; (B) engineering, design, survey applications; (C) implementation and installation of above, including "turnkey," riding crew; and (D) engineered packaged systems (marine and industrial).

For more information and free literature on Global Marine Group,

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ZF Names Richard Moore Marketing Manager

Richard A. Moore has been named marketing manager for ZF of North America, Inc., the company recently announced. He will oversee ZF's marketing and communications efforts on behalf of the company's many product lines. ZF is a leading manufacturer of major power train components—gears, transmissions, pumps, axles and other drive systems.

TFC Offers Major Price Reductions On New Line Of Waste Compactors



TFC's lower-cost Galva-Steel line of Pollution Packers, an alternative to the more expensive stainless steel models, provides comparable durability and service life with long-time protection against rust and corrosion.

Major price reductions of up to \$1,000 per unit are being offered for the new line of Galva-Steel portable waste compactors/recyclers introduced by TFC Corporation of Minneapolis, Minn.

The lower cost Galva-Steel line of Pollution Packers is an alternative to the more expensive stainless steel models, yet provides comparable durability and service life with long-time protection against rust and corrosion inside out and outside in.

The Galva-Steel compactor cabinet is a zinc-coated carbon steel that is annealed after coating and does not flake or peel in forming. This metal also provides savings by minimizing labor-intensive preparation, cleaning and painting work in the process of manufacture.

This new line carries the same five-year limited warranty for the cabinet as the stainless steel models and maintains the same high standards of quality and performance established over nearly two decades of leadership in compactor manufacturing and marketing.

These new compactors meet all standards for commercial food service and housekeeping wastes and refuse compaction not governed by state or local codes that specify stainless steel compaction chambers and panels for inhouse compactors.

For complete information and prices on the new line of Galva-Steel portable waste compactors/recyclers from TFC Corporation,

Circle 95 on Reader Service Card

May, 1989

Precision Control Offers Detailed Brochure On New Vacuum Flush Toilet

Precision Control Inc., Walled Lake, Mich., is offering a free brochure which details its new water-saving model MVT 100 Foot-Operated Vacuum Flush Toilet.

According to the company literature, the Precision Control foot-operated vacuum flush toilet uses

air to drive the wastes through pipes to the collection tank. The small amount of water cleans the bowl and flushes the wastes into the soil line. The Precision Control unit performs as a normal toilet in all respects, but with considerable savings of water, reduction in water pollution and the system employs smaller piping.

The brochure provides full details on the foot-operated vacuum flush toilet, including installation, opera-

tion and servicing instructions. Specifications are also provided.

One special feature of the literature is an exploded view of the Precision Control toilet. The detailed drawing provides complete part identification.

For free literature detailing the Precision Control model MVT 100 foot-operated vacuum flush toilet,

Circle 95 on Reader Service Card

CRUISE+FERRY 89

International Conference & Exhibition
Kensington Exhibition Centre
London 24-25 May 1989

Day 1: Wednesday 24 May
09.15 CONFERENCE OPENS

Session 1: Markets and Marketing
The Short Cruise Market - Europe and North America
S. Buchin, Vice President, Temple, Barker & Sloane Inc., Lexington, Massachusetts, USA

The Cruise Ferry - responding to the market
K. Levanter, Senior Vice President, Wartsila Marine, Passenger Vessels, Turku, Finland

Cruise Line Pricing and Distribution: An Analysis of Industry and Technological Changes
D.L. Tatzin, Senior Consultant, Arthur D. Little International, San Francisco, California, USA

Papers discussed by ship operator panel:
G. Hughes, Managing Director, Canberra Cruises and Princess Voyages, London

B. Crisp, UK Director, Cunard Line Limited, London

E.T. Phippin, Director, CTC Lines, London

N. Costa, Chairman, Costa Crociere SpA, Italy

The Theme Cruise Concept
P. J. Conpton, Zeller Compton Stafford & Associates, Inc., Coconut Grove, Florida, USA

Niche Marketing in the Cruise Business (opportunities for new and existing cruise lines)
J. Lewis, President and D. Sarel, Director, Market Scope, Miami, Florida, USA

Papers discussed by ship operator panel

Session 2: Destination Development
Cruise Tourism Infrastructure - on-shore satisfaction
R.V.P. Kaufman, Executive Vice President, TC International Inc./Concorde Group, New York, USA

Destination Development
R.J. Zeller, Zeller Compton Stafford & Associates, Inc., Coconut Grove, Florida, USA

Development of the Underwater Leisure Industry
M. Mouton, President, Sea Designers Inc., Miami, Florida, USA

Session 3: Shipboard Revenue
Shipboard Revenues - meeting the challenge of change
F. Taylor, Director, Retail Operations & Development, Allidors International Limited, Eastleigh, UK

The Control of Shrinkage (theft etc.)
K.P. Dulieu, Managing Director, Capitol Consultants, Chipstead, UK

Hotel Maritime Catering for Cruise Vessels
L.A. Fraser, (formerly), Chief Executive Officer, of Poseidon Services, Miami, USA

Casino Management on land and sea: oceans apart?
P. Hoetzinger, Vice President, Casinos Austria International, Vienna, Austria

Session 4: Interior Design
(This Session will be held in parallel to Session 2 Speakers and panelists to be announced)

Day 2: Thursday 25 May

Session 5: Operational Efficiency
Ferry goes Cruising - The development of common denominators between Ferry and Cruise Shipping
F. Wiedell and K. Brogren, Marine Trading, Halmstad, Sweden

A Hotel approach to Shipboard Management and Operation
U.F. Baur, President & Managing Director, Flototel Management Service AG, Rapperswil, Switzerland

Ship handling simulators for Optimisation of Manoeuvring Strategies of Cruise Ships in Ports.
A case study for the m/s. 'Fantasy' of Carnival Cruise Lines
V. Fabietti, Chief Coordinator New Buildings, Carnival Cruise Lines, Miami, Florida, USA

S.M. Payne, Naval Architect, Technical Marine Planning, London

Th. Elzinga, Head Port and Traffic Analysis Dept., and A. Rem, Project Manager, MARIN, Wageningen, The Netherlands

Session 6: Fast Ferries
(Held in parallel with Sessions 5 and 7)

Swath Ocean - now a serious market contender
T.D. Kelly, Corporate Secretary, Swath Ocean Systems, Inc., Rancho Santa Fe, California, USA

Jetfoils on the Ostend-Dover route. A technical and commercial appraisal
J.J. Charlier, Research Associate NFRS, Institute of Geography UCL, Louvain-la-Neuve, Belgium

Thames Riverbus - innovation in a traditional environment
R.M. Malbott, Thames Line Plc., London

The 71-metre Wave Piercer Ferry - comes of age
P.C. Hercus, Managing Director, International Catamaran Designs Pty. Ltd., Sydney, Australia

Application of Waterjet Propulsion Systems to Fast and Slow Passenger Ferries
A. Gasparri, Riva Calzoni SpA, Milan, Italy

45 Knot/800 passenger ferry - a new realistic alternative for ferry routes
A. Ulvestad, Vice President, Cirrus a.s., Bergen, Norway

Session 7: Passenger Terminals
London's new cruise facilities and their impact on tourism in the 1990's
J. McNab, Chief Executive, Port of Tilbury and D. Jeffrey, Chief Executive, River Division, Port of London Authority

Multi-purpose Passenger Terminals in the 1990's
C.T. Burke, Port Everglades Authority, Fort Lauderdale, Florida, USA

Ferry Terminal Design Considerations
S.M. Kowleski, Marine Consultant, K&W International, San Francisco, California, USA

Session 8: Ship Design
Naval Architecture and Cruise Ship Design - the design process
B. Naerstad, Manager, Platou Ship Design, Oslo, Norway

Fire Safety in Passenger Vessel Design
M. Murtagh, * Chief, and B. Cameron, Staff Engineer, Fire Protection Section, Ship Design Branch, Marine Technical and Hazardous Materials Division, U.S. Coast Guard Headquarters, Washington DC, USA

(* Majorie Murtagh is also Chairman of the U.S. SOLAS Working Group on Fire Protection)

Features of the first modern cruise vessel built by Japan 'Fuji Maru'
K. Kei, General Manager, Technical Division, Mitsu O.S.K. Lines Ltd., and M. Kobayashi, Deputy Manager, Ship Design Department, Kobe Shipyard and Machinery Works, Mitsubishi Heavy Industries Ltd., Japan

How the new pollution regulations affect the cruise industry
F. Hovand, Manager, Norsk Hydro AS, Notodden, Norway

Ferry Vessel Stretch - Efficiency through modernisation (A limited budget does not necessarily preclude the satisfaction of a rising demand on ferry space)
R.S. Dossset and W.J. Owens, Ferry Division, North Carolina Dept. of Transport, Morehead City, North Carolina, USA

17.30 CLOSE OF CONFERENCE

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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.

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Cleveland Gear, 3249 E. 80 St., Cleveland OH 44104

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Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Kingsbury Inc., 10385 Drummond Rd., Philadelphia PA 19154

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BROKERS

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Eldec Corporation, 16700 13th Ave. West, P.O. Box 100, Lynnwood, WA 98036

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TANO Marine Systems Inc., 4301 Poche Court West, New Orleans LA 70129

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

Valmet Automation A.S., P.O. Box 130, N-3430, Spikkestad, Norway
WABCO, 1953 Mercer Rd., Lexington KY 40511

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ASEA-Hagglund, Inc., 50 Chestnut Ridge Rd., Montvale NJ 07645
The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101
Del Gavia Marine Hydraulics Inc., 207 W. Central Ave., Maywood NJ 07607
telex: 132610 DELMARINE

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J.D. Neuhous, Hebezeuge, D5810, Witten Heven, West Germany
Pethibone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883
Westmont Industries, 10805 Painter Ave., Santa Fe Springs, CA 90670

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Braden Corco Geomatic, P.O. Box 547, Broken Arrow, OK 74013
Geomatic—see Braden Corco Geomatic above
Maxley Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134
McElroy Machine & Mfg. Co., Inc., P.O. Box 4455, Biloxi MS 39535
Morgan Crane Co., Inc. (Hiab SeaCranes and QMC Trident, Ferrari, Fassi marine cranes), 1009 E. Chestnut Ave., Santa Ana CA 92701
Schoellhorn-Albrecht, P.O. Box 22110, St Louis MO 63116

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Coh Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511
Diesel America Inc., 5217 River Rd., New Orleans LA 70123
FCS Inc., 22 Main St., Center Brook CT 06409
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

Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY
Bergen Diesel Inc., 2701 Delaware Ave., Kenner LA 70062
Coh Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511
Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN

47202-3005

Goltsens, 160 Van Brunt St., Brooklyn NY 11231
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1, Federal Republic of Germany
MAN B&W Diesel, 50 Broadway, 18th Fl., New York, NY 10004
Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, Federal Republic of Germany
Sims Pump Valve Co., Inc., 1314 Park Ave., Hoboken NJ 07030
Sulzer Brothers Inc., 200 Park Ave., New York, N.Y. 10166

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H.J. Merrhuze, P.O. Box 23123, New Orleans LA 70183
Hudson Marine Services, P.O. Box 3221, Terminal Island, CA 90731
Parker Diving Service Inc., Berth 69, Los Angeles Harbor, P.O. Box 5272, San Pedro CA 90733

DRY DOCKS—Design

Marine Design Services, P.O. Box 928, Bonita CA 92002

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Eldec Corporation, 16700 13th Ave West, P.O. Box 100, Lynnwood WA 98036
L. F. Gouber & Co., Inc., P.O. Box 50500, New Orleans LA 70150
MMC International (Marine Moisture Control), 60 Inip Dr., Inwood NY 11696

SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116
Word Leonard Electric, 31 South St., Mt. Vernon, NY 10550
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

ELECTROMAGNETICS

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A&J Manufacturing, 14131 Franklin Ave., Tustin CA 92680

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ELECTRONIC SYSTEMS

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MECO (Mechanical Equipment), 861 Carondelet St., New Orleans LA 70130
Beard Industries, P.O. Box 31115, Shreveport, LA 71130

ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360

EQUIPMENT—Marine

Thomas Coudon Associates, 6655 Amberlon Dr., Baltimore, MD 21227
DynaTrade, 72 E. Niagara St., Tonawanda NY 14150
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Flebu A/S, US Agent: American United Marine Corp., 5 Broadway, Rte 1, Saugus MA 01906
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Action Threaded Products Inc., 6955 S. Harlem, Bedford Park, IL 60638
Hardware Services Co., Ships Division, 48-75 36th St., Long Island City NY 11101
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National Specialty Products, 5727 Jefferson St., Houston TX 77067
Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32960
Westmont Industries, 10805 Painter Ave., Santa Fe Springs, Los Angeles, CA 90670

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

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VL Logistic Consultants, Inc., 3008-C Bienville Blvd., Ocean Springs MS 39564

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Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
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Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320
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Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
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James S. Krogen, 1515 NW 7th St., Suite 124, Miami FL 33125
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
C.R. Leavitt Inc., 13901 Puerto Dr., Ocean Springs MS 39564
K.P.G. Integrated Engineering Pty Ltd., P. O. Box 525, Cairns, Qld. 4870 AUSTRALIA

Alan C. McCleary Associates, Inc., 2400 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, New York, NY 10048

MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090
Fendall Marbury, 9 Neal Street, Annapolis MD 21401
Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902
Marine Power Associates, 1010 Torquois St., Ste 217, San Diego, CA 92109

Maritime Design, Inc., 2955 Hartley Rd., Jacksonville, FL 32217
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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, 3770 16th Street North, St. Petersburg, FL 33704
Seaworthy Systems Inc., P.O. Box 338, Essex, CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 205, Solomons MD 20686; 2 Skyline Pl., 5203 Leesburg Pike, Falls Church VA 22041

Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004
George G. Sharp, Inc., 100 Church St., New York, NY 10007
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Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
General Electric Company, Mobile Communications Division, Lynchburg, VA 24502

Harris Corporation, RF Communications Group, 1680 University Ave., Rochester NY 14610
Henschel Corporation, 9 Hoyt Dr., P.O. Box 30, Newburyport MA 01950
ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202
Kevin Hughes Ltd., New North Rd., Hainault, Ilford, Essex IG6 2UR Eng-land

Mackay Communications, 441 US Highway #1, P.O. Box 331, Elizabeth NJ 07207
Marine Electric RPD Inc., Galbraith Pilot Marine Div., 666 Pacific St., Brooklyn NY 11217
Naval Electronics, 5417 Jetview Circle, Tampa FL 33634

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Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033

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Raytheon Service Company, 5760 Northampton Blvd., Ste 102, Virginia Beach VA 23455

Robertson-Shipmate, Inc., 400 Oser Ave., Hauppauge NY 11788

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Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA

Watercom Communications Systems, 453 E. Park Place, Jefferson IN 47130

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Burmah-Castrol Inc., Raritan Plaza II, Raritan Center, Edison NJ 08837

Chevron USA, 575 Market St., San Francisco, CA 94105

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Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

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MMC International (Marine Moisture Control), 60 Inip Dr., Inwood NY 11696

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American Abrasive Metals Co., 460 Colt St., Irvington NJ 07111

Armcor Sales Inc., 2 Marineview Plaza, Hoboken NJ 07030

CTI Industries, 10 Sacco Hill Rd., Fairfield CT 06430

International Paint, P. O. Box 920762, 6001 Antoine Dr., Houston TX 77292

Palmer International, P.O. Box 9, Worcester, PA 19400

Unitor Ships Service, Unitor Marine Chemicals Division, 3 High St., Rickmansworth, Herts, WD3 1SW UNITED KINGDOM

White Metals Inc., 4500 Michole, Houston TX 77087

PIPE FITTINGS/CONNECTING SYSTEMS

Aeroquip, 300 South East Ave., Jackson, MI 49203

Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248

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ASEA Brown Boveri, 1460 Livingston Ave., North Brunswick NJ 08902

Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081

Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY

Bergen Diesel Inc., 2701 Delaware Ave., Kenner LA 70062

Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark

Caterpillar Inc., Engine Division, 100 N E Adams, Peoria IL 61629

Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227

Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511

Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN 47202-3005

Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340

Fincantieri, Diesel Engines Division—GMT, Bagnoli della 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

KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada

KaMaWia, P.O. Box 1010, S-681 01 Kristinehamn, SWEDEN

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Krupp MAK Maschinenbau GmbH, P.O. Box 9009, D-2300 Kiel 17, WEST GERMANY

Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323

Marine Gears, Inc., P.O. Box 689, Greenville MS 38707

Markisches Werk, Halbe, P.O. Box 1442, D-5884 Halbe WEST GERMANY

MAN B&W Diesel, 50 Broadway, New York, NY 10004

MAN B&W Diesel A/S, Ostervej 2, DK-4960 Hoelby, Denmark

MAN B&W Diesel A/S, Alpha Diesel, Niels Jueh Vej 15, DK-9900 Frederiksrovn Denmark

MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1 Germany

MAN High Performance Diesels (Nurnberg), 160 Van Brunt St., Brooklyn NY 11231

Michigan Wheel Corp., 1501 Buchabab Ave., SW, Grand Rapids MI 49507

Morrison-Knudsen Company, Power Systems Division, P.O. Box 1928, Rocky Mount NC 27801

MTX Magneek Inc., 11111 Santa Monica Blvd., Los Angeles CA 90025

Northwest Marine Services Corp., 6452 So. 144th St., Tukwila WA 98168

Okavo Steel Couplings AB Sweden, S-813 00 Holors SWEDEN

Propulsion Systems, 1441 N Northlake Way, Seattle WA 98103

Schottel-Werft, Josef Becker GmbH, KG, D-5401 Spay, WEST GERMANY

Stewart & Stevenson, 1400 Destrehan, P.O. Box 8, Harvey LA 70059-0008

Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland

Sulzer/Escher Wyss, Ravensburg WEST GERMANY

Twin Disc, 1328 Racine St., Racine WI 53403

Ulsten International A/S, N-6065 Ulsteinvik, NORWAY

Ulsten Maritime Ltd., 96 North Bend Street, Cocolifom BC CANADA V3K 9H1

J.M. Voith GmbH, Marine Division, Postfach 1940, 7920 Heidenheim/Brenz, WEST GERMANY Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021

Wagner Engineering Ltd., 40 Gostick Pl., No Vancouver BC CANADA V7M 3G2

Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072

ZF of North America, Marine Sales, 500 Barclay Blvd., Lincolnshire IL 60069

PUMPS—Repairs—Drives

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Gallems, 160 Van Brunt St., Brooklyn, NY 11231

Imo-Delaval, Inc., IMO Pump Division, Box 447, Monroe NC 28810

Jim's Pump Repair, 48-55 36th St., Long Island City NY 11101

Leisritz Corporation, 165 Chestnut St., Allendale NJ 07401

Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238

Via Motivator, 99 W Hawthorne Ave., Suite 622, Valley Stream NY 11580

Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

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Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018

Columbian Rope Corporation, P.O. Box 270, Guntown MS 38849

E.I. DuPont de Nemours, Shipboard Cable, Room G-51549-NE, P.O. Box 80029, Wilmington DE 19880-0029

Samson Ocean Systems, 2090 Thornton St., Ferndale WA 98248

SANITATION DEVICES—Pollution Control

Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111

Microphor, Inc., 452 E Hill Rd., P.O. Box 1460, Willits CA 95490

Research Products/Blankenship (Incinlet), 2639 Andon, Dallas, TX 75220

SCALE MODELS

Sturgeon Bay Model Shop, 187 N Ninth Ave., Sturgeon Bay WI 54235

SCUTTLES/MANHOLE

L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211

Juniper Industries, 72-17 Metropolitan Ave., Middle Village, NY 11379

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

SHIPBREAKING—Salvage

The River Smelting & Refining Co., 4195 Bradley Rd Cleveland OH 44109

The Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

SHIPBUILDING EQUIPMENT

Eckold Ltd., CH-7203 Tramin, SWITZERLAND

M.A.N.—GHH, Sterkrade Werfstrabe 112 D-4100 Duisburg 18, West Germany

MAAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, West Germany

NEI Synchron, Inc., 8970 S W 87th Ct., Miami FL 33176

Offshore Industries, Inc., 144 Railroad Ave., Suite 206, Edmonds WA 98020

SHIPBUILDING—Repairs, Maintenance, Drydocking

Aluminum Boats Inc., 304 Midway Dr., River Ridge LA 70123

Astilleros Espanoles S.A., Padilla 17, 28006 Madrid, SPAIN

Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150

Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235

Bowen Marine, Box 368, Warren RI 02885

Brodspil Shipbuilding Industry, Put Udarnika 19, P.O. Box 17, 58000 Split YUGOSLAVIA

Burmeister & Wain Shipvaerft A/S, P.O. Box 2122, Refshaleen, DK-1015 Copenhagen, DENMARK

Colonna's Shipyard, Inc., 400 E Indian River Rd., Norfolk VA 23523

Curaco Drydock (U.S.A.) Inc., 26 Broadway, Suite 741, New York, NY 10004

Equitable Shipyards Inc., Trinity Marine Group, Box 29266, New Orleans LA 70189

Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY

Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530

Hyundai Corporation, ShipSales Dept., 140-2 Kye dong, Chongro-ku, Seoul, KOREA

Hyundai Mipo Dockyard Ltd., 456 Cheonho-Dong, Ulsan, KOREA

Keppel Shipyard Limited, 325 Tekong Blangah Road, P.O. Box 2169, Singapore 0409

Paul Lindanus GmbH & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany

Linnaev, Apartado 2138, 1103 Lisbon, Codex PORTUGAL

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134

M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany

Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199

T. Mariotti, Calata Chiappella, 16126 Genoa (Port) ITALY

Munson Manufacturing, 150 Dayton, Edmonds WA 98020

Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607

Northwest Marine Ironworks, P. O. Box 3109, Portland OR 97208

SeaArk, P.O. Box 210, Monticello AR 71655

Service Marine Industries, P.O. Box 3606, Morgan City LA 70381

Shipperline Shipyards, 621 Park Plaza Dr., Dept 21, LaCrosse WI 54601

Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113

3 Moj Associates Shipbuilding Industry, P. O. Box 117, 51001 Rijeka YUGO-SLAVIA

Textron Marine Systems, 6800 Plaza Dr., New Orleans LA 70127

Trinity Marine Group, Box 29266, New Orleans LA 70189

Wartsila Marin Industri AB, P.O. Box 1090, SF 00101 Helsinki, FINLAND

Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

Zodiac of North America Inc., Thompson Creek Rd., P.O. Box 400, Stevensville, MD 21666

SHIP MANAGEMENT

Texaco Marine Services Inc., P. O. Drawer 1028, Port Arthur, TX 77641

SIMULATOR TRAINING

Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11271

SILENCERS

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

STAINLESS PLATE

Eastern Stainless Division, Cyclops Corporation, P.O. Box 1975, Baltimore MD 21203

STUFFING BOXES

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

SURVIVAL EQUIPMENT

Parkway/Imperial, 241 Raritan St., So. Amboy, NJ 08879

Viking Life Saving Equipment, 1625 N Miami Ave., Miami FL 33136

TANK CLEANING

Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530

TANK LEVELING INDICATORS

IMO Industries, Gens Sensor Division, One Cowles Rd., Plainville CT 06062

King Engineering Corp., P.O. Box 1228, Ann Arbor MI 48106

MMC International (Marine Moisture Control), 60 Inip Dr., Inwood NY 11696

Stahl Tank Control, 201 W Passaic St., Rochelle Park NJ 07662

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Jack Faulkner, 1005 W. Harmon Ct., Metairie, LA 70001

McAllister Bros., Inc., 17 Battery Pl., New York, NY 10004

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Aeroquip, 300 South East Ave., Jackson, MI 49203

American Vulkan Corporation, P.O. Drawer 673, 2525 Dundee Rd., Winter Haven, FL 33882-0673

Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056

Chemquip Products Co., Inc., 3 W. 18th St., New York, NY 10011

Circle Seal Controls, Brunswick Corporation, P.O. Box 3666, Anaheim, CA 92803

Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92643

Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139

Cunico Corporation, 214 N Hawaiian Ave., P.O. Box 306, Wilmington CA 90748

Elliott Manufacturing Co., Inc. (Remote Valve Operating Equipment), P.O. Box 773, Binghamton, NY 13902

Stanley G. Flogg Co., 1020 W High St., Stowe PA 19464

Lexair Inc., Airmatic/Beckett, 299 Gold Rush Rd., Lexington KY 40503

Loebler Machine, US #1 & Robbins Ave., Pannett PA 19047

MMC International (Marine Moisture Control), 60 Inip Dr., Inwood NY 11696

Nugro Co., 4800 E. 345th St., Willoughby, OH 44094

PBM Inc., RD 6, Box 387A, Sandy Hill Rd., Irwin PA 15642

Parker Hydraulic Valve Division, 520 Ternes Avenue, Elyria, OH 44035

Parker Actuator Division, 9948 Ritman Road, P.O. Box 450, Wadsworth, OH 44281-4050

Parker Systems Division, 651 Robbins Drive, Box 3500, Troy, MI 48007-3500

Research Tool & Die Works, 17124 S Keegan Ave., Carson CA 90746

Skarpenord A/S, US Agent: American United Marine Corp., 5 Broadway, Rte 1, Saugus MA 01906

Stacey/Fetterhoff, P.O. Box 103, Skippack, PA 19474

Swagelok Company, 5171 Hudson Dr., Hudson, OH 44236

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

Whitey Co., 318 Bishop Road, Highland Heights, OH 44143

Williams Valve Corp., 38-52 Review Ave., Long Island City NY 11101

VIBRATION ANALYSIS

DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110

T. W. Spaetgens, 156 W 8th Ave., Vancouver BC CANADA V5Y 1N2

Vibranalysis Engineering Corp., 4380 S. Wayside, Suite 100, Houston TX 77087

WASTEWATER TREATMENT

EES Corporation/Ommpure, An Eltech Systems Company, 12850 Bourne-wood Dr., Sugarland TX 77478

WATER PURIFIERS

Alfa Laval Inc., 2115 Linwood Ave., Fort Lee NJ 07024

Evepare, Inc., 660 N Blackhawk Dr., Westmont, IL 60559

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

WEATHER CHART RECORDERS

Alden Electronics, 40 Washington St., Westborough, MA 01581

WELDING

American Durweld Sales, P.O. Box 850, Scituate MA 02066

Welding Consultants USA, 10399 Paradise Blvd. #101, St. Petersburg, FL 33706

WIRE ROPE

Atlantic Cordage Corp., 60 Grant Ave., Carteret NJ 07008

WIRE ROPE LUBRICATION SYSTEMS

Atlantis Services, 1057 Kings Ave., Jacksonville FL 32207

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Braden Carco Gearmatic, P.O. Box 547, Broken Arrow, OK 74013

Fritz Colver, Inc., P.O. Box 569, Covington, LA 70434

Gearmatic—see 'Braden Carco Gearmatic' above.

MMC International (Marine Moisture Control), 60 Inip Dr., Inwood NY 11696

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134

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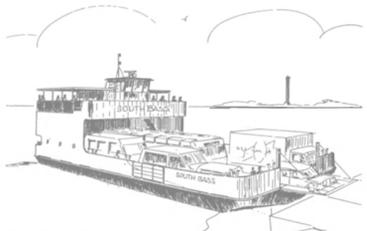
WINDOWS

Kearliff Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, NY 10550

WIRE AND CABLE

Seacoast Electric Company, Station Plaza, Rye NY 10580

Miller Boat Launches Caterpillar-Powered Auto/Passenger Ferry



The Caterpillar-powered auto/passenger ferry South Bass, built by G and W Industries in Cleveland, Ohio, is the fifth vessel in the Miller Boat Line fleet.

Miller Boat Line, Inc., Put-in-Bay, Ohio, recently launched a new auto/passenger ferry, the South Bass. Built by G and W Industries in Cleveland, Ohio, the vessel is 96 feet long with a beam of 38.5 feet and draft of 5 feet 6 inches.

The South Bass will run, along with her sister ship the Islander, for an 18-minute trip between Put-In-Bay (South Bass Island) and Catawba Point. The name South Bass was chosen for the ferry, thus naming her after one of the islands in western Lake Erie that she will serve. Capacity aboard the new vessel will range between 500 passengers when no vehicles are carried to 20 autos/260 passengers.

A pair of Caterpillar 3412 Dita diesel engines of 1,300 horsepower will allow a cruising speed of 12 mph. The vessel, designed by Graul Marine Design of Sturgeon Bay, Wis., is the fifth vessel in the Miller Boat Line fleet.

For free literature giving complete details on the facilities and capabilities of G and W Industries,

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SOUTH BASS Equipment List

Main engines	Caterpillar
Propellers	Kahlenberg
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Engine controls	Morse
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Compass	Danforth

Liberty Insulation Develops New Marine Pipe Insulation Jacket

Liberty Insulation, Inc., Norwood, N.J., has designed a lighter weight, factory-applied pipe insulation jacket for marine applications.

The company reports that all components of the new jacketing conform to military specifications and it substantially reduces weight and installation time compared to other shipboard lagging techniques.

The jacket was developed to be applied to Ethyl Corporation's new Eypel A Foam (Mil-P-24703) pipe insulation, which currently is replacing less flame retardant types of foam insulation material for chill water lines and piping up to 350 degrees F.

Liberty Insulation manufactures and distributes many types of thermal, acoustic and fire protection insulations for military, commercial and industrial applications.

For free literature detailing Liberty's new pipe insulation jacketing and additional custom fabrication services,

Circle 74 on Reader Service Card

Gibbs & Cox Announces New Appointments

Richard M. Ehrlich, chairman of the board of Gibbs & Cox, Inc., recently announced the following appointments:

Anthony P. Romano, employed at Gibbs & Cox for over 20 years, has been appointed executive vice president-operations.

Henry E. Buttelmann, at Gibbs & Cox for 34 years, has been appointed executive vice president-technical.

Theodore A. Tribolati, at Gibbs & Cox for over 15 years, has been appointed division head of the Production, Planning & Control Division.

James T. Higney, employed at Gibbs & Cox for over 25 years, has been appointed division head of the Machinery Division.

Thomson-Gordon Appoints Hampton Sales Distributor —Color Literature Available

Thomson-Gordon Ltd. of Burlington, Ontario, Canada, manufacturers of Thordon Elastomeric Bearings, recently announced the appointment of Hampton Sales Inc. as its new distributor in the Middle Atlantic States.

The Thordon material is used worldwide for rudder bearings and water lubricated stern tube bearings. Thomson-Gordon has distributors throughout the U.S. and 49 countries around the world.

Hampton Sales Inc., located in Willow Cove, Pa., is a newly established firm, which will be a combination distributor and manufacturer's representative. They are currently handling the Thordon material, and a line of spray-on lubricants and anti-seize compounds.

May, 1989

The firm was founded by **Bud Silcox**, formerly with Beemer Engineering Co. Mr. Silcox has 21 years' experience in the plain bearing industry, including over 10 years with Thordon in all aspects from design to installation.

For further information and free literature on Hampton Sales Inc., or Thordon,

Circle 31 on Reader Service Card

First 'Black Box' Installed Aboard U.S. Containership

Lloyd's Register was recently awarded a contract to fit a marine "black box" or Voyage Data Recorder (VDR) aboard a U.S. containership.

The barrel-shaped device similar in concept to the flight recorders carried by aircraft will be fitted to the 27,739-ton containership Gulf

Spirit, which operates between the U.S. Gulf and Europe.

If the installation proves successful, the purchasers of the pioneering accident recorder, Wescol International Marine Services, will consider similar installations aboard other vessels. The company owns six ships and manages about 180 others.

Lloyd's Register invested about \$1 million in the research and development of the VDR.



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ELECTRONICS UPDATE

MarineSafety Demonstrates Prince William Sound Simulation

In the aftermath of the grounding of the Exxon Valdez and the ensuing oil spill in Prince William Sound, there has been considerable interest in resources available for pilot and deck officer training in such environmentally sensitive areas. In response to requests from TV and other news media, a computer-generated visual simulation of a large tanker in the waters of Prince William Sound was demonstrated at the MarineSafety International (MSI) Computer-Aided Operations Research Facility (CAORF), U.S. Merchant Marine Academy, Kings Point, N.Y.

Viewers stood on the realistically replicated bridge of a super tanker and peered out its windows to see snow-covered mountains and the ship's huge foredeck. The fully laden "vessel" was taken through the Valdez Narrows into the southbound traffic lane. Past Rocky Point on the left, the "Captain" pointed out Busby Island. The visual simulation was switched to nighttime and a white light atop the island could be seen flashing. Turning to the radar, the captain pointed out Bligh Island and the less distinct Reef Island next to it. Satisfying the curiosity of the group, the



Using radar during Prince William Sound-Valdez training in MarineSafety International (MSI) Computer-Aided Operations Research Facility (CAORF) ship simulator located at Kings Point, N.Y.

MSI offers collision avoidance and piloting training courses for shipping companies operating in Prince William Sound and Valdez, Alaska.

captain crossed the traffic lanes and edged the ship near the buoy with the flashing red light marking the outer edge of Bligh Reef. In real life, Bligh Reef was where the Exxon Valdez had run aground.

Realism is an important ingredient of maritime training and research. Under a privatization agreement with the U.S. Maritime Administration, MarineSafety International operates the CAORF on the grounds of the U.S. Merchant Marine Academy. The CAORF ship-handling simulator is used to support maritime research and training. Any body of water and ship type can be simulated and environ-

mental conditions can be controlled. In addition to engineering studies for harbor and waterway improvements, MSI conducts training courses for shipping companies and harbor pilots. A five-day course covering collision avoidance and PWS-Valdez piloting is offered by MSI.

MarineSafety, a wholly owned subsidiary of FlightSafety International, also provides shiphandling training for the U.S. Navy at its Newport, R.I., facility.

For free literature detailing the shiphandling training offered by MSI,

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(2) **16 MB** 3.76x1 ratio complete with 40" clutches and spacers 1600 HP at 800 RPM **\$50,000.00 pair**

(2) **D.P.C.** 3.05x1 vertical offset gears-NEW **\$15,000.00 ea**

(3) **Vertical offset 2½x1 L.S.T. Type Western Gears** complete with clutches and spacers 1600 HP at 800 RPM **\$15,000.00 ea.**

(1) **Vertical offset Model 3040 MRV** 5x1 ratio no clutches or drums. **\$35,000.00 ea.**

(2) **Horizontal offset Falk 3040 MR** gears-New 4.92x1 ratio 900 RPM **\$265,000.00 ea.**

(2) **Horizontal offset L.S.T. Falk Gear** 2½x1 ratio no clutches **\$12,000.00 ea.**

(2) **Falk 2 MB** vertical offset 3.75x1 ratio-Good condition (2) spare clutches **\$15,000.00 lot price**

REINTJES

(4) **Reintjes WAV 1651** reverse reduction gears 3.5x1 ratio 1165 HP vertical offset **\$40,000.00 lot price**

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Furuno's New Improved Loran Provides Even Higher Position-Fixing Accuracies And Display Stability

Furuno's well-known LC-90 Loran receiver has been significantly improved and is now available as the LC-MARK-II. Soft and receiver changes provide even higher position-fixing accuracies and display stability, especially in fringe reception areas; physical changes include an improved keyboard layout for more convenient and reliable operation.



Furuno's improved Loran, LC-90 MARK-II.

With the LC-90 MARK-II, a single keystroke will save or recall up to 20 current event positions in both Lat/Lon and TDs, with data automatically entered into memory in numbered sequence. Otherwise, the LC-90 MARK-II retains all the performance and quality features of its predecessor. The large, five-line LCD shows all system data, with the top two lines providing user's choice of Lat/Lon or TD data and the remaining three lines showing a choice of computed navigational information. Additional lines give a constant readout of alarm and status functions.

Once local latitude and longitude are entered, operation is completely "hands-off." The LC-90 MARK-II automatically selects optimum master and secondaries, compensates for ASF and local magnetic variation and sets the internal notch filters to eliminate interference.

The compact size, flexible mounting, and low power drain make this unit ideal for any operator, from the largest commercial ship to the most compact yacht.

For more information and free literature from Furuno

Circle 107 on Reader Service Card

Todd Awarded \$3.3-Million Pact

Todd Pacific Shipyards, San Pedro, Calif., recently received a \$3.3-million firm-fixed-price contract for phased maintenance availability work for the USS Ogden (LPD-5). The work is expected to be completed June 2, 1989. The Supervisor of Shipbuilding, Conversion and Repair, Long Beach, Calif., was the contracting activity (N00024-85-H-8237).

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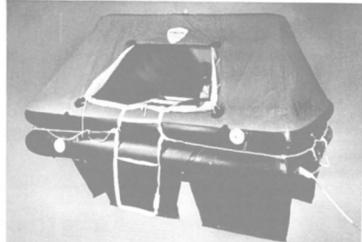
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Viking's Commercial-Grade Six-Person Life Raft Exemplifies Modern Lifesaving Technology



The six-person throw-overboard type commercial USCG-approved life raft from Viking has two individually inflatable buoyancy chambers, each of which has enough buoyancy to carry the weight of six people. For extra insulation, the raft has a double floor, which can be hand inflated.

Due to the general advancement of technology in our society, boating has become a continually safer sport. Nowhere are recent advancements in marine lifesaving equipment more significantly demonstrated than in the design and construction of modern inflatable life rafts. Thus, today the safety-conscious yachtsman can be prepared to competently handle the most extreme emergency on the water, abandoning ship.

Among the most technologically sophisticated is a six-person life raft manufactured by internationally renowned Viking Life Saving Equipment, Inc. of Miami, Fla. It is one of a series of throw-overboard type life rafts ranging in capacity from four to 25 persons. Like all Viking life rafts, it meets or exceeds highly critical U.S. Coast Guard and SOLAS 1983 Amendment III requirements for design, construction and performance. Viking is one of the companies holding the most national authorities' approvals worldwide.

The key to Viking's traditional quality is the use of natural rubber. For example, the six-person raft's buoyancy tubes and floor are made of a nylon fabric coated on both sides with natural rubber. Natural rubber is one of the new materials capable of withstanding extremely low temperatures. Not only does the finished material meet the highest specifications for strength, it is uniquely suitable for use in inordinately cold climates. Natural rubber construction also allows the raft to withstand the drop in temperature caused by CO₂ inflation. Viking rafts can withstand many such inflations without damage to the material.

For added strength, the raft's components are glued together using state-of-the-art methods

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May, 1989

that insure unparalleled durability and long life. Some Viking life rafts are still in service after 22 years.

A large-capacity water ballast system, when combined with big sea anchors, helps to prevent capsizing. All required emergency equipment is also standard.

Most cruise liners based in American ports make use of Viking life rafts. Viking also manufactures its own life raft containers. This allows maintaining the same quality control standards adhered to in the construction of Viking rafts. The containers are easy to clean, are completely waterproof and designed to withstand great abuse, a key to their long life-span.

For more information and free literature from Viking,

Circle 67 on Reader Service Card



NEW \$5-MILLION CRUISE SHIP TERMINAL—Mr. Punch, Port Authority Architect (left), Winston Borrell, Advisor to the Minister (rear) and Kenneth Gordon, Minister of Industry, Enterprise and Tourism (near left) escort Rick Strunck of Royal Caribbean Cruise Lines (near right) and Larry Dessler of Holland America (right) on a tour of Shed One at Port-of-Spain harbor where construction is progressing on Trinidad's new \$5-million cruise passenger terminal.

West Gulf Maritime Association Appoints McManus Director, Elects Davis District Chairman

Jerry McManus, Ryan-Walsh regional vice president over West Gulf operations, was recently appointed director at large of the West Gulf Maritime Association. The association also elected **E.G. Davis** of Ryan-Walsh as Galveston district chairman.

The West Gulf Maritime Association is a non-profit corporation formed to include in one organization, shipowners, agents, operators and stevedores in all the Texas ports and the Port of Lake Charles.

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Interested individuals who are ex-Navy or Coast Guard and have experience as Boiler Technician (BT3), Machinist Mate (MM3) or Deck Dept. (Boatswain Mate) are requested to contact the nearest U.S. Coast Guard office and apply for a merchant mariner's card. On receipt, contact MSCPAC.

Send a brief qualifications summary sheet with a photocopy of both sides of your mariner's card or telephone: Mr. Tony Haro, Code P-224, Military Sealift Command, Pacific, Oakland, CA 94625-5010, (415) 466-4702.



ELECTRONICS UPDATE

New SEA 156 VHF Marine Radio Keeps Complex Functions Simple

—Brochure Available—

SEA, Inc., a unit of Datamarine International, Inc., makes its entrance into the VHF marine radio market with the introduction of the SEA 156 VHF marine radio.

Continuing a tradition started with the SEA 223 HF/SSB radio, the SEA 156 incorporates user-friendly software without limiting the radio's capabilities.

The SEA 156 has a wide range of features designed to make the radio easy to use. A color-coded keypad and large, liquid-crystal display presenting channel readout with 13 an-

nunciators showing radio status are designed to guide the user through reception and transmission. The display, keyboard, and LCD are all illuminated for use in poorly lighted areas, and the display features a non-glare window to shield the sun. All radio functions are controlled from the keypad's 10 numeric keys (0-9) and 11 function keys.

In order to insure that the SEA 156 is reliable and durable in the harsh marine environment, the radio is fully gasketed, the large, front-facing speaker is water-resis-



The SEA 156 commercial-quality VHF radio incorporates user-friendly software without limiting the radio's capabilities.

tant, and an optional waterproof microphone is available. Additionally, built-in antenna fault protection protects the radio from damage caused by transmitting into a lost or damaged antenna.

The 156 offers features intended to allow users to tailor the radio's functions to their own individual needs. For instance, remote microphone/speaker capability affords the option of operating from a second station. Six separate scan modes allow the user to program only the channels desired to scan. The programmable beep annunciator (which works much like a touch-tone phone, giving audible notice

when a key has been pressed) is user selectable.

Other features, such as flexible rear cables and volume/squelch level memory, are designed to keep radio use as hassle-free as possible.

For a free brochure containing complete details and technical specifications on the new 156 VHF marine radio from SEA,

Circle 60 on Reader Service Card

Bermuda Star Line To Sell Cruise Business

Teaneck, N.J.-based Bermuda Star Line, Inc., recently reached an agreement in principle to sell its entire cruise line business to a Finnish company. The total sales package is valued at \$17 million.

The sales agreement between Bermuda Star Line and Rederi Effjohn AB, a Finnish company jointly owned by Effo of Finland and Johnson Line AB of Sweden, covers the ships Queen of Bermuda and the Bermuda Star. The 6,193-gt Veracruz I has been chartered to Rederi Effjohn for an initial period of 12 months.

PROPULSION UPDATE

New Worldwide Distributor Network For EMD Power Products

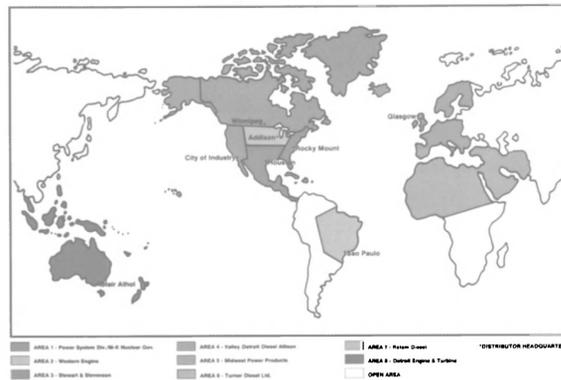
—Free Literature Available—

A new worldwide distributor network that will sell and service EMD engines, generators and motors in the marine, industrial and oil drilling markets has been established by the Electro-Motive Division (EMD) of General Motors to increase flexibility and improve customer service.

Distributors, with their authorized parts sales and service centers, will provide local availability of genuine EMD parts and rebuild components in assigned areas of responsibility. They will handle all direct sales and field service activities, in-

cluding technical assistance and "hands on" maintenance.

Distributors will market EMD power products, engines and accessories. They will take basic components, furnished by EMD, and custom assemble them for specific applications. This will provide flexibility in customizing designs to meet specific customer requirements for EMD products. Basic components development will continue to be handled by EMD's central engineering staff, thereby ensuring customers will be getting state-of-the-art equipment.



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An EMD sales and service staff for power products will be headquartered in LaGrange, Ill. This group will provide sales, technical service, and engineering support to distributors.

Most of the distributors, who are assigned a specific territory of sales and service responsibility (see illustration for details), will carry both EMD and Detroit Diesel Corporation products, providing customers a full line of engines with a broad power range.

Kelly Jones, EMD power products business manager, said, "There are a lot of companies in the marketplace right now representing themselves as suppliers of EMD products. It's important for power products customers to know that EMD's new distributors and their assigned parts sales and service centers are the only ones authorized by GM to sell genuine EMD products."

The following is a listing of the new distributors. For free literature detailing the EMD power products offered by the distributor, circle the corresponding Reader Service Number immediately following the address.

U.S. East Coast & Caribbean Islands—Power Systems Division, Morrison-Knudsen Co., Inc., P.O. Box 1928, Rocky Mount, N.C. 27801; telephone: (919) 977-2720; twx: 510-929-0725; fax: 919-446-3830. EMD contact: **Milt Sharpe.**

Circle 110 on Reader Service Card

U.S. Midsouth, Mexico and Central America—Stewart & Stevenson Services, Inc., 2707 North Loop West, P.O. Box 1637, Houston, Texas 77251-1637; telephone: (713) 868-7700; telex: 794221; fax: 713-868-7692. EMD contact: **Tommy Wall.** Or, contact: Stewart & Stevenson Services, Inc., 1400 DeStrehan Ave., Harvey, La. 70059; telephone: (504) 347-4326; fax: 504-348-8970. EMD contact: **Ralston**

Cole.

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U.S. West Coast, Baja Peninsula, Alaska and Hawaii—Valley Detroit Diesel Allison, 13644 East Nelson Avenue, City Industry, Calif. 91744; telephone: (818) 333-1243; twx: 910-584-1318; fax: 818-369-7096. EMD contact: **Lee Arkus.**

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U.S. North Central states and Midwest—Western Engine Company, Energy Systems Corporation, 500 South Lombard Road, Addison, Ill. 60101; telephone: (312) 620-2000; telex: 728468; fax: 312-620-0287. EMD contact: **Bob Bowles.**

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Australia, Indonesia, New Zealand, New Guinea, Philippines and Malaysia—Detroit Engine & Turbine Co., P.O. Box 188, Blair Athol, South Australia 5084, Australia; telephone: 260-2299; telex: 790-82427; fax: 349-4142. EMD contact: **Ray Dawkins.**

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Canada—Midwest Power Products, Ltd., 1460 Waverly Street, Winnipeg, Manitoba, Canada R3T 3G6; telephone: (204) 452-8244; telex: 075-7726; fax: 204-452-2153. EMD contact: **Bryan Norrie.**

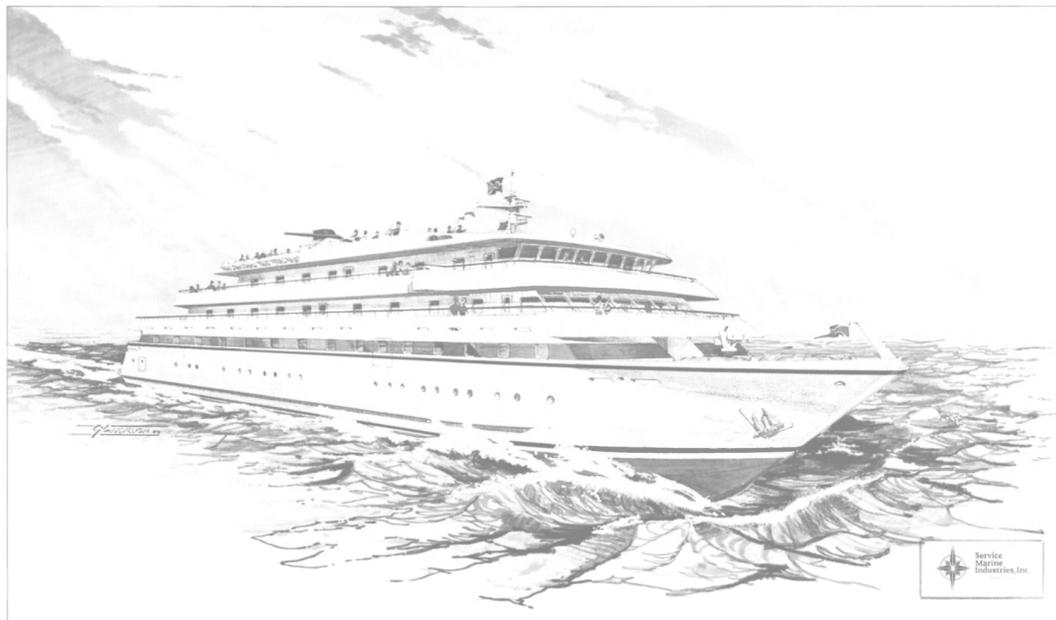
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Brazil—Retnam Diesel, Rua Dr. Alfredo de Castro 200, Sao Paulo Cep 01155, Brazil; telephone: 671-151; telex: 112-4985; fax: 825-1816. EMD contact: **Paulo Sampaio.**

Circle 116 on Reader Service Card
Europe, Middle East and North Africa—Turner Diesel, Ltd., 65 Craighton Road, Glasgow G51 3EQ, Scotland, United Kingdom; telephone: 440-0666; telex: 851-778742; fax: 445-4123. EMD contact: **Stan Quinn.**

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Maritime Reporter/Engineering News

CRUISING COMFORT FROM SERVICE MARINE INDUSTRIES, INC.



Pampered passenger comfort and economical operation were design goals for the new 208 passenger megayacht overnight cruise ship from Service Marine Industries, Inc.

Fifty-two spacious deluxe cabins for 104 guests, but expandable to 208, are tastefully decorated, individually air conditioned, and served by an elevator to each deck.

Public space is given special consideration. There are recreation rooms on each deck for family activities. The second deck is the focal point for fun and relaxation. The vista lounge looks out over the bow and views of palm-

lined beaches. Adjacent to the lounge is the action packed casino for excitement and fun, and for the compulsive shopper, a duty-free shop. The main deck dining room is served by a full menu galley equipped to suit the most demanding chef.

In the hold, beside the engine and machinery room, are located crew quarters, laundry, baggage storage, sewage treatment, and water making equipment. The ship is fully stabilized for passenger comfort, and is powered by three Cummins KTA50-M diesels, rated at 1385 hp at 1450 rpm. She will achieve a cruising speed of 15 knots

and has a range of 3800 nautical miles.

The ship, 234' x 40' x 18', has three Cummins KTA-19 GC2M gensets generating 360 kw each, with full parallel automatic switching. Emergency power comes from a self-starting 90 kw generator, located on the third deck. The vessel is assisted in maneuvering by a Schottel S-152-L, 340 hp bow thruster powered by a Cummins NT855 diesel.

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