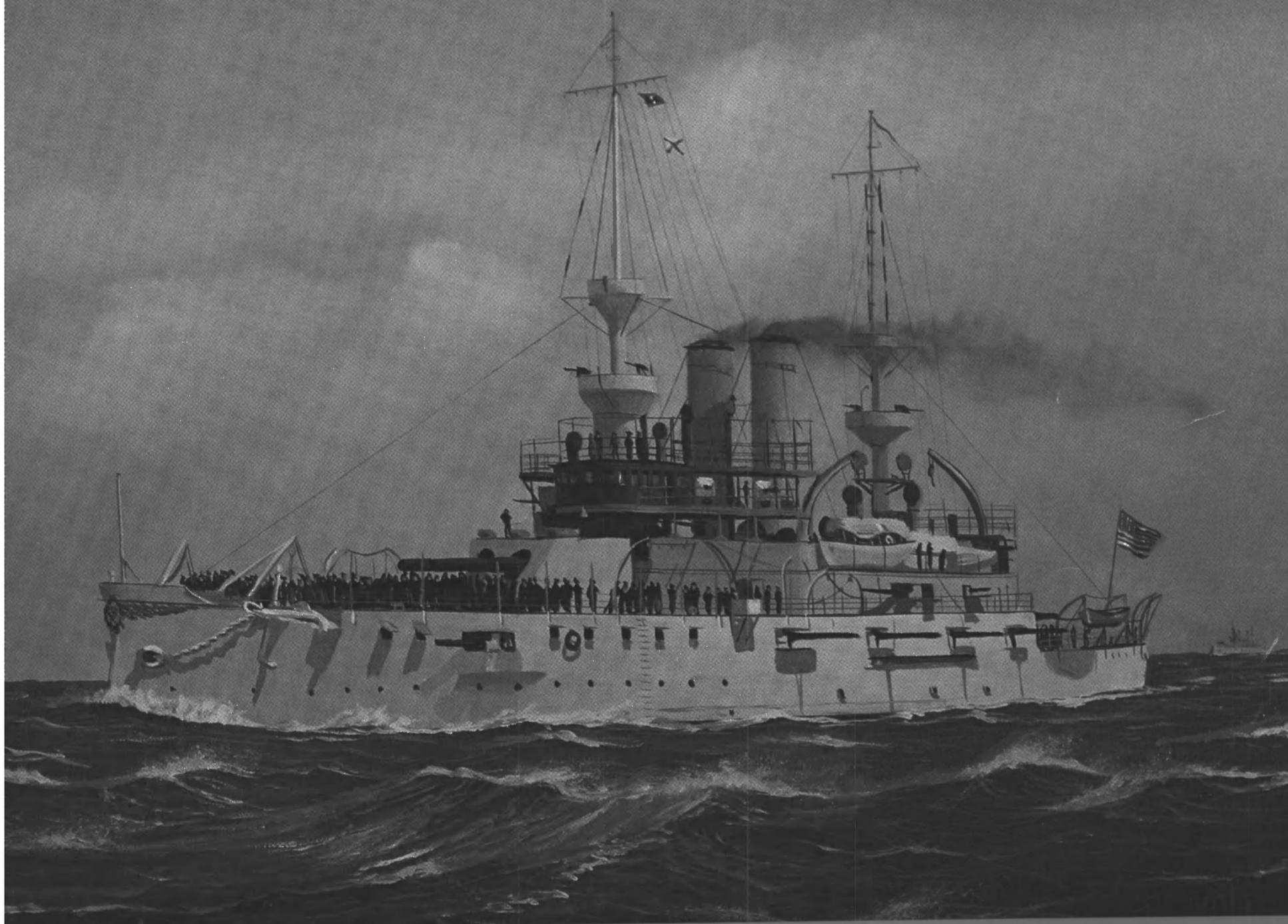


**MARITIME  
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**UPDATE:  
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**SEPTEMBER 1993**

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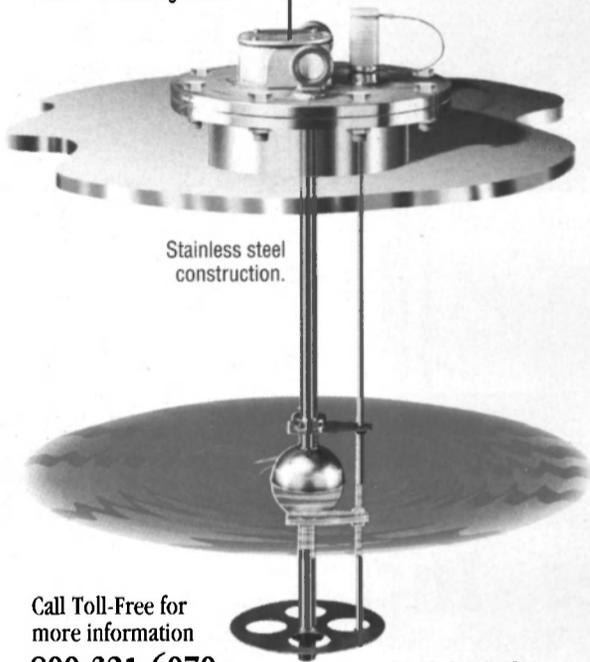
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## ON THE COVER

A tribute to the SNAME Centennial, this month's cover is a painting of the U.S.S. Alabama, a Spanish American War-period U.S. Navy ship which was built around 1890. Joe Wilhelm, who is represented by Mystic Maritime Gallery, Mystic Seaport, Mystic, Conn., painted the vessel, and graciously allowed MR/EN to reproduce his work.

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### SNAME Celebrates 100

The SNAME Centennial Celebration is well-chronicled in the pages of MR/EN this month, starting on page 61. Included in this comprehensive, 30-plus page coverage is: a review of this year's meeting, complete with conference, exhibition and social schedules; the SNAME "Scrapbook," a photo documentation of the Society and its members; and several additional articles outlining the tremendous contributions SNAME has made to the maritime industry for the past 100 years.

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## Luxury Tax Repeal Kindles Hope In Boating Industry

The so-called "luxury tax" on new boats retailing for more than \$100,000 has been repealed, retroactive to January 1, 1993.

Put into force on January 1, 1991, the 10 percent tax was killed with a crucial 51-50 vote on President Clinton's budget package. The U.S. Senate put an end to the boat excise tax many feel helped drive the marine industry into recession and push its workers out of jobs. Many boat builders expect the repeal of the tax to have an immediate effect on sales. "Our manufacturers don't view repeal so much as a victory as a chance to get back to where they were before this damnable tax wreaked havoc on their businesses," said **Jeff Napier**, president of the National Marine Manufacturers Association (NMMA).

Mr. Napier was, however, quick to acknowledge those who worked to strike down the tax. Mr. Napier named Senators **John Breaux** (D-La.), **John Chafee** (R-R.I.), and **George Mitchell** (D-Mass.), as well as Congressmen **Clay Shaw** (R-Fla.), **David Bonior** (D-Mich) and **Ben Cardin** (D-Md.) as instrumental in passing legislation to repeal the excise tax, gaining bipartisan recognition that the tax was failed

policy. First conceived three years ago, the tax had an immediate, detrimental impact on boat sales. According to a statement released by the NMMA, enactment of the tax in a recessed economy "brought sales subject to the tax to a virtual standstill ... Down a full 70 percent from

### R.I. Eliminates State Boat Tax

Embracing the spirit of widespread approval at the lifting of the "luxury" tax, and to jumpstart his state's local boat economy, Rhode Island Governor **Bruce Sundlun** signed state legislation eliminating the seven percent tax on new and used boats.

"The boating industry has been the historical lifeblood of Rhode Island's economic business," said Mr. Sundlun in a formal bill signing ceremony on August 5 at East Passage Yachting Center in Portsmouth, R.I. State Senator **Helen Mathieu**, who spearheaded the effort in the Rhode Island legislature, added, "With the repeal of the sales tax on boats, we hope to revitalize the boating industry and send a message to out-of-state boat owners that the waters of the Ocean State are indeed user friendly."

peak levels in 1988."

Westport Shipyards of Westport, Wash., weathered the storm better than many. Said General Manager **Randy Rust**, "The very existence of the tax and the uncertainty surrounding the tax's future compounded the overall negative effects." Westport has actually grown over the past years, Mr. Rust believes due to Westport's capacity to build large yachts made of fiberglass. However, said Mr. Rust, "We got a bigger piece of the pie, but the pie as a whole has shrunk."

In an effort to expand their slice of the market pie, Palmer Johnson of Sturgeon Bay, Wis., sought foreign business. **Bill Parsons**, president of Palmer Johnson, said, "Perhaps the most concrete effect is that now, our business is 100 percent foreign." Even so, says Mr. Parsons, "We're about 20 percent smaller in terms of employment than we were a year ago."

As to the future now that the repeal has happened, Mr. Parsons said, "We're certainly a lot more optimistic, and we've had an increase in inquiries from American customers of late. In fact, we're very close to signing with our first American customer in almost three years." He feels the upswing may be in part due to a new line of semi-custom yachts complete with standard hull and option lists that Palmer Johnson, which had previously done only custom work, now offers.

## Ports Enter Cooperative Agreement



Port of Portland Director Mike Thorne (left), and Port of Vancouver Executive Director Byron Hanke.

The Ports of Portland, Ore., and Vancouver, Wash., approved a cooperative agreement that will enable the Port of Vancouver to acquire a floating dry dock from the Port of Portland. The dock will be modified to create a floating platform to unload Subaru auto imports at Vancouver's Terminal 4. This new terminal and adjacent facilities, which are under construction, are the first phase of Vancouver's 1,280-acre Columbia Gateway development.

## BOATS AND BARGES

### Fast Craft Intl. Introduces Springer Class FC2000 Fast Patrol Boat

A product of some of the country's top architects, engineers, military advisors, ocean engineering scholars, and defense system groups, and after an extensive prototype testing, the FC2000 Springer Class fast patrol boat has been released from classified and is now available to customers worldwide.

Reportedly agile, cost-effective, easily deployable, and flexible in meeting diverse defense requirements, the Springer Class sets a new standard for fast patrol boats, according to the manufacturer, Fast Craft International of Warner Robbins, Ga. With an overall length of 85 feet, the Springer Class prototype has an operating draft of just

4.5 feet. The FC2000 has a top speed of 45 knots and a 32-knot cruising speed. A larger MTU engine option or gas turbines deliver top speeds in excess of 60 knots.

The FC2000 range at maximum continuous cruising speed is better than 850 nautical miles and its maximum range at 12 knots is 3,000 nautical miles. Like some larger vessels, Springer Class fast patrol boats were designed to perform a wide range of sustained missions on the high seas. With the seaworthiness rating for sustainability in sea state five, the Springer Class can reportedly do things that a larger vessel could not. It can reach dead stop from the top speed of 45 knots in just 155 feet.

It is a versatile multi-mission craft with a water-jet propulsion system that makes exceptional maneuverability possible, even in the tightest of situations — in choke points on notorial seas as well as in coastal, inland, harbor, and island waterways.

The Springer Class's hull is a product of the latest high technology in hull composite construction, fiberglass and kevlar. Alternative con-



The Springer Class FC2000 fast patrol boat, built by F.C.I.

struction materials are available to fit specific customer options and requirements. Its shallow draft and low observability and stealth characteristics enable Springer Class fast patrol boats to be concealed near shore where they can reportedly avoid radar detection. According to the manufacturer, the low observable hull also makes the craft virtually invulnerable to anti-ship cruise missile attack.

Small enough to be camouflaged, this boat is designed for such unconventional missions as drug interdiction, special forces insertion, counter-terrorism, coastal surveillance, intelligence gathering and any number of other special operations. They can be lightly armed for peacetime missions and quickly converted to war-time capabilities with surface-to-surface and surface-to-air missiles, homing torpedoes, low-level lite TV systems, infrared visual imaging systems, heavy guns, plus chaff and flare defensive systems below deck.

The Springer Class fast patrol boats will accept a completely integrated navigation, communication and ship control system that encompasses the latest in solid state digital technology.

The galley and crew mess are located in carefully selected areas of the ship, offering ideal accommodations in any climate or sea conditions. The craft has air conditioning and heated work spaces. The crew's quarters are conveniently located forward. They can be entered either from the deck or from aft companionway. The Springer Class twin MTU turbo-charged diesels and KaMeWa water jet propulsion systems have been proven in commercial and military craft the world over and are well-known for their reliability, economy, and shallow draft operations. The low installed engine weight, compact size, high horsepower and weight ratio and low specific fuel consumption of this package add immeasurably to the ship's operational performance.



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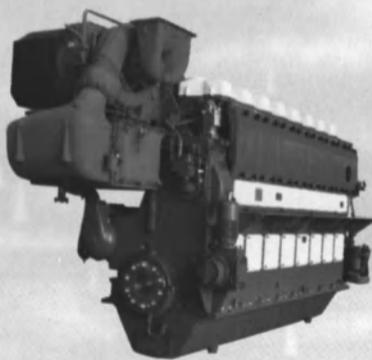
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## Inmarsat Narrows Options For Its Handheld Satellite Phone Service

Inmarsat has decided to choose between geostationary (GEO) or intermediate orbit (ICO) systems for the provision of its proposed global handheld satellite telephone service, and cease further consideration of the low earth orbit (LEO) configuration.

The council's decision to confine further consideration to only GEO or ICO configurations was taken in context of the identified and service requirements for the worldwide provision of Inmarsat-P, and after careful techno-economic evaluation of the possible system options.

## Weeks Jamestown And Wijsmuller Salvage Join In Spill Firefighting Effort

Weeks Jamestown, Inc. (WJI) and Wijsmuller Salvage have agreed to join forces in a long-term contract to meet the salvage and firefighting requirements of the Oil Pollution Act of 1990 (OPA 90).

WJI material resources, which include salvage depots and more than 300 floating vessels and equipment, ranging from high-Bollard-pull ocean tugs to heavy lift crane barges, will be enhanced by the addition of Wijsmuller assets and experience, providing WJI an unprecedented salvage and marine firefighting capability in the U.S. Wijsmuller BV of Ijmuiden, Netherlands has a long and successful history of providing worldwide salvage and firefighting coverage.

In addition to staging salvage-specific equipment and salvage expertise, Wijsmuller will pre-stage firefighting equipment for use by WJI's recently activated Salvage Action Response Team (SART) — a highly trained mobile salvage and firefighting response resource. Wijsmuller will also provide backup firefighting teams for major firefighting operations.

## Simrad Robertson Makes Appointments; Offers New ECDIS For Smaller Vessels

Brian Staton, former sales manager of the commercial department of Simrad, Inc. has been appointed to the position of general sales manager, commercial division of the new U.S. company, Simrad Robertson, Inc. Mr. Staton is responsible for all U.S. marketing, sales, and customer service operations for the fishery and pleasure craft markets.

David Hackney, former vice president of operations for Robertson Marine Systems, New Orleans, has been appointed to the position of

general sales manager, offshore division, Simrad Robertson, Inc. Mr. Hackney will be a resident in the Houston, Texas office with responsibility for all the functions of both the Houston and New Orleans facilities. He is responsible for market development, sales, and customer service operations for the U.S. offshore and workboat markets. Also, Ivar Storvik has assumed the position of market advisor and technical consultant supporting the

Simrad Robertson offshore division and is a resident in the Houston office.

In other Simrad Robertson news, a new compact version of its Disc Navigation System with particular advantages for the offshore industry was demonstrated aboard the R/V Polar Search. Robertson says the new modular form, the RDN50, is especially suitable for retro-fit installations on craft like seismic survey ships and offshore support ves-

sels. The system uses color professional-style digitized charts resembling paper charts, but has the advantage of "layering" so certain information may be removed at the press of a button to improve clarity. Interfacing with DGPS and ARPA produces a real-time picture of events.

Information from the vessel's own sensors can be directly stored on the ECDIS chart, pinpointing obstructions for future reference.

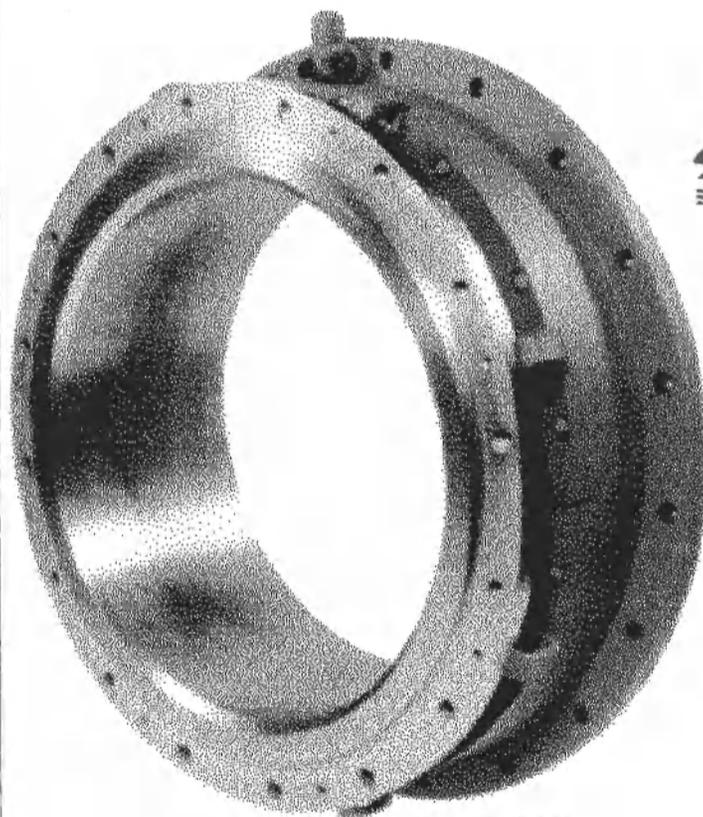
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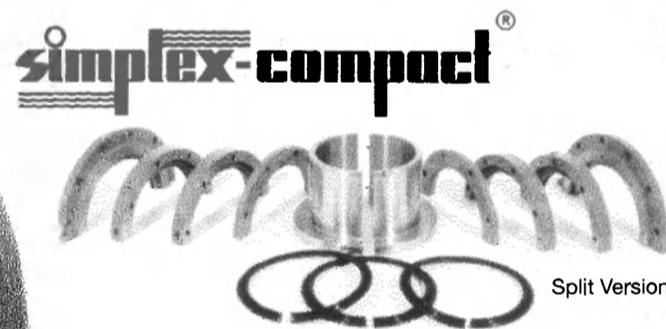
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## Nuclear-Powered Sub Returns To NNS Following Initial Sea Trials

The nation's newest nuclear-powered attack submarine, Hampton (SSN767), returned to Newport News Shipbuilding (NNS) in late August following the successful completion of initial sea trials.

Hampton is the 52<sup>nd</sup> submarine

of the modern Los Angeles class. It features the advanced AN/BSY-1 combat system, retractable bow planes and hardened sail for Arctic operations. She will be delivered to the Navy later this year. NNS currently has under construction five more Los Angeles class attack submarines and two Nimitz class aircraft carriers. The shipyard is the lead design yard for the Los Angeles class submarines, and the new Seawolf class submarines.

## Peterson Builders Awarded \$4.5 Million Contract; Busy With New Build, Repair Jobs

Sturgeon Bay, Wis.-based Peterson Builders Inc. (PBI) announced it has won a \$4.5 million contract to construct the Mark V Special Operations Craft (MK V SOC) system, a craft/transporter package, for test and evaluation.

The Cost Plus Fixed Fee contract by the U.S. Special Operations Command went to Peterson Builders as one of two companies to provide the test craft. The initial solicitation drew an estimated 200 interested companies.

PBI's "Sea Stalker Class" patrol craft is an asymmetrical catamaran based upon the Cougar Cat 2100 "Dark Moon Class" patrol craft developed by Cougar Marine, Ltd. of Hamble, England. The MK V SOC is a 71-foot vessel capable of speeds in excess of 50 knots, powered by two MTU 16V 396 TE 94 diesel engines, developing 3,500 hp each driving Rolla surface-piercing propulsors. Loitering propulsion will be provided by a dedicated diesel engine driving a Hamilton waterjet. PBI's MK V SOC will be built to DNV classification society rules.

PBI has also recently completed, and is currently working on several new build and vessel repair projects. Recent activity at Peterson includes:

- The MCM 12, MCM 13 and MCM 14, all 224-foot wood-hull vessels for the U.S. Navy, for delivery from 8/93 to 7/94;
- Five 51-foot aluminum fast patrol craft for the U.S. Navy, just delivered last month;
- Seven 36-foot LCPL fiberglass vessels for the U.S. Navy, for delivery next May;
- A 72-foot MK V Soc aluminum vessel for the U.S. Special Operations Command, for delivery in December;
- and a mid-life conversion of the R/V Endeavor, a 177-foot steel/hull aluminum superstructure vessel, for the University of Rhode Island, and to be delivered in October.

For more information about the activity at Peterson Builders, or the yard's capabilities, contact them at: tel: (414) 743-5574.

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## Haldor Topsoe Targets NO<sub>x</sub> Reduction With R&D

Being one of the world's leading catalyst manufacturers with more than 80 different catalyst types in the manufacturing program, it was a natural challenge for Haldor Topsoe A/S to enter into the field of selective catalytic reduction of nitrogen oxides (NO<sub>x</sub>) in flue gas and exhaust gas from boilers and combustion engines. The selective catalytic reduction process (known as the SCR process) is the most widely applied process for reduction of NO<sub>x</sub> in flue and exhaust gases.

In 1983-84 Topsoe developed a proprietary SCR DeNO<sub>x</sub> catalyst type DNX for the SCR process. The first pilot plant testing of the DNX catalyst was performed on diesel exhaust from a two-stroke stationary engine of the Faroe Islands. As a result of this and other testing, Haldor Topsoe A/S can today offer a great variety of DNX catalyst for coal-fired boilers (high or low dust) and for gas-fired or oil-fired boilers, gas turbines and reciprocating applications.

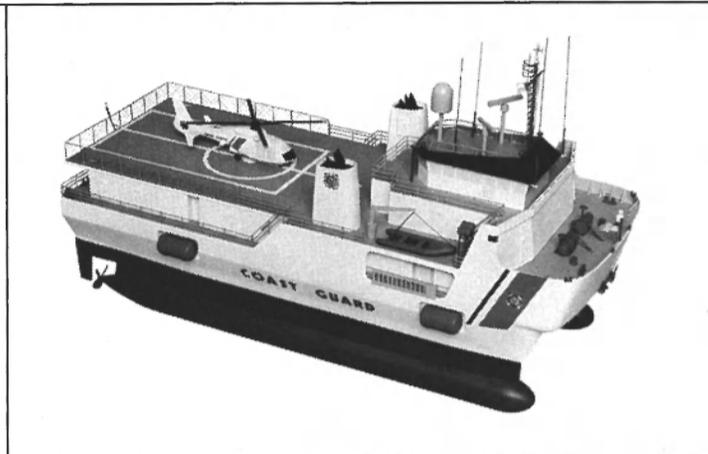
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Lockheed design for SWATH patrol cutter.



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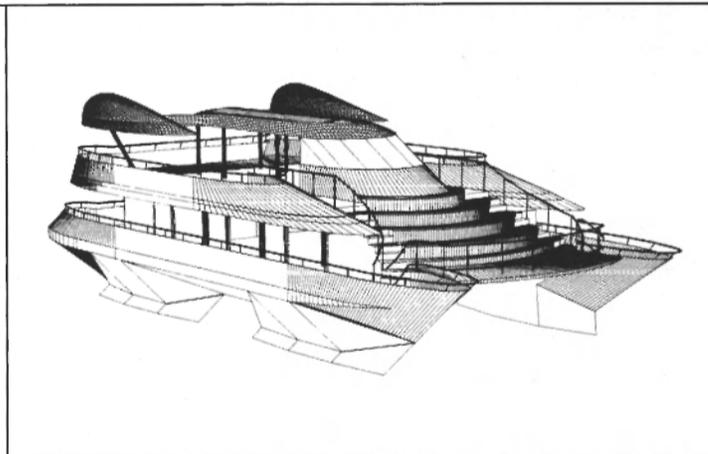


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The 82-foot, 149 passenger, 22 knot SWATH day cruise boat *Navatek II*. The first product of a unique teaming arrangement between two world leaders in SWATH technology. A "second generation" SWATH with unique canted-strut technology. Designed by Navatek with the help of the Marine Systems Division of Lockheed. Incorporating Lockheed's advanced, motion control system. Navatek and Lockheed: a partnership that promises to revolutionize SWATH design and commercialization worldwide.



Navatek II: Launch date January, 1994.



## For more information:

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Phone: 808 531-7001 Fax: 808 523-7668

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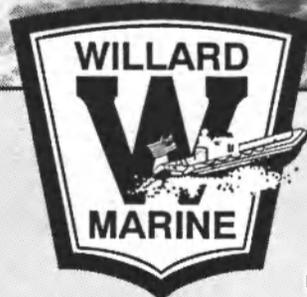
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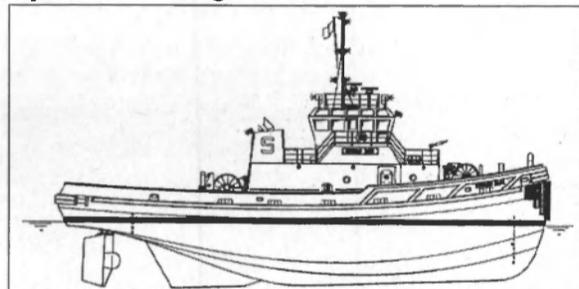
## Service Marine Expands Capacity To Build Six Casino Boats



Service Marine Industries' expanded shipyard.

Service Marine Industries, Inc. of Amelia, La., has expanded its capacity so that six large paddlewheel casino boats can be built simultaneously. The company is currently building three casino boats and is negotiating for additional contracts. Two 1,200-passenger casino boats for Harrah's are under construction. One of these, the Southern Star, is due to join its sistership, the Northern Star, also built by Service Marine, in Joliet, Ill. late this year. The delivery of the next yet unnamed casino boat for Harrah's Shreveport will follow close behind. Service Marine is also building a 1,650-passenger casino boat for a partnership of Casino America and Louisiana Downs. **Tom Hensley**, vice president, marketing, said that the company specializes in turn-key fast track construction for quick delivery. Mr. **Hensley** went on to say that the shipyard currently has open construction slots for three more boats, although negotiations are underway for one of these slots.

## Bay Transportation Begins \$35 Million Expansion Program



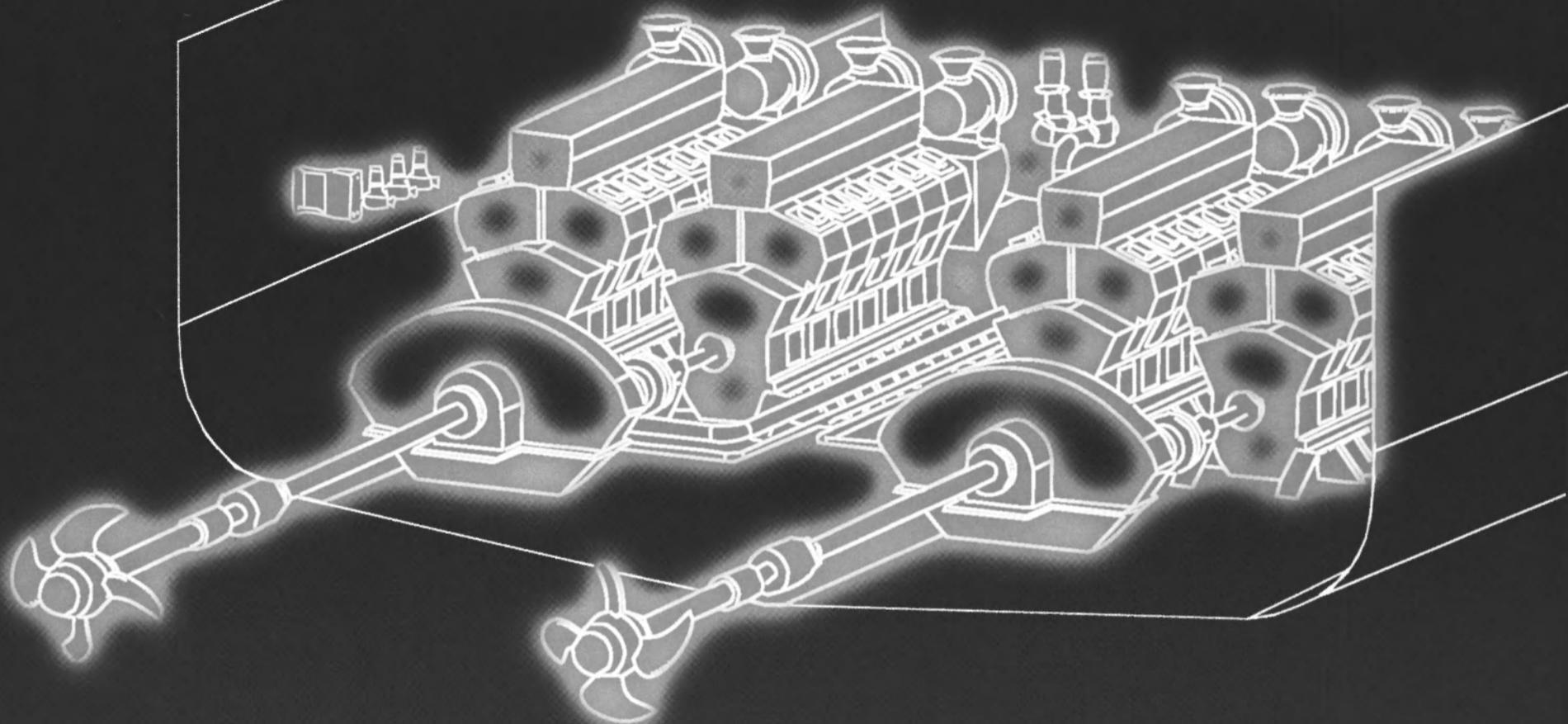
Bay Transportation Corporation announced it has begun a \$35 million expansion program with the construction of the first of six new tractor tugboats, announced chairman **Stephen Swindal**.

"These new tugboats, like our existing tractors, have the unique ability to thrust 360 degrees," Mr. **Swindal** said. "They also meet new federal regulations requiring escort tugs for ships carrying oil or hazardous cargo."

The new tug is 110 feet long with an escort speed of 14.25 knots and will take approximately 10 months to build. Construction is underway at Tampa Shipyards, Inc., Tampa, Fla., at an estimated total cost between \$5- and \$6-million. These tugs will have a total hp of 6,700 and will utilize a pair of Wartsila Vasa 6-cylinder 6R32E main engines and Aquamaster thrusters US 3001/3600.

The propulsion assembly can rotate in a full circle, allowing the thrust supplied by the twin diesel engines to be applied in any direction. A similar design has been popular in Europe for about 10 years, but is not widely available in the U.S. Bay Transportation Corp., d/b/a St. Philip Towing purchased two other tractor tugs in 1988, in a partially completed state, and finished them at Tampa Shipyards, Inc. One of these tugs regularly handled the largest bulk carriers in the world, which are more than 1,200 feet long and 200 feet wide with drafts of 75 feet, while stationed in Brazil on a two-year contract. Mr. **Swindal** said the aggressive building program for the tugboats will give Bay Transportation additional worldwide capabilities and is an indication of the company's commitment to the future of the Port of Tampa.

Maritime Reporter/Engineering News



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Wartsila Diesel has pioneered innovative marine power system integration. Together with Babcock & Wilcox's manufacturing experience, we're setting a new standard for modern modular shipbuilding and propulsion systems integration. We provide the quality and value necessary to compete in the world market.

As an integral part of the modular construction of systems, the Mount Vernon facility will also be manufacturing Vasa 46 diesel engines, as well as packaging auxiliary power gensets such as the Vasa 32 and Wartsila 25 series.

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## BOATS AND BARGES

### Navatek 'And Lockheed Team Up On SWATH Ship Design

Navatek Ships, Ltd. of Honolulu, Hawaii, and the Marine Systems Division of Lockheed Missiles & Space Co., of Sunnyvale, Calif. have teamed up to commercialize SWATH ship technology originally developed by Lockheed for the defense industry.

The announcement of the joining was made by **Steven Loui**, president of Pacific Marine, the parent of Navatek Ships, and **Michael Laden**, vice president of Lockheed Missiles & Space Co.

In a joint statement, the companies noted that "the end of the Cold War has opened up the opportunity for American industry to commercialize selected defense technologies, and we look forward to working together to advance SWATH ship design and commercialization of those designs worldwide."

Navatek Ships, Ltd. designed and built the first U.S. Coast Guard (USCG)-approved commercial SWATH cruise ship in America, the Navatek I, in service in Hawaii since March 1990.

The 140-foot, 18-knot, 430-passenger vessel is reportedly the largest commercial SWATH built in the U.S., and the first in the world to be classed by the American Bureau of Shipping (ABS). Operated by Royal Hawaiian Cruises, it has carried more than 400,000 passengers on its three daily-scheduled cruises. Royal Hawaiian



The Navatek II, under construction at Navatek Ships, will feature a state-of-the-art motion control system from Lockheed.

Cruises will also operate the 82-foot, 22-knot, 149-passenger SWATH Navatek II, now under construction and scheduled to begin commercial service in Hawaii in January 1994.

Lockheed Missiles & Space Co., a leading defense contractor, has been involved in the development of many unique, high-tech marine vehicles. In addition to the Polaris/Poseidon/Trident missile programs, Lockheed developed one of the world's first deep diving manned vehicles, Deep Quest, followed by development of the Navy's submarine rescue submersibles, Deep Submergence Rescue Vehicle I & II.

Lockheed's patented motion control system has been installed in the U.S. Navy's T-AGOS 19 and T-AGOS 23 SWATH surveillance ships, and the company's high-tech SWATH hull designs and computer aided ship control systems continue to push state of the art. Defense conversion opportunities, such as those being pursued with Navatek Ships, Ltd., are a high priority with Lockheed.

The first product of this collaborative teaming arrangement is Navatek's new 82-foot SWATH prototype. "We knew Lockheed had done extensive hydrodynamic studies on SWATH hull forms for the defense industry," said Mr. **Loui**.

Navatek has the commercial license to use the Lockheed patented single-canted strut, stable rudder and non-parallel SWATH hull technologies. Lockheed retains the rights to the technology for the defense and government markets. Additionally, Lockheed is designing a motion-control system for Navatek's new Navatek II.

The two companies, in addition to their collaboration on SWATH design, are also exploring other hull forms first developed by Lockheed for the defense industry, which may also offer some commercial potential. "The development of dual-use technologies, applicable both to civilian and military users, is being encouraged by the **Clinton Administration**," both manufacturers noted.

### Trinity Delivers 25<sup>th</sup> Vessel To Barberlines

Trinity Industries, Inc.'s subsidiary, Aluminum Boats, Inc., has delivered the 135-foot crew/utility boat Abeer Thirty Five to Barberlines Arabian Navigation and Shipping Co., Ltd., of Hong Kong, for operations in the Persian Gulf.

The Abeer Thirty Five is the 25<sup>th</sup> vessel designed and built by the Crown Point, La. shipbuilder for Barberlines. "The two obvious differences in this boat are its size and high speed," said **John Dane III**, president of the Trinity Marine Group. "Unlike many smaller crew boats that have two or three engines, this one has four 16-cylinder diesels that drove the boat to over 34 miles per hour in sea trials."

Abeer Thirty Five is 135 feet long, with a 28-foot beam and a 12-foot depth. It can carry up to 125 people and has accommodations for a crew of nine. Because of time and scheduling constraints, Abeer Thirty Five could not be transported to its home port of Dammam, Saudi Arabia aboard an ocean-going ship, which is the usual procedure for shallow draft vessels of this type. So the decision was made to have Abeer Thirty Five make the 10,000 mile trans-Atlantic trip to Saudi Arabia under her own power.

Capt. **Karl G. Mueller**, vice president and general manager of the

Barwil Agencies Inc., New Orleans, La., said he didn't think any boat of this type had ever attempted such a long journey, but Abeer Thirty Five was up to the challenge. Her four 16-cylinder Detroit Diesel 16V-92TA engines developing 3,840 hp, ran almost continually for the 21-day trip, except for three brief re-fueling stops at Bermuda, Gibraltar and Suez. The boat's engines drive through ZF reverse/reduction gears coupled to Aquatech stainless steel shafts and Hy-Torq propellers.

Capt. **Mueller** was delighted with the boat's construction and performance, as along the way it encountered gale winds up to 60 mph and heavy seas up to 20 feet.

In addition to the four propulsion engines, two Detroit Diesel 4-71 diesel engines drive two 55 kW generators to provide electrical power to the vessel. Passenger and crew spaces are cooled by 10 tons of Carrier air conditioning.

The boat has a 60-foot by 22-foot aft deck providing 1,320 square feet of cargo area for a deck load of up to 100 long tons.

A partial list of navigation and communications equipment includes two Furuno radars, a gyro compass, a Robertson autopilot, a Furuno satellite navigation system, two VHF radios and a single side band radio.



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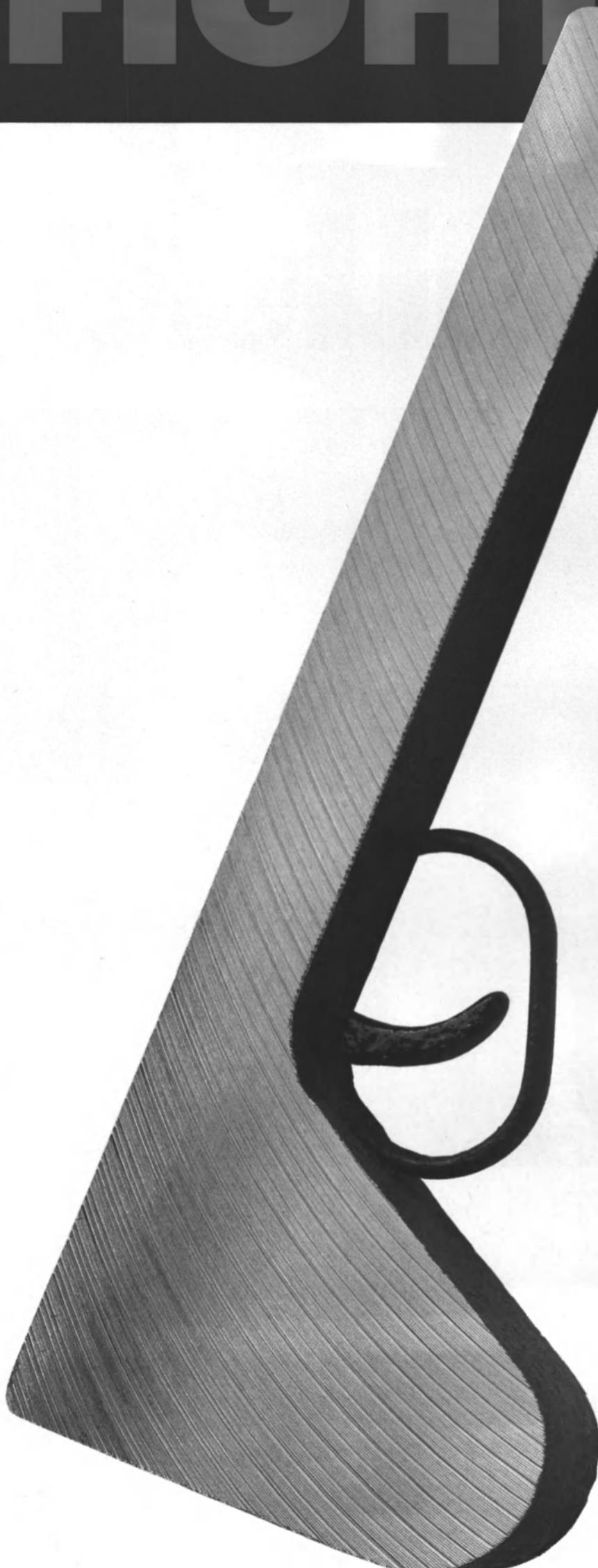
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The Jumbo bulb flat is the latest product innovation from INEXA PROFIL, with a patent pending. It is available in dimensions from 160 to 260 inches, a dramatic extension to the bulb flat range.

The Jumbo bulb flat offers all the inherent advantages of smaller bulb flats. It is the ideal reinforcement for the lower side sections of double-hulled tankers and carriers.

### **Leading the way ...**

INEXA PROFIL has long served the shipbuilding industry as a leading supplier of bulb flats and other profiles.

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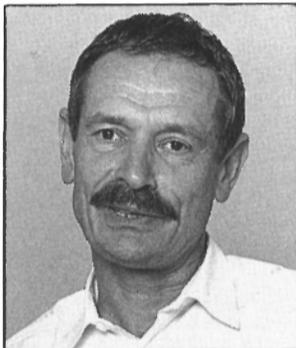
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## Wells Appointed AWO's Southern Region Vice President

The American Waterways Operators (AWO) announced that **Ken Wells** has been appointed vice president, Southern Region of the AWO. Mr. **Wells**, a veteran broadcast journalist, has spent 15 years in radio and television in several major media markets. At the time of his appointment, Mr. **Wells** was a reporter with WVUE-TV in New Orleans.

A prize-winning journalist, Mr. **Wells'** thorough and well-balanced reporting style has been recognized by the Associated Press, the Press Club of New Orleans and the National Conference of Christians and Jews, which together have presented him with six major awards. A Massachusetts native, Mr. **Wells** graduated with honors from American University in 1981.

## Andreas Steiner New President, CEO Of ABB Turbocharger



Andreas Steiner

**Heinrich Uehlinger** is changing to the ABB Group management and will be replaced as ABB Turbochargers' president and CEO by **Andreas Steiner**, who took over August 1.

Mr. **Uehlinger** joined ABB right at its inception in 1987 and guided the newly founded ABB Turbo Systems Ltd. and the ABB Business Area Superchargers during its first five years of operation. He presided over the rapid modernization of the



Heinrich Uehlinger

turbocharger production plant at Baden, Switzerland and the growth of the ABB Turbocharger service network to the 80 stations operating worldwide today.

Mr. **Steiner** is joining ABB from Sulzer Brothers, where he was a member of the executive manage-

September, 1993

ment of the Sulzer Ruti Group and in charge of the projectile weaving machine segment.

Mr. **Steiner** studied mechanical engineering at the Swiss Polytechnical Institute (ETH) at Zurich, where he completed a doctorate. He joined Sulzer Brothers in 1976.

Mr. **Steiner** will become a member of the executive management of ABB Switzerland and will be CEO of ABB Turbo Systems and ABB

Business Area Superchargers. ABB Unifer, ABB Informatik and ABB Production Technics will also report to him.

## U.S. Navy Awards Reflectone Unit \$7.8 Million Contract

The U.S. Navy has awarded a

\$7.8 million five-year contract to Reflectone Inc.'s (RFTN) Reflectone Training unit to provide operation and maintenance services for helicopter simulators to the Navy.

Under the terms of the contract, the Reflectone Training unit will reportedly support the flight and maintenance trainers used to instruct rotary wing crew members at Naval Air Stations in San Diego, Calif.; Jacksonville, Fla.; and Norfolk, Va.



(actual retouched photograph)

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## Bodewes Volharding Yard - The Netherlands Delivers Research Vessel "Zirfaea"



The Zirfaea, delivered by Bodewes Volharding Yard - The Netherlands.

The research vessel Zirfaea was delivered earlier this year and since then the vessel has been stationed in the harbor of Scheveningen.

This multifunctional vessel, built at the shipyard Bodewes Volharding at Foxhol, Groningen in close cooperation with Conoship International, Groningen, is designed to perform a wide range of survey services in the North Sea and on the Continental Shelf.

Among others, these services will be: charting of shipping lanes' drafts; sea bottom and soil investigations; maintenance/inspection surveys of executed dredging works; seabed pipeline inspections; wreck tracing; tracing of lost, dangerous, cargoes; drawing of seabed samples and seawater samples for chemical, physical and biological research; and cleaning of oil spills.

The vessel is provided with a large open deck area of 656-sq.-ft. in which a moonpool measuring 12- by 12-feet is situated.

The working deck will be used to deploy the remote operated hoisted platform and the oil spill combatment equipment. Other features of the vessel are a Simrad

dynamic positioning system, and a diesel-electric propulsion unit consisting of two Lips thrusters, 650 kW each, and two Lips bow thrusters, 300 kW each. Furthermore, state-of-the-art equipment has been placed onboard for all her duties, including compact SSB 2000/HF radio equipment by Sailor; FR-2010 sea radar and an ARPA radar, both supplied by Furuno; gyrocompass and autopilot by Plath; DGPS, Hyperfix positioning system by Decca; and JRC-JUE-45A MK11 by Satcom-A.

The Zirfaea was designed by Nevesbu, The Hague.

The shipyard Bodewes "Volharding" Foxhol B.V. contracted a car and passenger ferry for Canadian owners in 1989 and since then the shipyard built several complicated vessels such as a specialized multipurpose vessel, very shallow draft liquefied gas carriers and, finally, the Zirfaea. At present, another two multipurpose vessels are being constructed.

The vessel is built in compliance with the rules of Bureau Veritas and The Netherlands Shipping Inspectorate.

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Maritime Reporter/Engineering News

## Exxon Shipping Division Changes Its Name

The shipping division of Exxon Corp. is changing its name from Exxon Shipping Co. to SeaRiver Maritime Inc. The reorganization, which was announced in February, was completed on Aug. 1. Exxon operates dozens of tug-barge units on inland waterways, in addition to an ocean-

going fleet of 13 tankers.

## UUVs To Figure Largely In Navy Minehunting Future

Unmanned undersea vehicles (UUVs) are being looked to by the U.S. Navy to augment its ships' ability to fight in shallow water contingencies and even surf zones.

The Navy is relying on the Advanced Research Projects Agency's (ARPA) attempts to develop one or more UUVs to thwart the threats of mines. The Submarine Off-board Mine Search System (SOMSS), a UUV, is designed to be launched, tethered or untethered from a Los Angeles-class attack submarine, and lead the ship through a mine field or chart it for future reference/destruction.

The SOMSS is designed to be launched and reacquired through its

torpedo tubes. The SOMSS snakes away from the submarine it is tethered to and feeds information back to it by way of the ahead-looking and side-looking sonar in its nose, thereby leading the submarine through mined waters. When untethered, the SOMSS curls back and forth in front of the submarine, making note of the mine-shaped figures. The untethered version showed good success rate in correctly identifying mines when tested off La Jolla, Calif. recently.

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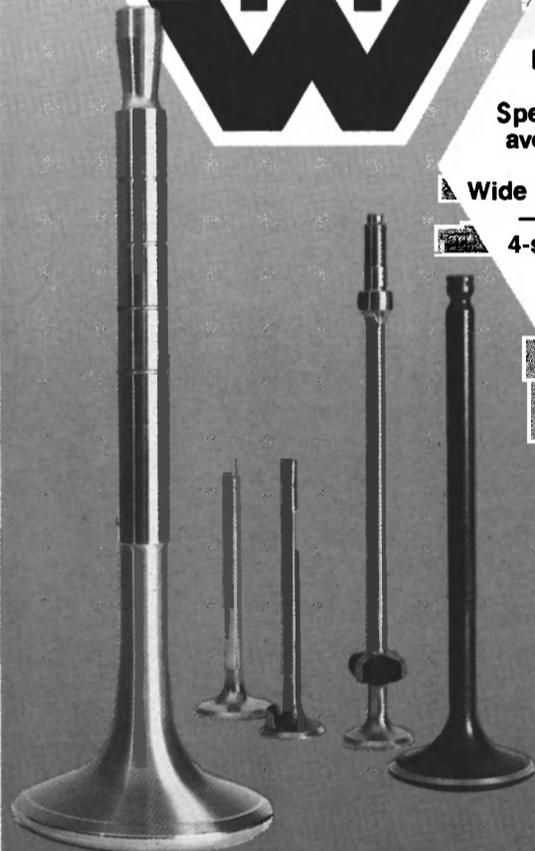


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# Caterpillar Launches "Cat Rental Power," To Meet Emergency Or Temporary Electrical Needs

Caterpillar Inc. has formed Cat Rental Power, a new profit center responsible for marketing large rental generator sets designed to meet the emergency or temporary

electrical needs of large power users in North America, Latin America, Europe, Africa, the Middle East and the Far East.

"Caterpillar has traditionally

been known for its world-class earth moving equipment and on- and off-highway engines. With this step, Caterpillar will also become known as the leading source for world-class rental generator sets and related equipment," said **Richard L. Thompson**, head of the Caterpillar Engine Division.

Cat Rental Power is a key component of Caterpillar Engine Division's Electric Power Generation group, which designs, engineers and manu-



factures factory-designed, assembled and tested containerized rental generator sets ranging in size from 35 to 1,750 kW.

Cat Rental Power represents a total of 82 dealers in North America, as well as 100 dealers in other parts of the world.

Each dealer owns and operates a fleet of rental gen sets and related equipment.

In addition to local dealer fleets, the headquarters staff of Cat Rental Power maintains a fleet of sound-attenuated and utility-approved large rental generator sets and power modules.

It also includes a large inventory of auxiliary rental generator set equipment, such as reactive load banks, transformers, distribution panels, cable/cable reels and connectors.

## Keep Workboats Working

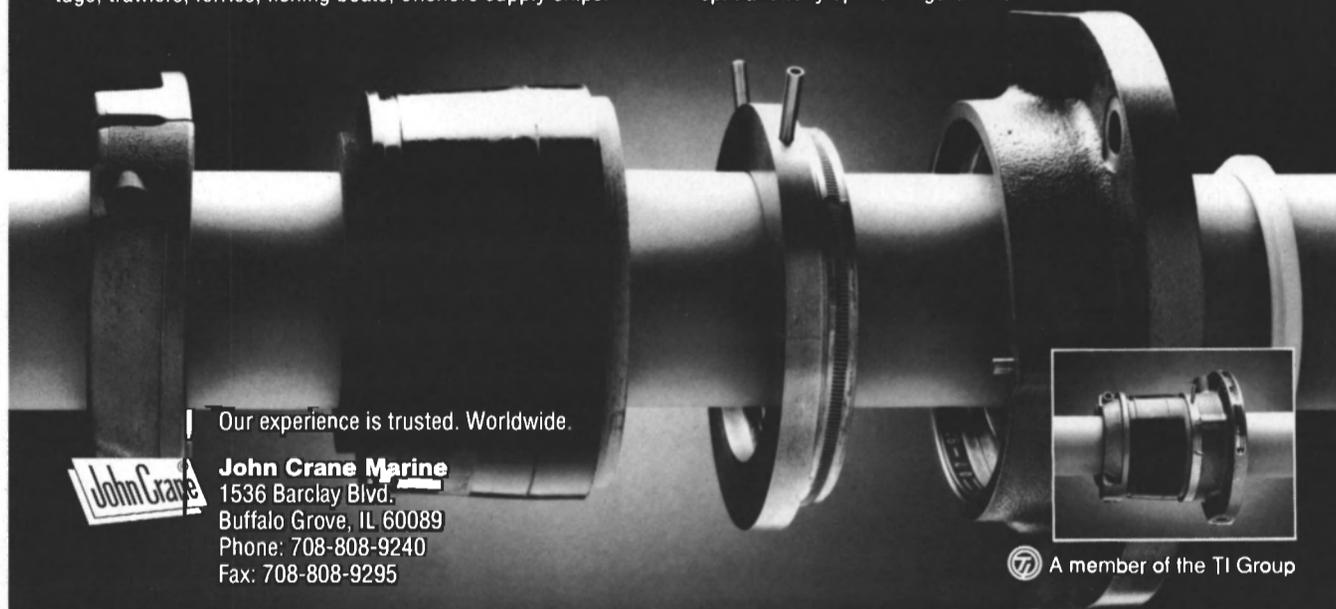
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John Crane Marine offers seal designs for all hull sealing needs—water, grease and oil lubricated systems for propulsion shaft, rudder stock, bulkhead, fin stabilizer and bow thruster applications. Sizes range from 2" to 60" in non-split, partially split and fully split configurations.



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## Five VLCCs Ordered With Sulzer RTA84T Engines; Most Powerful Sulzer Diesel Built Passes Tests

Five 300,000-dwt tankers have been ordered by the National Iranian Tanker Co. from Daewoo Shipbuilding & Heavy Machinery Ltd., and each will be propelled by a Sulzer 7RTA84T engine of 27,160 kW (36,960 bhp) output. The first ship is due for delivery at the beginning of 1996. The first RTA84T engine, also a seven-cylinder model, is currently being tested in Japan and the second, a 6RTA84T, is being built in Taiwan. Also in New Sulzer Diesel news, the most powerful Sulzer diesel engine yet built - a 12-cylinder RTA84C engine of 45,840 kW (62,400 bhp) output - successfully completed its shop trials at the Aioi works of Diesel United Ltd. in Japan.

This 12RTA84C engine will be installed in a 4,090-teu containership building for the Royal Nedlloyd Group at the Kure yard of Ishikawajima-Harima Heavy Industries Co. Ltd. (IHI), with delivery due later this year.

To date, approximately 61 Sulzer RTA84C engines have been delivered, or are on order, with a total output of 2.18 million kW (2.97 million bhp). A second 12RTA84C engine is being built at Mitsubishi Heavy Industries (MHI) Ltd., Kobe, for a sister containership at Mitsubishi's Kobe yard. Five more 12RTA84C engines were recently ordered for containerships in Japan, which includes three 4,812-teu vessels contracted by NYK Line (two at IHI and one at MHI) and two 4,743-teu vessels for Mitsui OSK Lines at IHI. All seven containerships with 12RTA84C engines are of the "Post-Panamax" size with beams wider than Panamax.

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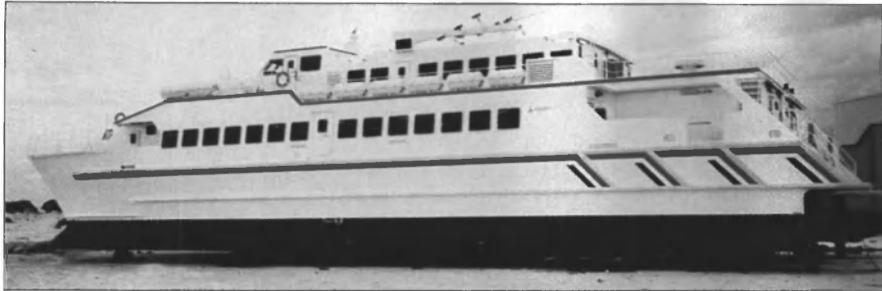
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Austal Ships' high speed ferry is to be powered by two Textron Lycoming TF40 marine turbine engines.

## PROPULSION UPDATE

### Textron Lycoming TF40 Engines To Power Hong Kong Fast Ferries

Austal Ships of Fremantle, Australia has purchased six Textron Lycoming TF40 marine gas turbines to power the first three of a poten-

tially large fleet of high-speed fast ferries being built for Hong Kong's largest fast ferry operator, Yuet Hing Marine Supplies Co., Ltd., a member of Chu Kong Shipping Co. Ltd.

Yuet Hing Marine Supplies Co. noted that "after more than three years of research and comparison in order to increase the speed of our ferries, we selected the Lycoming TF40 marine gas turbine."

The ferries will be 131-foot, waterjet-propelled, aluminum catamarans, capable of carrying 350 passengers at speeds of above 40 knots.

Commenting on the sale, **Carroll Oates**, Lycoming's director of turboshaft marketing, said, "Competition in the Asian ferry marketplace has created a demand for craft that are faster than the current 31-knot boats.

"As a result, we're seeing increased interest in the TF40 because it packs a high power-to-weight ratio into a relatively small, lightweight engine. This allows for the design of new surface craft that are faster, can carry a greater payload, and have more usable space than ever before."

The Lycoming TF40 marine turbine has proven reliable through more than 600,000 hours of operational experience in the Navy's Landing Craft Air Cushion (LCAC) amphibious assault vehicle.

Having passed the Navy's rigorous 1,000 hour qualifications test, the TF40 is the world's only 4,000 SHP class marine turbine Navy-certified for shipboard propulsion application.

This turbine is reportedly very simple, yet efficient in design. It has just five basic modules, only two of which have moving parts that require maintenance.

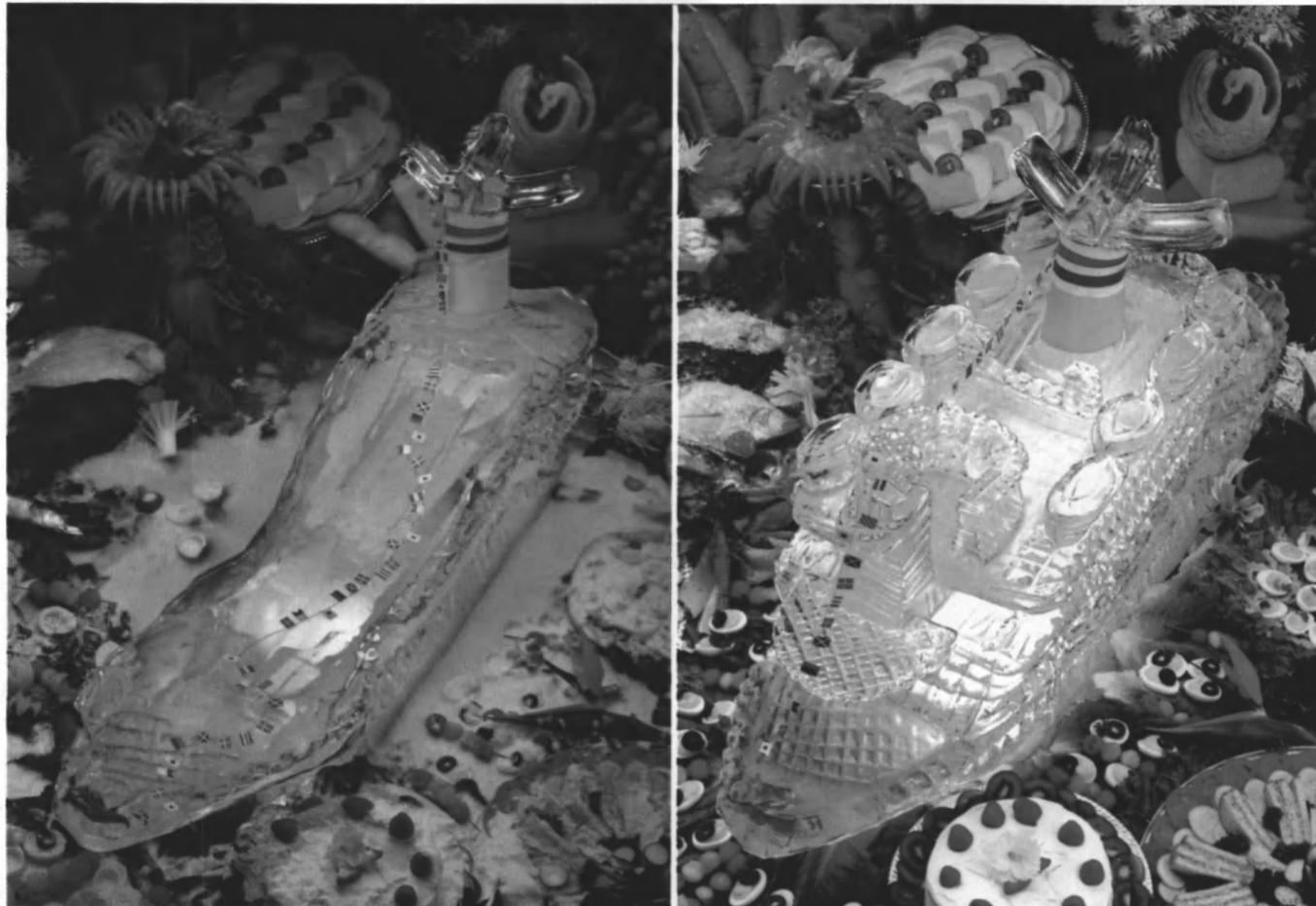
The modular design, combined with the small volume/weight of the TF40, enables it to be easily and quickly serviced in place without disturbing any alignment. Scheduled inspections are required after only every 2,000 hours of operation and can generally be accomplished in less than eight hours.

The six TF40 turbines will be delivered by Lycoming to Austal Ships in the fall of 1993.

Two of the ferries are expected to enter service by December of 1993, the third early in 1994.

Assuming the establishment of good service and performance records, the operator is expected to add many additional TF40-powered craft to their fleet during the next four years.

For more information on Textron Lycoming and its TF40 turbine engines,



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Circle 36 on Reader Service Card



More than 2,800 proposals were submitted to the Advanced Research Projects Agency for commercial conversion funds. A decision on fund distribution is expected on September 30.

# ARPA Accepts, Evaluates Bids

*Department Of Defense Will Soon Award Technology Development Contracts To Maritime Industry To Assist In Commercial Conversion*

by James R. McCaul, president  
IMA Associates, Inc.

Later this month the Advanced Research Projects Agency (ARPA) will award hundreds of contracts to U.S. firms to assist in the transition from the defense to a commercial business base.

ARPA, an agency in the Department of Defense, is executing the 1992 Congressional mandate to channel billions of dollars into the defense industry for commercial transition assistance.

In response to a broad industry announcement last May, thousands of companies have submitted technology development or deployment proposals to ARPA.

Included among them are a variety of proposals from shipbuilders, marine machinery manufacturers and other firms active in the U.S. marine industry.

Rules called for all proposals to be submitted by July 23, and contracts are to be awarded by September 30.

The activities to be supported are broken into two general areas:

- Technology Development - Supports activities to develop technologies that have dual use with defense and commercial applications.

- Technology Deployment - Supports activities that help make existing defense-oriented technology accessible to the commercial sector.

The following is a summary of the guidance given by ARPA to potential proposers in the shipbuilding industry. *(editor's note: the following was supplied directly from ARPA).*

The ARPA objective for the Shipbuilding Industrial Infrastructure is to assist the U.S. shipbuilding industry with the development of technologies, processes and products to become internationally competitive; that is, a national shipbuilding infrastructure capable of providing

• Technology Reinvestment Project •

Development Activities-Statutory Restrictions

	Funding	Required Participants	Matching Funds	DOD Technical Assistance
Critical Technology Partnerships Defense Dual Use	\$81.9M	2 or more eligible firms or non-profit corp setup by eligible firms	50%	Yes
Defense Advanced Manufacturing Technology Partnerships	\$23.5M	2 or more eligible firms or non-profit corp setup by eligible firms	50%	Yes
Commercial-Military Integration Partnerships	\$42.1M	1 or more eligible firms or non-profit corp setup by eligible firms	50%/60% 70%/70%	Yes (incl. in Fed. Contribution)
Regional Technology Alliances Assistance Program	\$90.5M	1 or more eligible firms in a region, and state or local gov't sponsorship	50%	Yes

## Defense Conversion: ARPA Set To Grant Awards In Late September

the most competitive commercial ships for export as well as affordable military ships.

In order to accomplish this objective, ARPA seeks proposals in two areas:

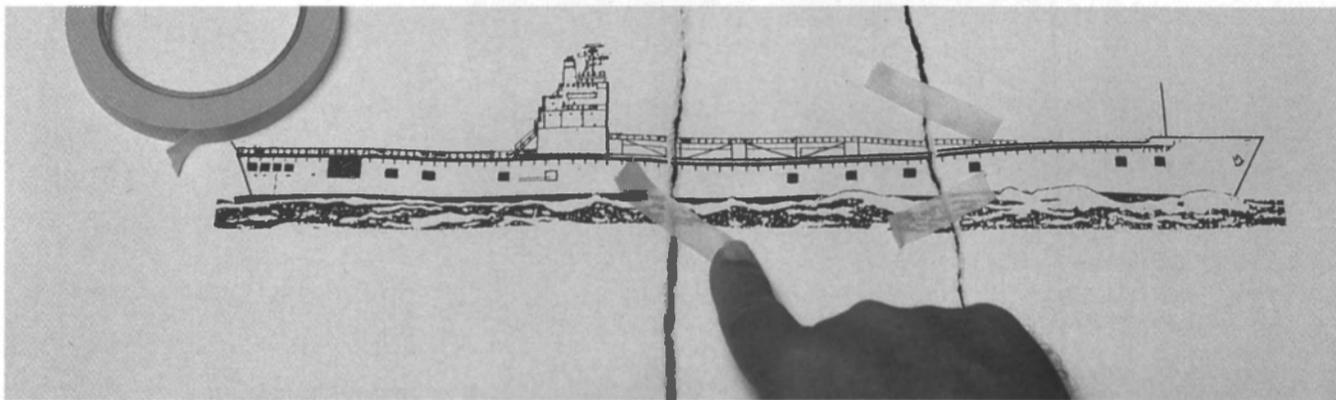
- Technology development projects for ship design and construction incorporating innovative, breakthrough developments of ship and/or shipbuilding technologies and processes for specific international mar-

kets. These projects are intended to address the Defense Appropriations Act of 1993, which stated that Technology Reinvestment Funds for shipbuilding should "...establish and implement viable opportunities for conversion of the defense-oriented shipbuilding industry to market driven commercial production activities."

- Regional Maritime Technology

Centers to foster a regional critical mass of industry, state and municipal government and institutions of higher learning and vocational training. Such centers would promote shipbuilding education and training, market analysis and ship/shipbuilding technology development, demonstration and transition.

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### Focused Development Projects

The primary objective of Focused Development Projects is to develop innovative design and production processes and the technologies required to implement them with a specific market and/or customer in mind.

The goal is to develop ship design concepts and specific production technologies to the point that competitive construction of the ship could start within the next two to three years.

Innovative ship design concepts should emphasize improving ship performance and reducing ship operating costs with lower ship construction costs.

### PANNING FOR GOLD

**California Governor Commits \$61.7 Million To Defense Conversion**

Governor **Pete Wilson** announced that he is committing \$61.7 million to boost defense conversion efforts and to help California compete for additional funds.

The Governor's Council on Defense Conversion and Technology Assessment received a total of 509 proposals requesting matching funds or endorsements, with a dollar value of more than \$1.2 billion, far exceeding the \$472 million in federal dollars available nationwide for defense conversion during this funding round. Of the total requests received, reportedly 394 requested matching funds, and 115 requested endorsement only.

The Council, with provided state endorsements or matching funds for 336 proposals, was created in March 1993 to coordinate the state's efforts on defense conversion. An interim report was released in June.

The Council is made up of state agencies and academic institutions.

The Trade and Commerce Agency have also submitted three proposals to the Technology Reinvestment Project (TRP) on behalf of the State of California.

One, entitled the "California Gold Strike Program," establishes industry-driven, regional technology centers in the San Francisco, Los Angeles and San Diego areas.

Of the proposals submitted from throughout the state, it was reported that 152 came from the Los Angeles area, while 50 were from the San Francisco Bay area.

It should also reduce ship design and construction lead times. Proposals in this area could include advanced propulsion systems, new ship architectures, improved maneuverability, improved cargo handling and ship automation.

Proposals for shipyard technologies should result in increasing shipyard productivity and reducing ship construction costs without reducing performance.

Proposal efforts for shipbuilding improvements could include areas relating to computer integrated manufacturing, design and construction simulation, digital preconstruction, flexible automation and robotics, process modeling, advanced welding, and surface preparation and coating.

A premium for award will be granted to technologies that directly result in decreasing the overall time of ship construction or that significantly reduce man-hour and/or material cost.

It is anticipated that technology development project proposals for penetrating specific shipping markets, such as Ro/Ro, bulk cargo, double hull tanker, refrigerated cargo, auto carriers and ferries, would be submitted by consortia or teams that may include shipyards, potential ship owner/operators, equipment and/or material suppliers and breakthrough technology developers.

The technical approach should address performance or a detailed market analysis and targeted marketing plan; innovative design concepts that satisfy the projected market demand, integrated with innovative build strategies that facilitate U.S. construction at competitive costs and schedules; a required technology development plan for the ship and shipbuilding process; and innovative financing packages for ship construction, including any requirements for government backing (e.g., performance bond guarantee, mezzanine financing, or loan guarantee).

It is anticipated that the duration of these projects would typically be 18 to 24 months, culminating in a detailed market analysis; an innovative and integrated ship design and construction strategy that will lead to a competitive entry into the identified market; an innovative build strategy that will lead to competitive construction; a plan for any required technology, facility and skill development; a financial plan; and a marketing plan fully ready to be demonstrated, marketed, and applied to a long-range follow-on production of ships.

#### Regional Maritime Technology Center

The objective of this area is to begin the establishment of a national infrastructure of regional maritime and industrial technology centers that would assist the industry in achieving and maintaining a world leadership role in commercial ship design and construction.

Such centers might be responsible for performing the following functions:

- Coordinate/conduct technology development projects appropriate to regional or even national efforts such as computer integrated manufacturing, advanced process control systems, management information, and simulation-based design and construction.

- Establish and maintain a Maritime Standards Resource Center for industry-wide product and process standards.

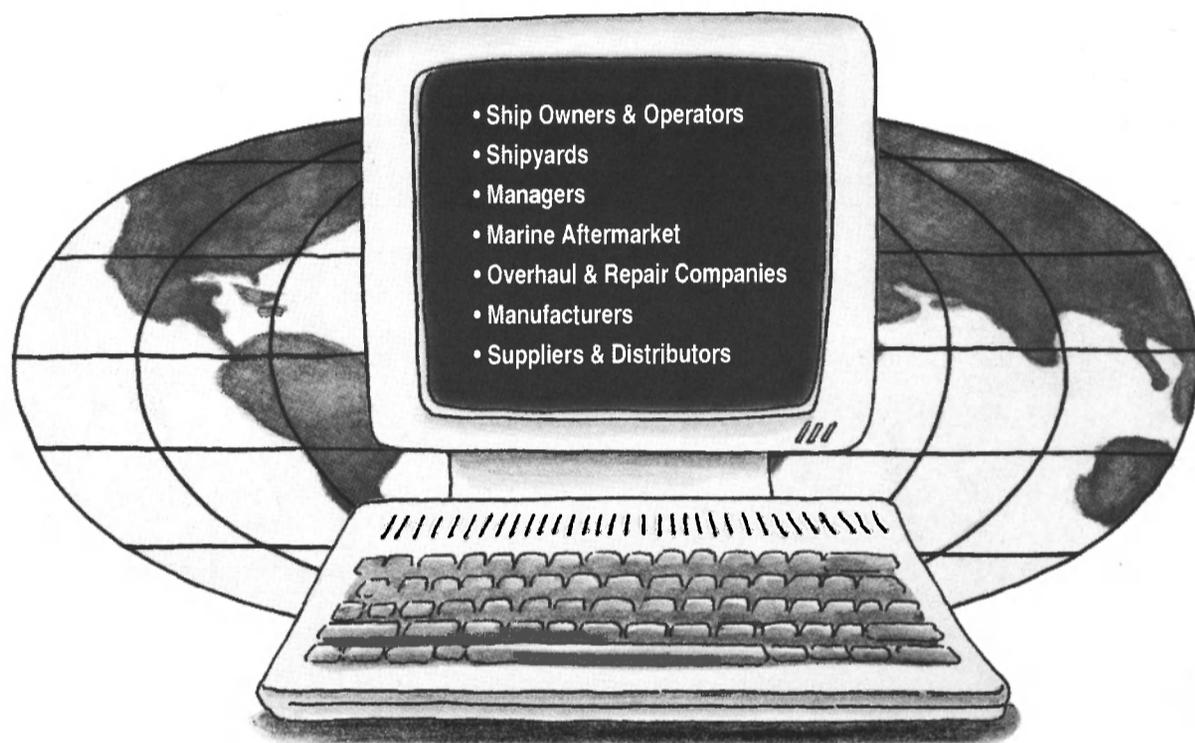
- Establish and maintain a National Environmental Forum for developing and demonstrating advanced technical solutions to current and future environmental requirements; and, accommodating and integrating environmental re-

quirements into ship design, construction and operation.

- Provide a nationally- and regionally-centralized capability for conducting or coordinating advanced developmental testing of ship, ship systems and ship design and construction technology improvements.

- Support national and regional education and training of shipbuild-

# The Global Marine Parts Department...



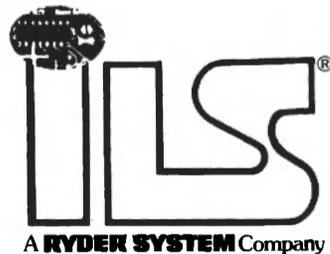
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## Defense Conversion

ing industry personnel in process control technologies, ship design, and ship construction, component manufacturing and marketing.

- Establish and operate a market analysis and strategic international marketing center for national and international commercial ship-

building sales.

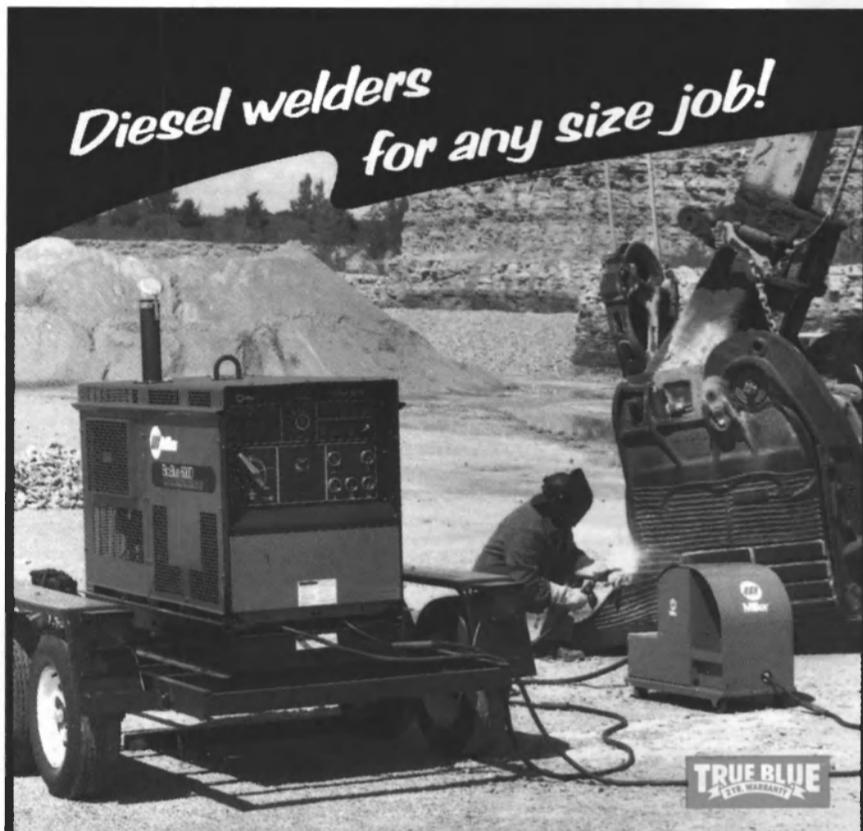
- Provide direct regional support to local shipbuilding communities in activities best performed locally, such as: demonstration and/or distribution of technology development products; development and application of ship design and construction process

technology for specific market niches of the area; serving as a forum for regional commercial venture asset marshalling; and providing education and training programs for shipyards and industrial activities directly involved with ship production in concert with local school systems, community colleges and universities.

Proposals for establishment, operation and support of national or

regional maritime and industrial technology facilities will be competitively evaluated based on their technical merit.

ARPA has stated that a premium award will be granted to offerors with demonstrated experience, existing facilities and documented ability to leverage funding from both state and municipal governments and local private and/or not-for-profit institutions.



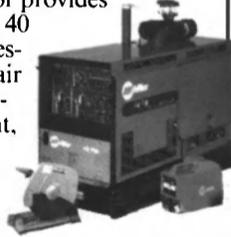
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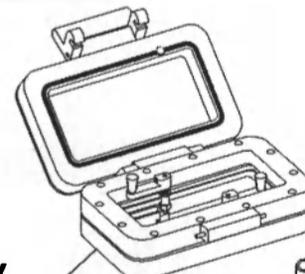
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## Belgian Shipbuilders Corp. Signs Contracts For Four Tugs, Two Mooring Vessels

The Belgian Shipbuilders Corporation, which is the sales organization of several middle-sized Belgian yards, recently announced several contracts for vessels.

The Belgian Shipbuilders Corp. signed contracts for the construction of four docking tugs and two mooring vessels with Aramco Overseas Company BV.

The delivery program is to be carried out over a 21-month period.

The Belgian Shipbuilders Corp. represents Fulton Marine, Scheepswerven van Langerbrugge, Scheepswerven van Hemiksem, Westvlaamse Scheepswerven and Meuse et Sambra.

## Wartsila Diesel, Babcock & Wilcox Sign Cooperative Manufacturing Agreement

Wartsila Diesel North America, Inc. has recently completed a cooperative manufacturing agreement with The Babcock & Wilcox Co. (B&W).

According to terms of this agreement, diesel engines will be manufactured at an existing B&W production facility located in Mount Vernon, Ind.

The Mount Vernon site will be used to manufacture Wartsila Vasa 46 diesel engines, some of which will be utilized in the construction of modular ship stern sections.

The facility will also be used to assemble auxiliary power generating sets such as Wartsila's Vasa 32 and Wartsila 25 models.

Among the many markets currently served from Mount Vernon are the U.S. Navy's Strategic Sealift program, the U.S. Coast Guard's Polar Class Ice-Breaker, commercial shipbuilding, as well as diesel power plants in developing countries.

Daniel W. Kabel, Wartsila Diesel's vice president responsible for spearheading the cooperative manufacturing venture, reported that manufacturing capabilities add a new dimension to his company's market responsiveness to customers in the Western Hemisphere.

The emphasis on commercial marine and defense applications at Mount Vernon represents a deepening of Wartsila Diesel's activities in this market.

As one of the world's largest manufacturer of medium-speed diesel engines, Wartsila Diesel reportedly pioneered the complete engine room concept through its development of PROPAC, a fully-integrated propulsion system that includes engines, propellers, gears and control systems coordinated into a single module.

## GF Marine Contracts To Install Carrier Air On Greek Cruise Ship

More than 50 air handling units (HVAC) and 1,300 cabin units together with pipes and fittings compose the delivery from GF Marine to the Greek cruise ship Regent Sky, currently being built at Avlis Ship-

yard in Greece. The cruise ship, contracted by the Lelakis Group, is 728 feet long and has 12 decks.

Most of the air handling units are complemented by an energy recovery system to reduce the need for cooling installation.

The refrigeration plants are of chilled water systems, and the cooling medium in use shall be the non-ozone depleting refrigerant HFC22, type R 134A.

GF Marine's sales manager, Roar Sather, in charge of the offer and negotiations with the shipyard, said, "We have obtained the contract in hard international competition. The contract has been negotiated in close cooperation with Carrier Transicold division of Carrier Inc., which is the world's biggest supplier of refrigeration plants." According to GF Marine owner Gerhard Flate, the order totals more than \$5.5 million.

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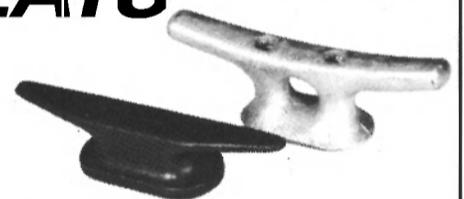


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## MarAd News

### MarAd Approves Financial Aid For New U.S.-Built Merchant Ship

MarAd has approved an application for aid in financing a new ocean-

going merchant ship being built in an American shipyard, acting maritime administrator **Joan B. Yim** announced.

The application was filed by Sulphur Carriers Inc., a wholly owned subsidiary of International Shipholding Corp., under MarAd's

federal ship financing (Title XI) program. Under the program, the government guarantees debt obligation allowing owners to obtain financing for American-built vessels.

The approved guarantee is for about \$43 million, which is 75 percent of the ship's estimated actual cost of approximately \$58 million.

The ship, a 525-foot, 24,000-dwt sulphur carrier being built for Sulphur Carriers by McDermott, Inc.

in Morgan City, La., is scheduled to be delivered in July 1994.

The ship will operate under the American flag with an American crew, and will replace a foreign-flag ship now operating under special permission in U.S. domestic trade.

### MarAd Accepts Bids For 12 Vessels

The Maritime Administration has accepted bids for 12 vessels which were offered for sale for scrapping under Invitation for Bids No. EXC-8628.

Company	Vessel	Price
California Import & Export Inc.	Lakewood Victory	\$368,512
"	Colonial	\$353,725
Chenco Intl. Inc.	Berea Victory	\$358,400
"	Meredith Victory	\$355,900
Demerese de C.V./ co A.L. Burbank (Shipbrokers)	Belgium Victory	\$287,748
"	San Mateo Victory	\$299,547
"	Tucson Victory	\$294,984
"	Whitter Victory	\$297,721
Global Marketing Systems	Carrol Victory	\$285,101
"	Clarksville Victory	\$288,601
"	Cornell Victory	\$311,101
"	Norwalk	\$316,801

### MarAd's Report On Foreign Subsidies Available

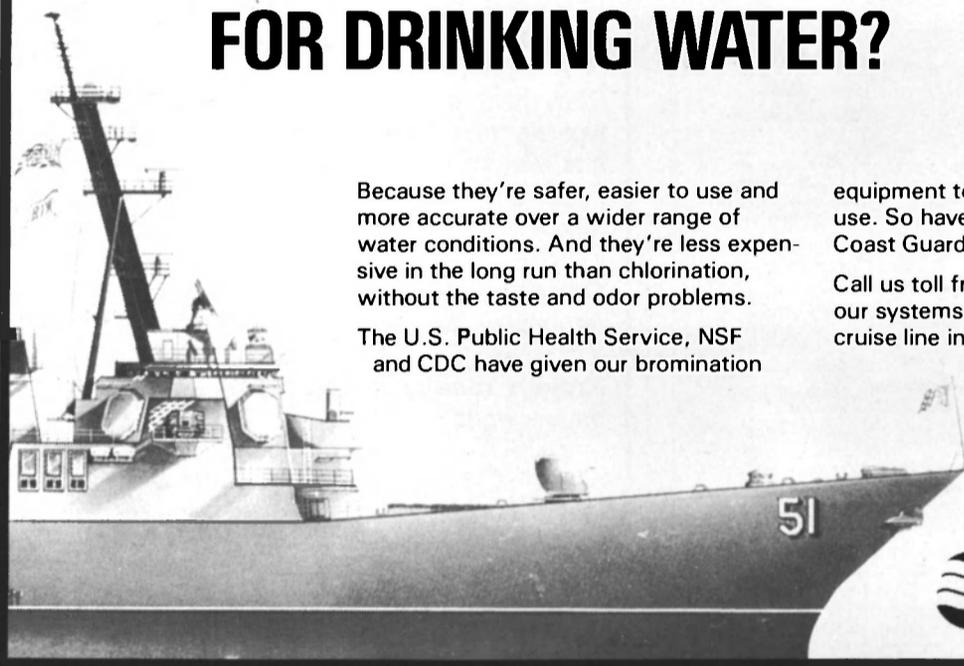
The Maritime Administration announced the availability of its Report on Foreign Shipbuilding Subsidies. The report was transmitted to Congress by Secretary of Transportation **Federico Pena** in response to a requirement under the National Defense Authorization Act of 1993.

It describes various government programs of assistance to shipyards provided by 31 countries plus an overview of the European Community.

Programs covered in the report include construction subsidies, aid for investment and restructuring, financing programs, loan terms and interest rates, vessel export credits, tax benefits, government ownership, support for research and development, and other aids. The report is based on information gathered from foreign governments by U.S. Embassies and other foreign service posts abroad through a recently conducted survey.

Copies of the report are available upon request from MarAd's Office of External Affairs, Seventh St., SW, Washington, D.C. 20590; tel: (202) 366-5807.

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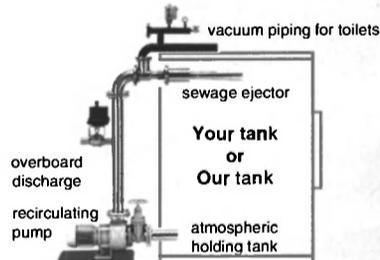


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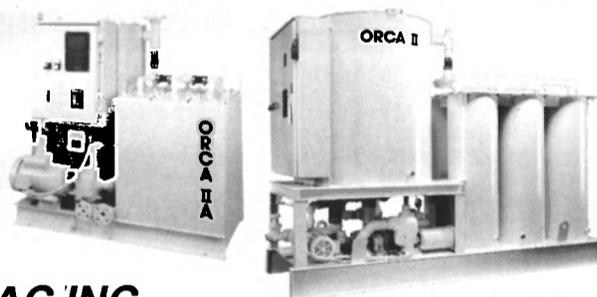
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## Legislation Created To Form Maritime Industry Review Commission

U.S. Senator **Ernest F. Hollings** (D-S.C.) has introduced legislation, S. 1432, The Maritime Competitiveness Act of 1993, to create a "National commission to ensure a strong and consecutive United States maritime industry."

The Commission would be charged to make a complete investigation of the U.S. maritime industry and to recommend specific policies which should be adopted to revitalize the fleet of U.S.-flag vessels and achieve the national goal of a strong and competitive U.S. maritime industry.

Specifically, the Commission would address the current condition of the maritime industry, the industry's contribution to national defense, the adequacy and necessary level of America's maritime labor supply, the nature of U.S. international maritime policy, and whether our policy hurts or helps the industry in international competition.

The Commission would be composed of 15 voting members and 11 nonvoting members and would be required to submit its report no later than 60 days after the appointments of members of the Commission.

## Passenger Vessel Association Works To Resolve Legislative Issues

The Passenger Vessel Association (PVA), a nationwide association of more than 500 companies that own, operate and supply U.S.-flag passenger vessels, is currently working to resolve various legislative issues pertinent to the maritime industry.

The PVA's premise is that government regulation of the passenger vessel industry should flow from a demonstrable public safety need, and be appropriate to the PVA's business. A few issues the PVA are currently focusing on are:

- The Passenger Vessel Safety Act of 1993. This bill was passed by the House of Representatives in early June, and closes a loophole in the passenger vessel safety laws by restricting bareboat charters to 12 or fewer passengers. This will be a boon to PVA members who have battled this competition for years. The bill is awaiting action in the Senate, where it is part of Senate Bill 1052.

- The Merchant Mariner Document bill. This bill would require crews on all large passenger vessels in river or lake service (H boats) to carry merchant Mariner Documents (Z cards) for the first time. PVA was successful in excluding small passenger vessels from the scope of the bill (and initially had secured an exclusion for H boats as well). A coalition of inland tug and barge

operators, passenger vessel operators and others have formed to fight the bill.

- Passenger Vessel Construction Standards. U.S. Coast Guard (USCG) passenger vessel construction standards, particularly the regulation imposing new damaged stability standards, was the subject of a joint hearing before the House Subcommittees on U.S. Coast Guard and Merchant Marine on July 17.

PVA is urging that the regulation on damaged stability be withdrawn pending a second public comment period. Discussions have been held with the House Coast Guard Subcommittee in an effort to expedite a resolution of this issue.

- The Maritime Trust Fund Act. This bill would increase the existing \$3.00 per passenger head tax that now applies to foreign destination passenger cruises. The tax

would be increased to five percent of the ticket price, the revenue from which would go to fund a new subsidy program for the international liner fleet.

To obtain more information on these and other legislative issues the PVA is concentrating, contact The Passenger Vessel Association, 808 17th Street NW, Suite 200, Washington, D.C. 20006. Tel: (202) 785-0510; fax: (202) 785-0540.



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Combined with higher performance transmitters and receivers, and the latest raster displays, ST provides performance levels never before available. Now, with PATHFINDER/ST, your vessels—and their crews—can have an important extra measure of safety and efficiency, including a

unique Safety-Coded CPA Circle, which shows course selections for safest CPAs. PATHFINDER/ST is available as an ARPA or a True Motion/Relative Motion display with Electronic Plotting. These displays can easily retrofit the displays in older Raytheon Bright Display Radar Systems, and can be high-performance repeaters for radars of most other manufacturers.

### Comparison Tests Prove PATHFINDER/ST Radars See What Other Radars Can't.

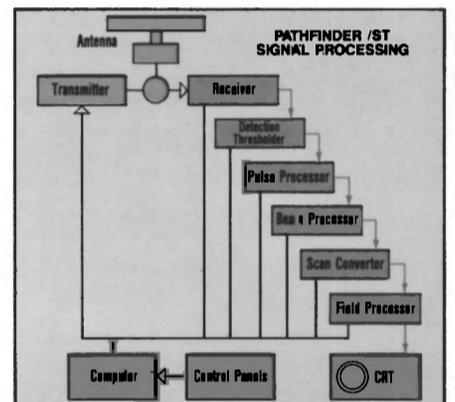
In side-by-side comparison tests, a PATHFINDER/ST display and a conventional radar display were connected to the same radar system. *PATHFINDER/ST consistently displayed targets not detected by the conventional display.*

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Using increased signal-to-noise levels, high dynamic range, precisely matched pulse bandwidths, and exclusive Rain Rate circuits, PATHFINDER/ST receivers faithfully capture target returns even in severe clutter.

PATHFINDER/ST multistage processing analyzes, compares, tests, and samples the received signal so that all detected targets, no matter how weak in signal strength, are distinguished from clutter and clearly displayed.

From the control panels through the computer, transmitter, and receiver—and then in five steps leading to the CRT—Raytheon's exclusive Superior Technology provides sharp, bright radar pictures virtually free of clutter.



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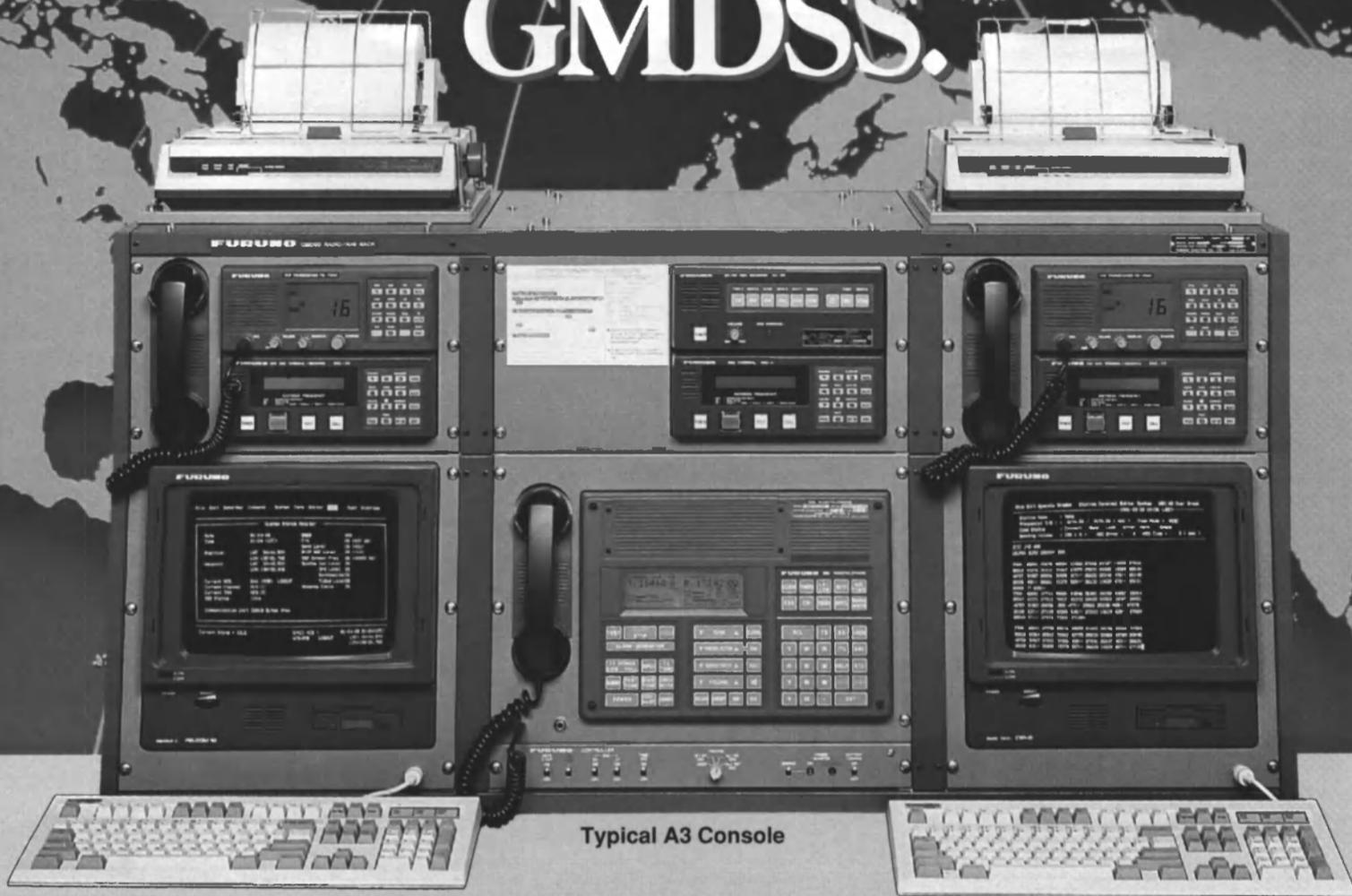
PATHFINDER/ST Radars satisfy a very wide range of installation and operating requirements. Signal multiplexing reduces connections between PATHFINDER/ST receivers and displays. This, combined with electronic interswitching for dual systems, the ability to mount transceivers "up" in antenna pedestals, or "down" in separate cabinets, and keyboard entry of all set-up parameters, makes any installation straightforward, simple, and economical. In addition to having the optional IMO-required, antenna-mounted performance monitors, PATHFINDER/ST Radar software provides menus for extensive self-testing of virtually every function.

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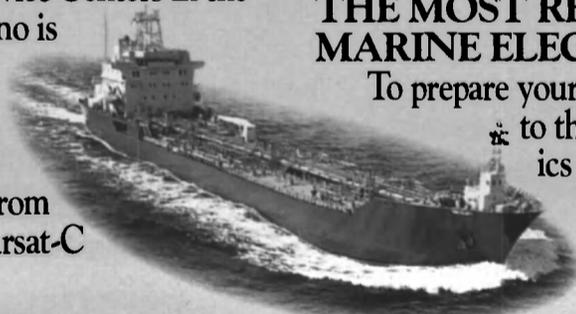
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## First Of Two Sister Ferries Delivered By UNL

The new ferry "Las Palmas De Gran Canaria," delivered recently by the private yard Union Naval de Levante (UNL) to Cia Transmediterranea, is the first of a pair of sisterships placed on order at UNL as part of an ambitious fleet renewal program.

The 10,473-gt vessel has a capacity of 2,700 dwt. It contains two garages with 2,666 feet of truck lane about 10 feet wide, and a 14.75-foot clearance height, providing space for the equivalent of 50, 52-foot-long trucks. The limitations imposed by the short docking lines in several of the Canary Islands ports where this ferry will operate determined the ship's overall length of 383 feet, making it a ferry with one of the best truck lane/length ratios of those presently in operation, a fact which greatly enhances its profitability. Additionally, the Las Palmas de Gran Canaria is designed to transport 300 passengers in business-class seats, another 78 passengers in cabins, and a crew of 39, all in ample, highly comfortable accommodation spaces which include a cafeteria and an outdoor bar. To expedite vehicle handling, the ship is fitted with an efficient access and stowage system — stern ramp door, fore ramp and sliding doors, hoistable ramp/decks in the interior — which reduce the time required for these operations to a minimum.

The excellent maneuverability (the ship can make a full turn in a space less than double her length) is assured by her propulsion/steering system (two high skew propellers and two independent servo-rudders that can be electronically connected) and a 1,000 hp variable-pitch bow-thruster.

The Las Palmas de Gran Canaria is propelled by means of a dual engine/shaft/variable-pitch propeller system which gives it a service speed of 16 knots.

The two main engines are 2,640 kW (3,690 hp) at 750 rpm MAN B&W 12V 28/32 A, built by the Spanish licensee E.N. Bazan in their Cartagena factory.

The ship is also equipped with a high-efficiency fin stabilizer system by Brown Brothers. All the machinery aboard the Las Palmas de Gran Canaria is engineered for automatic operation, in accordance with the demanding Bureau Veritas class notation AU PORT.

Selma ABB supplied the automation system.

With respect to communications and navigational aids, this is the second ship under the Spanish flag which leaves port in full compliance with the GMDSS requisites for navigation in zones A1, A2, A3 and occasionally A4 with duplicate equipment.

Construction of Las Palmas de Gran Canaria's sistership, "Santa Cruz de Tenerife," is well advanced,

and delivery is planned for October.

The manufacturers say the ferry complies with the strictest safety standards, both present and future, particularly with respect to stability and firefighting facilities.



The new ferry "Las Palmas de Gran Canaria."



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## Alfa Laval Names FM Equipment New Distributor

FM Equipment Company, Inc. of Houma, La. has been named the new authorized Alfa Laval distributor for the Gulf Region.

FM Equipment Company will carry Alfa Laval's line of solids-retaining separators, plate heat exchangers, MOATTI self-cleaning fil-

ters and DESALT watermakers to customers in Louisiana, Mississippi and Alabama.

FM Equipment is headed by General Manager **Frank Millet**, who brings to the position many years of experience with offshore, workboat and fishing customers.

Gulf customers may contact FM Equipment at: (504) 857-8261; fax (504) 851-4079; or write FM Equipment Company, Inc., P.O. Box 0922, Houma, La. 70361.

## Portland Ship Repair Yard Names Director

**George P. McShea, Jr.**, a 25-year veteran of the maritime industry, has been named director of the Portland Ship Repair Yard (PSRY), according to **Mike Thorne**, Port of Portland executive director.

PSRY is owned and operated by the Port of Portland, and handles more than a third of the ship repair



George McShea

done on the West Coast. Mr. **McShea** is an expert in all facets of tanker fleet operations, including ship repair, maintenance and environmental protection plans and systems. Most recently, he was a consultant for Keystone Shipping Co. of Philadelphia, Pa. A native of Philadelphia, Pa., Mr. **McShea** graduated from the U.S. Merchant Marine Academy at Kings Point, N.Y., in 1968. During his career, he has held positions as port captain, ship's captain, safety consultant and ship's officer, with organizations such as Hess Oil Virgin Islands Corp.; Keystone Shipping Company; American Trading Transportation Co., Inc.; Apex Marine Corporation; and Gulf Oil Corporation.

## Racal Survey USA Provides Support For Full Product Line

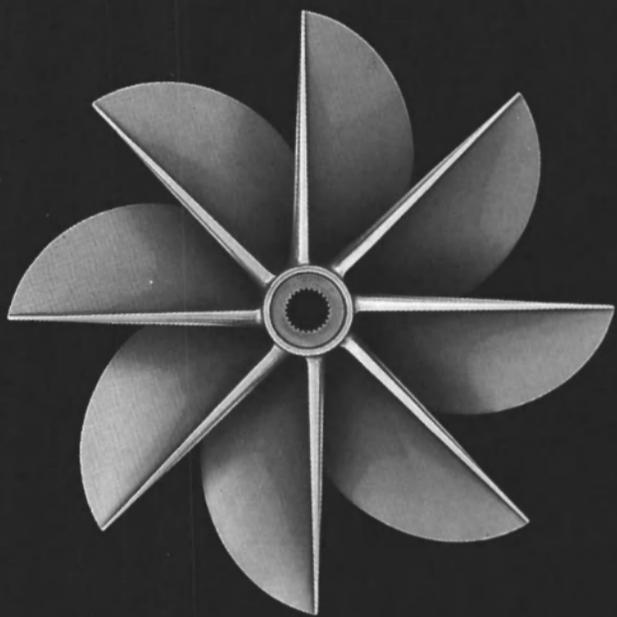
Racal Survey USA of Houston provides sales and technical support for the complete range of products manufactured by Racal-Decca Marine. These products include radars, navigation aids, integrated bridge systems and machinery surveillance and control equipment. Ships of all sizes, from pleasure craft to deep-sea tankers, carry the Racal name in their marine electronics. Because service is indispensable in the marine industry, support is available from Racal's teams located in major coastal and inland ports around the world. For more information contact Racal Survey USA at (800) 888-5944 or (713) 784-4482.

## Blackbourn Rejoins MARCO Pollution Control As Sales Manager

**D.W. Lerch**, vice president and general manager of MARCO Pollution Control, announced that **Steven R. Blackbourn** has rejoined the company as sales manager. A veteran of MARCO Pollution Control with over eight prior years in sales and application engineering with MARCO, Mr. **Blackbourn** will be responsible for sales development and customer support.

MARCO's line of Filterbelt oil skimmers is recognized as an effective recovery system in all types of oil, viscous emulsions and oily debris. The Seattle-based company has delivered more than 90 Filterbelt recovery systems throughout the world.

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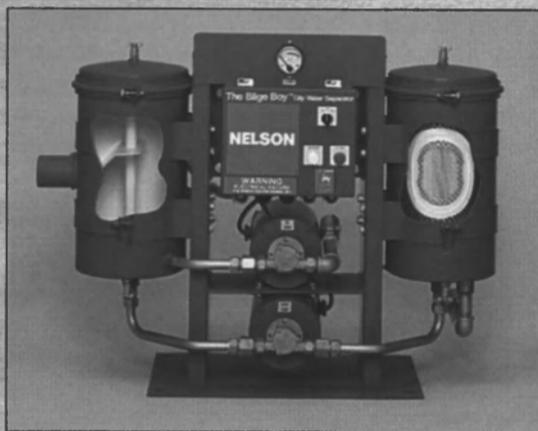


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# ALASKA'S

## Oil Spill Prevention Programs

*Success In Alaska May Be Model For Other States To Follow*

Following the 1989 Valdez oil spill in Alaska's Prince William Sound, the Congress enacted the Oil Pollution Act of 1990, in part to better ensure the safe transport of crude oil on the nation's waterways. The act established, among other things, demonstration programs to involve local citizens in overseeing the environmental impact of oil terminals and tanker operations in two Alaska locations, Prince William Sound and Cook Inlet.

The act called for the creation of a citizen advisory council—whose activities would be funded by the oil industry—at each location. The Congress saw this approach as a possible forerunner for similar programs in other parts of the United States.

The demonstration programs have substantially increased the level of citizens' involvement with the oil industry and with government regulators in environmental oversight of oil terminal and tanker operations. Through various projects and activities, the citizen councils have provided extensive input into matters such as oil-spill contingency plans, tanker navigation and escort procedures, and oil terminal operations. Industry and government agency officials acknowledge that many of the councils' projects and activities have been helpful. For example, both the Prince William Sound and Cook Inlet councils were recognized for their contributions in evaluating the results of oil-spill response drills.

While the demonstration programs have increased citizens' involvement, they have been less effective in establishing policies and procedures that would (1) help develop trust and consensus among the citizen councils, government, and industry and (2) foster a partnership of these diverse groups to better ensure the long term success of the programs.

The councils, industry, and gov-

ernment have recently established some important policies and procedures to improve communication and strengthen the partnership. However, considerable mistrust still exists; this mistrust could affect the groups' ability to operate as effective partnerships. Recently, the U.S. Coast Guard—which oversees the programs—established specific program guidelines that may reduce the level of mistrust and better ensure the long-term effectiveness of the programs.

The devastating impact that the Valdez oil spill had on local communities highlighted the need to involve local citizens in issues affecting the operation of oil terminals and tankers. According to the act, many people believe that complacency on the part of industry and government contributed to that oil spill.

The Congress established the demonstration programs as a way to involve local citizens in a partnership with industry and government to combat this complacency.

The Act provides two ways to establish a citizen council. Under the "prescriptive" option, councils and the associations must report to the President and Congress on their activities. Under the "alternative voluntary" option that requirement was waived, but only groups funded by oil terminal and tanker owners, and approved by the Coast Guard, could exercise that option.

The council's funding level has been at least \$2 million annually since 1990. The Cook Inlet Regional Citizens' Advisory Council was incorporated in December 1990. The council initially contracted with a consortium of oil companies and tanker operators at an annual funding level of \$600,000 (revised to \$650,000 in mid-1992). Participants in the council's funding agreement are 10 companies with interests in Cook Inlet. In 1991, 1992, and 1993, both councils were certified as meet-

ing the act's conditions for the alternative voluntary option.

Generally, both councils had implemented policies, procedures, and a system of internal controls to manage their operations and funds and to prevent the misuse of funds. The councils appeared to have reasonable policies and practices to properly control travel and contracting expenses, and to ensure that these expenses were appropriately processed and paid.

Audits performed on both councils' financial activities during the past two years by oil industry and independent certified public accounting firms showed no material internal control weaknesses or improprieties.

In August 1992, the Cook Inlet council, as part of its funding agreement with industry, agreed not to engage in any activities referred to in its agreement as lobbying. Specifically, the agreement provided that the council would not use industry funding for activities defined as lobbying by federal law, Alaska state law, or by the by-laws of the council to influence the outcome of legislative or political activities. The agreement, however, ends when the funding contract expires in December 1994. At that time, the parties may choose to renegotiate the lobbying agreement.

In April 1993, the Prince William Sound council and Alyeska also developed a lobbying agreement. This agreement included specific provisions permitting some forms of advocacy, such as grassroots lobbying of the general public and other public communication with government officials about the adoption, repeal, or modification of administrative regulations. This agreement expires when the Alaska legislature's 1996 regular session adjourns.

Two federal agencies, the U.S. Coast Guard and the Environmental Protection Agency (EPA), have key roles to interact with the citizen

councils on issues, partly because of their responsibilities for issuing regulations or permits in the vicinity of the terminal facilities. The Coast Guard has interacted with the councils. For example, it has regularly attended council meetings. It has also allowed representatives from both councils to participate in Coast Guard-sponsored working groups, such as a rulemaking committee that discussed requirements for vessels transporting oil.

Industry and government officials supported the concept of involving citizens in environmental monitoring of oil terminals and tanker operations, and they indicated that many of the councils' activities and projects have been beneficial. The officials said that the councils have provided extensive input on policies for oil-spill prevention and response techniques, tanker navigation and escort procedures, and terminal and facility operations. For example, industry and regulatory agency officials said that the Prince William Sound council's review of oil-spill contingency plans provided invaluable information by relaying the concerns of communities and fishermen. Both councils have actively participated in oil-spill response drills and were recognized by regulatory agency members for their contributions in evaluating the results of those exercises.

Many positive changes have resulted from the demonstration programs. The level of citizens' involvement in environmental oversight at the two Alaska locations has increased substantially since the Valdez oil spill, and the citizen councils have made significant contributions in the areas of oil-spill prevention and cleanup.

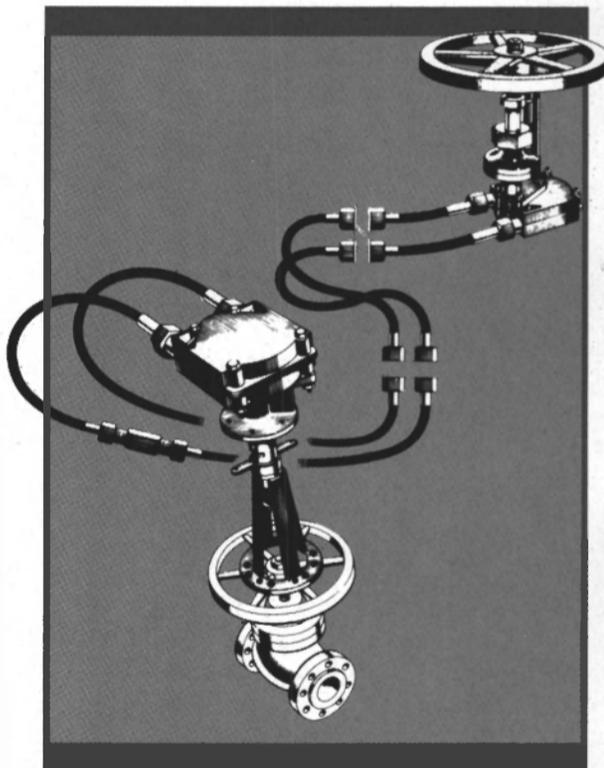
The Prince William Sound council is conducting a public information advertising campaign as part of its efforts to keep local citizens informed about oil transportation issues affecting their communities.

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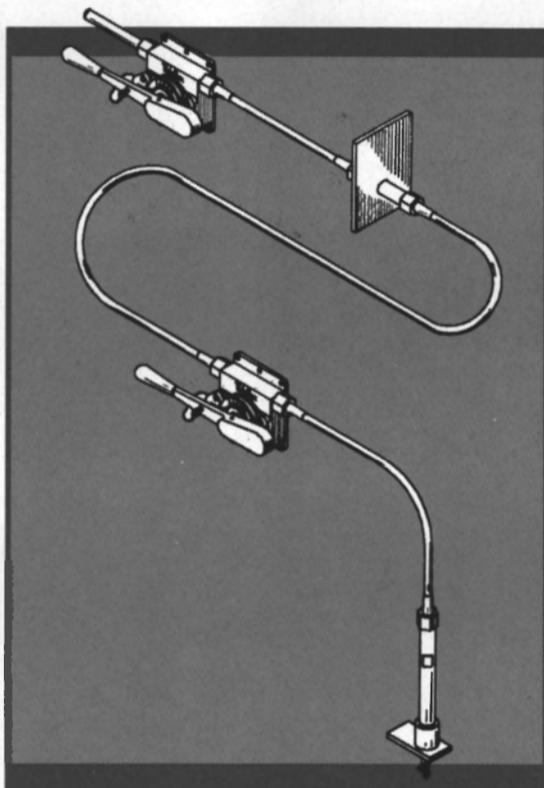
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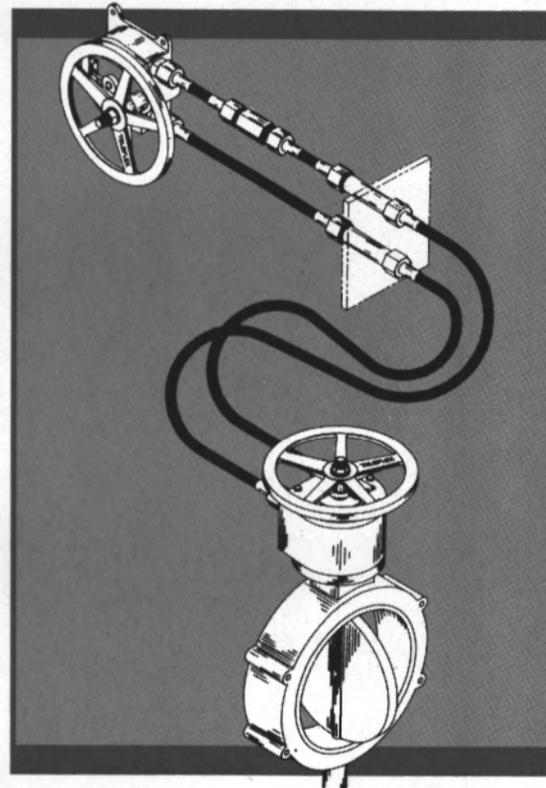
**RMVA:** Remote Mechanical Valve Actuator Systems for applications requiring delivery of multiple-turn rotary motion from remote locations.

- Meets U.S. Navy MIL-STD-777E and Tech. Manual S6435-QJ-MMC-010



**RTVA:** Remote Trip Valve Actuator Systems for applications requiring delivery of quick-acting linear motion from remote locations. Systems include a patented shock compensator coupling.

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# NEVA '93

## The International Shipping Exhibition with Russia and the Republics St. Petersburg, September 14-18

The opportunities for new commercial and technical developments at NEVA '93, scheduled for September 14 to 18, 1993, seem to have captured the attention of the maritime industry in the former Soviet Union. Thirty percent of the exhibition space has been reserved by their shipbuilders, equipment manufacturers, port authorities and marine service industries.

The International Shipping Exhibition with Russia and the Republics embody the mobilization of advanced technology industries, a mobilization to meet commercial demands and Western-style production systems. The leading institutes within the industry will present their technologies to find new markets and new partnerships with Western companies.

The major shipbuilding and repair yards of Europe are scheduled to participate, and the qualified visitors throughout will find the Kvaerner Group, Bremer Vulkan and Lisnave among many others in the four exhibition halls. Port and port equipment interests are represented by firms from the U.S., Canada, Italy, the Netherlands and Sweden. Machinery manufactur-

ers and control equipment producers from Denmark, France and Norway will participate, according to show organizers.

The exhibit hours are from 10:00 a.m. to 6:00 p.m. each day of the show.

"It is no coincidence that the Offshore Energy sector is introduced this year at NEVA '93 for the first time," said Roderick Keay of Dolphin Exhibitions, U.K., and co-organizer of NEVA.

"The importance of this potentially massive activity is now recognized in its own right. The NEVA organizers identify its future growth and significance, as a sister industry to commercial shipping and shipbuilding."

Finland is scheduled to provide one of the largest of the seven national pavilions formed by leading maritime companies. The massive market for port development and equipment will be found at the exhibition, together with leading shipping companies from both ocean and river transportation. More than 5,000 trade visitors are anticipated from the Republic and the Baltic States, together with professionals visiting from overseas.

### THE CONFERENCE

On the conference side, 30 speakers, 12 from the C.I.S., will present papers to the three-day conference, speakers including senior executives of the ports, the shipping companies, the technical equipment manufacturers and the design bureau. The NEVA 93 conference program, which is scheduled to run from September 14 to 16, will feature many prominent international speakers, as well as from Russia and the Republics. Confirmed speakers on the international side includes representatives from the International Maritime Organization (IMO), The World Bank, Wartsila Diesel Oy, INTERTANKO, Kvaerner A.S., MacGregor Navire Group, and American Bureau of Shipping.

Speakers from Russia and the Republics, are to include representatives from Krylov Shipbuilding Research Institute, Russian Committee for Shipbuilding and the International Maritime Law Association.

As a complement to the exhibition and the main conference, which is devoted to shipping activities in general, the Wessex Institute of

Technology (WIT) of Southampton, U.K. has organized a series of technical seminars on topics of current interest in the former Soviet Union in the design, construction and operation of ships, offshore structures and ports. The objective of the seminars is to provide a forum for information exchange on scientific matters relating to shipping and for possible bilateral technology transfer on a commercial basis. The seminars will run in parallel with the exhibition and conference sessions. Delegates will be free to move between the exhibitions, conferences and seminars, in order to obtain maximum value from the conference.

The seminars are being held at the same location as the NEVA '93 International Shipping Conference and Exhibition, at the Harbor Exhibition Center, Fasilevsky Island, St. Petersburg, Russia. Topics are to include: computer aided design (CAD); arctic transportation (note: this seminar to be held at the nearby Krylov Shipbuilding Research Institute); advanced marine vehicles; safety at sea; environmental problems; submersibles; ship propulsion; and maritime law.

### NEVA '93 Exhibitor List (At Press Time)

Argo Ciserv  
Industry Oy  
Turbo Systems  
Stal-Astra  
Stal-Marine AB  
Aval Separation  
American Bureau of Shipping  
R  
Lutz & Co. GmbH  
Master Rauma  
St. Et Chantiers Le Havre  
Elektronik  
Vica Marine  
J  
K. Siebert  
+ Voss  
Valves  
r Vulkan Shipyards  
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Export Group  
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Davit Intl.  
De Smithske  
Deep Sea Seals  
Demp A/S  
Deno Compressors  
DMR Dieselmotorenwerke  
DMS Dieselmotoren  
Dolphin Exhibitions  
Elberwert Boizenburg  
Elomatic  
Evac Oy  
Fantuzzi  
Finnish Foreign Trade Assoc.  
Finnyards  
Fr. Fassmer  
Furuno Danmark A/S  
Geislinger  
Ginge-Kerr  
Glacier Metal  
Greiben Shipyards  
GS - Hydro Oy  
GTI Marine  
H.A. Springer Marine  
Hagglunds Marine & Offshore  
Helkama Cable  
Hellenic Register  
Hempel's  
Hightron Marine  
Howaldtswerke-Deutsche Werft AG  
Hydraudyne  
IBAK Helmut Hunger  
I.C.E. Italy  
IHC Lagersmit  
IHK Rostock  
Ingenieurzentrum  
IMO  
International Marine Paints  
Institute of Marine Engineers

Interorient Navigation Co.  
Inmodul  
Iper Le Havre  
Iron Pump  
ISIR Spa  
Iwasa Trading  
Jotun AB  
A. Van Kaike GmbH  
Karl Dose GmbH  
Kalmar LMV  
KaMeWa/Vickma  
KGW Schweriner  
Kidde Fire Protection Ltd.  
Kocktum Computer Systems AB  
Kockumation  
Korea Chemical Co. Ltd.  
Krupp MaK  
Kylov Association of Marine Engineers  
Kuhlautomat Berlin  
Kvaerner Kimek A.S.  
Kvaerner Masa-Yards  
Kvaerner Moss Technology  
Kvaerner Arctic Offshore  
Kvaerner Klewin Ulsteinvik  
Kvaerner A.S.  
Kvaerner Eureka  
Kvaerner Ships Equipment A.B.  
KaMeWa  
La Havre Port Authority  
Lisnave  
Lloyd's Register of Shipping  
MCT Brattberg  
MacGregor Navire Group  
MAN B&W  
MAN Diesel  
Manley Hopkins Group  
Marine Automation Systems  
Marine Services Reifschlager

Marinesoft  
Maritime Reporter  
Markisches Werk GmbH  
Martimex-Omega  
Mazurek Marine Service  
Merlin Gerin  
Maskinfabriken Iron A/S  
MHC Mechanical Handling Consultants  
Michell Bearings  
Motoren Werk Mannheim  
MTU Motoren-U Turbinen Union  
MTW Schiffswerft  
Naval Designs  
Newmark Shipping Co.  
Neptun Industrie  
NFN  
Norcontrol Morimpex  
Noris  
Nor-Marine  
Norwegian Trade Council  
Nylands Marine Service AS  
Oy Danfoss  
OMF  
Omicron  
Panama, Republic of  
P.P.I. Engineering  
Phontech  
Plan Marine  
Portland Design AGS  
Presvac  
Pusnes Mek Verksted  
Rochem  
Rockwool A/S  
Royal Institute of Naval Architects  
RWO Mashinenfabrik  
SBN-Bank  
Saab Marine Electronics

(Continued on page 36)

S.A.C.M. Diesel  
A A D A  
Sabroe Marine  
Scansped A.B.  
Schiffswerft Rechlin  
Schooner Marine Ltd.  
Selco  
Seton Pipelines  
SER Systemelektronik  
SF-Control  
Shipmate Intl. A/S

Slovenske Lodenice AS  
Southern Hemisphere Steel  
Sperry Industry  
Sperry Marine  
Sterkoder A/S  
St. Lawrence Seaway Development Corp.  
Schauman Wood  
Schiffswerft Hugo Peters  
Shipdock Amsterdam  
SKL Motoren-U Systemtechnik AG  
Smit Ovens

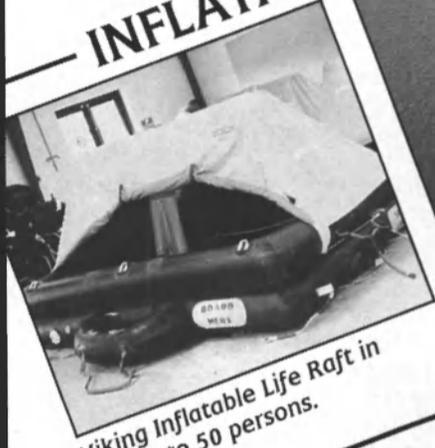
STN Systemtechnik Nord GmbH  
Steenhans  
Stork Services  
Sulzer Diesels  
Szczecin Shipyard  
Telemecanique  
Theodor Freese GmbH  
Toftjorg  
Tracosa  
Turku Repair Yard  
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Uksta Shipyard  
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Viking A/S  
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Baltic Shipping Co.  
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Briansk Machinery Pland  
CCP3  
Center for Automated Thermophysical Investigations  
Central Research Institute for Sea Fleet  
CNII "Rumb"  
Correct Marine  
Delphin Shipbuilders  
Department For River Shipping  
The Ministry of Transport, Russia  
Design Bureau Malakhit  
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EOL Co.  
Exact Mecanics Plant  
Financial Union Holding  
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Interactive Graphic Systems  
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International Scientific & Law Center  
Intersudotorg  
Izora Microelectronics  
Kherson Shipyard  
Kottlostroenie Design Bureau  
Krasny Hydropress  
Krogius  
Kront  
Krylov Shipbuilding Research Institute  
Krylov Assoc. of Marine Engineers  
Makarov State Marine Academy  
Marine Computer Systems  
Mecnik Plant  
Nessi  
Nevsky Model Co.  
Nevsky Shipyard  
Ocean Yard  
Odyssey Ltd.  
Pella Shipyard  
Prin Co.  
Redan Design Bureau  
Register of Shipping, St. Petersburg  
Run Marine  
Russian Marine Technical Co.  
Saab Liaison Office  
Sevastopol Marine Plant Production Assoc.  
Severnaya Werft  
Severnoe Design Bureau  
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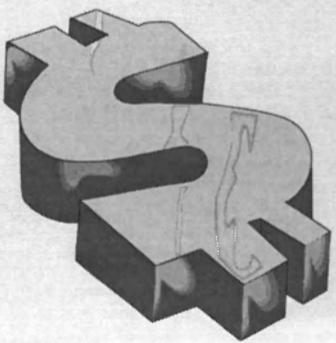
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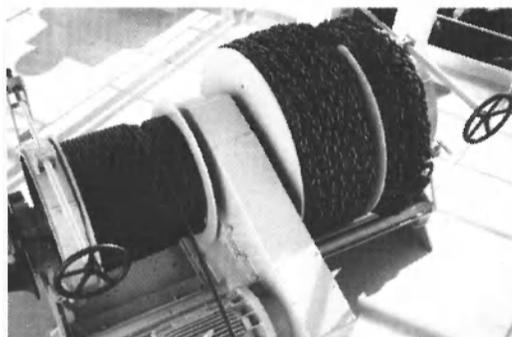
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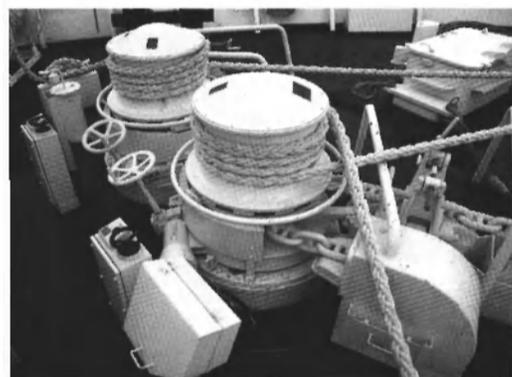
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## NEW TECHNOLOGY

### Russian "Ekranoplanes" Give New Meaning To Term "Fast Ship"

Test Ship Reportedly Runs 500 km/h

At the International Maritime Organization's (IMO) 36<sup>th</sup> session, an IMO sub-committee was given details and shown the film trials over the past few years of a Russian sea/land/air vessel which reportedly can operate up to 500 km/h (310 mph). The following is an excerpt on the vessel from IMO News.

As technological developments over the past years have focused on high-speed craft, usually defined in the 50+ knot range, a craft recently unveiled by the Russians to an IMO sub-committee forms a class of its own.

Dubbed "ekranoplanes," the high-speed vessel, which is an air-cushion craft whose weight is supported at operational speeds by a cushion of air between the foils and the surface (either sea or land), is reportedly capable of speeds up to 500 km/h. What the IMO sub-committee saw was film trials that had been held over the past 15 years, of a 100-ton ship that looked more like an aircraft, with short, square-tipped wings. Delegates were told by the Russian delegate that the ekranoplan can also fly. Russia requested that the ekranoplan should be incorpo-

rated into the coverage of the international code of safety for high speed craft (HSC Code), but that was denied, because of the tight timetable agreed upon for finalizing the Code. The characteristics of the unique vessel mean a number of legal factors must first be considered, particularly whether it should be covered by maritime or civil aviation requirements. On the safety side, it was noted that measures would have to be developed for craft which use fuel with a flashpoint as low as 28 degrees Celsius. It would also be necessary to consider detailed regulations for navigation equipment on a vessel of such high speed. It was agreed that this should be referred to the sub-committee on Safety of Navigation. The target for completion is 1996, and it will be decided whether it will be included in or stand separate from the HSC Code.

Also, plans are underway to work jointly with the International Civil Aviation Organization (ICAO) to deal with safety aspects.

The new international code of safety for HSC Code should be made mandatory via an amendment to the International Convention for the Safety of Life at Sea (SOLAS), 1974. Current plans call for the adoption by the Maritime Safety Committee (MSC) in 1994, and that they will enter into force on January 1, 1996. Many new types of high-speed craft are being built, and the sub-committee decided that the industry and maritime administrations are waiting for the establishment of international regulations that will deal with the special needs of this vessel type.

### Hitachi Zosen Launches First "Superjet-30" Foil-Assisted Catamaran



Hitachi Zosen will deliver the first Superjet-30, the Trident Ace, to Fuke Kaiun Co., Ltd., later this year.

Hitachi Zosen Corporation launched the first of seven "Superjet-30" high speed foil-assisted catamarans from its Kanagawa Shipyard. Christened Trident Ace in the launching ceremony, the catamaran is scheduled to be delivered to Fuke Kaiun Co., Ltd. later this year.

Hitachi Zosen received orders for seven Superjet-30s last year. Companies that ordered from Hitachi Zosen were Fuke Kaiun Co., Ltd., which ordered three, Setonaikai Kisen Co., Ltd., which ordered two, and Ishizaki Kisen Co., Ltd., which also ordered two vessels.

The Superjet-30 is a high-speed passenger ship designed with passenger comfort in mind, as well as the ship's economy. It is a hybrid-type vessel with fore and aft hydrofoils between the demi-hulls. The catamaran structure also makes wide deck areas and spacious passenger cabins possible, while the ship benefits from the fuel economy characteristics of the hydrofoil configuration. Two diesel engines provide the propulsion for the catamaran through two waterjet drives. Thus, the catamaran features excellent maneuverability, as well as low noise and vibration levels. The Superjet-30 is about 103 feet long, with a breadth of 32 feet and a depth of 11 feet. Its maximum passenger capacity is 160

and its top speed is approximately 38 knots.

The hulls and superstructures are made completely of corrosion-resistant aluminum alloy. Based on Hitachi Zosen's extensive experience in building aluminum vessels and the high level of its technology, the catamaran is highly rated for its quality.

### New Era In Ship Simulator Training Begins With Panama Canal Pilots

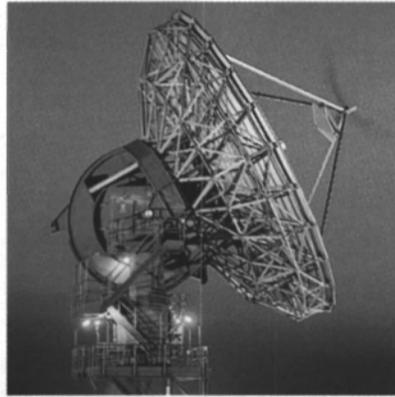


Preparing for their roles as Panama Canal instructors at STAR Center are former Panama Canal pilots, (l. to r.), Dick Andrews, Robert Half and Tim Kirkby.

STAR (Simulation Training and Research) Center has officially launched its 360-degree, full-view ship's training bridge and facility in Dania, Fla. Four classes of Panama Canal pilots are the first to sign on and pay for the opportunity to train on the newest and most advanced vessel handling simulator in the world.

STAR Center can create the real-time operation of any size vessel in any port in the world. One of the Center's versatile bridge simulators is the 247-degree docking simulator. According to **Harry J. Crooks**, director of STAR Programs, the maritime industry has shown a great deal of interest in the new facility. Already, the Port of L.A. has signed an agreement to begin training classes, as have the U.S. Navy, U.S. Coast Guard, Amoco Transport Co. and Jacobsen Pilots. "We expect to sign additional training contracts in the near future," Mr. Crooks said.

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# ANKER SHIPPING, PANDORA'S BOX:

## Less Regulations And More Practical Solutions Are Needed

by Captain John M.B. Harington

Because of the poor physical condition of some ships, many ship repair yards are concerned about the potential liability of accepting ships for repair, and subsequently being implicated in any vessel malfunction or accident, which eventually may well outweigh the potential profit to be gained in repairing them in the first place. Underwriters can also be expected to take a much tougher line on insurance premiums for equipment failure caused by poor maintenance, not accidental damage.

It is estimated that it costs six times as much to neglect maintenance, and replace steel at a shipyard, rather than to undertake preventive maintenance. The point is that the owner pays one way or another: either in the extra liability of owning a poorly-maintained ship, or in the lower resale value of the ship. In essence, keeping a vessel in good shape is a natural form of legislation and will, in the long run, be more effective than a statute.

On the question of a ship's age, it is interesting to note that the standard liner QE2 was built in 1977, and is still in service at the advanced age of 26. Increased scrapping activity last year helped reduce the average age in 1992 to 8.5 years; 19 years for Suezmax tankers.

This does indicate that if you have a properly constructed vessel built with quality materials

maintained it to a high standard, there is no reason why the vessel should not be safe and serviceable. E.g.: Modern ships are constructed on tight budgets, and are always built to the same high quality of some of the older tonnage. The serviceable life of some modern ships is likely to be shorter than that of some older ships. This has far-reaching implications, the structural defects that will be found in the future will be a result of more imaginative designs of the 1980s, including the use of high tensile steels, plate thickness reductions, and the use of computer programs to enable minimum scantlings to be used to carry maximum weight.

The key factor in controlling the standard of a ship and of its operation does not lie in regulations, the flag, the registration or the classification society. It lies with the ship's owner, manager or operator.

A ship manager who is determined to maintain good standards will do so, regardless of the flag of the ship or the classification society.

There is little point in governments insisting on even more regulation if existing rules and regulations are not properly being enforced. Economics will, in due course, take care of rogue ship owners and managers, as will the age of vessels, which will become uneconomical because of the cost of fuel and maintenance. This is in effect a natural form of regulation, which will be far more effective in a free market economy. Shipping is a service industry. The job of a ship owner is to provide a service to its shippers. If all shippers verify the quality, and question the economics in terms of running costs, fuel, etc., of the vessels they intend to use, and if all underwriters make sure of the risks

they are underwriting, the standard ship could find it increasingly difficult to find employment.

The British appear to have lost their way as shipowners. The U.K.-owned and-registered fleet in 1981 was 36 million dwt; today that figure is one-tenth of what it was, at 3.6 million dwt. There are now fewer than 275 vessels under the red ensign. Even shipping companies set

up under a Business Expansion Scheme (BES) are changing flag, as they could not make their business viable, in large part because of stiffening regulations. The principles are good; the realities in a market driven situation are very different. As an example: How can a British offshore supply vessel with a crew of 12 compete with a comparable foreign flag vessel with a crew of eight?

If you want to improve the cost effectiveness of running ships, while also improving competitiveness, it is futile to complain about others: unfair competition, badly run vessels, flags of convenience, subsidies, poorly qualified crew, and so on.

The answer is to improve cost effectiveness, and management con-



trol is the key. Fuel and crew costs are the two largest items, consuming up to 60 percent of the total operating cost of a typical vessel's budget. The savings made by good management can be astronomical. For example: on the U.S. flag vessel Mississippi, the crew payroll in 1991 was \$3.5 million. Compare this with a similar vessel, such as the foreign flag Carla Hills' \$1.5 million payroll for the same year. Both vessels worked for Chevron Oil Company, but the savings for the latter was \$2 million over the 12-month period. The answer here is cheaper crew. Getting the best value is just as easy or hard as it is to go shopping. If foreign crews are cheaper, use them. Shipping, it should be understood, is a business, and a competitive one at that.

Where considerable savings can be made, and more thought is required, is in fuel costs. Fuel costs can be reduced significantly by having fuel efficiency incorporated into the vessel design, and by initiating sound operational and maintenance procedures from an early stage.

### SAVINGS BY DESIGN

The most efficient propulsion machinery arrangement for operating at cruising speed (as opposed to slow

speed maneuvering) is a single center line shaft and a large slow-speed diesel engine. Efficiency reductions of 10 to 20 percent result from multiple shaft propulsion units, due in part to loss in hull efficiency, caused by offsetting the propellers from the center of the wake.

The most effective way to reduce the wave-making resistance of a vessel is through the incorporation of a bulbous bow. In some cases a properly designed bulbous bow can reduce total resistance up to 15 percent. Is there room for more development?

Frictional, or skin resistance is a major component of total resistance (60 to 90 percent, depending on vessel speed). Significant improvements in vessel performance can be obtained by observing strict quality control during construction to ensure that surface roughness is kept to a minimum.

Once a vessel is waterborne a major cause of reduced operational performance is the increased frictional resistance of the hull and running gear caused by surface deterioration and marine fouling. Stated in another way, a large part of a vessel's total shaft horse power (and thus fuel consumed) is used to overcome the frictional resistance of the water flowing past the hull. Unchecked, deterioration and marine growth can

become the dominant factor in frictional resistance, resulting in fuel increases of up to 50 percent. Since fuel can account for as much as 30 percent or more of a typical vessel's total operating costs, proper maintenance of the underwater surfaces of the vessel are required.

During the early 1970s, when the cost of fuel escalated to unprecedented levels, a number of commercial shipowners, and navies--

including the U.S., Soviet, and British--conducted detailed studies to determine ways in which the greatest fuel savings might be made. These studies concluded that major fuel savings--as much as 30 to 50 percent annually, depending on the types of vessel and condition of fouling, as well as speed increases of four to six knots--could be achieved through a program of regular underwater maintenance.

By equating the power increase to fuel consumption, a valid measure of the cost penalties associated with the degree of fouling and deterioration was developed. While the rate of growth of marine fouling, as well as hull/propeller deterioration, varies widely depending on environmental factors, type of operation, and quality/condition of anti-fouling coatings used, on average hull roughness increases by about

30 microns per year.

Propeller roughness increases about the same rate. As indicated part of this is caused by fouling a part by cavitation erosion on propeller blades and deterioration of paint coatings on the hull. It should be noted that both these effects can be minimized through regular maintenance.

Thus it can be demonstrated that by regular hull cleaning, huge savings can be made. In addition, cleaning of sea chest strainers on intakes, for example the main engine cooling system, will make systems operate more efficiently, saving wear on machinery components. Repairing propellers as they become damaged helps reduce shaft vibration, thus lengthening the life of shaft bearings and main propulsion machinery. Clearing rope and net entanglements from rope guards also extends stern-tube seal life. Routine replacement of sacrificial zinc anodes and inspection of active cathodic protection systems extend the effective life of hull preservation systems and reduce the deterioration of the running gear. Essentially routine maintenance of a vessel's underwater body is so much good business practice.

Shipping is by far the most efficient means of transport in terms of fuel used per mile, which tells us that there is still a place in the world for ships.

Large variations in relative cost of shipping operations are due to differences in operational management and operational maintenance procedures. No matter how well designed a vessel may be, poor maintenance practices will result in a drop in fuel efficiency. It is therefore an order for the owner to become more competitive.

Over-regulation, and over-enforcement, is destructive to the shipping industry. More rules would probably do little to improve safety at sea. Recently the master of a large tanker reported a situation on his ship, where the officers and crew totaling 24, were outnumbered by the surveyors, inspectors, charterers, representatives, and auditors all vying for his undivided attention. Meanwhile, the ship was in the process of discharging ballast, stopping and planning to sail the next morning.

This must have distracted the master from effectively being able to manage the ship's affairs and must have had a detrimental effect on the safety of the ship. There are at present many surveyors and inspectors, many of whom are duplicating each other.

Requirements applicable to shipping in international trade are becoming increasingly complex. Defining which parts of international conventions and codes and which national statutory requirements apply to a specific ship is a cumbersome and difficult task. Looking up in a directory or two to find the relevant regulations is quite acceptable; using ILO's Register's new computer software "Rulefinder" is a step in the right direction. But when the situ-

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W E P A I N T T H E F U T U R E

Maritime Reporter/Engineering

ives that there is so much of it the International Maritime Organization (IMO), in conjunction Det Norsk Veritas, have to put the data on a CD rom disk, it is plain "ridiculous" albeit an excellent facility under the circumstances.

A major problem today, and for us, has been how to catch hold of a ship when she is in trouble. The answer is to have, as standard fit, an emergency towing bridle and a tow-roped wire in position.

It is suggested that a vessel should be equipped with such a system both forward and aft for a redundancy factor.

For example if the bow was damaged in a collision and the system harmed, the second would be available.

Further, all ships should consider fitting of a recessed towing bracket, placed forward and aft, port and starboard above the loaded waterline of the ship with sufficient strength to enable a towing vessel to make a secure connection to the vessel.

#### DOUBLE HULLS & OPA 90

Double hulls are a good idea, and riding the integrals are well maintained. (We will see when the double hulls starts cracking and must be carried out in narrow lanes with crude oil leaking out void spaces.) Even so, a double hull would have made little difference in La Corunna, the Shetlands, the Straits of Malacca, and will be nothing short of a nightmare for the crews to maintain. With the Pollution Act, OPA 90 now in effect in the U.S., it will be interesting to see how the innovative manufacturers compensate for this extra bit of regulation.

No doubt the environment will be exposed even more by the introduction of double handling of the oil cargoes in the form of ship to ship transfers on the high seas, or a terminal set up to enable a small number of double hulled vessels to run a shuttle service into regulated areas.

In addition that might have been assistance in the Shetland and La Corunna incidents is a secondary totally independent propulsion system. Like the ship's emergency generator, this might be done by introducing an omnidirectional stern propulsion system, like that used by some offshore supply vessels, powered by a diesel electric power supply. To compute the power requirements, use the same formula as classification societies rule calculation of ship's anchor weight is used, as a starting point.

A factor which will in time have a found effect on the standards of the shipping community is the introduction of Quality Assurance or Total Quality Management (TQM). QA comes in a number of guises, from the British Standards route (BS 5750), the International Standards Organization (ISO 90004), the European Community Standard (EN2900), and the national Ship Management

Association's (ISMA), ISMA Code of Ship Management Standards (CSS). The IMO has a code currently under development called ISM. Most of this is a positive step forward, and does not involve statutory regulation. "Free market forces" will be the momentum here.

For example, unless you and your suppliers are QA accredited, you may never even get on the tender list for the charter.

The ship register can reflect the particular government's interests in maintaining a well-run and competitive fleet. It is a means of regulating and administering shipping under that particular flag, and it can also be a means of that particular flag state to make a considerable income, offering a service for a fee with no interest in the standards being maintained.

Hopefully some of these sugges-

tions bear some credence, and will fuel the thoughts of those who have an interest in improving the safety of tankers, and shipping in general. The big question, as always, is: who will pay? There is no quick fix answer, but it should be remembered that the cheapest way often, in the long run, works out to be the most expensive. Practical solutions will be far more effective than more bureaucracy and regulation.

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## Washington, D.C.: Maritime Issues Flood House, Senate

As the summer turns to fall, there are several urgent, pending issues which the U.S. government must act on.

Perhaps most pressing is an amendment to a bill, which if passed, will prohibit U.S. flag carriers from flagging out until at least January of 1995.

According to a spokesman for the Committee on Merchant Marine & Fisheries, an amendment to H.R. 1964, which is the Maritime Administration's authorization bill for fiscal year 1994, would prohibit Secretary of Transportation **Federico Pena** from authorizing vessel operators from changing flags (on vessels 3,000-gt and larger) until January 1994.

H.R. 1964 passed the House and at press time was pending action in the Senate.

Other news from Washington, D.C. follows.

### House Subcommittee Passes Maritime Security And Competitiveness Act

The Maritime Security and Competitiveness Act of 1993 (H.R. 2151) was passed on July 29 by the Merchant Marine Subcommittee of the House Merchant Marine and Fisheries Committee.

The Maritime Security and Competitiveness Act intends to reduce needless government regulation of U.S. flag carriers and encourage investment in new, efficient and economical vessels. The bill also addresses vessel operational requirements. Vessel operators will be provided with payment under the Operating Differential Subsidy (ODS) to the tune of \$2.3 million a vessel for FY '96, and \$2.1 million a vessel for ten subsequent years, which is a cut from the \$3-4.5 million the op-

erators currently receive under the program. Cargo preference provisions are also included in the bill. These provisions will eliminate the three-year waiting period for eligible vessels and make foreign-built ships of 12,000-gt or less eligible for cargo preference if they were constructed before May 19, 1993. Foreign-built vessels constructed after that date must be built in unsubsidized yards in order to be eligible.

Other bills under consideration by the House include: changes to maritime tax and vessel depreciation laws, which have already been moved by the maritime panel and await action by other committees; a shipbuilding promotional initiative and a separate mechanism to pay for maritime revitalization through new cargo container fees; and increased passenger cruise ticket fees.

### Navy Vessel Transfer Bill Approved

The vessel transfer bill, H.R. 2561, has been passed by the Sen-

ate and is awaiting the President's signature.

H.R. 2561 authorizes the transfer of ten naval vessels and equipment to Argentina, Australia, China, Greece and Taiwan, with five vessels going to Turkey. The U.S. cost stand to obtain about \$30 million in leasing fees over the next few years from the transfers.

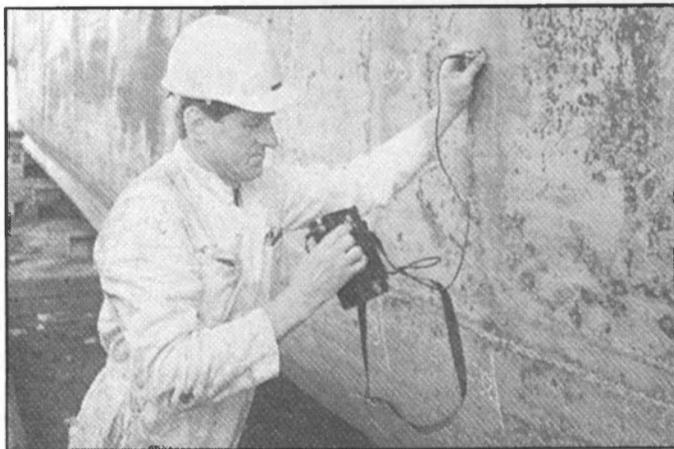
The U.S. will be able to obtain additional \$180 million in training supplies, support and repair costs during the lease times, according to Congressman **Ben Gilman** (R-N

### Defense Authorization Bill Clears House, Contains Ntl. Shipbuilding Initiative

The FY '94 Defense Authorization Bill has been cleared by House Armed Services Committee and includes the National Shipbuilding Initiative.

The committee is seeking, among other things, a program to introduce new technological approaches to shipbuilding and ship products.

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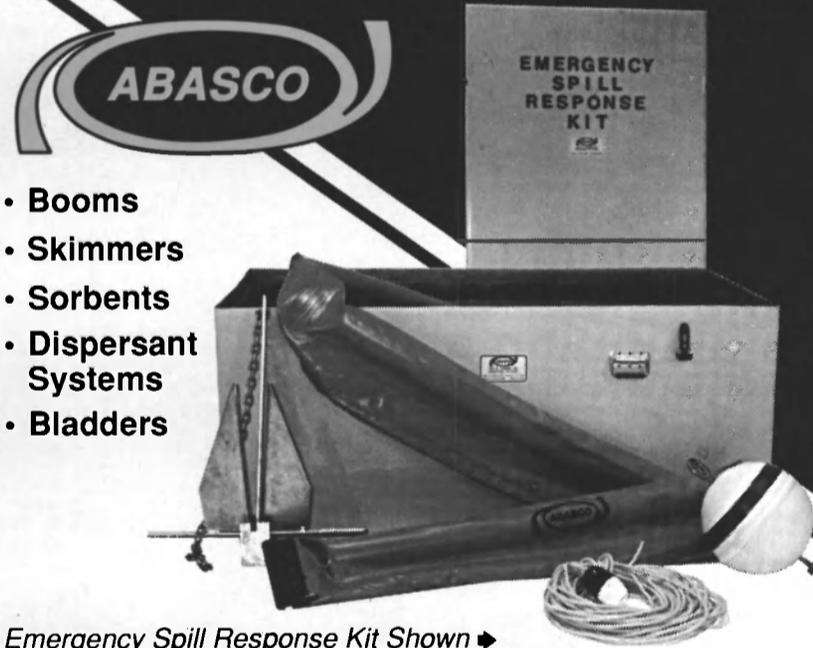
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provide capital resources to rebuild shipbuilding facilities. Other programs sought are a program to build high value, environmentally sound tankers, ship designs where there is a substantial market opportunity, and retraining programs for shipbuilding personnel in both management and training.

The committee recommended that \$200 million be transferred to MarAd from Defense Department funds for loan guarantees for U.S.-built ships and shipyard modernization. The House is expected to begin work on the Defense Authorization Bill immediately.

### Tanker Regulations For Double Hulls Into Effect For New Vessels

New rules on ship design applying to all tankers recently came into effect requiring new tankers of 5,000-dwt or more to be fitted with either a double hull or an alternative design that would effectively prevent spills.

The regulations came into effect following amendments to an international convention adopted last year by the International Maritime Organization (IMO).

The IMO rules call for the double hull tanker design as well as allowing for alternative designs such as the mid-deck concept, whereby ships may have double sides, not a double bottom. The ships utilizing the mid-deck concept must also have an additional deck installed inside the cargo tanks.

In addition to rules regulating new tanker design, all existing tankers must be fitted with double hulls or the equivalent when they reach the age of 25 years.

## Coast Guard News

### Slight Increase In USCG Budget

Legislation has been passed by the House increasing the U.S. Coast Guard's (USCG) budget for operations and programs in FY '94 to \$3.6 billion. The authorization is about \$160 million more than the 1994 appropriation for the USCG for FY '93. The increase in funds is reportedly for cost-of-living increases and a modest increase in the USCG's acquisition, construction and improvements account. There is also an authorization for \$1.6 million to continue operation of the icebreaker Mackinaw. The vessel's decommissioning is also prohibited until a study of the needs of Great Lakes icebreaking is delivered to Congress.

### USCG Requests Hull Research Help

USCG is seeking the aid of private or public contributions to help pay for a \$3- to \$4-million experiment in oil spill-prevention called the "American Under-pressure System" that tests an alternative to double-hull tankers. The American Under-pressure System is a vacuum principle-based system for reducing the loss of oil from a damaged tanker.

The USCG has obtained congressional authorization for a "full scale" test and has received federal funding. However, the USCG claims that in order to carry out a "full scale" test, it would take two to three years and they would need between \$3 million and \$4 million. Interested parties should contact the USCG's marine technical and hazardous material division on testing procedures, alternative test methods and cost estimates.



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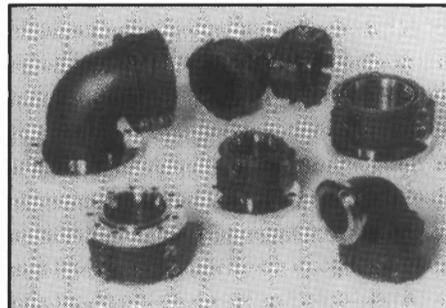
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# The Future Of Safety-At-Sea

by James J. Fitzpatrick, III, MNI

The International Maritime Organization (IMO) has hailed it as the greatest invention to communications at sea since the invention of the radio. The U.S. has strongly advocated its worldwide use. Ship-owners and seafarers alike should

welcome its introduction. "It" is the Global Maritime Distress and Safety System, or GMDSS as it is commonly called. GMDSS is among the latest electronic advancements in radio communications. Designed to aid in the identification and coordi-

nation of search and rescue efforts of all vessels on the high seas, correct operation of the system could eliminate the possibility of ships disappearing without a trace.

The system enables a ship to communicate ship-to-shore, shore-to-ship and ship-to-ship, within four areas of the world's oceans - far more effective than the current combination of radiotelephony and Morse code.

The GMDSS concept revolves around the premise that search and rescue operations ashore as well as at sea close to the vessel in distress can rapidly deploy to the area of distress incident using a coordinated effort to minimize loss of life.

Using advanced communication equipment as the nerve center for implementing such a system requires a technology which embraces satellites and transistor-based electronics. Geostationary as well as polar orbiting satellites make up the new global coverage of GMDSS. While not the only part of the system, satellites play an important role in the GMDSS capability. Digital Selective Calling (DSC) is another key technology used in GMDSS. A DSC call contains information about the vessel transmitting the call, for example: an identification number, the ship that initiated the call, the nature of the distress and the coordinates and time of the distress. This information is broadcast to all ships on a variety of frequencies in multiple bands to increase the possibility that the message will be heard.

Over the next several years, at least 250,000 ships' officers will be trained. The IMO amended the Safety of Life at Sea in 1988 to implement GMDSS worldwide. According to parameters set by IMO, 97 percent of the world's merchant fleet will be required to operate GMDSS by 1992. Eventually, fishing, recreational and small passenger ships may also be required to comply. While it was first assumed that the equipment would be easy to operate, this is not the case. There is more involved in the operation of GMDSS than pushing buttons. Knowing what equipment to use in a specific situation requires skill. The IMO has strict recommendations for the training of officers on the use of GMDSS equipment.

The Center for Maritime Education is currently raising funds to set up a GMDSS regional command center at its training center in Lower Manhattan. Spurred by a grant from the Life Saving Benevolent Association and other contributors, the center will begin offering a GMDSS training course later this fall.

The course, which has already received approval from the Panamanian registry, will include classroom theory explaining the system's operation, as well as practical training in sending and receiving messages using actual equipment. Training will take place in the classroom and simulator as well as at sea.

Long at the forefront of maritime education and training programs, the Center for Maritime Education has often designed courses and training programs to assist the industry when new rules and regulations develop regarding the introduction of new maritime equipment and procedures, thus enhancing the individual seafarer's professional competence and promoting safety of life at sea.

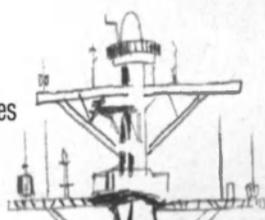
The deadline for the training of ships' officers is rapidly approaching. This is an important aspect of safety-at-sea that should be embraced by the whole industry. For information about courses call 233-2242.

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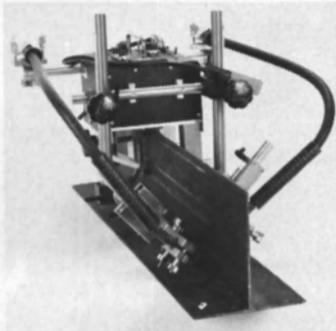
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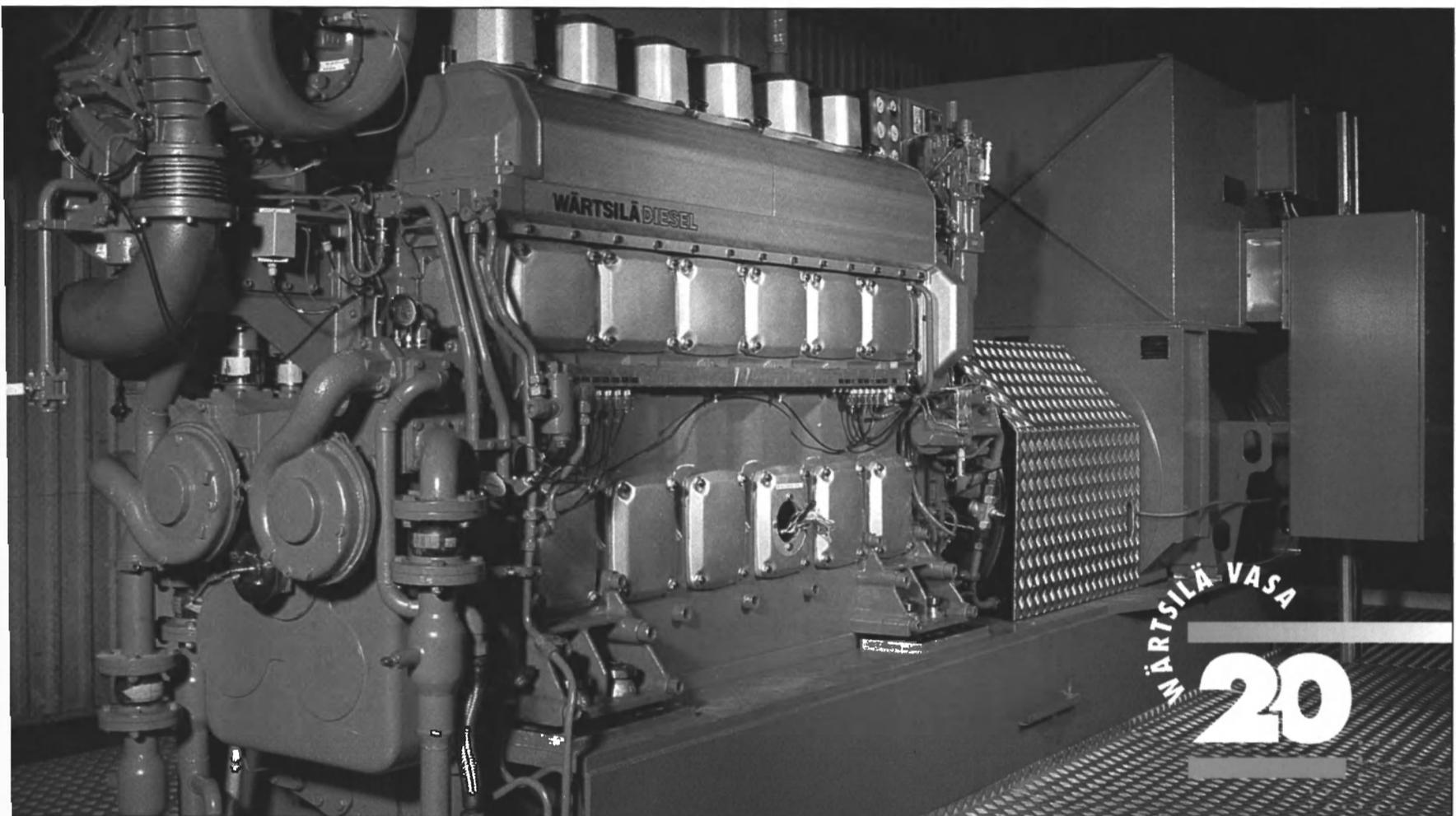
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This patrol boat, under evaluation by the Italian Guardia di Finanza, is powered by Seatek Diesels.

## PROPULSION UPDATE

### Two Patrol Boats Delivered In Italy

The Italian Guardia di Finanza has taken delivery of a pair of Seatek diesel-powered patrol boats, craft which are reportedly prototypes for a new generation of high perfor-

mance patrol boats to carry out anti-smuggling activities.

While the Guardia di Finanza evaluates the prototypes, it has reportedly already made the decision to have the Seatek engines power the craft.

The swifter of the two new vessels is a 46-foot version, which is powered by three Seatek diesel type 6-4V-9D, which produce 580 hp in military form. The engines, c

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The tri-engined patrol boat developed by F.B. Design and based on a design which has proven successful in offshore racing. The deep vee hull is molded from advanced composites.

The second contender for the contract was built by Bruno Abbado. This version is also based on a tested hull design, which has previously been fitted with twin triple Seatek diesels. It is 50 feet long, and the Guardia di Finanza version has a twin 580-hp Seatek installation.

Similar Seatek engines have been supplied to the Swedish and Spanish Customs.

### Lloyd's Register To Class Celebrity Passenger Ships

Lloyd's Register classed 70,000-gt luxury cruise ships ordered by Celebrity Cruises of Miami, Florida, by Meyer Werft of Papenburg, Germany. The approval of hull plans will be carried out at LR's Hamburg office and global three-dimensional finite element structural analysis will be performed by LR specialists from headquarters and Hamburg. Surveyors from Emden and Papenburg will perform surveys during construction. Machinery, electrical and ancillary equipment will all be approved and constructed under survey by LR.

Maritime Reporter/Engineering I

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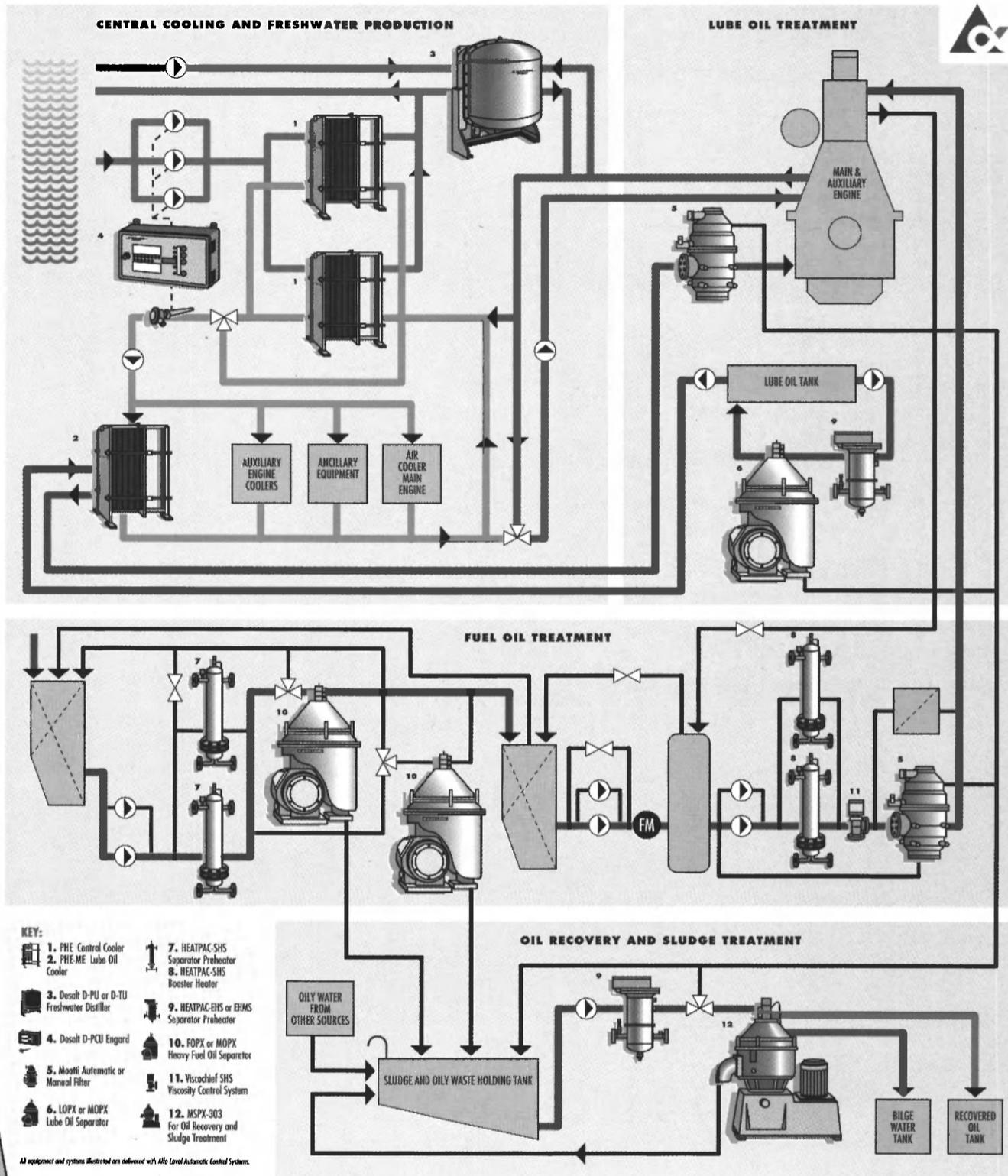
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## COMSAT Names Famighette Vice President, Maritime Sales

COMSAT Mobile Communications (Clarksburg, Md.) announced that **Joseph G. Famighette** joined the company as vice president, maritime sales.

In this position he is responsible for directing the maritime satellite

services sales efforts within COMSAT's government, transportation, shipping, fishing, passenger ship, pleasure craft and offshore oil markets.

He will also lead the sales efforts for COMSAT's newest digital services: Inmarsat-M, a voice, data and fax service for smaller vessels, and Inmarsat-B, a digital service for larger vessels with high speed data and large volume communications

requirements. Prior to joining COMSAT, Mr. **Famighette** held the positions of director of sales for the Pacific division and director of marketing for business services with MCI. He also worked with Western Union as vice president, western region, with responsibilities for sales and customer support.

He holds a Bachelor of Science degree from Canisius College, Buffalo, N.Y.

## Rear Admiral Matteson Assumes Superintendent Duties At Academy



Rear Admiral Thomas T. Matteson, USN

Rear Admiral **Thomas Matteson**, USMS, assumed duties as superintendent of the U.S. Merchant Marine Academy. He succeeded Rear Admiral **Paul Krinsl** who retired from federal service June 30.

The academy, operated by the U.S. Department of Transportation Maritime Administration, is located in Kings Point, Long Island, N.Y. The U.S. maritime school trains young men and women to become officers in the American Merchant Marine and Naval Reserve. He is a U.S. Coast Guard (USCG) career officer who retired from active duty in June 1993.

His last assignment was as superintendent of the USCG Academy in New London, Conn. Previously he served as Chief, Office of Personnel and Training at USCG headquarters in Washington, D.C.

A native of Upper Sandusky, Ohio, Rear Adm. **Matteson** is a 1964 graduate of the Coast Guard Academy. He earned a master's degree in Management Science from the Naval Postgraduate School, Monterey, Calif., and is a 1977 graduate of Air War College at Maxwell Air Force Base.

## M. Rosenblatt & Son Appoints Two Assistant VPs

**Lester Rosenblatt**, chairman of the board and CEO of M. Rosenblatt & Son Inc., announced the promotions of **Henry J. (Rick) Cas** and **John V. Deller** to assist vice presidents. A graduate of Michigan University with a Bachelor of Science in mechanical engineering, Mr. **Cassee** worked for New York News Shipbuilding and the U.S. Maritime Administration prior to joining M. Rosenblatt & Son's Longton office in 1982. He was promoted to the position of director of auxiliary systems in 1989.

Mr. **Deller** holds a Bachelor of Science in mechanical engineering from Catholic University. He came to MR&S in 1981 as manager of propulsion after 10 years of government service at NAVSEA. In 1988 Mr. **Deller** received the Best Personnel Award for his contribution to the 1988 Marine Engineering Symposium.



## When Your Ship Comes In, Who Takes Out The Garbage?

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Waste Services™**  
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## LS Appoints Langsen Vice President Marketing & Sales



Bruce Langsen

Bruce Langsen has been appointed vice president, marketing and sales, for Inventory Locator Service, Inc. (ILS) of Memphis, Tenn. He will be responsible for worldwide marketing and sales of ILS information services for the aviation and commercial marine industries. Most recently he was a senior vice president and general manager for Express Airlines II.

ILS, a subsidiary of Ryder System, Inc., provides information on the location and condition of more than 20 million line items of parts and equipment located in the inventories of more than 2,000 suppliers worldwide.

## Malloy Named VP of Carrier Transicold Marine

John F. Malloy was appointed vice president, marine, of Carrier Corporation's Carrier Transicold division. He will direct worldwide sales, marketing and manufacturing of container refrigeration units, and of marine refrigeration and air conditioning products. He was previously Carrier Transicold's vice president of transport air conditioning.

Mr. Malloy joined United Technologies in 1982 as manager of strategic planning, moving to Carrier Transicold in 1985 as director of strategic planning. He became vice president in charge of bus air conditioning in 1988. He earned a bachelor's degree in economics from Boston College, and a Ph.D. in economics from Syracuse University. Carrier Transicold is a division of Carrier Corporation, the world's largest manufacturer of air conditioning and heating equipment and systems. Carrier is a subsidiary of United Technologies Corp.

## Textron Marine Makes Executive Appointments

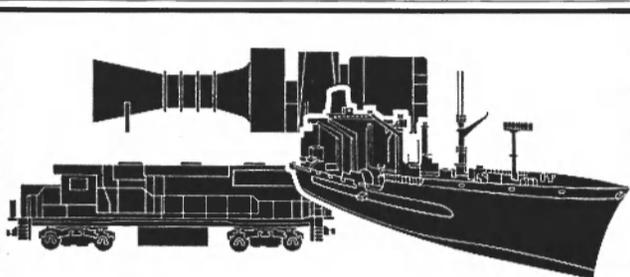
Robert J. Rotundo, a New York City native, has joined Textron Marine as vice president commercial programs. He brings more than 30 years of experience to the position and in his new role he will be responsible for strategic planning and demonstration of Textron Marine Systems' line of commercial products, as well as program management. Also, John K. Terry was named

director of contracts and pricing. Mr. Terry brings to the Textron Marine Systems management team significant supervisory experience as a contracts/business manager. His most recent assignment was as director of pricing, administration at LTV Aerospace and Defense/Vought Aircraft. Textron Marine Systems, a division of Textron Inc., has been an industry leader since 1961 in the design and construction of advanced technology air cushions.

## Foss Maritime Hires Coburn As Senior VP Of Sales

Foss Maritime Company has brought Thomas F. Coburn aboard as senior vice president of sales. Mr. Coburn will develop and implement Foss' company-wide sales strategy, tactic and action plans. He will also assist with the company's growth and expansion objectives.

Mr. Coburn has more than 22 years of maritime business experience with Sea-Land Services Co. Most recently, he was Sea-Land's general manager of sales, North America. He has also held positions in operations, port management and regional area management. Foss is a full-service maritime company, providing a complete range of harbor tug and barge services, ocean towing, vessel repair.



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**Save Design Time**  
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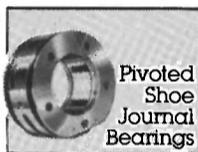
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ORION's standard line incorporates state-of-the-art technology in design, material and lubrication to give

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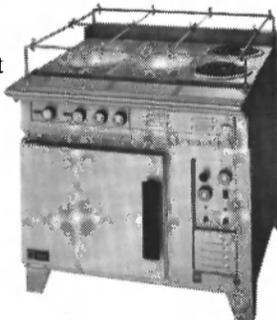
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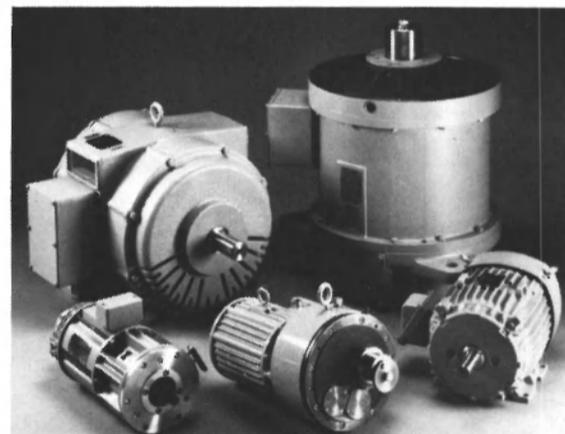
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## Resolution Management Establishes Marine Services Group

To better serve its clients, Resolution Management Consultants, Inc., a professional firm specializing in providing program management and dispute resolution services to the construction, shipbuilding/ship repair and cruise line in-

dustries, has established a marine services group in its Norcross, Ga. and Cherry Hill, N.J. locations.

The staff of Resolution Management has many years of experience in providing service to the private sector, and to the public sector, in the defense and resolution of shipbuilding and ship repair claims brought by shipyards. Members of Resolution Management have provided expert witness testimony in negotiations, arbitration and litigation, and

have lectured extensively at major U.S. Navy installations on the topics of scheduling and cost control, claims avoidance and dispute resolution. The Norcross, Ga. marine group is headed by **Joe Meredith**, and the Cherry Hill, N.J. office is under the direction of **Tom Cummings**. For more information on the services offered by Resolution Management Consultants, Inc. contact the company at (404) 246-9100; fax: (404) 246-0875.

## Donahue Named Vice President At Marine Industries Northwest

Marine Industries Northwest Inc. (MINI) promoted **Mark T. Donahue P.E.** to vice president engineering and general manager.

The promotion is in recognition of the several years of service and major contributions made by Mr. Donahue to the success and growth of the company.

He has, during the past 14 years with MINI, been involved in overseeing the conversion of numerous coastwise vessels at the shipyard facility.

He is a 1972 graduate of the U.S. Merchant Marine Academy, King Point, and received a master's degree in 1975 from the University of Michigan in Naval Architecture and Marine Engineering.

MINI is a full-service shipyard serving the Pacific Northwest for more than 16 years, specializing in the conversion/repair work of barge tugs and coastal freighters to AB and U.S. Coast Guard standards.

Plant facilities include five acres of harbor waterfront property, which approximately one acre comprises covered fabrication and shop areas.

## Dover Japan Seals Formation Of Global Marine Group

The world's largest marine seals and bearings group is now fully operational following the recent integration of Dover Japan into John Crane Marine Intl.

Now, for the first time, mechanical face seals, lip seals, anti-pollution seals, sternshaft seals, lineshafts and thrust bearings are available worldwide from one organization.

The newly-formed group completed the integration of Dover Japan Inc., now renamed Japan Marine Technologies, with the worldwide Deep Sea Seals operation Havant.

These, together with John Crane Marine-Lips in Holland (formerly Waukesha Lips) and John Crane Marine USA, make up the new group.

The global operation will benefit both naval and commercial shipowners, shipyards and specifiers by providing a complete propulsion seal and bearing service with access to what is claimed to be the most comprehensive product range of its type in the world, with competitive "one stop" worldwide service support.

The group anticipates significant growth with its anti-pollution sealing systems Coastguard and Airguard.

For additional information on products and services available from John Crane Marine,

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**SIZE:** 369' X 60' X 31' **CLASS:** ABS  
**BUILT:** 1984, 1st Used in Service 1990 **GRT:** 4850  
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This vessel was built in the US at a cost of \$68,000,000 under strict compliance with ABS, USCG, US Public Health & other agency regulations.

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## Dunlop-Beaufort's MEC Evacuation System installed on six newly built Canadian Car Ferries

This compact and simple system allows efficient and controlled evacuation of large numbers of passengers off vessels (particularly off those with high freeboard). The chutes have been installed on six new Canadian-built ferries, including the two new British Columbia Super Ferries, and are operational in the Ontario Northland and east coast Northumberland ferry fleets. The MEC is currently specified on several new American vessels to be built in 1993-1994.

## Dunlop-Beaufort

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## Senator Breaux And Niels Johnsen To Receive AOTOS Award

The 1993 Admiral of the Ocean Sea (AOTOS) Award will be presented by United Seamen's Service to U.S. Senator **John Breaux** (D-La.), chairman of the Merchant Marine Subcommittee, and to **Niels W. Johnsen**, chairman and CEO of International Shipholding Corp., and its principal subsidiaries, Central Gulf Lines, Inc., Waterman Steamship Corp., Forest Lines, Inc. and LCI Shipholdings Inc.

The AOTOS award, which is presented by USS on behalf of labor, management and government, is one of the American maritime community's most prestigious honors.

It is awarded each year to the persons or organizations that have made the greatest contributions to international transportation, American seafarers and USS.

Current plans are to honor both Senator **Breaux** and Mr. **Johnsen** on October 29, 1993 at a gala maritime industry dinner and dance at the New York Sheraton.

## Quiclose™ Valve For Fuel Oil Systems Emergency Shut-Off Services

Used as standard equipment in ships throughout the world, Young & Cunningham "Quiclose" valves reportedly provide the ability to instantaneously shut off fuel oil lines from any remote station in the vessel, i.e. breakage of fuel lines or fire in machinery space.

Young & Cunningham Quiclose valves have been tested to and meet the requirements of the U.S. Navy for shock and vibration.

They also comply with ABS and U.S. Coast Guard and applicable valve-related standards such as NSI B16.34, ANSI B16.10 and NSI B16.5. They can be supplied in most international valve and piping codes.

The Quiclose valve provides the operating characteristics of a conventional valve with the added ability to provide instantaneous closure on demand. Available in either gate, globe, butterfly or ball type, opened and closed by normal rotation of a handwheel, the Young & Cunningham Quiclose design includes a spring-loaded mechanism for remote actuation. The release actuation can be by hydraulic, pneumatic or by mechanical (wire) signal, which when activated, will automatically and instantaneously close the valve, whether it is partially or full open. The hydraulic and pneumatic units include a thermal trip for automatic operation when subjected to elevated local tem-

peratures. After being tripped, the unit mechanism can only be reset by rotating the handwheel, and the valve cannot be opened until the mechanism has been reset.

## Lips Goes Full Ahead Into Waterjets

Lips, the world-known propeller manufacturer from Drunen in the Netherlands, has reached an agree-

ment with its partner in the Milan-based joint venture RivaLips Srl to take full responsibility for the waterjet activities. A new 100-percent owned Lips company, Lips Jets BV, has been established at the head office in Holland. The company, which officially began operation on June 14, 1993, is committed to the design, manufacture and marketing of waterjet propulsion and control systems. To ensure all RivaLips Srl obligations are fulfilled, it was

decided to transfer all waterjet activities of the former joint venture to Holland, to be continued by Lips Jets BV. The move was reportedly made in order to position Lips to capitalize on the growing fast ship market. The company believes its engineering experience and ISO 9001 quality-certified production facilities, combined with its after-sale service organization, will make Lips Jets BV an instantly-recognized reliable supplier of waterjets.

# Only Westfalia's On-Demand Purifying System Removes All the Dirt and Water from your 1010 fuel.

Whether your fuel oil is heavier or lighter than water, only Westfalia's two-stage Unitrol/Secutrol system assures maximum purity even under widely varying feed conditions. Here's why.

### On-demand vs timer-controlled de-sludging.

Other oil purification systems are timer-controlled, which means they de-sludge only at pre-set intervals. If heavy seas stir-up the "muck" in your fuel tanks, the intervals may be too far apart. Result: dirt gets into your day tank and fuel lines, causing disastrous engine wear... In the Westfalia system, a unique sensor continuously monitors de-sludging intervals, discharging dirt and water only when the sediment-holding compartment is full. So there's no chance for dirt to get into your fuel because of too few de-sludgings — or fuel wastage from too-frequent de-sludgings.

And either stage can be operated independently, thus adding even more flexibility.

### No water in fuel lines.

With Westfalia's unique design, there's no way water can enter the clean fuel line. With other systems, this is a distinct possibility.

### Reliable purification.

No matter how wide the variations in density or feed characteristics, you get the most efficient, reliable purification. Automatically, with no need for gravity disc changes.

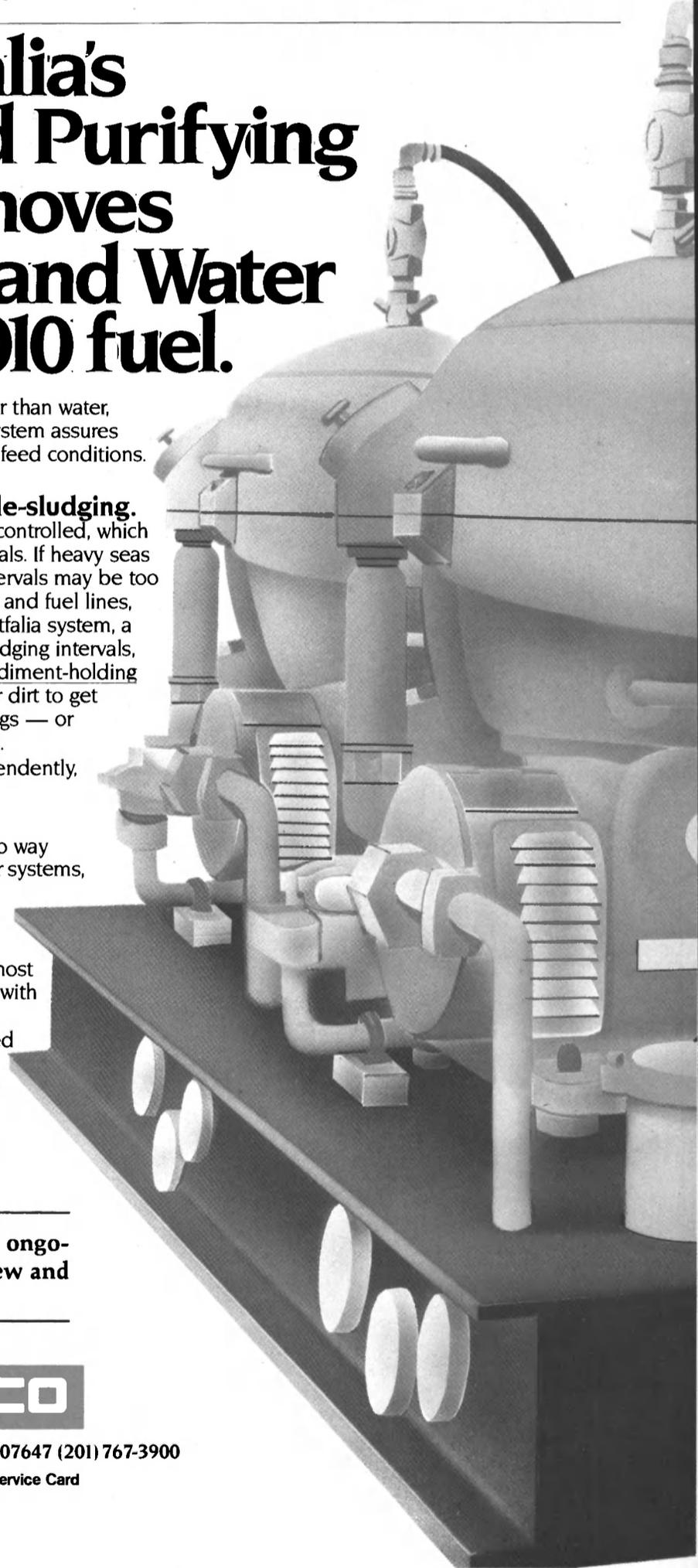
For maximum reliability we've substituted simplicity for complex electronics and intricate circuitry. Thus Westfalia purifiers are more dependable and much less likely to break down than other separators. Contact Centrico for the Westfalia system you need.

Westfalia is proud to be part of the ongoing construction program of the new and growing U.S. Navy.



Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647 (201) 767-3900

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# THE WORLD ORDERBOOK

The volume of tonnage in the world order book increased to a figure of 35,052,973 gt at mid-year, 1993, which is an increase of 1,407,565 from the First Qtr. '93. New orders reported at mid-year amount to 6,000,000 gt, a figure which is 1,800,000 gt more than the total output during the quarter. More than 79 percent of the ships on the world order book are scheduled for delivery by the end of 1994.

Under construction in the world at mid-year are 1,166 steamships and motorships, with a combined gt of 16,724,963 (297,960 gt more than last quarter).

On order but not commenced are 967 ships, for a total gt of 18,328,010 (1,705,525 gt more than last quarter). The order books for Russia and Finland have more than doubled since First Qtr '93. Ukraine recorded significant increases (24.1 percent),

as well as Korea (South) (16.7 percent). Countries which made the largest additions to their existing fleets are Liberia, 7,579,925 gt; Panama, 6,835,520 gt; People's Republic of China, 1,715,721 gt; Norway, 1,713,120 gt; Japan, 1,495,653; and Germany, 1,417,923 gt.

The shipbuilding countries making the largest contribution to world tonnage at mid-year are: Japan, 9,502,413; Korea (South), 7,099,488;

Poland, 1,127,045; Germany, 1,069,375; and the People's Republic of China [including Republic of China (Taiwan)], 1,125,824.

Oil tankers are the most popular ships on order, for a total of 13,944,466 gt (up 85,286 gt). Following oil tankers are bulk carriers, 8,982,488 gt (up 1,017,553 gt); general cargo, 6,506,333 gt (up 124,000 gt); and miscellaneous ships, 2,504,707 gt (down 162,805 gt).

## All Ships In The World Order Book At Mid-Year, 1993

Total (Under Construction & Not Commenced)

Country	No.	Gross Tonnage	% of World Tonnage	Country	No.	Gross Tonnage	% of World Tonnage
Argentina	20	45,613	0.13	Japan	445	10,998,066	31.38
Australia	12	10,122	0.03	Korea (North)	1	9,626	0.03
Belgium	22	118,120	0.34	Korea (South)	145	7,188,412	20.51
Brazil	47	1,022,998	2.92	Lebanon	1	300	0.0
Bulgaria	17	181,513	0.52	Malaysia	11	24,711	0.0
Canada	4	25,507	0.07	Malta	8	27,785	0.08
Chile	16	11,507	0.03	Mexico	11	12,547	0.0
*China, People's Republic Of	125	1,869,588	5.33	Netherlands	42	238,359	0.68
China, Republic Of (Taiwan)	18	882,500	2.52	Norway	23	187,204	0.5
Croatia	21	677,095	1.93	Pakistan	3	16,550	0.0
Cuba	1	120	0.00	Peru	46	21,101	0.0
Denmark	40	1,418,884	4.05	Philippines	1	546	0.0
Egypt	17	45,580	0.13	Poland	117	1,221,819	3.4
Fiji	1	3,125	0.01	Portugal	34	29,693	0.08
Finland	15	795,201	2.27	Romania	84	1,179,249	3.3
France	20	695,300	1.98	*Russia	147	938,286	2.68
Germany	124	1,658,831	4.73	Singapore	28	77,923	0.2
Greece	5	12,470	0.04	Slovakia	10	22,460	0.0
Guatemala	1	130	0.00	Spain	57	438,159	1.2
Hong Kong	3	1,500	0.00	Sweden	2	453	0.0
Hungary	1	1,350	0.00	Turkey	43	184,451	0.5
Iceland	1	120	0.00	*Ukraine	24	491,897	1.4
India	55	100,805	0.29	United Kingdom	25	707,156	2.0
Indonesia	25	94,750	0.27	United States	79	73,069	0.21
Iran	48	21,006	0.06	Venezuela	2	600	0.0
Israel	1	267	0.00	Yugoslavia	25	92,600	0.2
Italy	59	1,175,949	3.35	<b>World Total</b>	<b>2,133</b>	<b>35,052,973</b>	<b>100.0</b>

Source: Lloyd's Register

\* Information incomplete

# A SUCCESSFUL NAVAL ENGAGEMENT FOR THE J.D. NEUHAUS TASK FORCE.

When the U.S. Navy sent a S.O.S. to help move this giant crane, we dispatched two of our JDN PROFI 100 ton pneumatic hoists. The results was a complete victory for us both.

Saving the day for our customers is always satisfying, but for JDN it's not new. Our hoists have been solving weighty problems in more than 90 countries all over the world.

In this case the 100 ton pneumatic hoists were used on site to level these 310 ton cranes. Incredible size and capacity ratio, precision engineering and construction, and their dependability on only 85 PSI compressed air operation made the JDN PROFI the perfect choice for the job.

But this hoist, and the rest of the world famous PROFI series, can operate at the same performance level mounted overhead on trolleys and in low overhead situations. They are unaffected by dampness, moisture, steam or heat, and the pneumatic operation makes them ideal for situations where sparks and electrical problems cannot be tolerated.

The ultra sensitive, pull cord speed regulation, built into every PROFI hoist, was key to this precision Navy operation. The ability of the hoists to be left running indefinitely without damage adds to the exceptional versatility of the PROFI Line.

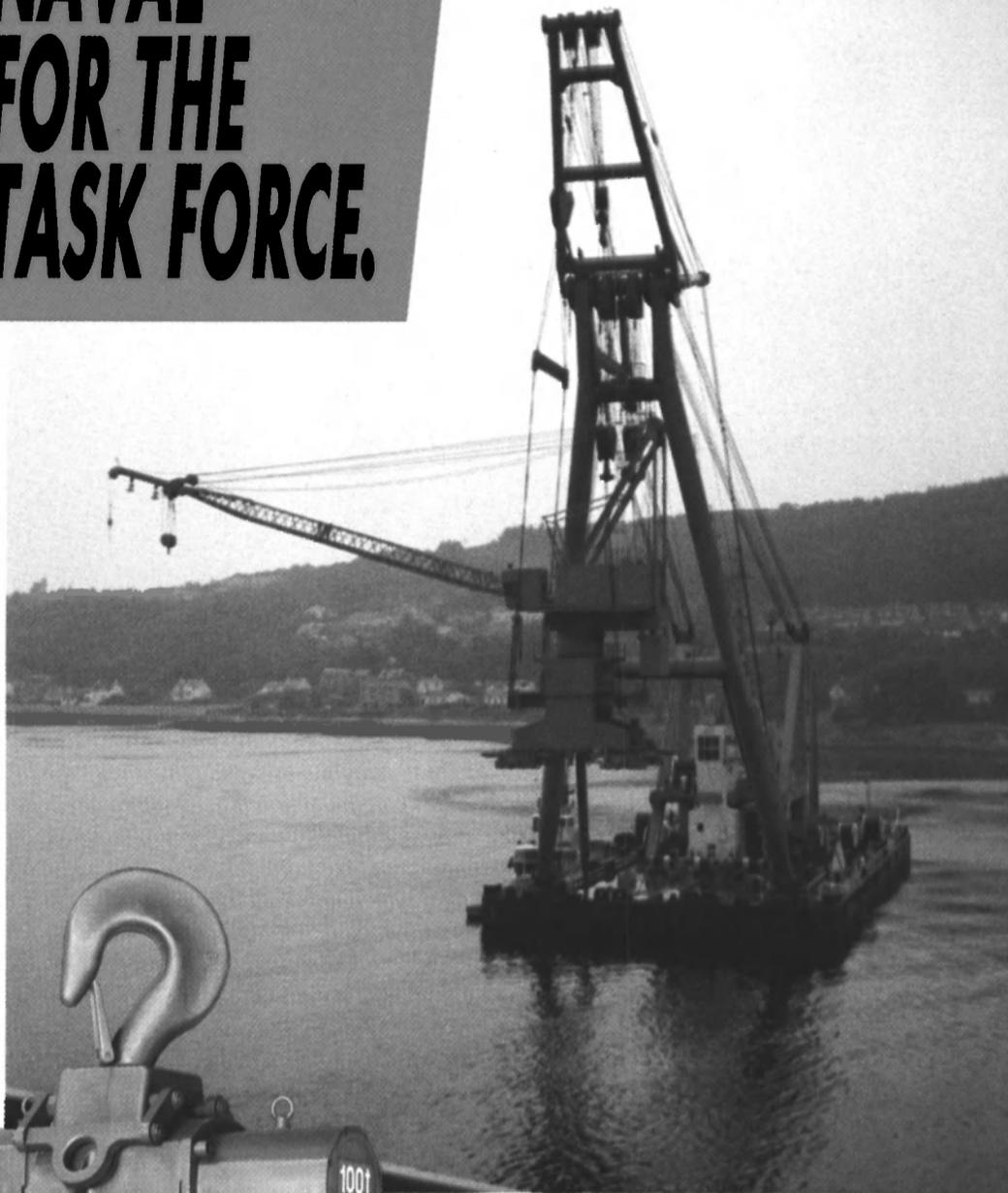
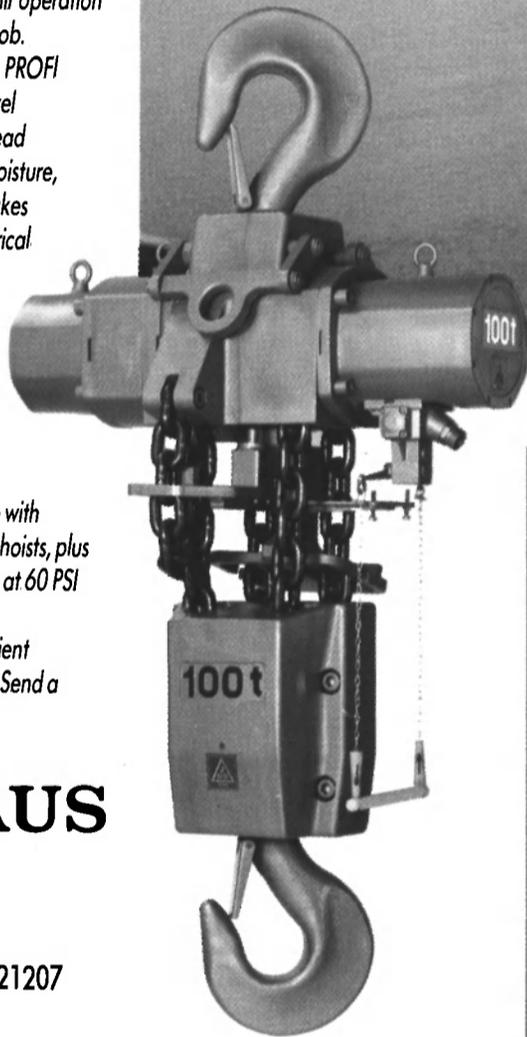
The J.D. Neuhaus Corporation offers a full line with capacities from 500 lbs. to 100 tons, pneumatic hoists, plus a wide variety of trolleys and hoists that operate at 60 PSI or hydraulic power.

For your next impossible challenge, or for efficient everyday operation, do what the U.S. Navy did. Send a S.O.S. to J.D. Neuhaus Corporation.

## J.D. NEUHAUS CORPORATION



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DEPARTMENT OF THE NAVY  
CHARLESTON NAVAL SHIPYARD  
NAVAL BASE  
CHARLESTON, S.C. 29405-6100

AFDB-7/9200  
Ser 212/1114  
18 November 1987

From: Commander, Charleston Naval Shipyard  
To: J.D. NEUHAUS, Baltimore, MD 21207

Subj: DELIVERY OF TWO 100 TON PNEUMATIC OPERATED CHAIN HOISTS  
ON CONTRACT N00612-87-T531

Encl: (1) NAVSHIPYD CHASN Photograph of few AFDB-7 Crane Lift  
in Holy Loch Scotland (3 copies)

1. The purpose of this letter is to commend your Mr. Donald T. Plettenberg for his dedicated support and exemplary performance in the handling of many details for delivery of the two 100 ton chain hoists on our Contract N00612-87-T531. NAVSHIPYD Charleston appreciates the quick action and delivery to support our schedule for loading the two new portal cranes and shipment to Holy Loch.

2. Enclosure (1), shows the new (310 ton lift) cranes being moved in Holy Loch by SMT International floating crane, TAX LIFT-6 to US Navy Drydock, USS LOS ALAMOS (AFDB-7). Your 100 ton pneumatic powered chain hoists are used to level the new portal cranes so that the sixteen wheels will land on the rails simultaneously. The project was a great success as one new crane was loaded in the morning and the other one in the afternoon.

3. Please present one of these photographs to Mr. Plettenberg with our sincere appreciation for a job well done.

*A. H. ANDERSEN*  
A. H. ANDERSEN  
Acting

## James P. Colie & Assoc. Wins Contract To Refurbish S/S Norway

James P. Colie & Associates, Inc., a marine general contracting firm based in Hollywood, Fla., was awarded a contract for a refurbishment project on Kloster Cruise Line's S/S Norway.

The four-week project, designed

by Yran & Storbraaten, architects, and to be carried out at Newport News Shipbuilding, is due for completion in late September.

A large portion of James P. Colie & Assoc. work will include new fabric wall coverings, laminates, paint, upholstery, ceiling work, tabletops, lighting and art restoration in the Windward Dining Room.

Also planned are redesigned banquettes, new signage and a modification to the entrance for A Club

Called Dazzles, among other work..

## Hempel To Display Environ Protection Products At Upcoming Shows

The Hempel Group, which has grown from a single production unit in Copenhagen in 1915 to become one of today's largest suppliers of

marine coatings, will be present at both NEVA '93 and the Tanker Industry Convention.

At NEVA '93, the Hempel exhibit will feature two products which show how technology is capable of providing protection coupled with environmental care.

Hempadur 4515, a two-component polyamine-cured epoxy possesses inherent toughness, low water permeability and exceptional adhesive properties to marginally prepared surfaces.

In addition, the high-volume solids provide not only lower volatile organic content (VOC) emissions but also economy, through increased square foot coverage.

A low-temperature curing variety, Hempadur L.T.C. 4514 is available, providing an application temperature window down to minus 10- to 15-degrees Fahrenheit.

Combic 7199 TinFree is reportedly the world's first tin-free antifouling capable of being specified drydocking intervals of up to five years.

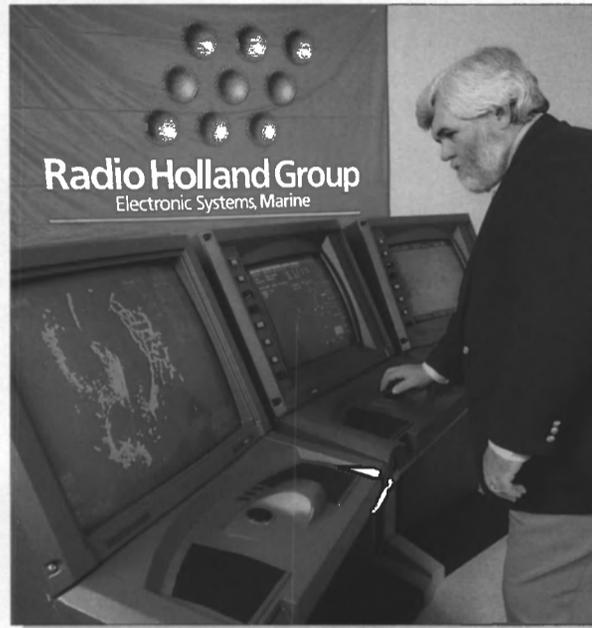
Some of the product's reported advantages include: low square foot cost, tin-free roughness control, high polishing rate, low dry film thickness and extended predictable performance.

At the Tanker Industry Convention in London, the Hempel exhibit will concentrate on the protection requirements of this particular section of the marine business.

Ballast spaces, one of today's issues, is a challenge met with Hempadur L.T.C. 4514 and 4515 selections.

In addition, Hempel will introduce the first Windows-based computerized resistance information system for users of Hempel's Catalyst Barrier zinc silicate, phenolic epoxy tank coatings.

The system is a further development of Hempel's Cargo Protection Guide.



# nucleus - the new definition of modern radar!

The Kelvin Hughes NUCLEUS Series Color ARPA Radars are redefining the modern radar for the shipping industry.

The NUCLEUS Color ARPA combines innovative target tracking/plotting and integrated data acquisition capabilities with speed, accuracy, screen definition, ease of operation, and highest reliability. To overcome rows of confusing buttons and controls, this ergonomically designed, color ARPA utilizes a simple tracker ball and three push buttons for all operations, making it one of the fastest, most user-friendly navigational radars on the market today.

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Other standard features include interswitching, dual preset Guard Zones; the NAVCARD for extended, customized map creation, storage, and retrieval; and an improved plotting facility. The ARPA also features a simulator for training and maintenance tasks.

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## New Paxman VP185 To Enhance Manufacturer's Engine Line

The new Paxman VP185, an innovative new engine from this well-known manufacturer, is intended to enhance Paxman Diesel's existing engine line.

The VP185 is not intended as a successor to the manufacturer's Valenta engine line, as was reported in a July 1993 editorial by contributing editor Marcus Gibson.

According to Paxman, the Valenta will continue production for many years to come, and continue to enjoy a first-class reputation among customers.

The VP185 is capable of producing 2 MW at 50 and 60 Hz operating frequencies.

For free information on the innovative new Paxman VP185, contact the manufacturer's Valenta engine,

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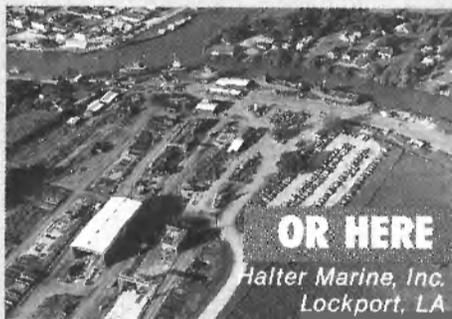


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### BridgeMaster



## Kvichak Marine Delivers First Of 12 OSRVs To NRC



The first of 12 oil spill response vessels designed and built by Kvichak Marine Industries for the National Response Corporation is now undergoing sea trials in Seattle prior to its delivery.

The first of 12 oil spill response vessels (OSRVs) being built for the National Response Corporation (NRC) has been delivered by Kvichak Marine Industries of Seattle.

The work boats will be sent to their Eastern seaboard stations throughout the summer at about one-week intervals.

Following sea trials for the first boat, which were conducted in June, NRC national equipment manager **Bob Governale** said, "We specified a boat that was to be cost-effective, yet safe and functional for multi-tasking, and expected a compromise as a result.

Much to our surprise and delight, though, we have a vessel that maneuvers well, is safe, performs more than the specified power and is easily handled by a crew of two. The boat exceeds expectations."

The all-aluminum boom handling/skimper support boat is 28 feet long, with a beam of 11 feet and a depth of approximately six feet. It is

powered by a 300-hp Caterpillar 3116 diesel, driving a 28- by 24-inch four-bladed stainless propeller through a Twin Disc 5050 2.5:1 reduction/reversing gear.

In addition to a speed of about 16 knots, the vessel achieves a bollard pull rating in excess of 4,500 pounds. Other features of the Kvichak design include a fully-enclosed pilot house for all-weather operations, a mechanical davit with winch, a tow post, push knees and full-perimeter four-inch D-rubber. Construction is of marine-grade aluminum throughout, with 1/4-inch hull and side plating, 3/8-inch chine plate, and 3/16-inch decking. "We're very proud of this vessel and the way it performs," commented Kvichak vice president **Keith Whittemore**.

"Working with the NRC people has been a real pleasure. They knew what they wanted and they've worked very professionally with us to achieve their goals."

## Marco Prepares Fleet For Season



The crabber Bering Sea, being repaired at Marco.

Shipyard activity at Marco intensified this spring as the Seattle yard performed pre-season modifications and repairs on members of the North Pacific crab and trawl fleet.

Substantial steelwork was accomplished on the crabber Bering Sea with the addition of raised bulwarks at fore and amidships. These modifications were intended to protect the crew during crabbing operations and to minimize icing during winter-weather fishing.

Trident Seafood's trawler Flying Cloud visited the yard for repowering and CP propeller and

shafting replacement. The vessel's auxiliary generator set was replaced and topside ventilation trunks were modified to improve the vessel's downflooding characteristics. The vessel headed north with a complete bottom and topside paint job. The Marco-built and -sponsored crabber Aleutian Spray was in Marco's yard for the addition of a bulbous bow and for repairs to its wave-damaged pilot house. Marco's shipyard crew has removed tonnage frames to increase cargo capacity of the crabber/processor Odyssey. A new cargo elevator has also been installed. Norseman Fisheries' crabber West Point has become an RSW tender as well with Marco Shipyard's addition of a refrigerated seawater system and new fishhold drain screens. Yet another crabber, Ocean Fury, was in the yard for shaft alignment and other routine work.

The Marco-built, Marco-sponsored and -lengthened crabber Sea Venture returned to Marco Shipyard for installation of a raised bulwark and shelter on forward port side of the working deck. Marco also replaced her stern tube and tailshaft, and realigned her shaft line and main engine. The vessel received a new pot hauler with accompanying hydraulics and new topside and bottom paint.

## Navy Bid-Rigging Cases Settled By Japanese Companies

The U.S. has received more than \$1 million from 27 Japanese construction companies to settle claims of rigging bids on contracts at the U.S. Naval Base at Sasebo, Japan, during the 1980s.

The Navy had requested competitive bids on contracts for construction projects at the base on the island of Kyushu near Nagasaki. The Naval Investigative Service, however, found the companies had rigged their bids to manipulate and increase contract prices.

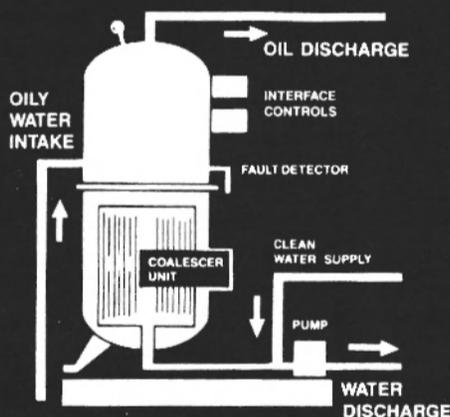
Approximately \$72 million has been recovered from settlements involving bid-rigging cases in Japan since the end of 1989. Some companies reportedly claimed to have settled to avoid a costly legal dispute, denying bid-rigging.

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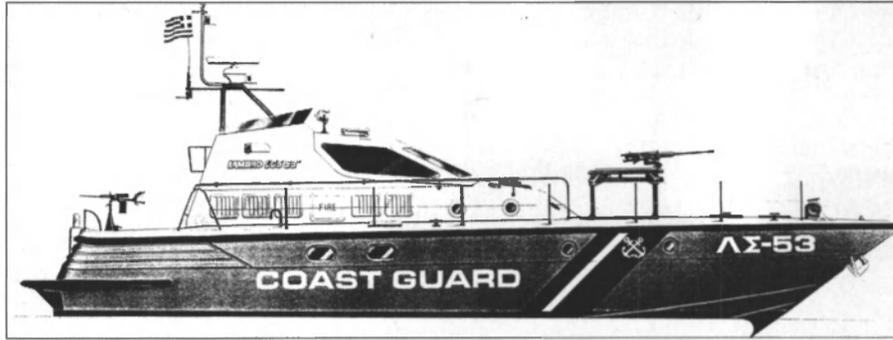
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## BOATS AND BARGES

### Greek Yard Gets 13-Vessel Order From Hellenic Coast Guard



An order for 13 patrol craft has been placed with Motomarine (Athens) by the Hellenic Coast Guard, and the possibility exists for another 32 additional units to be awarded next year.

The GRP hulls are molded to ABS requirements by Colvic Craft (Colchester), and are supplied complete with superstructure, engine girders, stern gear and stainless steel fuel tanks. The design is based on Colvic Craft's standard Sunquest-53 motor yacht, a hull designed by John Bennett, but features a modified superstructure.

The hull has a sharply raked stem, transom stern and is subdivided by five bulkheads into several main compartments.

Propulsion of the vessel is by two 10-cylinder MAN D2840-LXE diesel engines driving twin shafts through MPM single-reduction/reversing gearboxes, with exhaust trunking let to the stern below the waterline. Access for engineering stores, spares, etc., are through deck hatches on each side at the fore end of the engine room.

Helm and engine controls are provided in the wheelhouse, with access to the accommodation forward by a stairway, and to the engine room under via a deck hatch. In addition, there is an open bridge backing the superstructure, offset to port, with duplicated helm and engine controls, over which there is a tubular support for the surveil-

lance radar. On the fore deck there is a ring mounting for a 12.7mm machine gun, while a pedestal mounting for a 7.62mm machine gun is provided in the aft. The overall length of the vessel is 53 feet, with a 15-foot beam and a 7.5-foot draft. The vessel has a top speed of 30 knots, and claims a 500 nautical mile range at 25 knots.

### NASSCO Awarded \$635 Million Contract For Conversion Of Three Strategic Sealift Ships

National Steel and Shipbuilding Company (NASSCO) has received a \$635 million contract from the U.S. Navy to convert three L-Class containerships to Strategic Sealift ships.

The engineering and planning work required to convert the ships will begin immediately.

Production of the three ships is expected to be completed by the end of 1995.

The award is projected to provide continuing employment for approximately 1,200 people during this period. NASSCO's current work force is nearly 3,700.

The three-ship agreement, a fixed-price incentive contract, raises NASSCO's current backlog to \$1.2 billion.

Included in the company's back-

log are four AOE-6-Class Fast Combat Support ships for the U.S. Navy and a variety of repair work.

The three containerships will be purchased from the Maersk Line Ltd., the U.S. ship owner and operator of the Danish A.P. Moller Group.

The ships will be converted to Ro/Ro configuration to accommodate wheeled vehicles, track vehicles and helicopters.

The ships are intended to provide prepositioning readiness and transport and partially satisfy the national need for increased sealift readiness and capacity.

NASSCO won three of the five conversion contracts awarded by the Navy.

The remaining two contracts were awarded to the Newport News shipyard in a Strategic Sealift Conversion award that totaled \$425 million. (See story below)

### \$425 Million Navy Pact Awarded To Newport News Shipbuilding

Newport News Shipbuilding, Newport News, Va., a unit of Tenneco, has received a contract from the U.S. Navy valued at \$4 million for design and other work on two Sealift cargo vessels used to transport military equipment.

The company claims its shipbuilding backlog as of late June was \$1.2 billion, and work is expected to start on the new contract immediately.

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## Elliott Manufacturing Acquires Stow Manufacturing's Valve Control Product Line

Elliott Manufacturing Co. and Stow Manufacturing, two of the world's largest producers of valve control products, have recently joined forces.

According to **George M. Scherer**, president of B.W. Elliott Manufacturing, Elliott and Stow Manufacturing have signed an asset-purchase agreement transferring to Elliott all of Stow's assets involved in remote valve operator production.

With the acquisition, Elliott plans to expand its share of the marine and nuclear markets by more aggressively moving into new growth

niches.

Stow will concentrate its efforts on continuing growth in the circuit-assembly and construction-equipment markets.

Customers of both Stow and Elliott should benefit from Elliott's acquisition.

In addition to expanding its valve control product line, the acquisition reportedly positions Elliott as the largest flexible-shaft company in the

U.S. Flexible shafts are an integral part of many remote valve operating systems, including Elliott's Uniflex Remote Valve Operator (RMVO).

"Uniflex" has gained wide acceptance among all major government procurement agencies, including NAVSEA.

Stow valve control customers' requirements will be handled by Elliott, effective immediately.

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### MERCHANT SHIPPING

**PROBLEM:** limited capital equipment funds; small crews; extended maintenance periods.

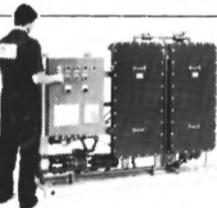
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### NAVAL VESSELS

**PROBLEM:** adverse operating conditions; NATO compatibility; exacting design criteria.

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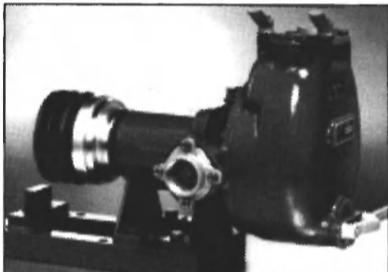
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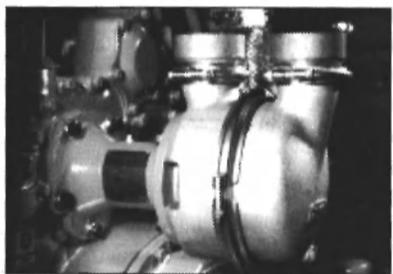
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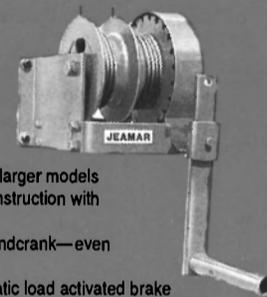
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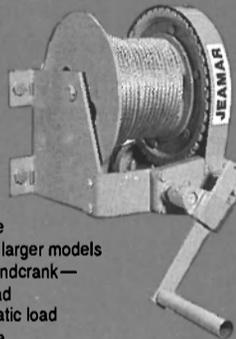
### WGCF SERIES

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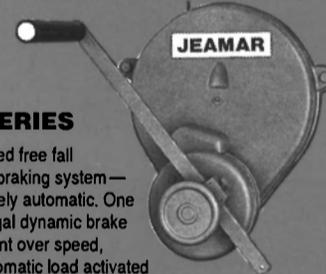
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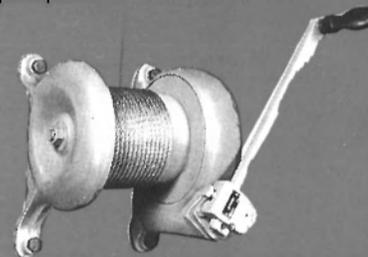
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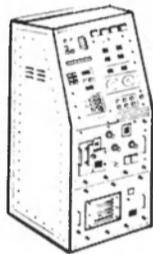


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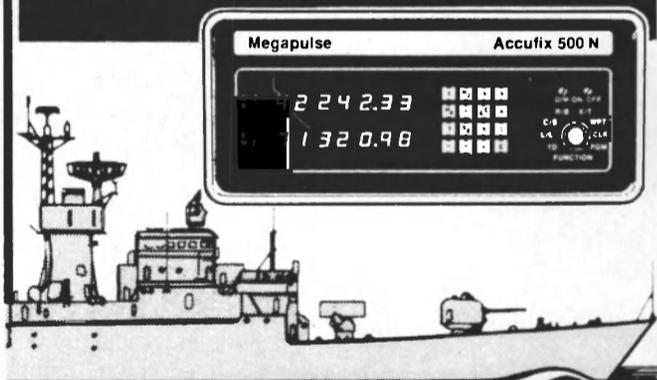
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## CRUISE SHIP SAFETY

# U.S.C.G. To Strengthen Enforcement Of Cruise Ship Safety Standards

Nearly all (137 out of 139) cruise ships operating in U.S. ports are registered (or "flagged") with foreign countries. International safety standards for such ships are set through the International Maritime Organization (IMO), a United Nations agency. A ship's flag nation is responsible for certifying the ship's compliance with safety standards, although many nations delegate this task to classification societies, which perform safety inspections under contract. The country where the ship calls (the "port state") can conduct its own ship examinations to verify compliance with international standards and can detain a ship if it finds significant noncompliance. The Coast Guard performs these examinations and enforces standards in U.S. ports.

Through its safety examinations, the Coast Guard continues to find safety problems on cruise ships, including inoperable fire doors and improperly designed escape routes. Key reasons for these problems include inadequate inspections by flag nations or classification societies and differing interpretations of some key international safety standards. IMO has begun efforts to identify needed reforms. However, the Coast Guard has not adequately assessed information, nor shared it with IMO, on the extent of substandard safety oversight by flag nations and classification societies.

The Coast Guard's own examination program can be improved in two respects. First, the Coast Guard needs to more effectively collect and analyze its cruise ship examination results, because its current automated system does not routinely track repeated deficiencies or detect deficiency trends by individual companies, flag nations, or classification societies. Second, the Coast Guard needs to provide additional training on international safety standards for its inspectors.

International standards contain limited training requirements for crew members responsible for fighting shipboard fires. Since 1979 IMO has recommended, but not required, that fire squad members receive additional training in fighting shipboard fires.

Inspections by flag nations or surveys by classification societies are the primary check to ensure that international safety standards are met. However, the Coast Guard's port state examinations have identified instances in which flag nations or classification societies did not consistently identify or resolve problems that affect a ship's safety. For example, a Coast Guard examination aboard a cruise ship in October 1990 found inoperable fire doors and a possible leak in the hull, among other problems. The ship had received a classification society's approval just six days before. Open-ended language in the standards results in some key safety requirements being left open to the flag nation's interpretation, such as the design of

emergency escape routes.

The Coast Guard has held maritime workshops and promoted initiatives at IMO to strengthen flag nations' and classification societies' oversight. However, additional Coast Guard actions are needed to assist IMO in strengthening certain flag nation inspector requirements, such as the personnel and training needed to perform effective safety oversight.

In the past Coast Guard inspectors received only one hour of formal training on international safety standards. Inspectors said additional training would provide more consistent enforcement of safety standards. The Coast Guard plans to add more training in 1993.

Fire investigations and routine Coast Guard examinations have both questioned crew members' ability to respond to shipboard fires. For example, the National Transportation Safety Board has issued six reports on foreign cruise ship fires since 1980, five of which conclude that the incidents were marked by poor crew fire fighting, ineffective responses, or both. Under current international standards, most crew assigned to fire squads are not required to receive training other than to participate in period drills and shipboard instruction. Repeated Coast Guard examinations suggest that these drills and instruction have not been sufficient, because fire squad members were repeatedly incapable of performing satisfactory fire drills. Crew members who are required to receive formal training are not required to update it, even though shipboard fire fighting techniques have changed in recent years.

Between 1979 and 1990 IMO adopted a series of nonmandatory recommendations calling for additional formal training courses and certifications of proficiency. Eight companies reviewed had all taken some steps that exceed IMO requirements, but only one had implemented all of the recommendations.

International standards do not ensure that emergency information to assist in passenger evacuation is clear and readily available. Emergency symbols and terms were often unclear. Emergency information presented in passenger cabins was not always adequate, and effective escape route diagrams were not routinely used. For example, none of the eight companies provided emergency diagrams in dining halls or lounges showing the passengers' location in relation to emergency stations or showing more than one route of escape to such stations.

A Coast Guard group has considered a "system" approach to emergency escape by addressing several related safety standards, including those on emergency information, design of escape routes, and emergency lighting, in a single proposal. However, the Coast Guard has not decided whether to submit this approach to IMO, because it has not yet obtained international consensus on key elements.



**SNAME**  
**Centennial**



The Aquitania, as painted by Mr. Joe Wilhelm, was 901 feet long, 97.1-feet wide and was completed in 1914. The vessel was used as a troop ship in both WWI and WWII, and was part of the Cunard Line. The ship was scrapped in 1950. (Note: Joe Wilhelm is represented by Mystic Maritime Gallery, Mystic Seaport, Mystic, Conn.)

# SNAME Centennial

*Society of Naval Architects & Marine Engineers Prep For 100<sup>th</sup> Anniversary*



**A**t the forefront of disseminating technical information for the past century, the Society of Naval Architects and Marine Engineers (SNAME) is currently gearing up for its landmark 100<sup>th</sup> year celebration in New York this year.

Scheduled from September 14-19 at the New York Hilton & Towers in New York City, The SNAME Centennial Meeting and 1993 International Maritime Exposition will offer a full plate of exhibits, seminars and social events to make the 100<sup>th</sup> anniversary a memorable one.

The three day technical program features a set of landmark papers submitted and presented by some of the most qualified individuals in the industry. The topics of the papers to be presented include the future outlook of the industry, technical subjects, historical overviews and dis-

cussion of the U.S. and Canadian maritime industries. Other topics will include: shipyards and shipyard management; shipbuilding in the U.S.; sailing yacht technology; propulsion systems; double hulls; offshore platforms; ship maneuvering; naval ship design; ship affordability; and environmental considerations. More than 100 exhibitors, covering the gamut of the maritime industry, will have their wares on display at the exhibition portion of the SNAME centennial celebration. Located in the Americas Hall I and II, the exhibit will have hours on Wednesday, September 15 from noon to 5:00 p.m.; on Thursday, September 16 from 10:00 a.m. to 5:00 p.m.; and on Friday, September 17 from 10:00 a.m. to 4:00 p.m.

A three-day program of technical papers will begin on the morning of

Wednesday, September 15, with a history of the Society, a presentation on the Canadian maritime industry, and a look at the relationship of a thriving merchant marine to the rise and fall of nations. Papers on U.S. Maritime policy and shipbuilding of the future conclude the technical program for the day.

On Thursday and Friday, September 16 and 17, the balance of 16 papers will be presented. The wide selection of papers allow registrants an opportunity to hear and discuss today's technical and professional issues set in the broad context of past developments and future trends.

The first day of presentations will include two papers which examine the current state of maritime policy and shipbuilding and suggest direction and action to initiate change. "U.S. Maritime Policy—A Perspec-

tive and a Plan for the Future," **Joseph J. Cuneo**, is a proposal for a new maritime policy based on current world situation. "Revival of Commercial Shipbuilding in U.S.A.," by **Ole Skaarup**, is a businessman's review of the capacity of shipbuilding in the U.S., reasons why the industry has practically disappeared, and a proposal for revival.

Aside from the technical sessions, the meeting also includes several business meetings. The highlight is sure to be the Centennial Luncheon which features SNAME's president, **J. William Kime** and an "Assembly of Delegates" from sister societies. Tickets are free to member and member registrants, \$60 if purchased separately. The Business Session is scheduled for Thursday, September 16 at 2:30 p.m. in the Grand Ballroom (immediately following

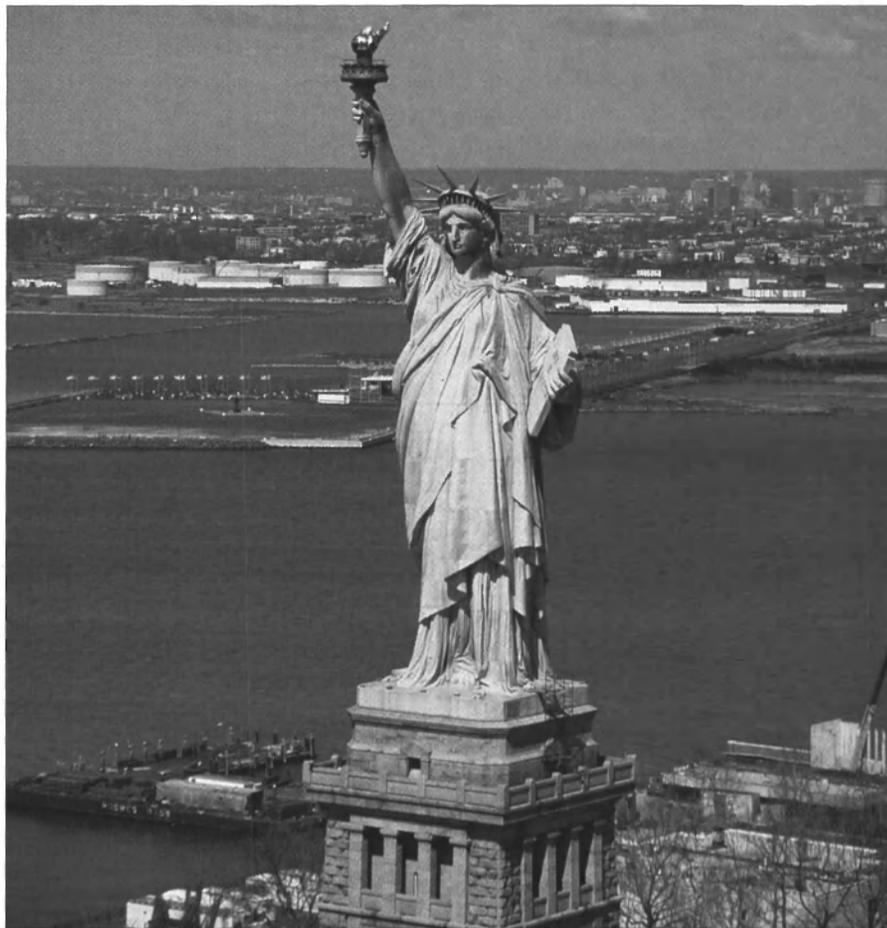
Centennial Luncheon). The agenda includes the presentation of society awards, a report on the elections from the Council meeting from September 14, and consideration of proposed amendments to the bylaws.

Finally, the Annual Banquet is set for Friday, September 17 at 7:30 p.m. in the Grand Ballroom. Festivities include the presentation of the Taylor, Land, Smith and Webb Medals.

For additional information on the SNAME Centennial Technical Program, contact SNAME at: 601 Pavonia Ave., Jersey City, N.J. 07306; tel: (201) 798-4800; fax: (201) 798-4975. For information on exhibiting, attending or obtaining passes to the Exposition, contact: **Linda Lemke**, Independent Expositions, 221 King Manor Drive, King of Prussia, Pa. 19406; tel: (215) 272-4024; fax: (215) 272-5190.

### SNAME Exhibitor List

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| lfa Laval Separation                                | Lloyd's Maritime Information System             |
| llied Systems Company                               | Lloyd's Register of Shipping                    |
| merican Bureau of Shipping                          | Loctite Luminescent Systems, Inc.               |
| merican Mobile Satellite Corp.                      | Lo-Rez Vibration Control Ltd.                   |
| merican United Marine Corp.                         | MAN B&W Diesel, Inc.                            |
| rchor Marine East Corporation                       | Maritime Research Institute Netherlands (MARIN) |
| rschuetz of America                                 | MKW Power Systems, Inc.                         |
| ollo International Corp.                            | MMC International Corp.                         |
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| . B. Arnold Co., Inc.                               | Marine Interface                                |
| lantic Marine, Inc.                                 | Marine Management Systems (MMS)                 |
| itoSHIP Systems Corp. (formerly Coast Design, Inc.) | Marine Technology/SNAME News                    |
| tronica Marine USA, Inc.                            | Mariner's Annual                                |
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| Shipping  | Maritime Reporter                               |
| ldt, Inc.   | McDonnell Douglas                               |
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| aird Industries - Maxim Evaporator Div.             | Mitel, Inc.                                     |
| rmuda International Business Mgmt.                  | NMP Corporation                                 |
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| atrac   | Newport News Shipbuilding                       |
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| cade General  | Offshore Systems International, Inc.            |
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| etrico, Inc.  | Pelmatic  |
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| . Elliott Manufacturing Co., Inc.                   | SSPA Maritime Consulting                        |
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| k Mohn Houston Inc.                                 | Scienco/Fast Systems, Inc.                      |
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| ard Technology Associates                           | Setcor, Inc.                                    |
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## Sites & Sounds Of New York

New York City has the honor of hosting the SNAME Centennial celebration. While attendees and guests will surely be kept busy with the conference and exhibition, ample time has been scheduled to allow those in attendance the opportunity to enjoy the New York metropolitan area. SNAME has arranged for a wide array of social events for attending members, as well as spouse/guest tours.

- (Spouse/Guest) SoHo/Greenwich Village/Coffee House Tour: Tuesday, September 14, 1:00 to 5:00 p.m.
- Ellis Island Tour: Wednesday, September 15, from 12:30 to 5:30 p.m.
- (Spouse/Guest) Breakfast at "Bloomies:" Thursday, September 16, 8:30 a.m. to noon.
- South Street Seaport Tour: Friday, September 17, from 12:30 to 4:30 p.m.
- Sagamore Hill and Webb Institute of Naval Architecture: Saturday, September 18, from 9:00 a.m. to 4:00 p.m.

### SPECIAL EVENTS

- Dinner Cruise: Saturday, September 18, 6:30 to 10:30 p.m. aboard the "Spirit of New York"
- Farewell Breakfast: Sunday, September 19, 9:00 to 11:00 a.m., in the Rendezvous Trianon.

## THE INCORPORATORS

The Society of Naval Architects and Marine Engineers enjoys a history rich with successes. The following is a list of the original members of SNAME.

<b>William H. Webb</b> .....	<b>1816-1899</b>
<b>Charles H. Cramp</b> .....	<b>1841-1913</b>
<b>H. Taylor Gause</b> .....	<b>1852-1925</b>
<b>George E. Weed</b> .....	<b>1839-1917</b>
<b>William T. Sampson</b> .....	<b>1840-1902</b>
<b>Horace See</b> .....	<b>1835-1909</b>
<b>Frank L. Fernald</b> .....	<b>1835-1921</b>
<b>Francis T. Bowles</b> .....	<b>1858-1927</b>
<b>Washington L. Capps</b> .....	<b>1864-1935</b>
<b>Edwin D. Morgan</b> .....	<b>1854-1933</b>
<b>George W. Quintard</b> .....	<b>1822-1913</b>
<b>Harrington Putnam</b> .....	<b>1851-1937</b>
<b>Jacob W. Miller</b> .....	<b>1847-1918</b>



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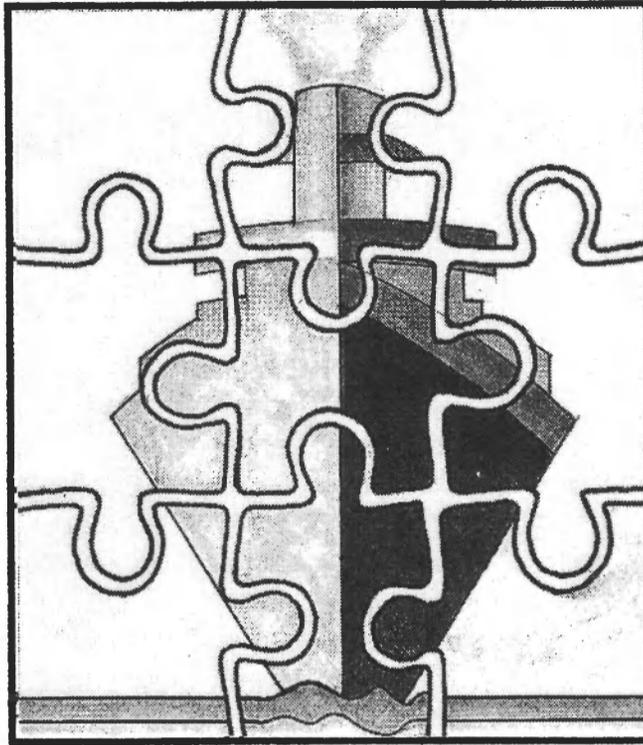
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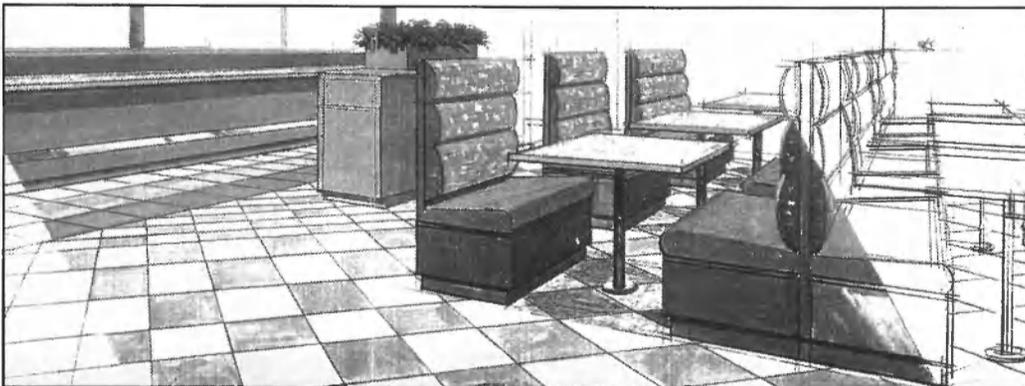
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# SNAME Calendar of Events

Wednesday, Sept. 15

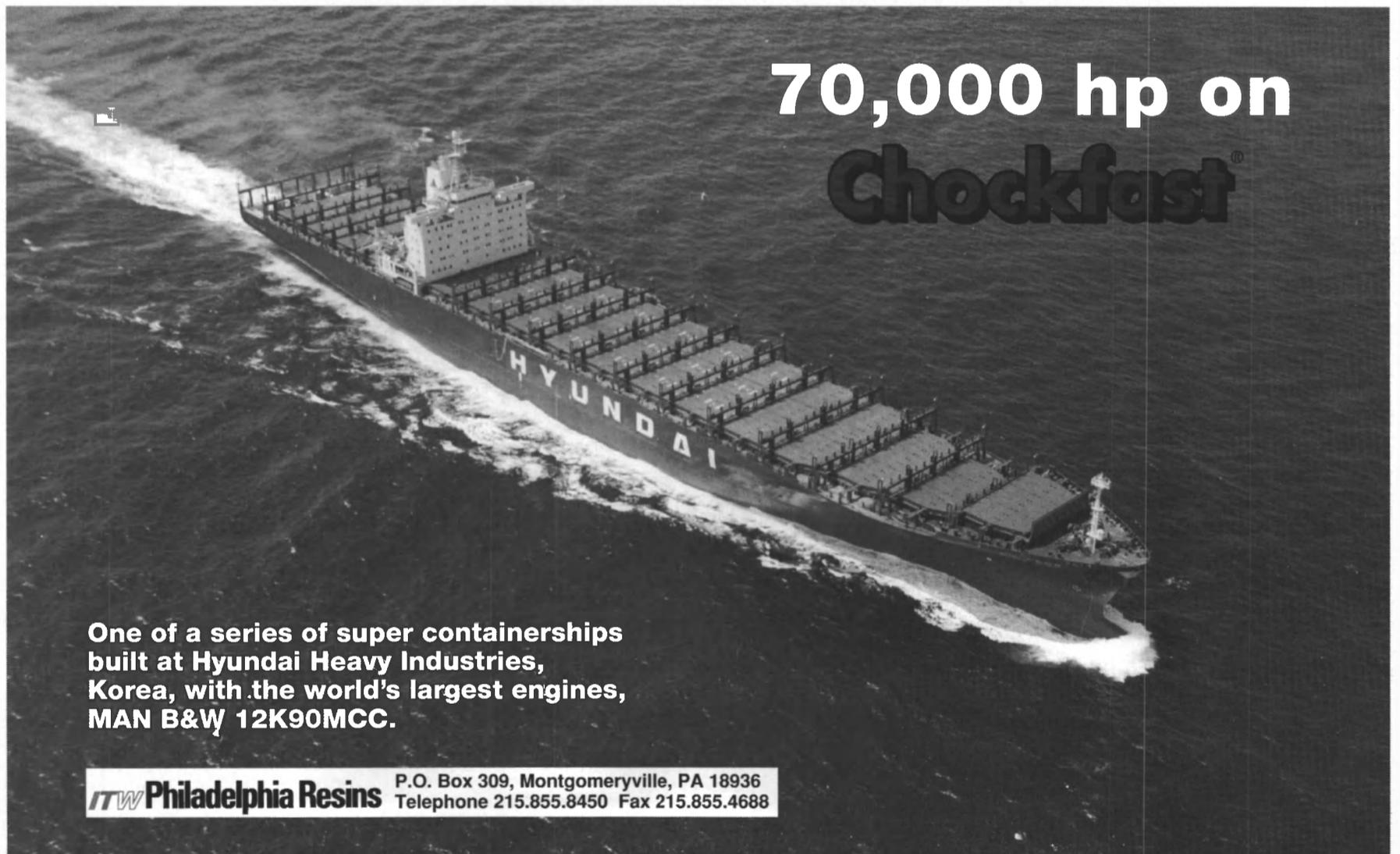
Thursday, Sept. 16

Friday, Sept. 17

Saturday, Sept. 18

	<i>Trianon Ballroom</i>	<i>Trianon Ballroom</i>	<i>Mercury Ballroom</i>	<i>Trianon Ballroom</i>	<i>Mercury Ballroom</i>	
8:30 a.m.	Papers No. 1,2,3: • "The Genesis of a Professional Society" • "Losing Control: What Happens When a Maritime Nation Has No Ships" • "The Canadian Govt.'s Role In Shipbuilding-Past, Present & Future"	Paper No. 6 • "One Hundred Years of Shipbuilding-A Shipbuilder's Perspective"	Paper No. 9 • "New Approach for the Design and Evaluation of Double Hull Tanker Structures"	Paper No. 16 • "Some Thoughts on Diesel Marine Engineering"	Paper No. 19 • "Naval Ship Design in the 21st Century"	<b>Tour # 3:</b> Sagamore Hill/Webb Institute of Naval Architecture (9:00 a.m.)
9:45 a.m.	Paper No. 4 • "U.S. Maritime Policy-A Perspective and a Plan For The Future"	Paper No. 7 • "Shipbuilding and Shipbuilding Management: 1943-1993-One Man's Perspective"	Paper No. 10 • "A Propeller Design Method for Unsteady Conditions"	Paper No. 17 • "Naval Architecture of the Electric Ship-Past, Present and Future"	Paper No. 20 • "Marine Environment Impacts on the Design of Ships and Marine Structures"	
11:00 a.m.	Paper No. 5 • "Revival of Commercial Shipbuilding in the U.S."	Paper No. 8 • "Contracting for the Building of a Containership in the U.S.-A Buyer's Story"	Paper No. 11 • "Marine Waterjet Propulsion"	Paper No. 18 • "A Review and Comparison of Ship Maneuvering Simulation Methods"	Paper No. 21 • "Improvements in Ship Affordability"	
12:30 p.m.	<b>Tour # 1:</b> Ellis Island Tour	Centennial Luncheon/Assembly of Delegates (GRAND BALLROOM) Business Session (2:30 p.m.)	<b>Tour # 2:</b> South Street Seaport			
3:00 p.m.	Papers No. 12 & 13 • "Predicting the Speed of Sailing Yachts" • "Naval Architectural Technology Used In Winning the 1992 America's Cup Match"	Paper No. 14 • "Floating Production Systems Past, Present & Future"				
4:15 p.m.		Paper No. 15 • "Deep Underwater Exploration Vehicles, Past, Present & Future"		<b>ANNUAL BANQUET</b> (In the Grand Ballroom; General Reception begins At 6:30 in the Grand Ballroom Foyer)		

**DINNER CRUISE:**  
(6:30 p.m. Sail Time)



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## Commemorative Publications & Events

SNAME has prepared several publications and events to commemorate the occasion. Here's a rundown on what's available.

- **"A Half Century of Maritime Technology: Historical Transactions of the Society of Naval Architects and Marine Engineers."** This focuses on the broad range of development in maritime technology during the period from 1943 to 1993. Topics range from "Aircraft Carriers," authored by **Barry Tibbetts** and the late **Robert Riggins**, to "Yachts and Other Pleasure Craft" by **Olin Stephens II**. Available free to all registrants.

- **"Speed on the Ship."** The history of the society, as written by **William duBarry Thomas**, chronicles the accomplishments and frustrations of 100 years of growth. Mr. **Thomas** is fourth-generation member and great grandson of a founder of the Society. Available free to all registrants.

- **Pictorial Postmark:** Thursday, September 16, noon to 5:00 p.m. on the Second Floor Promenade. A temporary post office, named SNAME Centennial Station, will be set up on this day only. Have your mail cancelled with this specially designed stamp.

- **Centennial Ship Model Gallery.** Ship models and a display of marine art will be open to registrants in America Hall II during normal exhibiting hours. The models on loan are provided courtesy of the U.S. Navy Curator of Ship Models, Kings Point's American Merchant Marine Museum, and Fort Schuyler's Maritime Industry Museum.



## United States: Cruise Ship Set New Standards For Quality And Performance

Built at Newport News Shipbuilding and Drydock Company and delivered in 1952, the 990-foot United States was truly a memorable cruise ship. The vessel was built at an approximate cost of \$72 million, and was capable of carrying a total of 3,101 passengers and crew. Powered by Westinghouse propulsion equipment, which generated 158,000 shaft hp, the vessel had

a cruising speed of 28 knots.

Gibbs and Cox, Inc., naval architects, were commissioned to draw plans for an "outstanding express liner of remarkable safety, speed and efficiency, and readily convertible to a troop carrier." From there it was just six years from initial idea to completion. The above illustration is painting of the grand ship from Joe Wilhelm.

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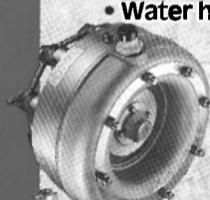
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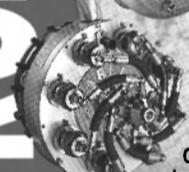
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## Top SNAME Awards To Be Presented At Centennial Meeting



SNAME once again this year, along with celebrating its 100<sup>th</sup> anniversary, celebrates the achievements of industry personnel via the bestowment of its prestigious awards, including the David W. Taylor, the

Vice Admiral "Jerry" Land, William H. Webb and Blakely Smith Medals for 1993. These honors, along with a variety of other awards and certificates, will be formally presented during the Centennial Meeting.

### • DAVID W. TAYLOR MEDAL

Given for "notable achievement in naval architecture and/or marine engineering," the society's David W. Taylor Medal this year goes to Captain **Harry A. Jackson**, USN (retired), for his contribution to the art and science of submarine design, which rank with the contributions to speed and powering made by the award's namesake. Specifically his work on the use of an air pressure vertical launch system for the Polaris submarine provided the U.S. with the capability of launching missiles while submerged.

### • VICE ADMIRAL "JERRY" LAND MEDAL

Captain **Perry W. Nelson**, USN (retired), a past president and honorary member of the society, receives the Vice Admiral "Jerry" Land Medal, presented annually "for outstanding accomplishment in the marine field." He has made significant contributions to the industry. His present position as president of M. Rosenblatt & Son gives him an active role in the design of both naval and commercial ships.

### • WILLIAM H. WEBB MEDAL

Professor **Howard M. Bunch**, professor of Naval Architecture and Marine Engineering at the University of Michigan, will be awarded the 1993 William H. Webb Medal "for outstanding contributions to education in naval architecture, marine engineering or ocean engineering." He has been a faculty member of the U of M since 1977, and a lecturer at the Massachusetts Institute of Technology since 1986. He is a leading advocate and spokesman for the shipbuilding industry in the U.S. academic community. In 1982 he was appointed NAVSEA professor of Ship Production Science of the U of M, a title which he still holds. He created and chaired the society's Ship Production Committee panel on education and training, and has served the society on several educational and publication committees.

### • BLAKELY SMITH MEDAL

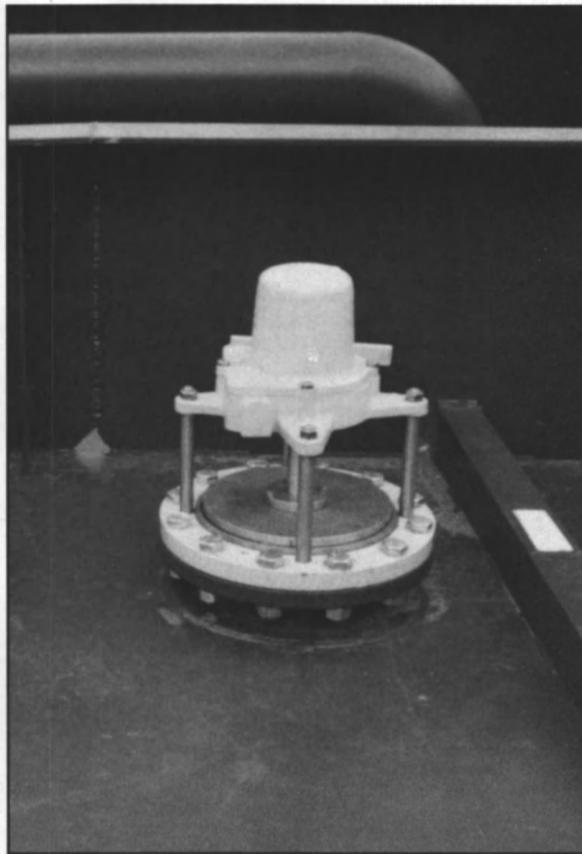
The 1993 Blakely Smith Medal "for outstanding accomplishment in ocean engineering" is being awarded to **Bruce C. Collip**, a consulting naval architect who spent his life as a naval architect and designer of offshore installations for the Shell Oil Corp.

Mr. **Collip** obtained a Bachelor of Science and Master of Science degree in Naval Architecture and Marine Engineering from the Massachusetts Institute of Technology (MIT). Upon graduation of MIT in 1954, he joined the Shell Oil Corp. where he spent his entire career involved in offshore exploration and development efforts, until his retirement in 1987. He was instrumental in devising many of the basic approaches to offshore systems which became standards of the industry.

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CENTENNIAL



1893-1993

## 100 Years Of Innovation

The contributions made by the Society of Naval Architects and Marine Engineers (SNAME) to the maritime industry have been considerable, to say the least. Since **Charles H. Cramp** delivered the keynote address at the initial SNAME meeting in 1893, the annual conference has been a thoroughfare used by many of the industry's pioneering personalities to deliver groundbreaking ideas. The following is a limited review of some of the more outstanding contributions SNAME members have made to the industry. (NOTE: Mr. **William duBarry Thomas**, a naval architect whose great grandfather was a charter member of SNAME, was instrumental in gathering the information that follows. For the SNAME Centennial, Mr. **Thomas** has put together a book entitled "Speed on the Ship" for SNAME, which reviews the association's first 100 years.)

• **Refueling: Spencer Miller**, of Lidgerwood Manufacturing, wrote a series of papers on "Coaling At Sea." In total, he wrote six papers between 1899 and 1914, and many of the principles which were put forth in those papers served as the basis for the way fuel is replenished at sea today.

• **Vibration Control: Frank Lewis**, a professor at M.I.T., is the acknowledged expert on vibration, and wrote five papers on the topic up to 1943, including his 1925 paper entitled "Torsional Vibration and the Diesel Engine." Prior to his work, vibration was a "black magic" situation, according to Mr. **Thomas**, and the papers he contributed were the foundation of vibration knowledge as we know it today.

• **Safety At Sea:** This area is arguably one of the most important in which SNAME members' contributions have been noted. In 1934 when fire ravaged the passenger ship Morro Castle—a watershed event for ship safety—the Congress appointed a special committee to recommend shipbuilding changes for fire protection. Rear Adm. **George H. Rock**, president of SNAME from 1934 to 1936, chaired the special committee which submitted recommendations which are the basis for modern fire prevention and U.S.

Coast Guard rules, said Mr. **Thomas**. Another SNAME member, **George G. Sharp**, coincidentally had written "Fire Control for Passenger Vessels" in 1933, before the Morro Castle incident. Mr. **Sharp** offered an updated version of the same title on safety at sea in 1937.

• **Propeller Design:** In the early days, the only basis for comparison of propellers was the performance of the last one built. According to Mr. **Thomas**, the real turning point in

propeller design came in the 1925 when theoretical propeller design, according to hydrodynamic theory, was discussed in detail at the annual meeting, sparked by a paper entitled "The simple method of designing propellers."

Perhaps, though, the biggest breakthroughs in propeller design came with, and closely followed, the development of computers.

• **Probabilistic Theory:** There have been quite a few important papers

given recently which apply probabilistic theory to the design of ship structure, survivability in collision or grounding, and most recently, the double hull tanker debate. Citing a paper which caused "spirited discussion," Mr. **Thomas** points to a presentation by Jeremy Hook in 1991, which addressed the OPA 90/ double hull tanker controversy from a probabilistic standpoint, and concluded that the so-called mid-deck design, under certain circumstances, might be a better alternative.



## We've won more battles than most navies

Your ship can be in danger before it ever touches the water. When it's being built...or overhauled...or repaired...schedule slippages, cost overruns and claims can sink you before you sail.

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If claims *do* occur, we're there—with your attorney—to resolve them. By negotiation or, if necessary, in court where our professionals serve as expert witnesses.

We've been on board with the Navy...Coast Guard...MARAD...commercial shipowners. And we're ready to climb *your* gangway.

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# International Maritime Exhibition

The following attendees guide is a limited review of the companies exhibiting their products and services at the International Maritime Exposition, the exhibition portion of the upcoming SNAME Centennial celebration.

Included for each company is a short write up of products / services to be shown by the company, as well as the company's booth number at the show.

For additional free information on the companies listed, circle the appropriate number on the Reader Service Card bound in this issue.

## ABB Turbocharger Company

**Booth Numbers 321 and 323**

ABB Turbocharger Company, North Brunswick, N.J., a member of the worldwide ABB Turbo Systems Group, provides applications engineering and a complete line of ABB (formerly BBC) exhaust gas turbochargers for engines above 500 kW. Also offered are new and reconditioned spare parts, and 24 hour field and emergency shop service. Shop services include turbine blade reconditioning, shaft metallizing and welding repairs, computerized rotor balancing and reconditioning

of bearing assemblies and lubrication pumps. ABB Turbocharger Company maintains an extensive inventory of spare parts ready for immediate shipment, with many reconditioned spare parts available on an exchange basis.

Circle 118 on Reader Service Card

## American Bureau of Shipping

**Booth Numbers 354-356**

The American Bureau of Shipping (ABS) will feature the ABS SafeHull<sup>®</sup> system at the SNAME Exhibition. The ABS SafeHull sys-

# SETCOR

## EQUIPMENT FOR THE LONG HAUL

SAAB MARINE ELECTRONICS, AB  
- SAAB TANKRADAR LEVEL GAUGING  
- SAAB CARGO CONTROL SYSTEM



OMICRON, AS  
- HIGH LEVEL / OVERFILL  
ALARMS

FGI SYSTEMS, LTD.  
- INERT GAS SYSTEMS

CONSILIUM MARINE, AB  
- GUNCLEAN TANK CLEANING  
EQUIPMENT.

See Us At SNAME Booth #112

## SETCOR, Inc.

2 DEAN DRIVE, TENAFLY, N.J. 07670  
TELEPHONE (201) 569-9300 • FAX (201) 569-8777

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## A MEDICAL EMERGENCY AT SEA COULD COST YOU THOUSANDS OF DOLLARS & HOURS OF PRECIOUS TIME.

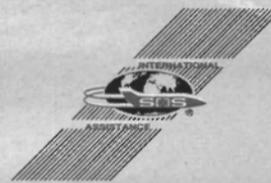
**PROTECT YOUR PEOPLE.** Your people are your company's lifeline. The employees on your ships deserve competent medical service at their disposal whenever and wherever they may need it.

**PROTECT YOUR COMPANY.** Your company depends on your employees. They depend on you to provide them with medical services they may need.

**PROTECT YOUR PROFITS.** Your profits are your bottom line. Preventing possible setbacks can save you thousands of dollars in the long run.

**SOS MARITIME<sup>®</sup> SERVICES** is available 24 hours a day, 365 days a year to help vessels at sea in the sudden event of an emergency. Doctor advice and referrals are on-hand to help in any situation, day or night. Protect your people now, so your company and profits are protected later.

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Fax 215.244.2227  
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Maritime Reporter/Engineering News

tem is a significant technological breakthrough to help create the ships of the 21<sup>st</sup> century and evaluate existing vessels using both engineering-first principles and the experience embodied in the traditional ABS Rules. With the ABS SafeHull system, designers can readily quantify the loads and stresses in a ship's structure in a comprehensive, integrated, realistic way. ABS SafeHull is a complete system that includes the newly formulated strength criteria and a fully supported software package for use on personal computers or engineering work stations. The system is being offered to meet the needs of designers, builders, owners and operators.

Circle 5 on Reader Service Card

## Atlantic Marine, Inc.

Booth Number 236

Atlantic Marine, Inc. has facilities in both Mobile, Ala. and Jacksonville, Fla. The Mobile repair and conversion division of Atlantic Marine can dry dock vessels up to 250,000-dwt. The new construction division, Alabama Shipyard, can build all sizes of inland and ocean-going vessels, offshore drilling rigs and heavy fabrication for industrial uses. In Jacksonville, Atlantic Marine and Atlantic Dry Dock has the capabilities to build vessels up to 350 feet and is equipped with two marine railways with a lifting capacity of up to 4,000 long tons.

Circle 111 on Reader Service Card

## Autronica Marine

Booth Numbers 548 and 651

Autronica Marine is a world class manufacturer of hi tech marine electronics equipment and will present the following at the SNAME Exhibition:

### Radar Tank Level Systems

Complete tank ship monitoring and alarm systems - cargo, ballast, service tank levels; inert gas pressure; cargo temperature; pump pressures; load computer; vapor recovery system pressure; draft/trim/list; independent high level/overflow alarms; etc. - sensors, electronics and hardware all made by Autronica.

Engine room monitoring and alarm systems

Fire detection systems with analog, addressable detectors (installed retro-fitted on most of the world's major cruise ships)

Diesel engine analyzer

Sensors and transmitters for shipboard temp., pressure, level, etc. monitoring.

Virtually all OPA 90 new double hull tankers are equipped with the above systems.

Circle 37 on Reader Service Card

## Barracuda Technologies Inc.

Booth Number 541

Barracuda Technologies Inc.

September, 1993

(BTI) is reportedly the only PVC foam manufacturing facility in either North or South America. The new Technical Center and Testing Laboratories in DeSoto, Texas has been involved with various projects such as the U.S. Navy Mark V Patrol Boat design, stealth vessels, commercial fishing craft, etc. BTI will be displaying a cross-section of a composite sandwich patrol boat at the SNAME Exhibition, as well as pho-

tos of stealth technology and literature about the new Technical Center and Testing Laboratories.

Circle 105 on Reader Service Card

## Boatrac

Booth Number 519

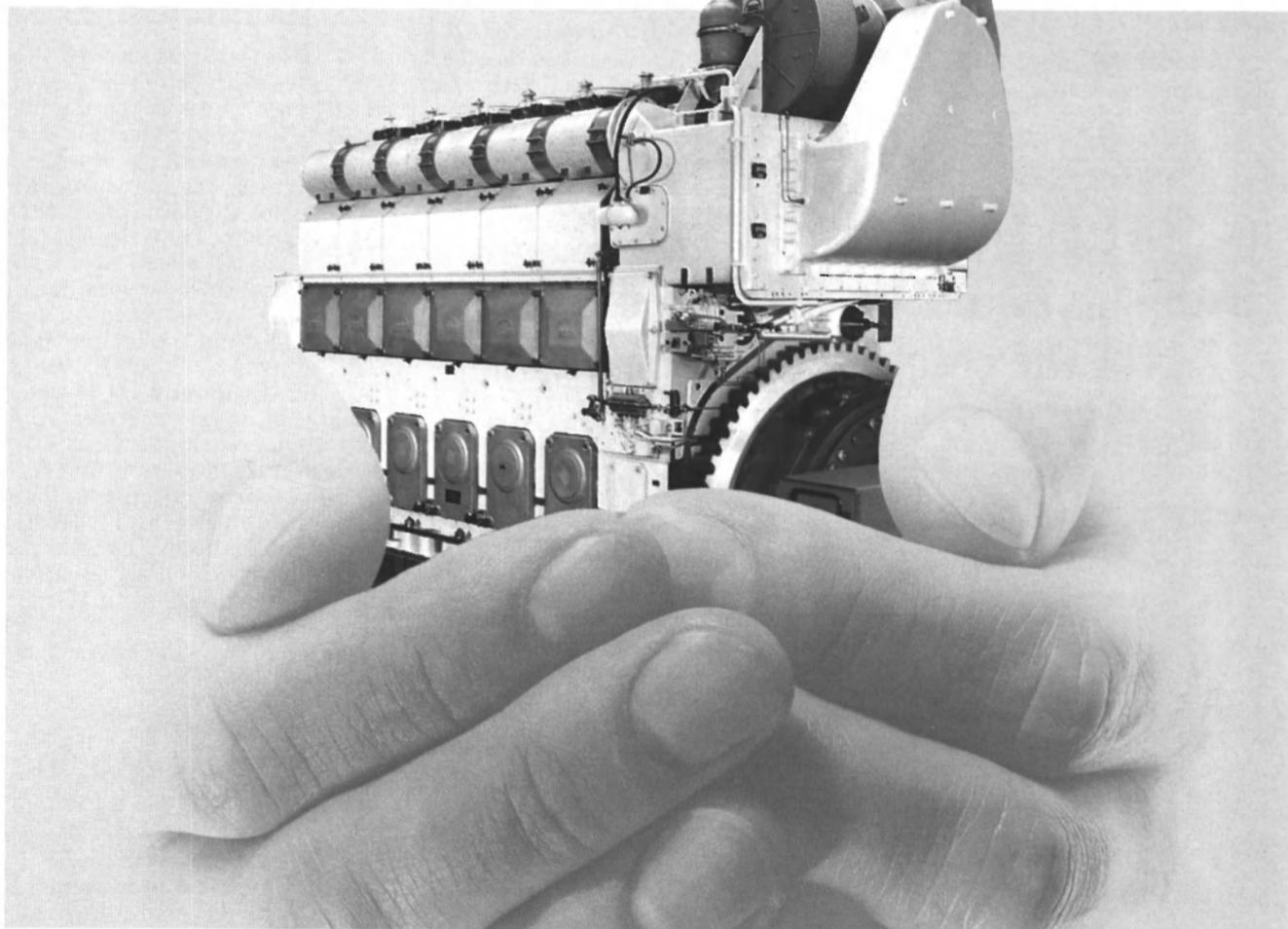
Boatrac's satellite communications and vessel-tracking system provides confidential communica-

tions within 200-400 miles of the U.S. coast between boats or to a phone, fax or computer. Hourly positions are automatically provided to fleet owners. Operational efficiencies and savings over other forms of communications are the advantages of Boatrac's satellite communications and vessel-tracking system. Great for single boat owners and fleet operators.

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# Out of the playpen

## Our Diesel youngster L 32/40



FS 269 E

The youngest offspring to emerge from the birthplace of the centurion Diesel engine in Augsburg answers to the name of "Thirty-two-forty" with a power range of 2 600 - 4 000 kW at 720/750 rpm.

### Diesel Technology in Progress

That the well-known MAN B&W qualities such as reliability, economy, heavy fuel compatibility and ease of maintenance have been further improved can be taken for granted. But an engine whose life expectancy reaches well into the next millennium must also shoulder a particular responsibility for the environment. That's why MAN B&W have designed their new engine with a twin camshaft. This configuration enables the fuel injection and charge renewal processes to be controlled independently, resulting in:

- optimum, load-sensitive adaptation of the valve timing and thus clean, low-emission combustion even in the lower load range,
  - minimized fuel consumption rate at all times, even with varying fuel grades.
- The new MAN B&W engine 32/40 - the leading edge of Diesel engineering - a prime mover born of ecological concern.

MAN B&W Diesel, Inc., 17 State Street, New York, NY 10004, Telephone (212) 269-0980  
MAN B&W Diesel, Stadtbachstr. 1, D-86153 Augsburg, Telephone (-821) 3220

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## Cedervall & Soner

Booth Number 122

Cedervall & Soner offers Cedervall shaft seals, bushes and intermediate bearings. Seals are available in fully split version facilitating any disassembling and/or installation without withdrawing shaft or dismounting propellers. Cedervall seals are especially suitable for ships operating in sandy and dirty water. Sand, mud, etc. can not enter through the seal and into the stern-tube, prolonging the lifetime of seals, bearings and shafts considerably.

Circle 106 on Reader Service Card

## Davit International

Booth Number 330

Davit International, with manu-

facturing and engineering offices in Houston, Germany and Holland, will be present at the SNAME Exhibition with affiliated companies American Block and Marine Equipment, Inc. Davit International designs and manufactures a wide range of marine deck machinery including cranes, davits, winches, capstans and fairleads, to the requirements of the U.S. Coast Guard, SOLAS, ABS, Lloyds, DNV and DOT, including the first U.S.-built Freefall Davit System for a U.S. Flag Tanker now under construction.

Circle 119 on Reader Service Card

## Detroit Diesel Corp.

Booth Number 502

Detroit Diesel Corporation (DDC) will make available at the SNAME Exhibition product and technical information covering the complete

line of DDC auxiliary and propulsion engines for all applications. The DDC product line includes electronically controlled diesel engines up to 2,400 bhp for displacement and planing hull installations, complete six station capability electronic control systems and displays for both engine and transmission, along with single source integrated propulsion systems for CODOG and CODAG installations, featuring the Lycoming TF40 marine gas turbine at up to 4,600 shp.

Circle 125 on Reader Service Card

## Diversified technologies

Booth Number 615

Diversified technologies (D<sub>i</sub>) is a world renowned salvage engineering firm providing technical support to salvage firms, operators, underwriters, regulatory agencies and marine support interests. D<sub>i</sub> has a full line of analytical capabilities for vessel modeling, salvage calculations, towing evaluations, firefighting system studies, mooring analysis and the technical support required by 33 CFR Part 150 (OPA 90). In addition, D<sub>i</sub> provides a full line of naval architecture and marine engineering services, as well as designing and manufacturing specialty marine equipment for salvage, firefighting and vessel response applications. D<sub>i</sub> will be demonstrating its calculative capabilities and showing videos of its equipment at work.

Circle 120 on Reader Service Card

## Electronic Marine Systems, Inc.

Booth Number 355

Electronic Marine Systems, Inc. (EMS) is a U.S. manufacturer of advanced marine products. EMS's products and services include:

- Ground Guard™/ground prevention technology
- DGPS Chart Viewer - Precision navigation using vector-based electronic mapping with survey accuracy.
- Worldwide Marine Electronic Chart Data Base
- Marcon Division - Microprocessor-based machinery control and monitoring.
- Sound powered telephones & PA systems
- Engine Efficiency Associates - Microprocessor-based ACCU consoles built to USCG/ABS/Lloyds.
- Engine order telegraphs
- Closed tank gauging with high alarm.
- High alarm with no moving parts.

Circle 121 on Reader Service Card

## Elliott Manufacturing

Booth Number 523

Products on display in Elliott's booth will include:

- UNIFLEX Remote Mechanical Valve Operators (RMVO)
- Vapor-Tight Valve Operators
- Rigid-Rod Valve Operators
- Flexible-Shaft Valve Operators
- U-Joints

Also, literature and technical manuals will be available.

Circle 38 on Reader Service Card

## Envirovac Inc.

Booth Number 124

Envirovac is a leading manufacturer of the EVAC Vacuum Sewage Collection Systems for the marine industry. Maximum flushing water consumption is three pints per flush. Design flexibility is enhanced by small diameter piping with vertical lift capabilities and no-slope requirements, allowing the pipes to be routed around objects. Envirovac also manufactures the ORCA line of MSDs (Type II Physical/Chemical Process) for vessels which carry 12 to 500 passengers, and over. The ORCA is compact, lightweight, easy to install and maintain, and is micro processor controlled and U.S. Coast Guard certified and IMO approved. Newly released is the ORCACLOR Automatic Electrolytic Chlorine Generator for use with the ORCA MSD. They will be providing brochures on its products at the exhibition.

Circle 39 on Reader Service Card

## Exxon Company Intl.

Booth Number 326

Salesmen and technical advisors will be available at Exxon's exhibition booth to answer commercial and technical questions regarding Exxon's successful line of marine lubricants, EXXMAR, which were developed for marine crosshead and trunk piston diesel engines. Information will also be available regarding other premium quality marine lubricants, Exxon's synthetic oil line and EXXCARE and EXXCAR PLUS oil analysis systems. EXXCARE PLUS is an extension of EXXCARE and monitors wear metals besides providing normal analysis and trend reporting. The system was designed to assist operators and ship's engineers with efficient care of Exxon lubricants in service, and to check wear possibilities of various shipboard equipment. They will also be displaying EXXKIT, Exxon's lubricant Test Kit for onboard analysis. A representative of Exxon US will also be in attendance to discuss applications of Exxon lubricants to the tug and inland waterways trade.

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**STACEY—**  
The cheapest way to blind a line.

**TIME.** One man can change the blind in minutes vs two men in hours. Better, faster, safer = savings.

**RELIABLE.** Absolute downstream protection. No leakage, no seepage, no surprises, less maintenance = savings.

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**VARIETY.** Made in all sizes, pressures, materials and codes.

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## Frank Mohn Houston, Inc.

Booth Numbers 332-334

Products and/or services Frank Mohn Houston, Inc. offers include marine products, turn key installations, complete system designs, prime movers, cargo pumps, piping systems, cargo heaters, fittings and control systems. Environmental products the company offers are oil recovery systems transrec 200-250-350. The company also offers emergency offloading systems, portable pumps and prime movers.

Circle 117 on Reader Service Card

## Furuno U.S.A., Inc.

Booth Numbers 415-417

Furuno U.S.A., Inc. will display its full line of Global Maritime Distress and Safety System (GMDSS) approved equipment including radiotelephones, digital selective calling systems, distress message controllers, NAVTEX receivers and more at the SNAME Exhibition. Furuno is a world leader in GMDSS and ARPA radar and is recognized around the world as a leader in marine electronics and a trendsetter in GMDSS development.

Circle 53 on Reader Service Card

## Glamox

Booth Number 353

Glamox, a Norway-based light fixture manufacturer, has established a production, sales, marketing and service presence in North America. Glamox is one of the world's largest manufacturers of marine and offshore light fixtures and is known for its commitment to quality. With almost 50 years of experience and sophisticated computer software, the Glamox Mariteam is ready to assist with all lighting requirements.

Circle 113 on Reader Service Card

## Golten Marine Co.

Booth Number 108

Golten Marine Company is part of the Golten Group of worldwide companies that have been serving ship owners, underwriters, ship and engine builders, offshore operators, as well as clients in power plants and process and mechanical industries for more than 50 years. Golten is an authorized supplier and repairer for most of the world's major diesel engine manufacturers. Golten's engineers and technicians are available "around the clock, around the world" to serve its customers. Its shop facilities are capable of handling almost any type of machining, planing, boring or milling operation, as well as piping, welding and steel fabrication.

Circle 122 on Reader Service Card

## Hagglunds Inc.

Booth Number 117

Hagglunds Inc. will be supplying

brochures and photographs of marine cargo cranes for commercial, offshore and military sectors. The products range from two-ton service and hosehandling cranes up to 60-ton cargo cranes (Twin mode up to 120-tons). All cranes are available from Hagglunds with a wide range of extra features for efficient cargo handling including steady-line, a micro-processor based cargo spotting device.

Circle 40 on Reader Service Card

## Hopeman Brothers

Booth Number 123

Hopeman Brothers is a leading U.S. marine interior contractor. They offer complete turnkey outfitting and material-only sales for new construction and refurbishment. The company has manufacturing plants totaling 800,000 square feet offering wall, ceiling, door and furniture systems. Their products are backed by architects, engineers, de-

signers and installation crews with global experience. With field offices on the East, West and Gulf Coasts, Hopeman Brothers stand ready to serve your needs.

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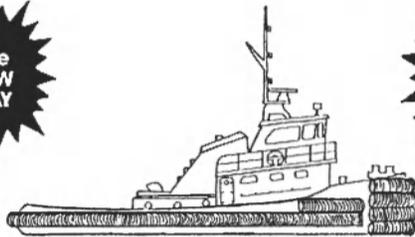
## Inexa Profil

Booth Number 120

Inexa Profil is a leader in the design and production of steel pro-

## VIKING FENDER CO

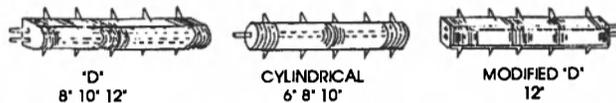
Complete Marine Fendering  
with  
Dockside Installation Facilities



When push comes to shove  
have a Viking on your side.

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### VIKING MODULAR FENDER\*



Viking modular fenders allow you to leave to the engineering to us! We at Viking have done all the time consuming engineering. Mounting plates manufactured into the fenders eliminate the need for chains, shackles, clips, bolts, hole alignment, and drilling. **SAVES TIME!** Simply position the fender and weld... what could be easier? Available w/ male/female ends for seamless fendering, male/male ends, or flat or angle iron steel ends. Manufacturing fenders in this 'NEW WAY' allows us to produce fenders before any orders are taken. Stocking fenders for immediate shipment **saves you more time** and in turn **saves you money.** **WE HAVE YOUR FENDERS IN STOCK FOR IMMEDIATE DELIVERY AT AN UNBELIEVABLE LOW COST! ...CALL TODAY FOR SPECIAL PRICING.**

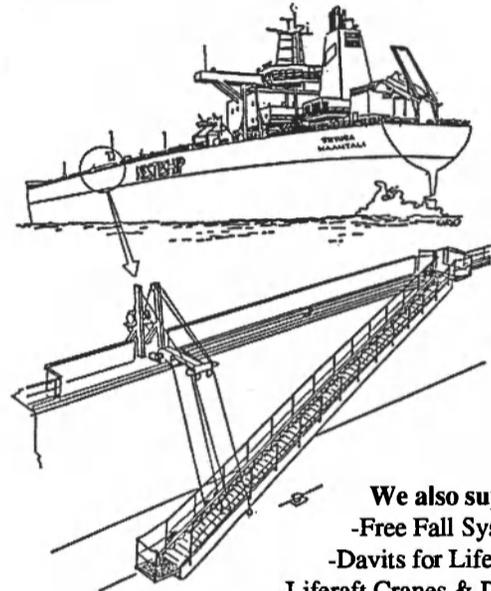
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Built on a commitment to quality, reliability and customer satisfaction.

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## We are the Leading Supplier of Accommodation Ladder Systems



We also supply:  
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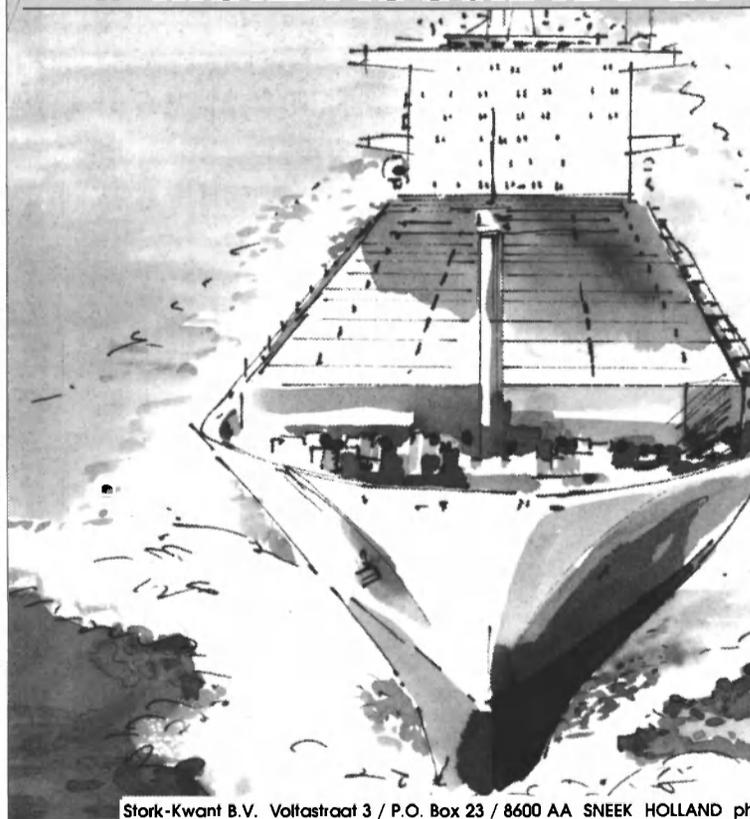


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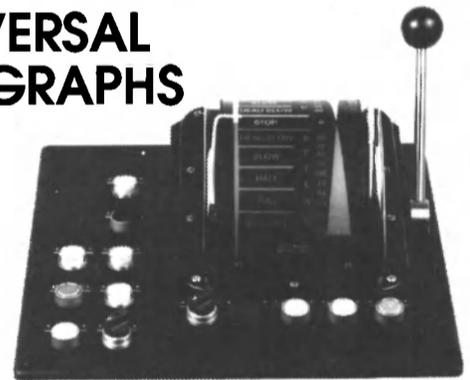
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Suitable for each type/make of Remote Control System.

On request provided with:  
• actual pitch indication  
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• electric shaft (for lever synchronization)

The Stork-Kwant Universal Telegraphs have been fully Type Approved by:  
ABS - BV - DNV - GL - CCS (ZC) - LRS - NKK - RINA -  
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Specials on request.

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# PAULUHN

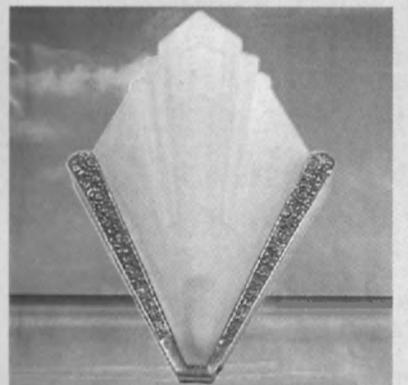
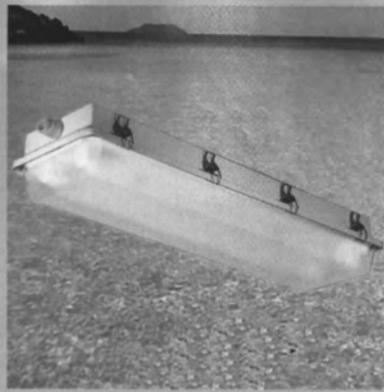
*Let Pauluhn shed some Light in solving your Marine and Corrosive environment lighting problems today!*

For over **70** years, Pauluhn has been providing the Marine industry with innovative lighting solutions in **Stainless Steel, Bronze or Marine-Grade Aluminum** for salt, water, wind, cold, extreme vibration, chemicals, moisture and other elements present in Hazardous and Corrosive environments.



*Pauluhn has a complete line of Incandescent, Fluorescent, HID, Hazardous location fixtures, as well as Decorative fixtures for Showboats. Call or write for our **NEW Product catalog**.*

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files for ship hull construction. The comprehensive shipbuilding product range includes the widest range of bulb flats in the world - from 100- to 650-mm - including the patent-pending Jumbo Bulb Flat, plus universal flats and welded sections. Inexa Panel, Denmark, formerly Rockment, is a member of the company group Inexa since July, 1993. Inexa Panel's product line - the TNF panels - is the shipbuilding industry

standard for quality in accommodation systems.

Circle 30 on Reader Service Card

## In-Place Machining Company

Booth Number 311

In-Place Machining (IPM) Company specializes in onboard machin-

ing of all types. Crankshaft repair is done while the crankshaft is in the engine.

This includes crankpin and main journal refurbishing. Line boring and optical alignment is performed for all diesel engines. IPM is also the only U.S. representative of Metalock International and does on-board Metalstitch<sup>®</sup> repairs.

Circle 107 on Reader Service Card

## International SOS Assistance, Inc.

Booth Number 402

International SOS Assistance, Inc., one of the world's largest provider of emergency medical services, will be marketing its new SOS Maritime Services<sup>™</sup>. Key benefits of the service include immediate access to SOS staff physicians by overseas



ENVIROVAC wishes to congratulate SNAME on its 100 year anniversary...

*Best wishes to the next 100 years!*



ENVIROVAC... world's leading manufacturer of vacuum sewage collection systems and the ORCA MSD. Serving the commercial and military marine industry with over 3,500 installations and an authorized service center network - worldwide.

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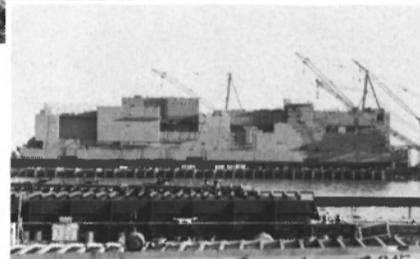
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ptember, 1993

Our work has put us in the hospital, sent us on a cruise, and even landed us in jail.



Marine accommodations for:  
The U.S. Comfort Naval Hospital,  
Viking Serenade, RCCL,  
Floating detention facility



For more than 70 years, Hopeman Brothers has provided joiner work for marine accommodations for nearly 3,000 ships. Our experience, expertise, and state-of-the-art facilities mean we can design and manufacture every element needed for your interiors. So call Hopeman Brothers, we can do it all.

## HOPEMAN BROTHERS, INC.

Products & Services Include:

Total Accommodations Outfitting:  
Design/Engineering/CAD  
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Bulkheads Furniture  
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Products Include:  
Deck coverings  
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West Coast: P.O. Box 13117, 2402 Main St., Chula Vista, California 91911 Tel: 619-492-9553  
Gulf Coast: 345 Doucet Road, Suite 200, Lafayette, Louisiana 70503 Tel: 318-981-0058

Circle 11 on Reader Service Card

75



radio, satellite, telephone and/or fax, access to customized pharmaceutical kits and personalized training in emergency medical protocol. SOS Maritime Services provides direct medical advice by radio and satellite communications, reducing unnecessary diversions, evacuations and medical expenses. SOS also recommends and supplies medical stores in a numerical format that is easy to use and saves valuable time in an emergency. Certificate programs in

emergency medical training are available for employees at remote worksites and aboard ships.

Circle 42 on Reader Service Card

## Inventory Locator Service, Inc.

Booth Number 508

Inventory Locator Service, Inc. (ILS) will demonstrate its electronic

marketplace services that bring buyers and sellers of parts and equipment together. Suppliers worldwide list inventories on the ILS database. Buyers in need of parts and equipment access that information using a personal computer with modem. Buyers can tell instantly who has the equipment they need, the quantity and the condition. ILS also gives buyers the information to contact the sellers directly. As an independent provider of information, ILS does not take part in any sales transaction.

Circle 49 on Reader Service Card

## KaMeWa

Booth Number 118

KaMeWa AB is one of the world's leading manufacturers of controllable and fixed pitch propellers, water-jet propulsion systems, tunnel and rotatable thrusters and related electronic control systems. KaMeWa's marine laboratory is one of the most advanced privately-owned facilities in the world, strongly contributing to the company's leading position in design and development of propeller systems. KaMeWa has a worldwide net of service stations including a service office in Fort Lauderdale.

Circle 129 on Reader Service Card

## RR Klattenburg Marine Agency

Booth Number 419

RR Klattenburg Marine Agency, sales representative for worldwide shipyard repairs, and spare parts suppliers for diesel engines, turbochargers and aircoolers, will be joined at the SNAME Exhibition by Mr. Wim Polman, Stork Services BV, to discuss the expansion of company activities to include Stork Pumps, Stork Gears and onboard diesel service.

Circle 123 on Reader Service Card

## Kockum Sonics AB

Booth Number 121

Kockum Sonics AB, Malmo, Sweden, belongs to the Swedish Prodeo Group of companies together with Kockum Sonics (U.K.) Ltd., Great Britain; Norselicht A/S, Norway; Kockum Sonics AG, Switzerland; Kockum Sonics Inc., Canada; and also, a new establishment in the U.S. The marine- and offshore-oriented activities include worldwide development production, marketing and service of the following four groups of products on display at the SNAME Exhibition:

- Acoustic signalling equipment
- Searchlights and floodlights
- Levelgauging Equipment
- Cargo planning systems

All products meet international regulations and standards as well as the latest criteria of all major classification societies.

Also exhibiting at Booth Number 121 will be Norselicht A/S. Norselicht A/S belongs to the Swec



## KAMAG really moves it for you!

Recent years have seen a revolution in the traditional methods of shipbuilding. KAMAG equipment has allowed existing shipyards to adopt new methods and greatly increase productivity. Flexibility is the key to success and KAMAG can deliver it!

The following applications are all possible with KAMAG transporters:



- Ship module or section transportation is a standard application for elevating platform transporters. Payloads typically range from 100 to 1500 tons.
- Elevating platform transporters can also carry large mechanical items, as well as moving pallets loaded with raw materials, steel plates, scrap, and other items.
- Side to side and / or end to end coupling allow our modular transporters to carry loads of 8000 tons or more, especially useful during the fabrication of offshore all platforms.
- Cassette lifters and Automatically Guided Vehicles (AGV's) are other unique KAMAG Port Handling Equipment.

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Customized solutions for all types of vessels:

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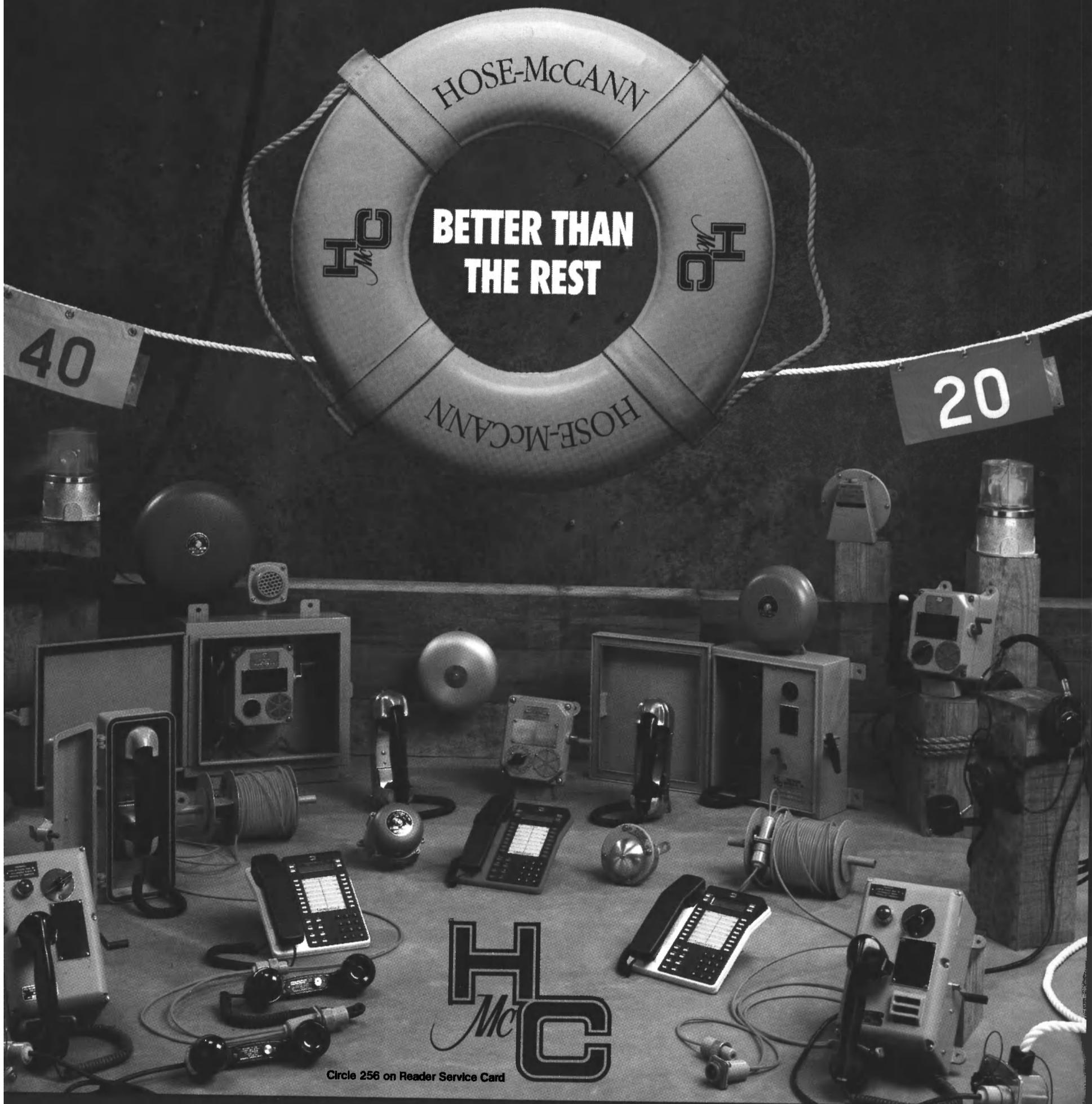
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ish Prodeo Group and markets searchlights and floodlights for all kinds of applications, from small fishing vessels to large offshore installations.

Circle 72 on Reader Service Card

## Kopcke International (USA) Inc.

Booth Number 609

Kopcke Houston commenced operations March, 1993 as a full-range marine supply organization meeting the needs of vessels trading in the Ports of Texas and Louisiana. The parent organization, Kopcke International, headquartered in the Rotterdam Port area, felt there was an opportunity to combine the longstanding European emphasis on service, quality and competitive pricing with the talents and expertise of a local American management team located in Houston.

Kopcke Houston also provides a stocking point for the group's engineering, reconditioning and ship repair firm, Polmar Engineering. Polmar reconditions spares such as valve spindles, valve seats, piston crowns and cylinder covers for a variety of main engines including Sulzer and B&W.

Parts are fully reconditioned to class specifications in Polmar's Rotterdam facilities and are now available from stock in Houston.

Circle 124 on Reader Service Card

## Kvaerner Masa Marine Inc.

Booth Numbers 624, 626 and 628

Kvaerner Masa Marine, Inc. (KMM) is a Naval Architecture consulting company which offers the advanced marine technology available through its membership in the Kvaerner group. This year at the SNAME Exhibit, KMM will be joined by several associated companies including:

- Kvaerner Ships Equipment - Ro/Ro ramps, hatches
- Kvaerner Eureka - cargo access equipment
- Max Honkanen Inc. - heel stabilization systems
- United States Shipbuilding Consortium - innovative shipbuilding strategies
- B.C. Research Ocean Engineering Centre - ship model testing facility

Circle 116 on Reader Service Card

## Leistritz Corporation

Booth Number 215

Leistritz Corporation will promote screw pumps for various shipboard services, such as:

- Cargo pumping
- Cargo stripping
- Lube oil services
- Fuel oil services
- Hydraulic service for CPP propellers

- Steering gears
- Deck machinery.

Service and spare parts are available from Leistritz Corporation on the East and West Coasts of the U.S., as well as Canada.

Circle 133 on Reader Service Card

## Loctite Luminescent Systems Inc.

Booth Number 237

Loctite Luminescent Systems Inc., a world leader in electroluminescent (EL) technology with more than 20 years' experience designing lighting applications, will be presenting Lifeline™ Low Location Lighting System, as required by SOLAS.

Lifeline has been proven to direct occupants effectively to safe egress from passageways darkened by smoke or power failure.

The system, which evolved from one developed for commercial aircraft, is notable for its high visibility in smoke, due both to its physical location near the floor and also to the inherent properties of its light source, EL light.

Lifeline is reportedly a rugged, solid state system, easily installed, practically indestructible, requiring little or no maintenance, and is vandal-resistant.

Circle 43 on Reader Service Card

## Mackay Communications

Booth Numbers 217-219

Mackay Communications will introduce at the SNAME Exhibition its new line of Saturn M & B digital satcoms for marine, land and personal-portable use. Also on display: Mackay's new GMDSS console unit and Racal color ARPA radar.

Circle 138 on Reader Service Card

## Marine Interface

Booth Number 345

Marine Interface manufactures personal computer-based monitoring systems for propulsion engines, generator engines and marine tank level monitoring. All marine interface systems use standard IBM compatible personal computers for their speed, power and graphic display capabilities. The firm produces all systems and software in house. By regularly using available personal computers, Marine Interface is able to provide state-of-the-art and versatile systems at substantially reduced cost.

Circle 104 on Reader Service Card

## Metritape, Inc.

Booth Number 404

Metritape, Inc. manufactures resistance tape: the simple, reliable

## New Marine Propulsion Control Technology From Mathers Controls.

- Replaces pneumatic control
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**NEW ENGLAND TRAWLER EQUIPMENT COMPANY**

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***Anchor Windlasses for Chain  
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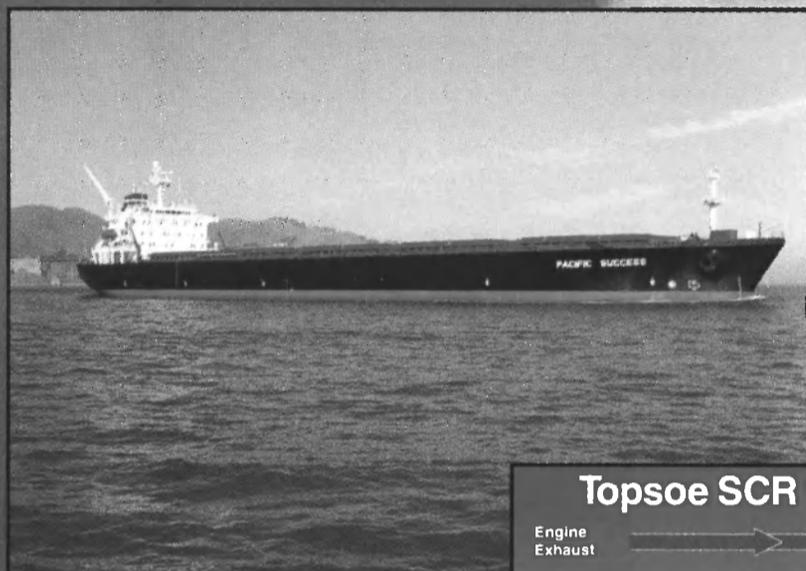
SEND YOUR INQUIRIES TO:  
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CHELSEA, MA 02150  
TELE. (617) 884-4354 OR FAX. (617) 889-5240

Circle 289 on Reader Service Card



# Topsoe cleans the air

**At sea**

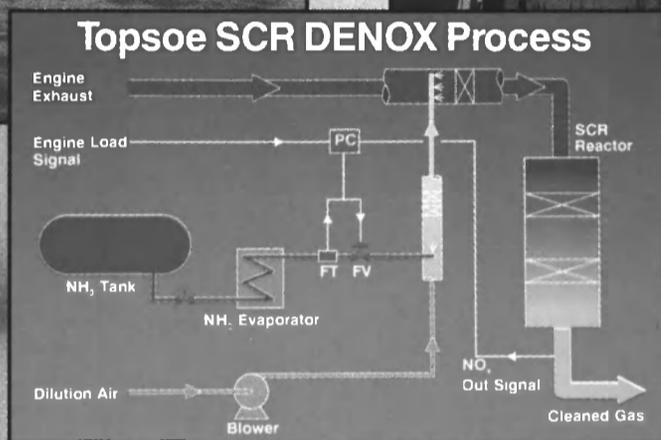


M/V "Pacific Success"  
(World's first cargo vessel with SCR  
in operation since Jan. 1994)

**On land**



Diesel (HFO) Power Plant  
Kauai Island  
Hawaii



## Diesel Engine and Gas Turbine NO<sub>x</sub> Emission Control by Selective Catalytic Reduction (SCR Process)

Haldor Topsoe A/S has specialized in the design and supply of complete SCR DENOX units for reduction of NO<sub>x</sub> (up to 98 %) in the exhaust gas from stationary as well as marine reciprocating four-stroke and two-stroke engines (burning HFO, LFO or Nat. Gas) and gas turbines.

The design of the SCR DENOX units is based on Topsoe proprietary catalyst series DNX, featuring modular monolithic structure, high NO<sub>x</sub> removal activity, high tolerance to contamination, low oxidation activity, low pressure drop, low weight and especially designed to withstand heavy exhaust pulsations and engine vibrations.

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For more information, please call or write:

**HALDOR TOPSØE A/S**



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Haldor Topsoe A/S  
Equipment Division  
Nymøllevej 55  
DK-2800 Lyngby  
Phone +45 45 27 20 00  
Telefax +45 45 27 29 99

**North American Office:**

Haldor Topsoe Inc.  
17629, El Camino Real  
Houston, Texas 77058  
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Circle 174 on Reader Service Card



and accurate gauge for non-mechanical, continuous measurement of liquid level and temperature. This product provides reliable, affordable and effective solutions to tough marine gauging problems, including deep cargo tanks, ballast, draft, fuel, oil and water aboard tankers, barges, containerships, drilling rigs, military vessels and floating dry docks. There are no moving parts; there is stable output; and it can accommodate tanks from 3- to 100-feet. Sensor is resistant to sticky, abrasive, viscous and corrosive liquids. Metritape, Inc. has 27 years of experience gauging at sea.

Circle 134 on Reader Service Card

## Mitel

Booth Number 539

Mitel is a manufacturer of telecommunications switching equipment for the commercial and maritime industries.

Marine products are adapted and tested to meet the unique environments found aboard ships and offshore platforms.

Mitel services include engineering, installation, training and worldwide support.

Circle 136 on Reader Service Card

## MKW Power Systems, Inc.

Booth Number 425

As an authorized distributor for Electro-Motive Division, General Motors Corporation, MKW Power Systems, Inc. will be presenting the entire family of EMD marine diesel engines including both the 645 and 710 Series. MKW Power Systems has remanufacturing capabilities for complete engines and individual components, parts and service support for EMD engines and a training center for EMD engine use.

Circle 52 on Reader Service Card

## MMC International

Booth Numbers 416-418

MMC International Corp., based in Inwood, N.Y., will feature its restricted and closed (gas tight) portable tank gauging and sampling equipment at the SNAME Exhibition.

MMC will also feature its independent high level and overflow alarm systems, C-L Couplings, oxygen sensing tape and many other marine and petroleum-related products for tank ships, barges and oil refineries and

terminals. All of MMC's products are manufactured in the U.S.

Circle 44 on Reader Service Card

## Nautical Technology Corporation

Booth Number 357

Nautical Technology Corporation (NTC) will demonstrate the latest version of its NTC Ship Manager computer software designed to significantly improve effectiveness of ship and fleet management functions.

The standard NTC Ship Manager system includes program modules for management of maintenance and repair, inventory control, purchasing, crewing & crew payroll and data communications (by satellite, cellular, land-lines, etc.). Versions are available for office, shipboard, warehouse and field installations. Single-user and multi-user configurations are also available. The standard system is readily customized to meet each customer's needs. Several unique features assure ease of use, data integrity and superior performance.

Circle 130 on Reader Service Card

## Newport News Shipbuilding

Booth Numbers 102, 104, 106, 207, 209 and 211

The Newport News Shipbuilding booth will highlight the company's extensive capability to design, construct and repair all types of commercial and military ships. The exhibit also features the military and commercial advanced marine instrumentation and communications systems of its Sperry Marine subsidiary.

Circle 45 on Reader Service Card

## Ocean Power & Equipment Co., Inc.

Booth Number 130

Ocean Power & Equipment Co., Inc. offers a range of products and services, including:

- Omnipure sewage treatment systems
- Jets vacuum sewage collection systems
- Heli-Sep oily water separators and bilge alarms
- Speere air compressors
- Alfa Laval F.O. and L.O. separa

# Plagued by onboard piping corrosion?

**When corrosion eats up your metallic piping, it takes a big bite out of your maintenance budget. Control the piping corrosion plague by using Bondstrand fiberglass piping systems: the durable corrosion-resistant alternatives to metallic piping.**

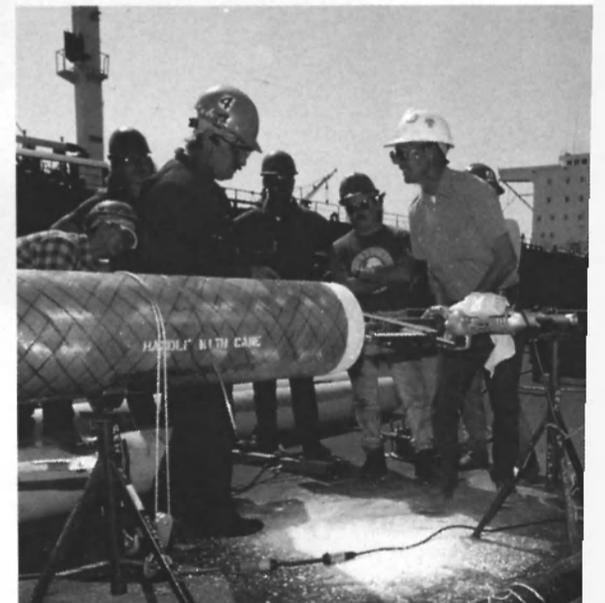


Bondstrand Series 2000M is used for a host of applications including in-tank ballast lines. Series 2000M is designed with extra-heavy walls to withstand external pressures when operating at full vacuum inside large tankers.

Ameron Fiberglass Pipe Division offers the most comprehensive selection of fiberglass-reinforced piping products available anywhere in the world. Typical of our product diversity are Bondstrand® Series 2000M and 7000M piping systems: they are constructed specifically to address marine piping requirements; both Series have been proven worldwide in a host of shipboard applications. Contact us for an extensive list of recent case histories and classification society approvals. We'll also help you specify the Bondstrand marine piping system that suits your service best. Write Ameron Marine Sales Manager, 61 Executive Ave., Edison, NJ 08817, or call (800) 437-9447.

## Ameron.

Ameron Fiberglass Pipe Division  
Box 878, Burkburnett TX 76354 • Tel: 817 569-1471  
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Bondstrand Series 7000M delivers the benefits of light-weight corrosion resistant fiberglass construction while providing protection against static buildup. Electrically conductive reinforcing fibers in pipe and fittings ensure electrical continuity throughout the system.

tors, distillers, plate heat exchangers, automatic self-cleaning filters, electric and steam oil pre-heaters, automatic viscosity control systems, oil recovery and sludge treatment systems, genuine spare parts

- Fassmer totally enclosed and freefall lifeboats
- Davit International lifeboats, rescueboats and liferaft davits
- International Compactor trash compactors
- Daros piston rings
- Diesel engine spare parts
- Miscellaneous spares from Europe and Japan.

Circle 140 on Reader Service Card

## Offshore Systems International, Inc.

Booth Number 343

Offshore Systems International, Inc. offers ECPINS (Electronic Chart/Precise Integrated Navigation System). ECPINS is fully compliant with all IMO performance standards.

ECPINS interfaces to shipboard navigation sensors such as GPS, DGPS, LORAN-C, GYRO, speed log, depth sounder, etc. The system can also interface to existing shipboard radars and provide, on the electronic chart display, a radar image overlay and ARPA target data. The ship's real-time position is continuously displayed on certified electronic vector charts.

Circle 145 on Reader Service Card

## Orkot Engineering Plastics, Inc.

Booth Number 423

Orkot Engineering Plastics, Inc., of Eugene, Oregon, manufactures non-metallic marine bearings by impregnating special fabrics with hermosetting polymers. It is used extensively in many Naval, U.S. Coast Guard and commercial marine applications for rudder, stabilizer, water lubricated stern shaft and deck machinery bearings. Orkot grade "TLM Marine" possesses exceptional wear resistance and dimensional stability in water with virtually no swell, making it an ideal material for use as water lubricated marine bearings. Orkot stocks an assortment of the more common sizes in the U.S., U.K. and Singapore.

Circle 135 on Reader Service Card

## Orwak USA, Inc.

Booth Number 431

Orwak USA, Inc. is a major manufacturer specializing in small and mid-sized trash compactors and bailers. The Orwak line of equipment has been sold worldwide for the past 2 years. One model manufactured is the 5030 Marine Trash Compactor. This unit is specifically for the compacting of everyday trash that is generated onboard ships and vessels.

Circle 137 on Reader Service Card

## Pow-R-Quik, Ltd.

Booth Number 350

Pow-R-Quik air starters have been in continuous production since 1966, and can be used for starting a wide range of diesel engines. Providing a quality product with excellent service has always been a major part of Pow-R-Quik's philosophy. At the SNAME Exhibition, Pow-R-Quik will display its line of lube-free air

starters, the "LS" series, which features high-tech vane material, stainless steel rotor casing and teflon coated end plates.

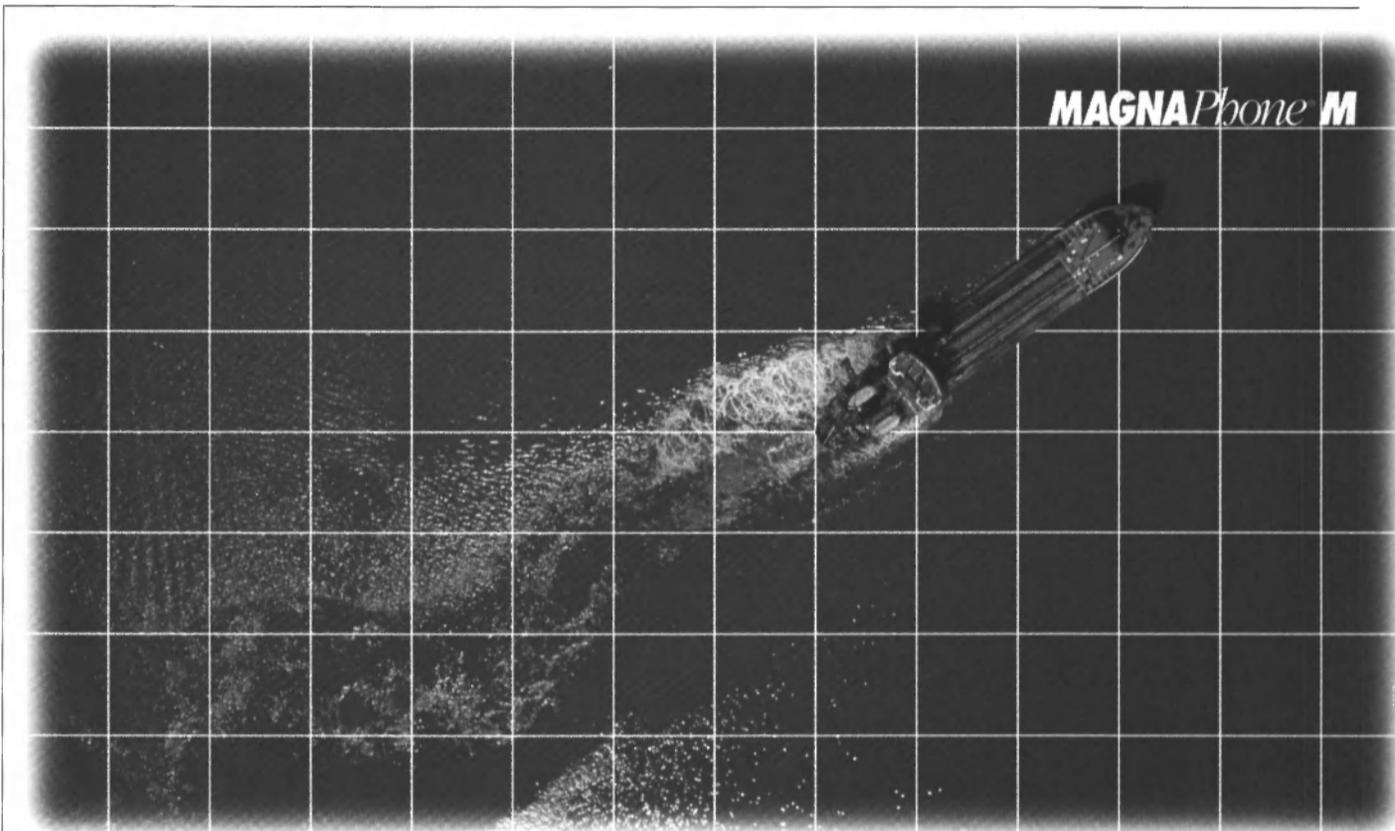
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## Raytheon Service Company

Booth Number 533

Raytheon Service Company has

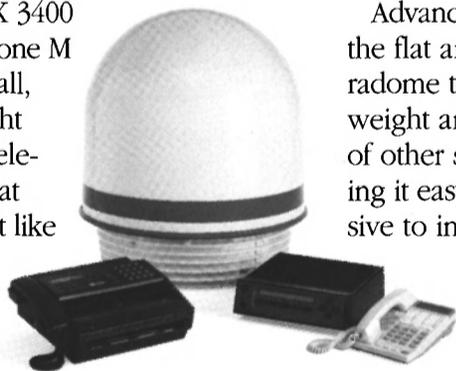
won a contract from National Response Corporation (NRC). Raytheon is supplying three "Mobile Communication Centers" (MCCs) and various communication equipment including Inmarsat "M" Satellite Communications systems, Single Side-Band, VHF, UHF radiotelephony equipment and cellular systems. These MCCs and communication equipment are part of NRC's Rapid Deployment assets and are an



# How a new phone line can improve your bottom line.

The new MX 3400 MagnaPhone M lets you add calling capacity, even when the space for equipment is limited. Because with Inmarsat M's digital technology, you can now get much smaller equipment with automatic telephone, fax, and data capabilities.

The MX 3400 MagnaPhone M is the small, lightweight satellite telephone that works just like



a land based office phone. You can transmit fax messages and use the built-in modem for data transmission. And you can add printers and other peripherals. All at greatly reduced operating costs, when compared with other marine communications systems.

Advanced digital technology and the flat array antenna reduce the radome to less than half the weight and one quarter the size of other satellite antennas, making it easy to locate and inexpensive to install.



The bottom line? Inexpensive equipment and low calling charges. See the MX 3400 MagnaPhone M at your nearby Magnavox dealer or call us for further information at 310-618-7046



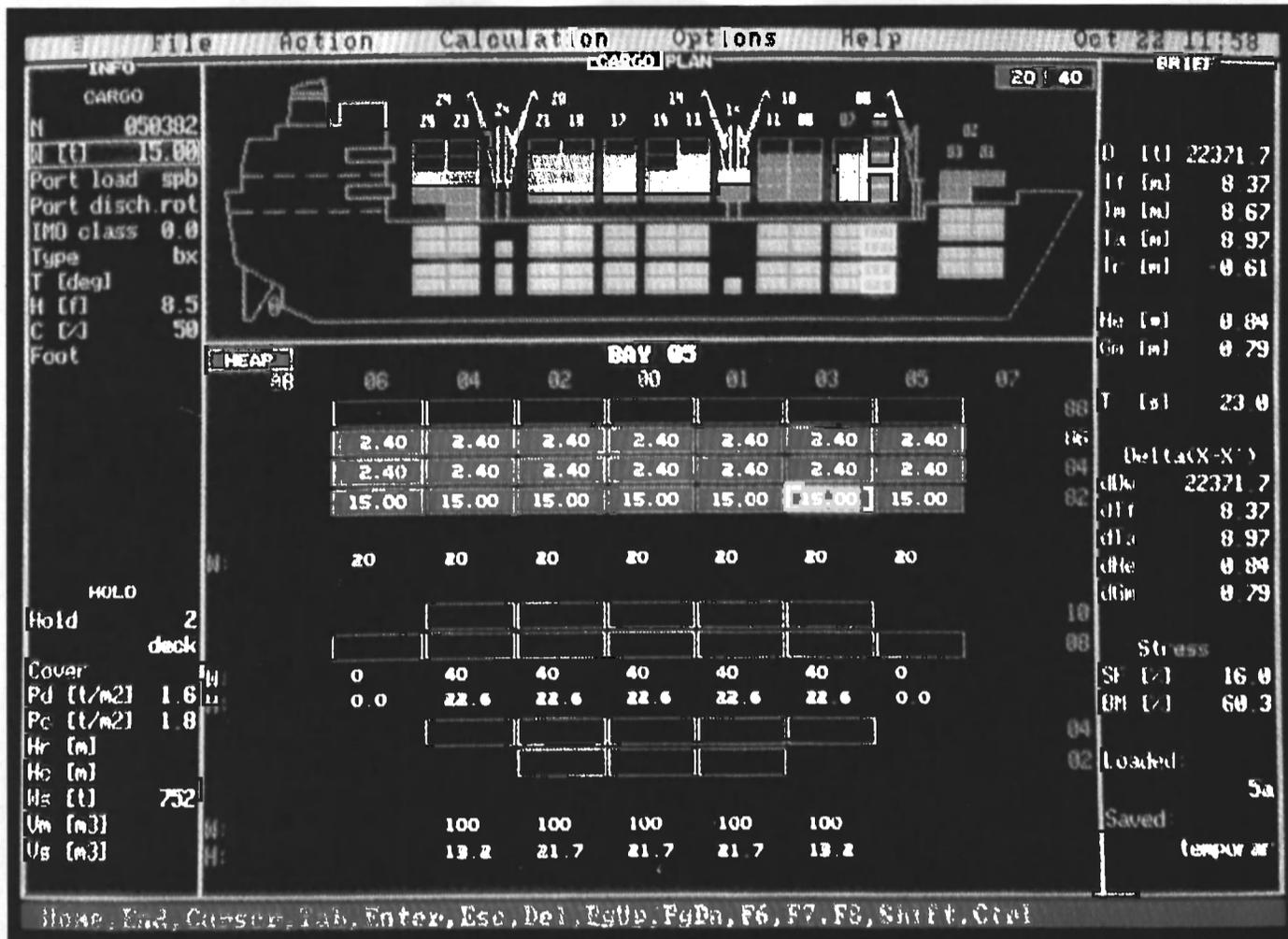
COMSAT's Mobile Link™ service - This COMSAT service links the Inmarsat satellite system and land earth stations.

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# LoadRite® – the ultimate cargo planning system

Kockum Sonics has been involved in marine equipment manufacturing since early this century. As part of Kockums Shipyard, we supplied the first electronic loading instrument more than two decades ago.

Now as an independent company, we have put all that experience in to the most advanced cargo planning system on the market.

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- Contact me now for a discussion of our current needs.

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# SNAME: 1893 to 1993

It was on November 16 and 17, 1893, when the first annual meeting of the Society of Naval Architects and Marine Engineers convened, but the roots and making of the society stretch much farther back than one century.

The first texts on naval architecture were published in the late 17<sup>th</sup> century; and less than 200 years later, engineering had taken the place of art. The shipbuilder no longer could depend solely on creative efforts, prior experience and empirical rules. Marine engineering is, of course, a much younger branch of engineering than naval architecture, its earliest precepts being first experiments with steam-powered vessels in the late 18<sup>th</sup> century. There were more questions unanswered than not, and the materials used in marine machinery were temperamental and unpredictable. Prior to the 1880s, the education of naval architects and marine engineers was primarily by apprenticeship, a system which produced some of the great shipbuilders of the era, including **William I. Webb, Donald McKay, Henry Steers, Thomas Collyer** and many others.

But as architecture and engineering grew in difficulty, mainly the result of the introduction of iron as a material of construction, it was found necessary to introduce specialized curricula in the nation's colleges, and this led to the establishment of marine-related courses at many top institutions. And as rapid developments in the propulsion arena, for one, took place, there was a growing need for a forum to discuss and exchange technical information.

## Merchant and Naval Shipping

The composition of the U.S. merchant fleet in early 1893 gives clues that point to neglect. At that time, the nation's steam and sail vessels of more than 1,500 gross register tons, and built during the previous 10 years, amounted to 231 ships with an aggregate tonnage of 54,418. A total of 106 sailing vessels were of predominantly wooden construction from yards in Maine. Of the 125 steam vessels, iron and steel construction accounted for no less than 119 vessels. Of the 114 vessels built in this country, no less than 106 came from the Big Three shipbuilders, John Roach, William Dorr and Harlan & Phillipsworth. In total, only six yards built these ships: the Big Three as well as Pusey & Jones, Baltimore Shipbuilding and Newport News.

The U.S. entered the 1890s with only a few yards able to build modern, efficient, steel-hulled vessels.

But as discouraging as merchant shipbuilding appeared, the state of naval construction was even worse. As late as the early 1880s, the entire serviceable U.S. Navy included 3 iron-clad monitors, and a variety of wooden-hulled, square-rigged boats dating back to and before

the Civil War. Meanwhile, European nations were quickly amassing modern iron- and steel-hull, state-of-the-art fighting ships. It was in 1882 that Congress authorized the reconstruction of the Navy, based on the suggestions of a 15-member advisory board headed by **William**

**H. Hunt**, President **James A. Garfield's** Secretary of the Navy. The result was a program for four ships, the "ABCD" vessels "Atlanta," "Boston," "Chicago" and "Dolphin." Contracts for all four were awarded to John Roach for the building of the "new navy."

*NOTE: The preceding, abbreviated history of the events leading to the formation of SNAME was excerpted from the first chapter of a book written by **William DuBarry Thomas**, entitled "Speed on the Ship." The book is free to registrants at the Centennial Meeting.*



The Elissa is owned and operated by the Galveston Historical Foundation.

*In her 112 years, the Elissa has survived wars, hurricanes and even Greek smugglers. And International has protected her through it all.*

On her maiden voyage in 1877, the Elissa was protected by the founding company of International. Today this 202-foot iron barque still sails with International coatings, above and below the waterline.

Our long history with specialty boats includes developing products for all operating conditions and vessels, from fishing boats to passenger vessels to work boats and barges.

International offers a full range of standard and specialty coatings for the specialty boat owner/operator such as: Interprime universal primers; Interfine anti-rust stain for finish coats; Intershield anti-abrasion coatings; and antifouling for every

service including Interspeed System 2, a tin-free Controlled Depletion Polymer (CDP) coating which provides state-of-the-art antifouling protection without the need to blast to near white metal—to name just a few.

International believes every boat is just as special as the Elissa. Contact us for comprehensive coating information for your vessel.

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 **COURTAULDS COATINGS**

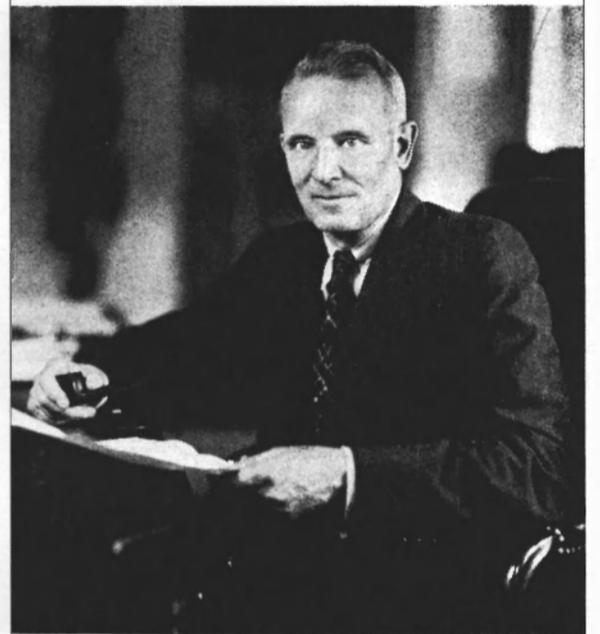
# SNAME: 1893 to 1993

*The Society of Naval Architects and Marine Engineers has surely left its mark on the maritime industry. The following nostalgic section provides a glimpse back at the industry and the association.*



**A view of New York Harbor in 1890.**

## Secretary Of Navy Asks Promotion For Land



The Navy Department asked Congress today to authorize the President to advance Rear Admiral **Emory S. Land** to the rank of vice-admiral even though he is no longer on the active list of the Navy.

**James Forrestal**, Acting Secretary of the Navy, said in a letter to Speaker **Sam Rayburn**: "It is believed that conferring of the additional prestige inherent in the rank of vice-admiral would be of assistance in the discharge by Admiral **Land** of his important duties as chairman of the Maritime Commission and administrator of the war shipping administration."

## Modern Vessel of Gibbs & Cox Design To Replace Greater Buffalo

To the many postwar plans for improvement of the nation's transportation facilities can now be added current Detroit & Cleveland Navigation Company plans for the replacement of the steamer Greater Buffalo, requisitioned in 1942 by the War Shipping Administration and converted into the U.S.S. Sable, aircraft training carrier. Gibbs and Cox, an internationally known firm of naval architects, have prepared the plans for this replacement vessel. A model of the proposed new ship, exhibiting the sleek lines and trimness that characterize the modern trend without departing from the stability that is traditional in great ships, is shown to the right. The proposed ship will have an overall length of 523 feet; beam at the hull, 70 feet, and extreme beam 87 feet.



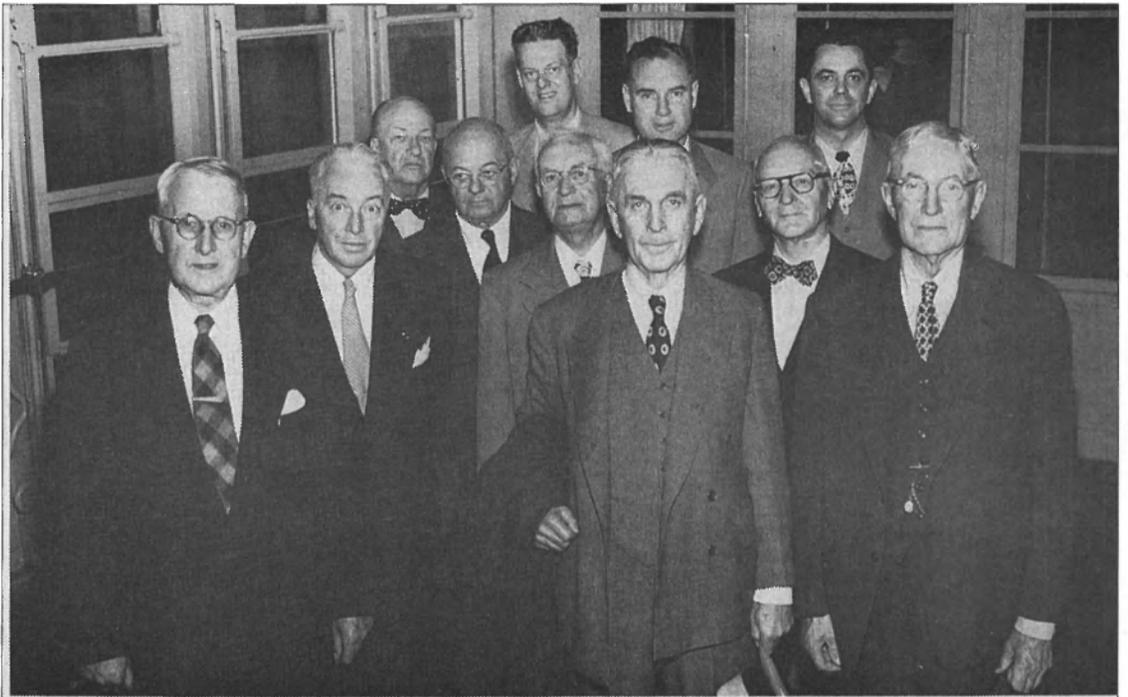
## DIESEL POWER PROVES PROFITABLE



Another instance of the advantages gained by conversion from steam to Diesel in towboat operation has been proven by Terry Buchanan, of the Bronx River Towing Lines, who has just chalked up the second profitable year of Marine Diesel Service. Although a wealth of evidence has been presented, showing the departure of steam power from the field of economical and efficient towboat service, one would have to go far to eclipse the record achieved by the "Buchanan Sisters" of the Bronx River Towing Line.

This tug of wooden construction with a 73' length, a beam of 20' and a loaded draft of 9'8" was built by her owners at their yards on the Harlem River in 1923, for 17 years was steam powered and on May 27, 1940 was converted to Marine Diesel power with a Fairbanks-Morse 450 H.P. marine Diesel engine. This staunch tug boasts of a remarkable lack of vibration and outstanding savings in operating costs, running over \$14,500,000 a year have been realized.

In addition Mr. Buchanan estimates she has been able to handle additional work amounting to approximately \$2500 a month or \$30,000 a year. Since the conversion to her Fairbanks-Morse engine she has never had to tie up for engine trouble, there has never been a break down and the maintenance expense has been less than 4 1/2 cents per horsepower per year.



Left to right foreground: John W. Stewart, Captain R. A. Smyth, U.S.C.G., George W. Gibbs, William S. Newell, David Arnott, Joseph W. Powell, John W. Hendry, H. Gerrish Smith. In the background left to right: John Heaney, Rear Admiral C. D. Whoolock, Captain R. K. James.

## SNAME DELEGATES SAIL FOR EUROPE

Thirty members of The Society of Naval Architects and Marine Engineers attended the International Conference of Naval Architects and Marine Engineers, which was held in England and Scotland from June 25 to July 6, 1951. Most of the group made the journey on the America.

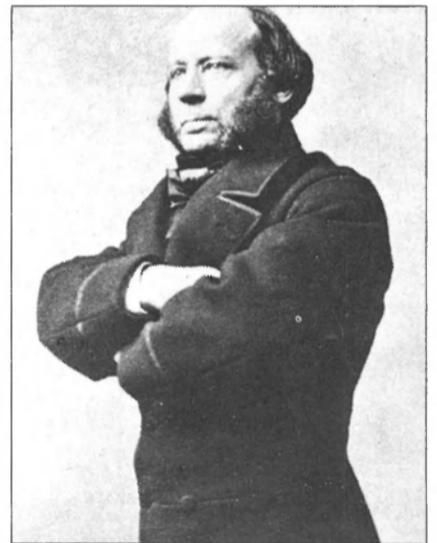
### Navy Reveals Urgent Need Of Architects, Marine Engineers

(Dateline 1942) The United States Civil Service Commission has announced that naval architects, marine engineers and electrical marine engineers are urgently needed by the Government for the shipbuilding program in New York City. The salaries will range from \$2,600 to \$3,200 per annum.

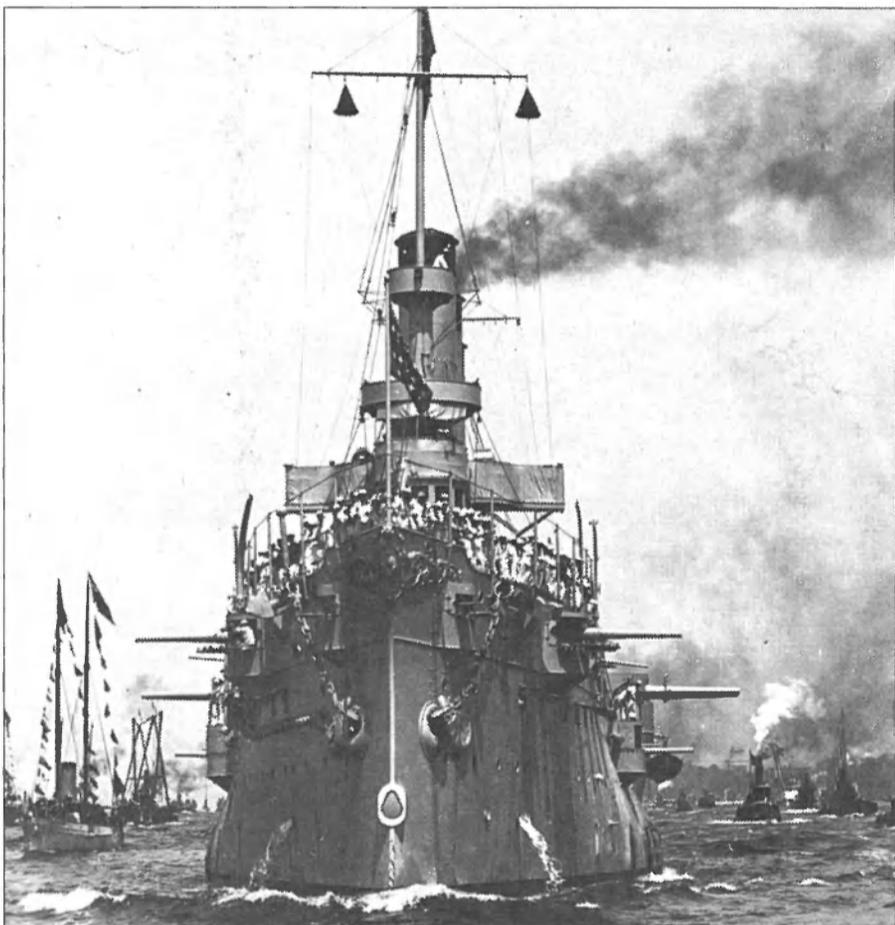
There is a special need of marine engineers with a knowledge of machine piping, and naval architects experienced in hull piping and shipfitting. Appointments will also be made of persons familiar with ship calculations, structural design, general and machine arrangements.

Applicants must have completed a full four-year course leading to a bachelor's degree in engineering or naval architecture in a college or university of recognized standing, and, in addition, have had two years of professional experience, including at least one year of marine experience. Non-college graduates may substitute, year for year, for the education prescribed, engineering or naval architectural experience of definitely professional grade.

Persons interested should apply in person at Room 214, Federal Building, 641 Washington St., New York City, as soon as possible.



**John Ericsson**, a Swedish-born marine engineer, arrived in New York in 1839 to promote the screw propeller as a means of ship propulsion, superior to the paddles in use. He designed and supervised the construction of the famed Civil War ironclad Monitor.



Built in 1896, the armored cruiser "Brooklyn" was the flagship in the battle of Santiago in 1898. The 400-foot vessel was capable of 21-knot speeds.

# ENGINES, GEARS, SI



# SHAFTS, PROPELLERS...

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**Vice-Admiral Robinson  
Receives Taylor Medal**

(Dateline 1942) Vice-Admiral **Samuel M. Robinson**, chief of the Naval Office of Procurement and Material, last week received the David W. Taylor gold medal, highest award of the Society of Naval Architects and Marine Engineers, for notable achievement

in marine engineering. The award was presented to him at the society's annual dinner at the Waldorf-Astoria, concluding the 50<sup>th</sup> annual meeting of the society. At the same time, Captain **Harold E. Saunders**, U.S.N., technical director of the David W. Taylor Model Basin, Carderock, Md., received the Captain Joseph H. Linnard prize,

and a sum of money, for his paper on "The David W. Taylor Model Tank," which was read at the meeting.

Admiral **Robinson**, who was graduated from the United States Naval Academy at Annapolis, Md., in 1903, has been associated with the design and development of naval machinery throughout his career. He was instrumental in the

development of electric propulsion and was the first chief engineer on the **U.S.S. Jupiter**, the original all-electric-drive naval ship.

After a number of years of sea duty, he served four years in the design division of the Bureau of Engineering. He was fleet engineer for the Pacific Fleet for two years and then returned to the Bureau of Engineering, where he was successively assistant head and head of the design division. Later he was engineer-in-chief and chief of the bureau. As engineer-in-chief, he initiated and directed advances in ship propulsion and design, including the use of higher steam pressures and temperatures and the development of high-speed Diesel engines for submarines. When the Bureau of Construction and Repair and the Bureau of Engineering were reorganized as the Bureau of Ships, he served as the first chief of that bureau. Captain **Saunders**, who was graduated in 1912 from the Naval Academy, was formerly head of the submarine design section in the Bureau of Construction and Repair of the Navy Department. He also was in charge of construction of large V-class submarines at the Navy Yard at Portsmouth, N.H., for five years, and for two years he was the Naval Constructor on the staff of the Commander of the Battle Force, United States Fleet. Since 1937 he has directed experiments at Carderock.

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gloves. The LCD display is oversized and backlit. And options like the external speaker/microphone which allows hands-free operation make it ideal for tankers, tenders and oil rigs.

The HX220AS is a lot of radio in a remarkably small and lightweight package. To find out more about it, or about Standard's intrinsically-safe eight-channel HX340 UHF and VHF handhelds, call or write today.

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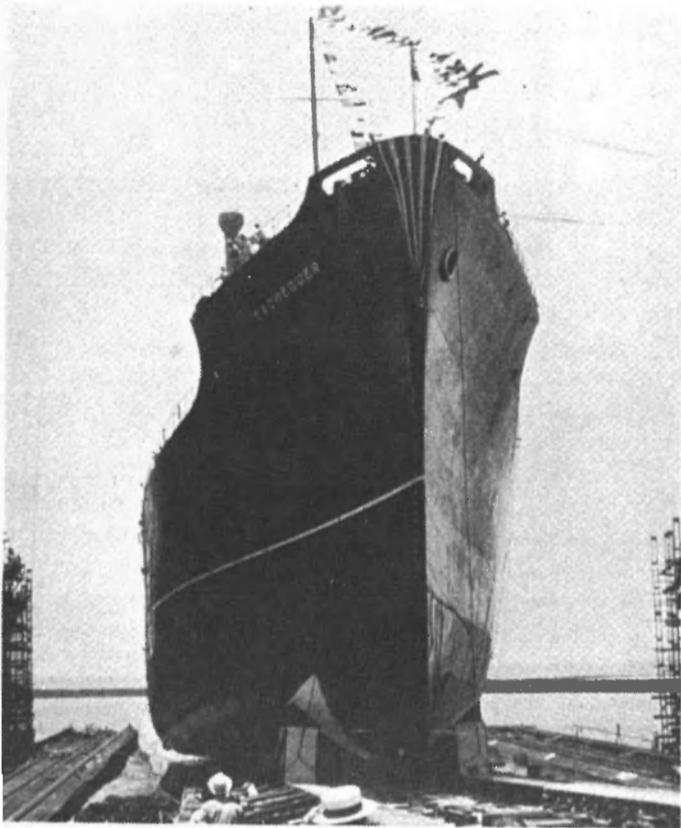
(Dateline 1942) The nation's ship production machine can and will continue to build ships at the rate of 15,000,000 deadweight tons a year - and more - so long as may be necessary after 1943 to bring a successful termination to this war for world freedom, Admiral **Emory S. Land**, Chairman of the Maritime Commission and War Shipping Administrator, declared in a nationwide radio broadcast last week. Speaking on the weekly "Report To The Nation" program over a coast-to-coast hook up, Admiral **Land** said the giant production machine is being utilized around the clock, seven days a week in accordance with the policies. These policies, **Land** said, require the gearing up of all of our production machinery to a point never before deemed necessary in a land where production miracles have been achieved so frequently as to become almost commonplace.

Commenting upon the spirit with which the shipbuilders and workers are "tackling one of the biggest problems of the war," Admiral **Land** declared that in a West Coast shipyard a new record in ship production was established when only 83 days were required to complete a new vessel.

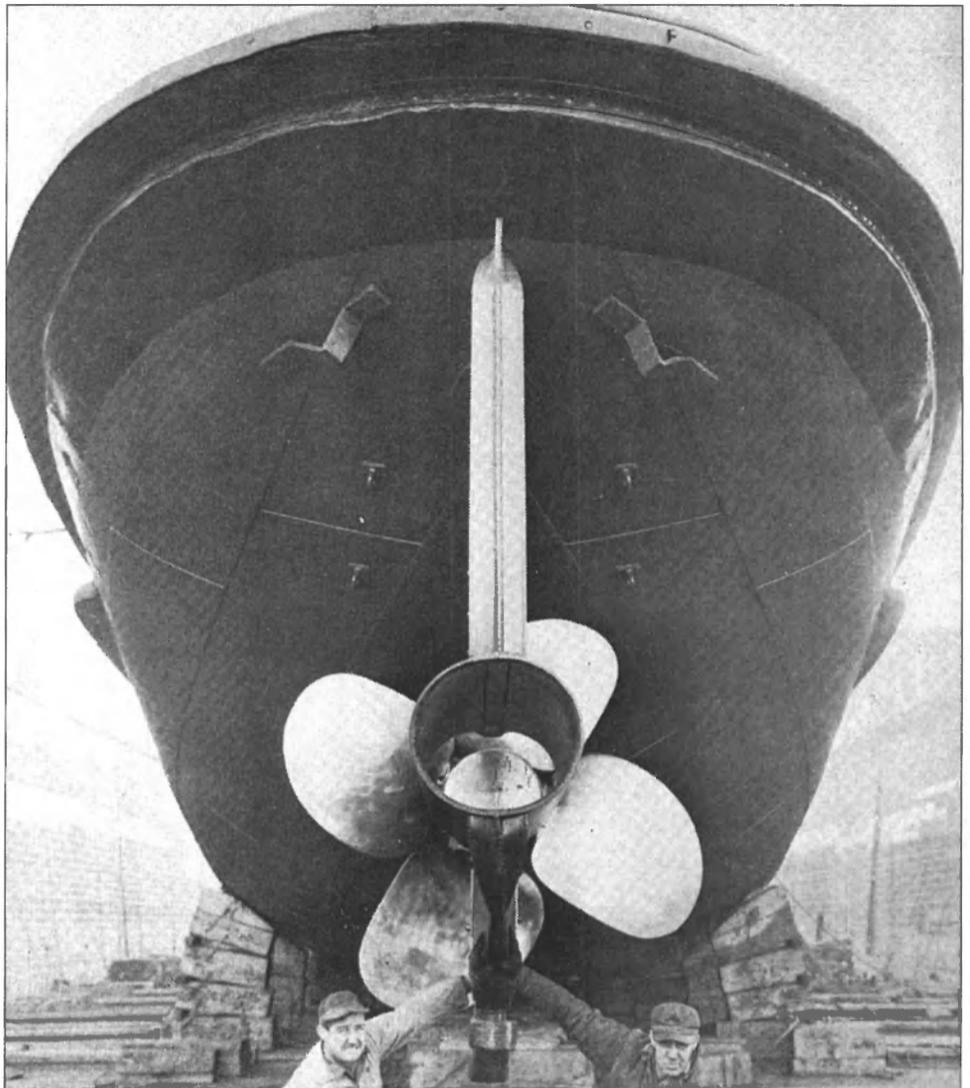
"Sometime back," he said, "the record was 105 days from keel-laying to delivery. That's about three and a half months. But that record is history now."

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## EXCHEQUER LAUNCHED

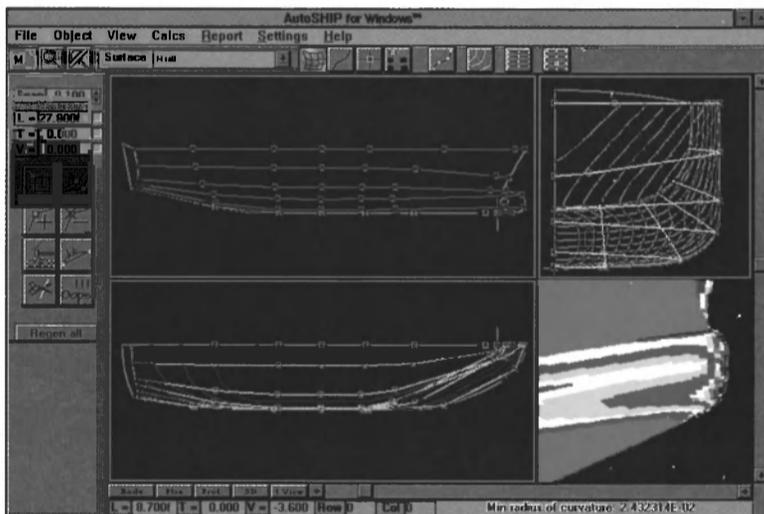


The steamship Exchequer, first all-welded rivetless dry cargo ship ever constructed in the United States, as she slid down the ways last Saturday at the yard of the Ingalls Shipbuilding Corporation for the American Export Line, which also has three similar vessels under construction at the same yard.

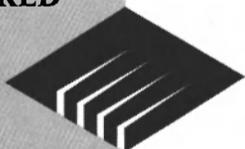


The first controllable-pitch propeller installed on a harbor tug in this country was in 1952 on the 100-foot Dalzellera, operated by the Dalzell Towing Company of New York.

This is our new AutoSHIP for Windows™ program. We started with NURBS curves and surfaces, the high-end CAD standard. Then we added new extensions to NURBS to allow extruded, tapered, blended and developable surfaces. Curves may be embedded on surfaces or even other curves. Any edge of a surface may be attached to a curve or another surface. Change the hull shape and have the deck, cabin, keel, even thrusters and moonpools adjust automatically. AutoSHIP for Windows™ exports to AutoHYDRO, AutoSHIP BUILDER, AutoPLATE, our nesting and NC cutting programs, DXF, IES, 3-D Studio™ and other major programs.



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## SNAME: 1893 to 1993

### Naval Architects And Marine Engineers Praised By Metten

(Dateline 1943) Contributions of the Society of Naval Architects and Marine Engineers have played an important role in the winning of this

country's last two wars, and by their direction of the design, building and operation of today's huge program of naval and merchant shipping construction are enabling the U.S. and its allies to wage World War II successfully, **John F. Metten**, president of the society, told the opening technical session of the organization's 51<sup>st</sup> annual meeting

at the Waldorf-Astoria Hotel last Thursday.

The magnitude of the present shipbuilding undertaking, Mr. Metten declared, could be visualized best by comparing the merchant tonnage constructed here in 1893, consisting of steam ocean, river and lake vessels and estimated at 200,000 deadweight tons, with this year's

schedule of the United States Maritime Commission, which calls approximately 19,000,000 deadweight tons. Mr. Metten pointed out the great changes that the past 50 years have made in shipping wages. He said that 1893 scalped ranged from \$6 a week for unskilled shipyard labor to \$13.50 for skilled with first-class marine draftsmen earning \$25 a week, figured on a 5 hour week for yard workers and hours for draftsmen.



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### Leahy To Be Principal Speaker At Annual Session

(Dateline 1942) Problems confronting the nation's war-time shipbuilding program will be discussed today and tomorrow at the 50<sup>th</sup> annual meeting of the Society of Naval Architects and Marine Engineers at the Waldorf-Astoria.

Rear Admiral **Emory S. Leahy**, head of the War Shipping Administration and president of the society will preside at the meeting. He will retire as president of the organization at the conclusion of the meeting after serving two years.

Shipbuilders, naval architects, naval officers, ship owners and representatives of allied industries are expected to make the meeting the best attended in the history of the society. Admiral **William D. Leahy**, chief of staff to President **Roosevelt** will be the principal speaker at the annual dinner tomorrow. Attendance is limited to members.

### SNAME Committees Selected For 1951

(Dateline 1951) **J.H. King**, president of the Society of Naval Architects and Marine Engineers, has announced the formation of new Society working committees for 1951. Among them are the following:

A Technical and Research Committee, guided by a steering committee under Vice Admiral **Edward Cochrane**. Three subcommittees are included under the steering committee.

They consist of one on hydrodynamics under **Hollinshead Luce**, assistant naval architect, Bethlehem Steel Company, Shipbuilding Division at Quincy, Massachusetts on ships' structures under **Carl Edward A. Wright**, USN., Bureau of Ships; on ships' machinery under **Douglas C. Macmillan**, chief engineer for George G. Sharp, New York.

Other units are a papers committee headed by **Herbert L. Sewell**, Local Sections Committee under **John W. Hendry**, Bethlehem Shipbuilding, N.Y.; Application Committee under **Walter L. Greig**, American Bureau of Shipping president; and Awards Committee under **John B. Woodward, Jr.**, president of Newport News Shipbuilding Dry Dock Company.

In all, there are twenty committees listed by the SNAME headquarters at 29 West 39th Street, New York 18, N.Y. Present members of the Society is over 5,500.

SNAME Center

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State-of-the-art engineering and manufacturing capabilities and the latest in Quality Assurance techniques have made The Cincinnati Gear Company a pioneer in the gearing and propulsion industry.

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- Gears and gear systems available in epicyclic, parallel shaft or hybrid arrangements.
- Gearbox output torque ranges from 5,000 lb-in. to 24,000,000 lb-in. at 52,500 HP
- Extensive experience with MIL-I-45208, MIL-Q-9858, ABS, DNV, API, ISO and AGMA requirements.

Cincinnati Gear offers a full line of high performance marine reduction gearboxes, designed for high efficiency, minimum weight and low maintenance. Our marine propulsion experience ranges from mega yachts, hovercrafts and high speed passenger ferries, to fleet oilers and support ships. High power density gearing for transmitting gas turbine and diesel engine power, is one of our specialties. CINTI quality products are found throughout the world on land and at sea. Move your next project with an innovative design from Cincinnati Gear.



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integral part of NRC's oil spill response strategy to meet or exceed the OPA 90 requirements. Raytheon will be displaying three new products at the SNAME Exhibition:

- AVERT System - Automated Vessel Alert. This system is intended for use on vessels as an aid in detecting and avoiding underwater objects. Forward-looking sonar compares returns with an electronic chart and ARPA radar.
- GMDSS - Communications con-

sole

- New 12" IMO-compliant radar. Circle 109 on Reader Service Card

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 Reduced Environmental Liability, Inc. (REL) is a U.S.-based company that distributes SpilCAT prod-

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Maritime Reporter/Engineering News-Record

room and on-water clean-up.  
Circle 139 on Reader Service Card

## Schat Watercraft

Booth Number 338

Schat Watercraft, Inc. will exhibit its full line of marine lifesaving and handling systems, including self-inflating lifeboats. With U.S. manufacturing facilities, Schat Watercraft offers fiberglass lifeboats and rescue boats to accommodate up to 150 persons. These boats are a self-lifting design to meet SOLAS 1993 amendments and are U.S. Coast Guard certified. A complete package including davits and winches will be provided at the SNAME Exhibition in various types and configurations to fit specific ship requirements.

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## Schottel North America, Inc.

Booth Number 514

Schottel North America, Inc. markets Schottel Rudderpropellers (SRPs), reportedly the better alternative for any application. Tens of thousands of SRPs are operating worldwide and many of them under severe operating conditions. SRP covers all ranges of operations, from shallow-draft operation of a pusher tug to ferry operation in heavy ice conditions. Since the first SRP was developed in 1949 it has been continually developed into an extremely versatile propulsion system. Schottel North America, Inc. offers suitable solutions for the power range from 15 kW to 6,000 kW for main or auxiliary propulsion, dynamic positioning, for inland waterways or for the toughest offshore conditions. For special applications, such as low magnetic, shock-resistant and low-noise propulsion units, Schottel manufactures competent solutions meeting the above MCMV requirements.

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## Selby, A Division of Quaker Construction Products, Inc.

Booth Number 131

Selby, a leader in the marine industry since 1925, provides a complete line of products to meet your deck-covering needs.

They have thermal insulating/spark resistant coatings, underlayments, seamless epoxy coatings and many functional and decorative systems. They meet many military specifications and have Type Approvals from regulatory agencies worldwide. Product applications include both wet and dry interior and exterior spaces of all types, including: heads, galleys, sculleries, passageways, reefer boxes, ammunition spaces, weather decks, non-skid and others.

Circle 6 on Reader Service Card

## Setcor, Inc.

Booth Number 112

Setcor, Inc. will exhibit Saab TankRadar, a radar level gauge and cargo monitoring system that can include remote control of pumps and valves using a color monitor and light pen interface. They will also exhibit Consilium Marine's Gunclean Model 7000 fixed tank cleaning machine for product tankers, chemical tankers and barges. A

high/overflow level alarm sensor to meet chemical code, vapor recovery and OPA 90 will be available for inspection from Omicron.

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## Ship's Aid International Ltd.

Booth Number 529

Ship's Aid International Ltd. will be presenting its complete range of

ship's equipment, which includes diesel engines, gearboxes, shafting, CPP propellers, bow/stern and azimuthing thrusters and their control systems, sewage treatment plants, oily water separators, incinerators, towing equipment, cranes, marine lighting, searchlights, foghorns/whistles, accommodation systems, steering gears and rudders, and a large variety of bridge equipment.

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September, 1993



## Siemens

Booth Numbers 339-341

The Marine Systems Group is marketing Siemens' electrical engineering expertise to the North American marine customer, including commercial shipbuilders and owners, the Fisheries Industry, U.S. Coast Guard and the Navy. The Siemens Marine Group delivers systems ranging from a ship's entire electrical generating,

propulsion and control needs to stand-alone systems that replace or automate routine shipboard tasks. Whether it is new construction, such as the complete ship system recently delivered to B.C. Ferries Corporation for their new Super Ferries; retro-fits such as the 800 amp switchboard delivered to Lasmo Corporation for the Nordic Apollo; or an upgrade such as converting LNG tankers to ABS +ACCU (unstaffed)

status, Siemens' project management skills ensure customer satisfaction.

Circle 114 on Reader Service Card

## Skookum/RopeMaster

Booth Number 344

Skookum/RopeMaster, an U.S. company located in Hubbard, Ohio, manufactures a wide range of general purpose blocks, fairleads, alloy shackles used extensively in the marine industry. Skookum products are serving the cargo, material handling and deck gear requirements of customers ranging from the U.S. Navy to offshore geophysical survey companies. Although primarily designed for use with wire rope, Skookum/RopeMaster block sheaves and fairleads are currently being custom engineered and built to accommodate the newer high strength synthetic ropes being used more and more in the marine industry.

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## Spurs Marine Manufacturing, Inc.

Booth Number 202

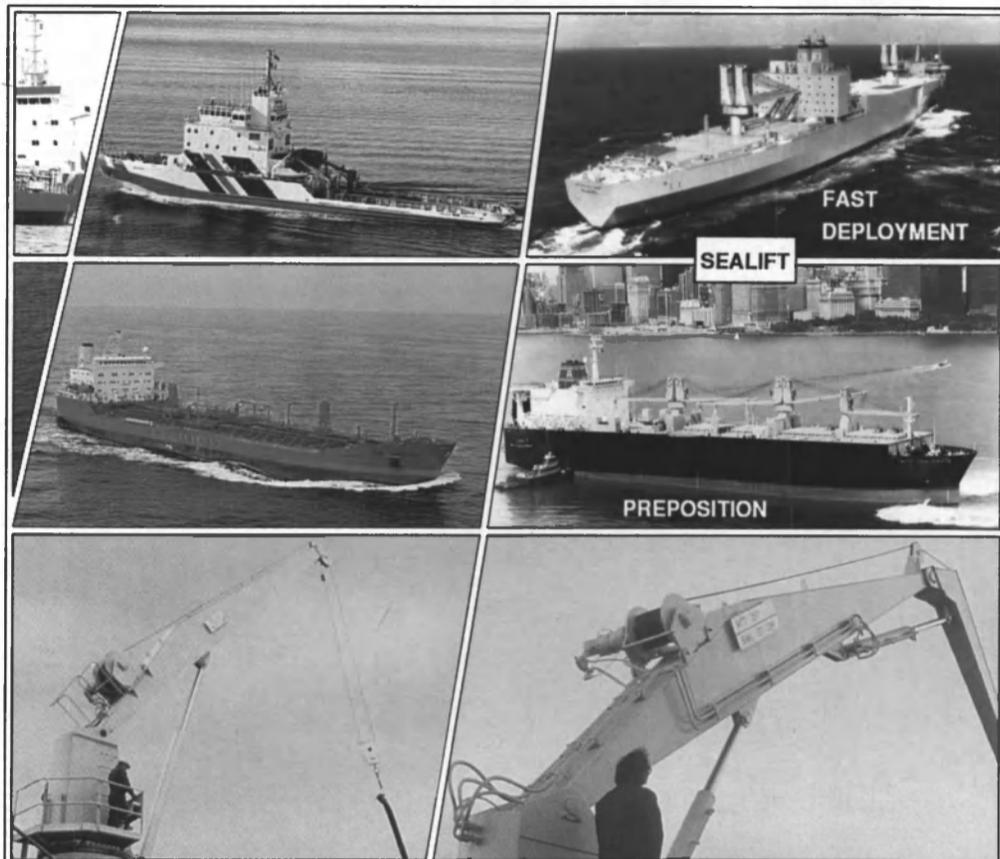
Spurs Marine Manufacturing offers Spurs Line & Net Cutter. Spurs Line & Net Cutter, used by more than 40,000 commercial, Navy and pleasure boats worldwide, is now available for oil tankers, cruise ships, containerships and all large ocean-going vessels. These large vessels may now protect their shaft seals and running gear and avoid costly down time with the use of Spurs' propeller anti-fouling device. Spurs' ABS approved hardened stainless steel cutters work in both forward and reverse to sever lines, from as small as monofilament and nets to large mooring lines, before fouling and damage can occur.

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## SSPA Maritime Consulting 'AB

Booth Number 119B

Services and products SSPA Maritime Consulting AB offers include specialized consultation in hydrodynamics; model test facilities such as towing tank; large section cavitation tunnel for complete hull model and seakeeping/maneuvering laboratory measuring 285 feet by 125 feet. SSPA Maritime Consulting has obtained recent commissions for model testing and theoretical projects for, Bird Johnson - propeller design for U.S. Coast Guard (USCG) buoy tender project; Ingalls/Rosenblatt - a Ro/Ro design for Military Sealift Command program; Marinex - VLCC design; McDermott - Sulphur Carrier project; Bazan Shipyard - high-speed monohull ferry; GVA/Canadian Marine Drilling Ltd. - icebreaker "Oden II" with unconventional hull; RSwn - SES



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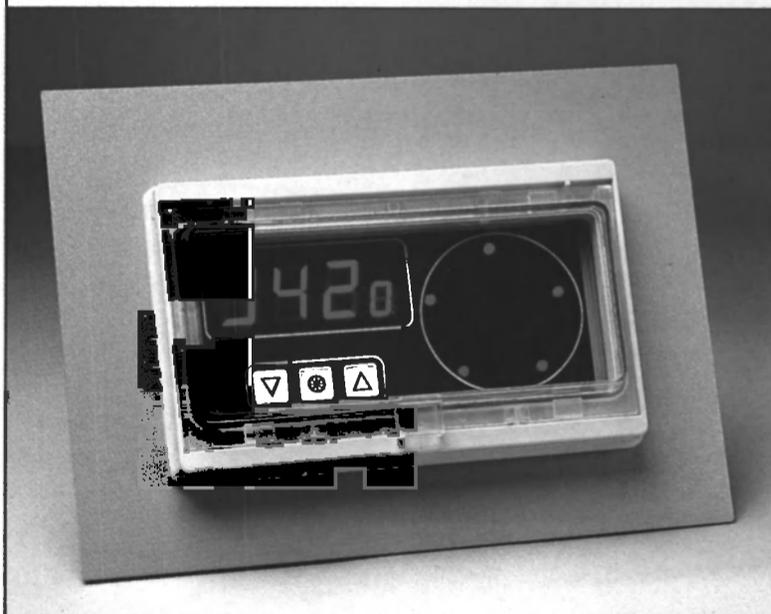
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 l designs including SES. Portsim  
 ; been delivered to shipowners  
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## U.E. Systems, Inc.

Booth Number 307

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 tection and mechanic inspection.  
 ey locate pressure/vacuum leaks  
 pneumatic systems, LNG & LPG  
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## Unitor Ships Service

Booth Numbers 125, 127 and  
 129

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 vice business, Unitor has improved  
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 onversions from CFCs and is able  
 o offer a full array of refrigeration  
 spare parts worldwide.

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## Vecom USA, Inc.

Booth Number 504

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 product line that consists of water  
 treatment, engine room mainte-  
 nance chemicals, tank coatings, bio-  
 logical/environmental products, au-  
 tomated water treatment equip-  
 ment, dosing systems and oil spill  
 kits that comply with OPA 90/IMO  
 regulations.

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Vecom has global service stations  
 that carry their own line of prod-  
 ucts/equipment and is reportedly the  
 first marine company to receive ISO  
 9002 certification.

Circle 50 on Reader Service Card

## Viking Life-Saving Equipment, Inc.

Booth Number 233

Viking's marine safety products,  
 manufactured according to very high  
 standards of quality, include Davit-  
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 board SOLAS and U.S. Coast Guard  
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 der the AQAP 1 and ISO 9001 re-  
 quirements.

Viking of Miami also supplies  
 other products, such as water-acti-  
 vated life jacket lights, life jackets,  
 immersion fire suits, TPA bags,  
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 boats, enabling the company to meet  
 almost any demand concerning  
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Circle 51 on Reader Service Card

## Walport USA

Booth Number 536

Walport USA, a supplier of film  
 and video entertainment to merchant  
 ships since 1954, will introduce three  
 new product lines at the SNAME  
 Exhibition: "Seaman's Choice," a  
 specialized video catalog designed  
 for personal use by the merchant  
 seaman; new safety and training vid-

(Continued on page 90)

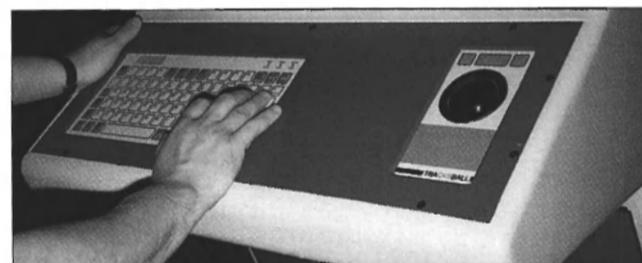
# Some are calling it the greatest advance in navigation safety since radar.



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The **IMO compliant ECPINS (Electronic Chart / Precise Integrated Navigation System)** gives the navigator "own-ship" position twice a second, warns him of dangerous waters ahead and shows continuous information on all fixed and moving radar targets. With ECPINS, he can make the right decisions in stressful situations and navigate safely, particularly in confined waters, in extreme weather and under fog and ice conditions.

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**ECPINS projects an Anti-Grounding Sector** ahead of the ship. When the operator inputs a safe depth, both visual and audible alarms will sound in case of shallow waters, or if "above water" chart features, such as rocks, land, piers, etc. are within the sector.

Chart data can be viewed on multiple non-overlapping windows at different range scales and presentation modes. All vital navigation data are summarized in a NAV display window. The system is easily operated via trackball cursor and built-in keypad. A 24-hour log is kept showing all vital sensor data.

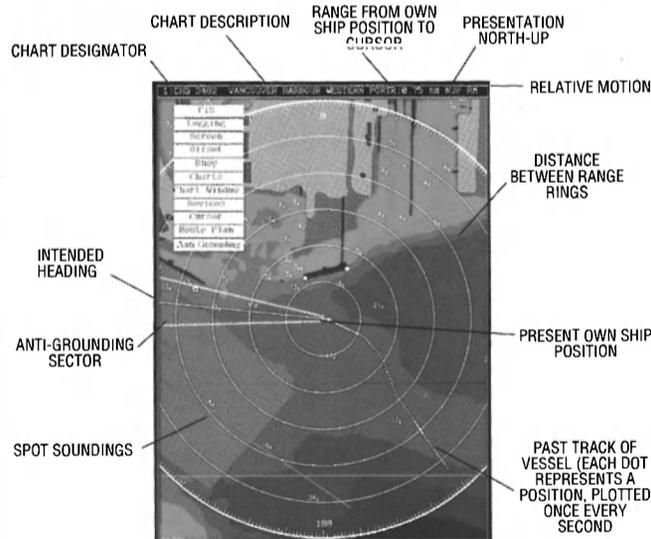
*ECPINS complies with all IMO performance standards for ECDIS. The result of over 10 years of research, ECPINS is used by shipping companies, ferries, and the U.S. & Canadian Coast Guard and Navy.*

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# POLLUTION PREVENTION: Blohm + Voss Simplex-Compact Sealing System

Stern-tube Sealing Solution For Environmental-, Cost-Conscious Owner/Operators

It is known that a stern-tube seal is ignored and forgotten as long as it functions.

It is difficult to imagine what is involved in the design of a stern-tube seal and what extreme operating conditions such a seal is subject to during its life.

Only when a seal breaks down, or is damaged through external influence, is a ship operator made aware of what a vital piece of equipment is installed in the way of the tail shaft.

Many myths have sprung up over the years in regard to the pros and cons of various seal designs, and there are many misconceptions regarding stern-tube seals in general.

Modern seal technology was reportedly born in 1936 when Deutsche Werft, a shipyard in Hamburg, Germany, brought out the first concept regarding oil-lubricated stern-tube bearings and lip seals.

WWII stopped real advancement, and it was in 1948 when a commercially and technically viable seal came on the market.

Technology advanced, and during the 1950s a fusion of Deutsche Werft and Howaldts Werke Hamburg, called Howaldtswerke-Deutsche Werft (HDW), had succeeded with the new lip seal to such an extent that license agreements were negotiated with various overseas companies.

In 1970 the Simplex-Compact seal was introduced to the world and this seal went from one success to another until in late 1992 when, the next generation of seal, the SC 2000, was unveiled.

Nearly five years of research went into the development of the SC2, and this development can only be considered in context with the never-ending development and research going into the search for different and bet-

ter materials.

A Perbunan, or buna rubber, was joined by a Viton and later by a Viton Superlip and later again by a Perbunan S.

A chrome steel for the aft liner was joined by a grey cast iron of superior structure for a forward liner.

A different chrome steel was ceramic-coated which, after initial problems due to inferior steels supplied by the foundries, introduced an era of "top of the line" seals.

It is possible to qualify the thoughts behind the designs of a high-quality lip seal by listing the requirements made on such a seal. Each requirement is as important as the next, the one influencing the other.

The seal ring itself must be made of a material flexible enough to withstand shaft movements but stiff enough to hold its shape.

Angular stability of the lip area, a constant position of the lip on the liner, toughness in withstanding high pressure, accuracy in shape, no deformation, no material failure at corners and bends, low wear and long life are some of the many obvious criteria the ring must fulfill. This has reportedly been achieved with the SC 2000 ring. The SC2 has achieved a remarkable technological quality.

From the angular stability of the lip, through the behavior of the "complex-intelligent knee" to the predetermined material flow under clamping pressures and high loads and

the FEM-designed dedicated "clipped" shaped clamping section, this is reportedly embodied top quality throughout.

Protection of the environment more than likely on top of the agendas of most executives in most industries today.

The ship owner and the stern-tube seal maker are no exceptions. The high-profile owner/operator, the tanker company perhaps head of the list, is especially sensitive to this subject. Blohm + Voss AG is doing its part, by providing quality, reliable products, to achieve everyone's goal of environmental protection.

Almost five years ago Blohm + Voss started research into seal systems which would be capable of separating the stern-tube oil physically from the outside environment by reliable means.

After more than 9,000 test hours, the company is able to offer what it claims is an environmentally-secure system.

The system is on the market under the name Airspace, and forms a sealing system whereby the seal elements themselves are the next generation SC2 rings and the dedicated separation chamber is under the control of a reliable and robust regulating system.

For additional free information on the Airspace seal from Blohm + Voss,

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# Leistritz

(Continued from page 87)

eos for sale at new affordable prices; and Negron Marine/McMurdo will display its new SARTS, EPIRBs and other products.

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## Allied Systems Co.

Booth Number 101

Allied Marine Crane, a division of Allied Systems Co., designs and manufactures specialized fixed, telescopic and knuckleboom cranes in capacities of two to 75 tons, with emphasis on military, oceanographic and petroleum applications.

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## Henschel, Inc.

Booth Number 305

Henschel ACC, the commercial alarm, control and communication department for Henschel, Inc. of Newburyport, Mass., offers a complete Ship's Control Console with an alarm and monitoring system, control system and intercommunication systems.

Displayed systems are found on the MSRC vessels and the Sulphur Carrier.

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## Pelmatic AB

Booth Number 119

Pelmatic is a Swedish ship design and consultancy company which provides concepts for vessel design and licenses for a large number of vessels for the marine industry.

Pelmatic's product range is focused mainly on the categories of commercial ships, military ships, fishing vessels and floating docks. Pelmatic's concepts for commercial ships features several state-of-the-art double hull product tankers and some open top container vessels, as well as general cargo vessels, bulk carriers and combination carriers in a variety of sizes.

Some of the product tankers are developed especially for the U.S. market and follow all the new regulations. For the military market, Pelmatic mainly focuses on patrol boats and U.S. Coast Guard vessels

from 20 meters up to 60 meters.

Floating docks are designed mainly according to customer specification, but the present range of available sizes include floating docks with 3.5-, 5-, 10- and 15-ton lifting capacity. Pelmatic has recently undertaken a change of corporate structure and is now a full Swedish company owned by **Stefan Johansson**, managing director of Pelmatic AB, together with Saab-Scania AB.

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## Peterson Builders

Booth Numbers 614-622

Peterson Builders, Inc. provides proven designs for high speed ferries, casino vessels, high speed patrol craft, rigid inflatables, work boats, steel, aluminum, fiberglass, composites and wood; modern, efficient, environmentally friendly manufacturing facilities, quality driven, conscientious craftsmen; an excellent reputation for long term customer satisfaction.

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## Racor

Booth Number 506

Racor introduces a permanent filtration system called the Racor TattleTale Liquid Filtration System. The Racor TattleTale Liquid Filtration System is a permanent system which utilizes a stainless steel wire cloth filter. The reusable wire cloth filter eliminates the need for expensive filter inventory and costly filter disposal. It also serves as a diagnostic tool to monitor potential engine wear. Clean up is quick and easy with a parts washer.

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## Saab Tank Control

Booth Numbers 116-123

Saab Tank Control, under two different owners, has been in business since the late 70s. Saab supplies and services Saab Tank Radar level gauging systems and Gunleas Fixed Tank Cleaning Machines. Two offices, one in New Jersey and one in Houston, feature in-house engineering and a back-up network of sub-con



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- '75 1st major slow-steaming CRP propeller retrofit.
- '76 1st industrywide combustion catalyst evaluation.
- '77 1st fuel emulsion firing (boilers, diesels and gas turbines).
- '78 Introduction of the steam plant Barrel Minder.™
- '79 1st DESAH cycle (dual economizer steam air heater).
- '80 Seaworthy's 1st repowering and jumboizing project.
- '81 1st computerized energy conservation tracking system.
- '82 1st commercial computerized fuel purchasing software.
- '83 1st system to protect against cat fines for diesels.
- '84 1st published hatchcoverless containership concept.
- '85 Inauguration of MSC's fleetwide SAMM System.
- '86 Seaworthy's 1st design/build project (Army LSVs).
- '87 1st industry testing of diesel engine ceramic coatings.
- '88 1st shoreside slow speed diesel to meet EPA emissions.
- '89 Seaworthy's 1st RO/RO design/build/own project.
- '90 1st convertible hatchless containership to RO/RO design.
- '91 Staging of 36 diesel genset change-outs at sea.
- '92 1st high capacity Navy RO/RO float-on module design.

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act service engineers. Saab Tank Control offers OMICRON High Level and Overfill Alarms.

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## Wartsila Diesel

Booth Numbers 214-216

Wartsila Diesel Inc. manufactures the Vasa Series of medium-speed diesel engines suitable for both propulsion and electrical generation. These engines have an output of between 500- and 22,000-hp and are suitable for operation on heavy fuel oils. In addition to the engines, Wartsila Diesel can offer a complete PROPAC propulsion package including reduction gears and propellers.

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## Waukesha Bearings Corp.

Booth Number 201

With more than 40 years of experience in supplying bearings to the marine and commercial markets, Waukesha Bearings reportedly the sole supplier of the main propulsion thrust and journal bearings on the 388 class attack submarine. For more information call the company at (414) 547-3381.

## Aalborg Ciserv International

Booth Number 324

Aalborg Ciserv International supplies the marine industry with Vesta incinerators and heaters. Aalborg Ciserv also offers diesel engine spare parts and repair, and service and repairs for boiler, turbine and general engines.

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## Alfa Laval Marine & Power

Booth Number 116

Alfa Laval is an international supplier of oil treatment systems to the marine and power industries. Alfa Laval Marine & Power Division's After Sales marketing department is aimed at commitment towards the end-user throughout the lifetime of a ship or power plant. This commitment includes spares, service, upgrades, retrofits, second-hand equipment, fixed maintenance contracts, operational leasing and training.

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## Centrico, Inc.

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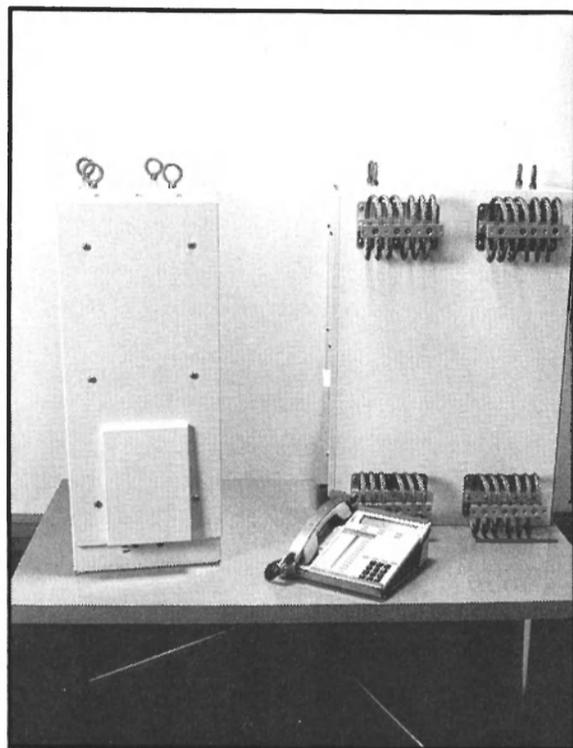
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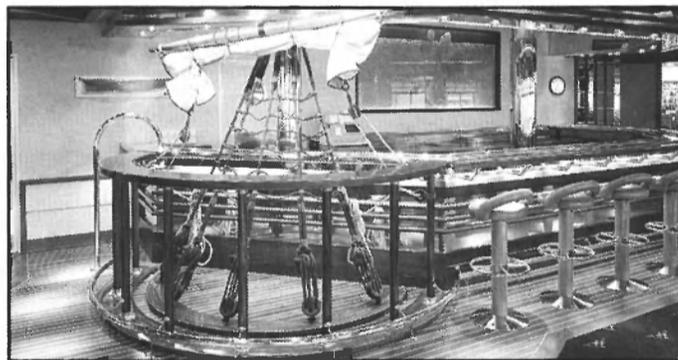
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Conrad Bergan has been in the U.S. since 1980 and specializes in high level alarm and tank gauging systems. To date, more than 6,000 tanks demanding service on board tank ships and barges are fitted with Bergan equipment. The company offers a complete range of level alarms, hydrostatic tank gauging systems and the CargoRadar (microwave) level gauge.

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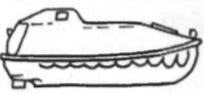
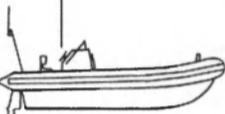
Westinghouse is one of the leading suppliers and manufacturers marine diesel engines.

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## Bender Delivers 'Cotton Club' Casino Vessel

Bender Shipbuilding & Repair Co., delivered the 246-foot by 58-foot Cotton Club.

The converted ferry boat now will serve as a floating casino in Greenville, Miss.

The Cotton Club, a non-powered casino vessel owned by Cotton Club of Greenville, was converted from veteran steam-powered passenger and car ferry, the Naushon, which formerly operated between island off Massachusetts and Rhode Island.

Built in 1954 in Camden, N.J., the vessel was the last reciprocating steam-powered vessel built in the U.S. Bender's conversion of this utilitarian vessel into a glittering Las Vegas-style casino involved gutting the ferry to the bare shell, repairing it to meet safety codes, and rebuilding all decks to casino specifications.

The vessel retained much of its vintage exterior, except for the addition of a sharply-angled "hurricane" bow, replacing the ferry's original flat profile.

The boat, which had architectural design work by Hall & Dendy Architects of Mobile, Ala., has a capacity of 1,500 passengers, and includes 680 slot machines and 18 black jack tables.

The 600-ton air conditioning system was installed by Batchelor Mechanical Contractors, Inc. of Mobile, and to keep the casino areas comfortable and smoke-free, the system exchanges air at twice the amount required by code.



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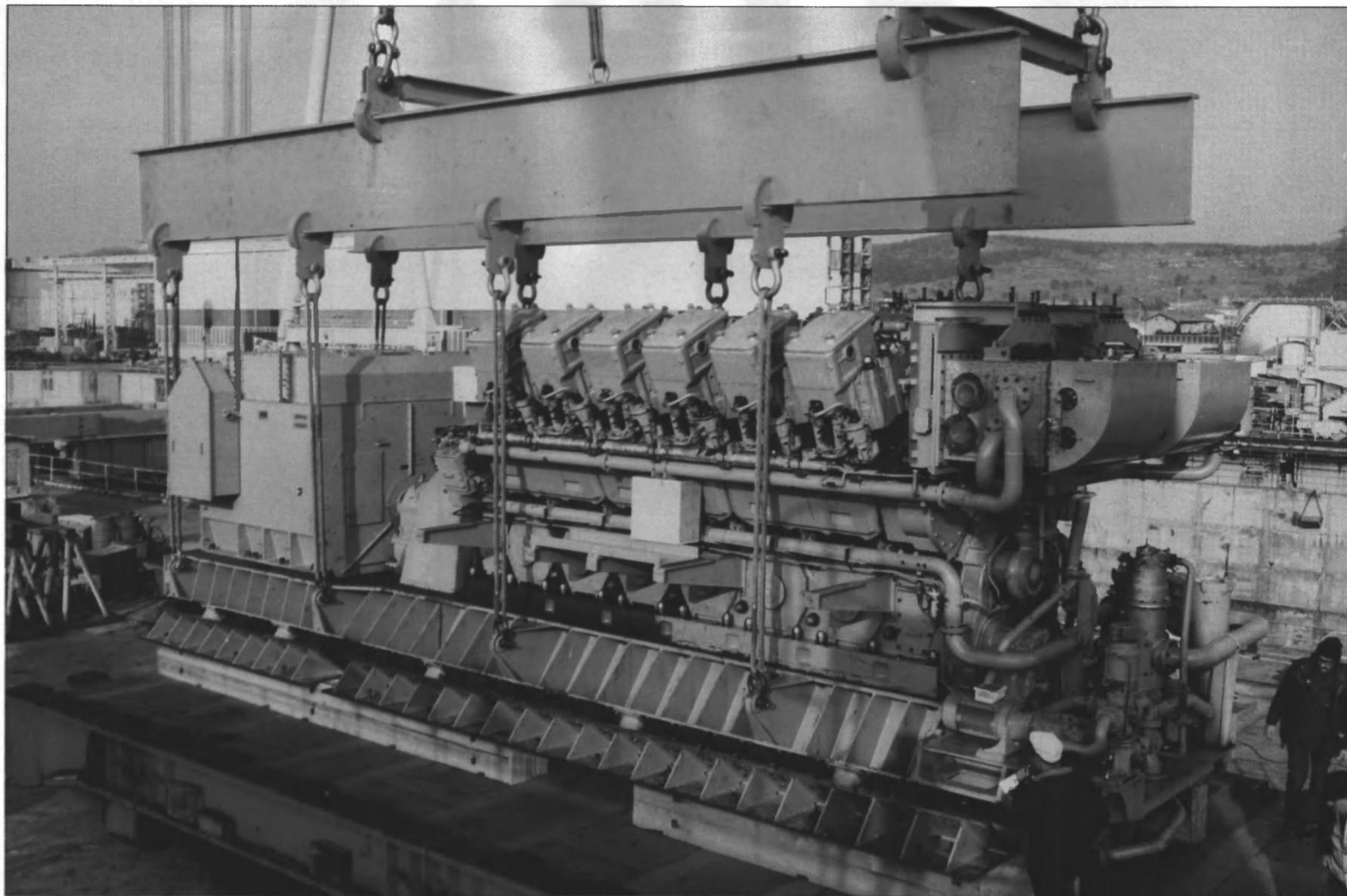
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A resiliently-mounted Sulzer 12ZA40S diesel generating set, being placed in the cruise ship Statendam earlier this year.

# MARINE POWER

## Trends In Equipment Development & Usage

by Graeme MacLennan, contributing editor

The slow-running direct-coupled crosshead diesel engine is still the most fuel-efficient prime mover for marine propulsion and maintains its position unassailed as the first choice for deep-sea shipping, having virtually a monopoly of the container ship, tanker and bulk carrier markets. For the past decade and a half there have been only three marques of crosshead engines in production, reduced from eight 25 years ago, a measure of the fierce contention and immense cost of developing new designs to remain competitive in this market.

The cost of manufacture, too, has led to much of this activity moving to Japan and Korea. Indeed New Sulzer Diesel has not built a large engine in its own works at the home base in Winterthur or in France for several years. Production is now carried out by members of its worldwide family of licensees.

A similar situation exists with MAN B&W, whose historic Copenhagen workshops near the

heart of the city have been razed in the past year. However, the smaller sizes of crosshead engine are built at nearby Frederikshavn, in the factory of its Alpha-Diesel subsidiary, whose principal activity is in me-

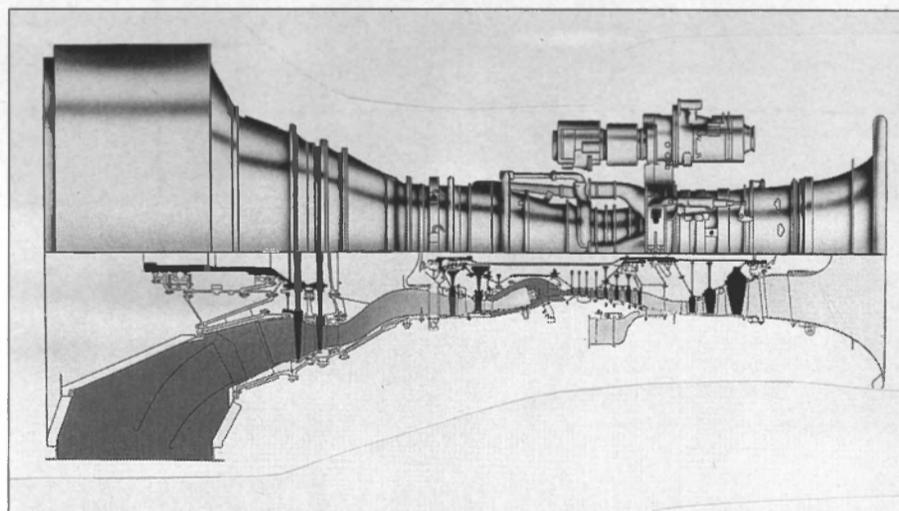
dium-speed engines and propulsion packages incorporating gears, shafting, propeller and controls. Again, most of the engines are built abroad under license, principally in the Far East; numbers of very large and

powerful engines being shipped Europe for installation newbuildings there.

Mitsubishi, with only a few licensees outside Japan, have not been prominent on the international scene in the past, but are now vigorously competing and have achieved some notable sales successes with large and most recently quite new models for export to Europe.

These majors offer portfolios covering wide unbroken power/speed spans of, broadly, 52,000 kW (70,500 bhp) to 1,100 kW (1,500 bhp) running speeds of 55 to 250 rpm from engines with cylinder bore from 900mm to 260mm.

New developments have tended to take place at the extremes of the span, with very powerful faster-running engines for the ever larger, budget-limited, containerships and extremely long-stroke models for VLCCs and ULCCs which can take advantage of the higher efficiency of a large and slow-running propeller. New and improved models have been



The world's largest high speed ferry will be powered by a Kvaerner-GE gas turbine system comprising two LM2500s (pictured) and two LM 1600s. The gas turbines will be supplied by Kvaerner Energy AS.

## MARINE POWER

led at the lower end as alternatives to the more widely applied medium-speed engines and to the dated direct-coupled four-stroke engines which have been an important factor of Far East coastal shipping.

New designs always include an ample margin for future upratings which are announced as general lifts for the range from time to time, as experience is gained: generally together with a slight improvement in fuel consumption. The higher working pressures and temperatures necessary to achieve this tend to result in higher NO<sub>x</sub> levels in the exhaust, and much development effort is going toward emissions abatement, as transport in all its modes becomes the target of stricter environmental legislation.

The large engine of the future is likely to incorporate electronic control and hydraulic actuation of the mechanisms for various functions: exhaust valve and starting air timing, and fuel injection and cylinder liner lubricant timing and delivery quantity.

This will enable an engine to be re-tuned at sea or adjusted to operate at optimum efficiency for say, ballast voyage at reduced speed, allowing a charter trip which required high power.

### Medium-Speed Engines

The trailer ferry, passenger and car ferry, and the cruise ship are today the exclusive preserve of the medium-speed engine.

The need for a through-deck at a relatively low level in ferries (nearly all are vehicle-carriers) precludes the use of all but the smallest cross-head engines.

Passenger-carrying ferries operating to a strict timetable are frequently fitted with four engines of the same type, but not necessarily all with the same number of cylinders, geared to two propellers.

This provides the flexibility which enables a fast-time crossing to be followed by a more leisurely overnight one with only two engines in use.

The redundancy allows a twin-screw passenger ship to remain in service in the event of an engine failing.

There is a much wider choice of medium-speed engines, which range down from a maximum cylinder output of 1,415 kW (1,925 bhp). In practice, the maximum power applied is around 12,500 kW (17,000 bhp) per engine, with usual ferry duty requiring much less.

A most interesting new medium-speed engine design is MAN B&W's latest addition, the new L 32/40, which offers 440 kW (600 bhp/cyl) at 750 rpm's.

The L 32/40 is the fourth, and junior, member of the current series of geometrically-similar heavy-duty four-stroke engines from the manufacturer. They include:

- the L 58/64, 1,390 kW (1,890 bhp)/cyl @ 428 rpm
- the L/V 48/60 975 kW (1,325 bhp)/cyl @ 500 rpm
- the L 40/54 605 kW (825 bhp)/cyl @ 600 rpm

The new L 32/40 features a separate camshaft for driving the fuel

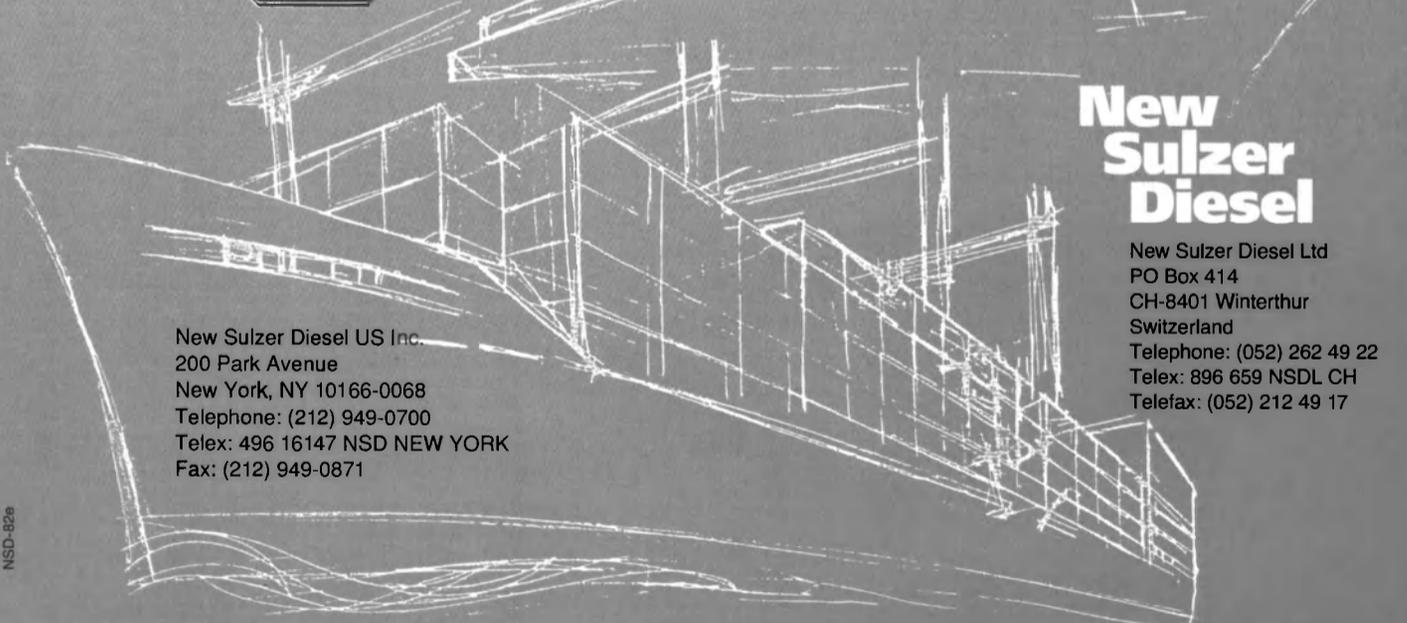
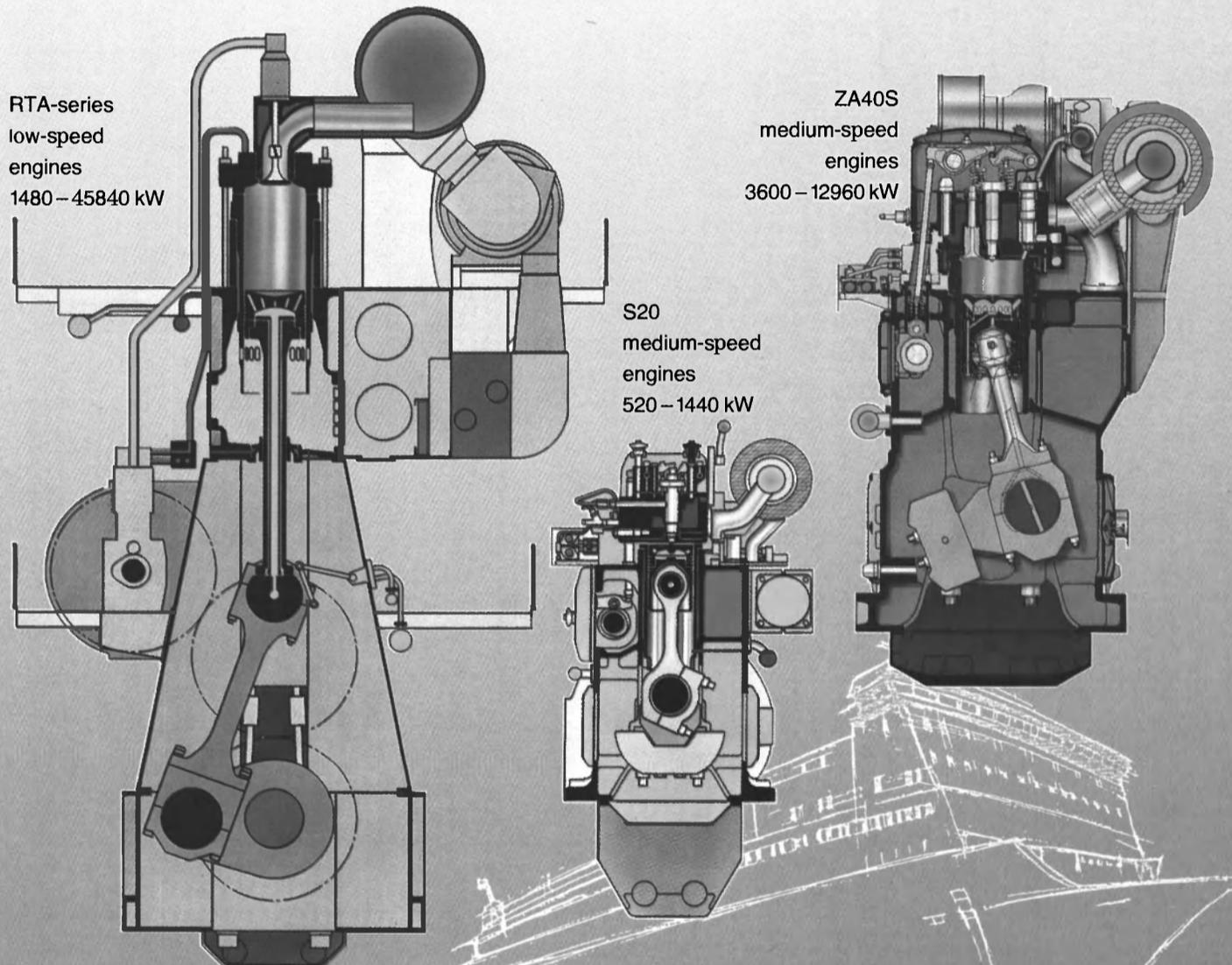
injection pumps which, by means of a servo piston and scroll, can alter the timing relative to the crankshaft and valve camshaft so as to advance the injection and maintain high firing pressures at reduced loads for maintained combustion and fuel economy.

A number of manufacturers have introduced small medium-speed engines with cylinder dimensions which would never have been con-

sidered suitable for burning heavy fuel a few years ago. They are primarily intended for auxiliary generator drive duty, the 900 to 1,000 rpm speed enabling smaller, lighter and cheaper electrical machines to be employed. The very high injection pressures and relatively long piston stroke adopted overcome the poor ignition quality and ensure complete combustion of poor quality fuel.

The availability of high-pressure

# Dependable power for your ships



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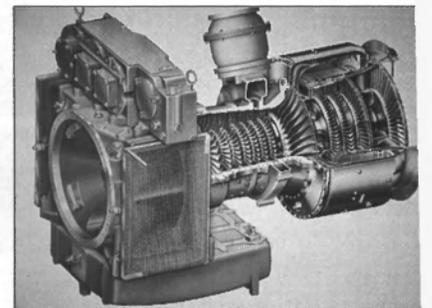
## MARINE POWER

turbochargers such as the ABB VTR 4P series, able to develop pressure ratios up to 5:1, can be expected to presage a general uprating of the later models of medium-speed engines. It has been tested exten-

sively on Wartsila Vasa R32, Sulzer ZA40S and Bergen BR-type engines and is already the standard fitting on the very new Stork-Wartsila SW38 model.

Reduced crew numbers imply less manpower available for maintenance, and engines are expected to run for very long periods without inspection and overhaul. The use of advanced materials has greatly extended the life of wearing parts such

as piston rings, and some remarkable experiences have been reported. Marine-type crankpin bearings or split connecting rods for trunk-piston engines, enabling a piston to be withdrawn for ring inspection without having to disturb a bearing which is running well, are now commonplace. Engines are cleaner in appearance, with accessible peripheral equipment and much less exposed small-bore pipe work to gather dirt.



The Textron Lycoming TF40 Gas Turbine.

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The so-called "intelligent engine" provided with instrumentation for on-line or on-demand self-monitoring of performance and condition, likely to become an option taken up by progressive owners.

This can be linked to a planned maintenance system, so as to indicate a need for inspection of an item earlier than scheduled, should this be shown up by the condition trend monitor.

### High-Speed Diesels

Mitsubishi Heavy Industries has built the 40-knot hydrofoil catamaran Super Shuttle 400 at its Shimonoseki yard for fast inter-island commuter traffic. For this type of application, a lightweight version of its SR 160 x 170mm 1,650 rpm model was developed.

The 16-cylinder S16R-MTK-6 engine has an output of 2,100 kW (2,850 bhp) at 2,000 rpm and, framed in light alloy, weighs only 14,735 lb (6.88 lb. - 5.00 lb.). It is claimed to be the first engine of Japanese design below 5.3 lb.

Four low-inertia Mitsubishi turbochargers ensure rapid, smokeless response to demands for acceleration, usual in this type of craft. Fuel consumption is less than 7.66 oz. (5.65 lb.).

It has been designed for easy maintenance in the confined situations in which it is likely to be installed. Six- and 12-cylinder lightweight versions will follow later this year.

Another recently-introduced high-speed engine is the Paxman VP185, an exceedingly compact design developing 2,611 kW (3,500 bhp) at 1,950 rpm with the unusual feature of two-stage pressure-charging by means of six low-cost turbochargers.

Deutz MWM has increased the cylinder swept volume and made some other design changes to its well-known 234 series of lightweight engines. Ratings are increased by some 30 percent to cover from 480 to 1,360 kW (650 to 1,850 bhp) at 2,100 to 2,300 rpm from eight to 16 cylinders. These models are now designated the 616 series.

### Steam Turbines Only For Gas Carriers

The last surviving application of the marine steam turbine engine is in propelling LNG-carriers, where it reigns supreme in spite of very determined research and development efforts and full-scale demonstrations by both crosshead and

Maritime Reporter/Engineering News

ger four-stroke diesel engine  
holders.  
Although eight large LNG-carri-  
s have been placed in France and  
nland, all of the main machinery  
ill be supplied from Japan, by  
itsubishi and Kawasaki. It is sig-  
ificant that Hyundai of South Ko-  
ea, which has entered the large  
as-carrier field with its usual en-  
ergy, recently acquired a license from  
mitsubishi to manufacture steam

turbines of Mitsubishi design. Evi-  
dently the European engine shops,  
many of which were building steam  
turbines years ago, do not foresee  
any future in reviving the activity;  
this in spite of encouraging  
newbuilding forecasts by respected  
consultants.

#### Diesel Electric

Ten of the 16 largest cruise ships

presently on order will be propelled  
by diesel-electric machinery. That  
eight of them are for four different  
shipowning groups, each with some  
years of experience, is proof enough  
of the benefits this propulsion sys-  
tem offers. A cruise ship, particu-  
larly one engaged in worldwide op-  
erations, is required to operate over  
a broad band of speeds, while the  
generating capacity needed to sup-  
port the hotel services for large pas-

senger and crew complements has  
risen markedly. In the past the  
machinery for these duties has been  
quite separate, but a central source  
of power which can be run for maxi-  
mum flexibility and economy is now  
indicated.

All of the ships mentioned above,  
and a number already in service in-  
cluding the QE2, converted from  
steam turbines to diesel-electric  
eight years ago, have and will have

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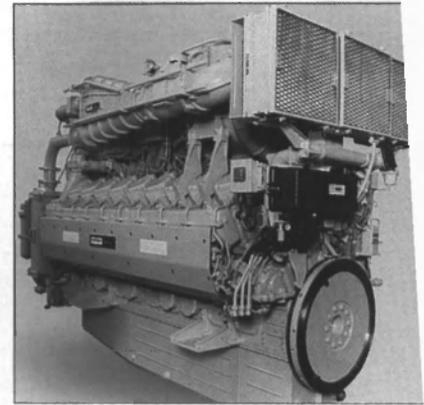
## MARINE POWER

what has come to be called an integrated central "power station" plant, with from four to nine resiliently-mounted generating sets. These may be of similar or different capacity, depending upon the degree of flexibility required for optimum

power management. These sets produce primary electrical power for all purposes on board, initially at constant frequency and at high tension of six to 10 kV. This is applied to the propulsion system and high-power motors such as those for the air conditioning compressors and side thrusters, which may alone require as much as nine MW, but only intermittently. Generation at high voltage enables smaller, lighter and

cheaper motors, switchgear and cabling to be used.

The secondary system, supplying the engine room auxiliary and deck machinery and galleys, is generally maintained about 450V through transformers, fed from separate sections of the split HT bus-bars. Further banks of transformers from the medium-tension lines feed the 230V LT system which serves the domestic, lighting and cabin circuits. There



An 18-cylinder Paxman Valenta engine.

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are no auxiliary generator sets, other than those required outside the engine rooms for emergency purposes.

Regulation of ship speed is effected by supplying the synchronous propulsion motors with variable-frequency current, obtained via banks of static frequency-converters. These make use of principles widely adopted ashore for high-power continuous industrial processes. Controllable-pitch propellers are usual as different speed/pitch combinations for each power yield optimum economy, and they can be integrated in joystick or other close maneuvering systems.

Clear leaders in supplying this type of equipment are ABB Stromberg Marine Drives of Finland, which has some very interesting shuttle and icebreaking tanker contracts in hand, the latter involving a submerged azimuthing "pod" motor. Members of the Franco-British GEC-Alstom group have been responsible for the 94.5 MW conversion of the QE2 and a number of P&O ships.

Effective power management ensures that the minimum number of correctly-loaded engines are in service at any one time. The shaft lines are short and only connect with the motors, giving the designer considerable freedom for arranging the engine room. The generator sets can be a higher level, as they are relatively light and can be installed as a unit, without any dismantling, straight from the test bed.

Several projects incorporate lightweight gas turbo-generator sets, which could be installed in sound-proofed modules right aft, at a high level.

### Gas Turbines

Very fast lightweight sea-going ferries, capable of 40 knots and over, have not been taken very seriously until the last few years, but are now causing some conventional ferry operators to think very hard. The weight sensitivity of such craft, particularly those which are dynamically-supported, conflicts with the requirement for high-powered machinery and has reopened the market for the gas turbine, following a considerable period when this power mode was discredited for merchant vessel applications. The aero-delivered turbine, of the type which propels many naval vessels, is the only

Maritime Reporter/Engineering News

prime mover which can develop the necessary concentration of power within a limited envelope.

Following the record-breaking crossing of the Atlantic by the heavily-sponsored express yacht Destriero, with three GE-MTU LM 1600 gas turbines driving KaMeWa water jets, the large Aquastrada-type monohull light-alloy ferry Guizzo will shortly take up regular commercial service between the Italian mainland and Sardinia, cutting the crossing time from seven to three hours. Built by Cantieri Rodriqiez, best known for its hydrofoil craft, the Guizzo has a GE-MTU LM 2500 gas turbine, flanked by two of MTU's latest 16 V 595 diesel engines, all driving KaMeWa water jets.

The ferry industry was shaken by the order for two giant HSS (High Speed Service) light-alloy catamarans which the Swedish Stena Line has just placed in Finland. One is for service across the Irish Sea, which has notoriously bad weather, commencing in the Spring of 1995. These craft, 406 feet long with a 131-foot beam, will be able to carry 1,500 passengers, 50 trucks and 100 cars, or 375 cars at a speed of around 40 knots, maintained in head sea wave heights of over 13 feet. They will introduce a fivefold increase in dead-weight capacity over the present largest craft of this type and, for the first time, be able to carry large commercial vehicles. The power required to achieve this performance is immense and will be provided by four GE gas turbines, one LM 2500 and one LM 1600, each driving a KaMeWa steerable water jet through MAAG reduction gears in each hull; a total of 60 MW (81,600 bhp).

Japan's Techno-Super Liner is another active project, an SES freight-carrier to carry 1,000 tons at 50 knots over distances of 500 miles, on lengthy inter-island of coastal voyages to avoid the overcrowded roads in the narrow littoral strip. Two reduced-scale prototypes are being built; one a hybrid hydrofoil TSL-F with a submerged buoyancy hull and the other a hybrid air cushion craft TSL-A, with lift-assist air fins. All seven major Japanese ship-builders are involved in the project, the most advanced prototype being the TSL-A, jointly by Mitsubishi and Mitsui. The TSL marks the return of Turbo Power and Marine Systems (Pratt & Whitney) to the marine gas turbine field. They are cooperating with Mitsubishi in the MFT-8 gas turbine, for which they are providing the gas generator core, based on that of their well-proven JT8D-200 aircraft engine, with variable-geometry inlet guide vanes and variable compressor stator vanes. For the prototype application, two MFT-8 turbines, rated 20.6 MW (28,000 bhp) will be installed, but the machine will be capable at the introductory stage of 24.2 MW (33,000 shp), with output shaft speeds of 3,000, 3,600, and 5,000 rpm in both directions of rotation. The fuel consumption is 0.217 kg/kWh (0.3631 lb/shp/h) at 24.9 MW mcr. The anticipated operating cost suggests that the value and urgency

of the goods carried would have to be high to attract the required freight rate. The military potential would be as a troop- or stores-carrier to serve locations without an air strip.

### Couplings

Once-tolerated levels of noise and vibration in living and working spaces are no longer acceptable, not only in passenger-carrying ships, but

in cargo vessels where health and safety at work legislation also applies. Medium-speed engines, the principal offenders in this respect, are now generally installed on resilient mountings, with flexible suspension of the exhaust system and non-rigid connections in the pipe work supplying essential services. This calls for some form of flexible coupling between the engine crankshaft and the pinion shaft of the

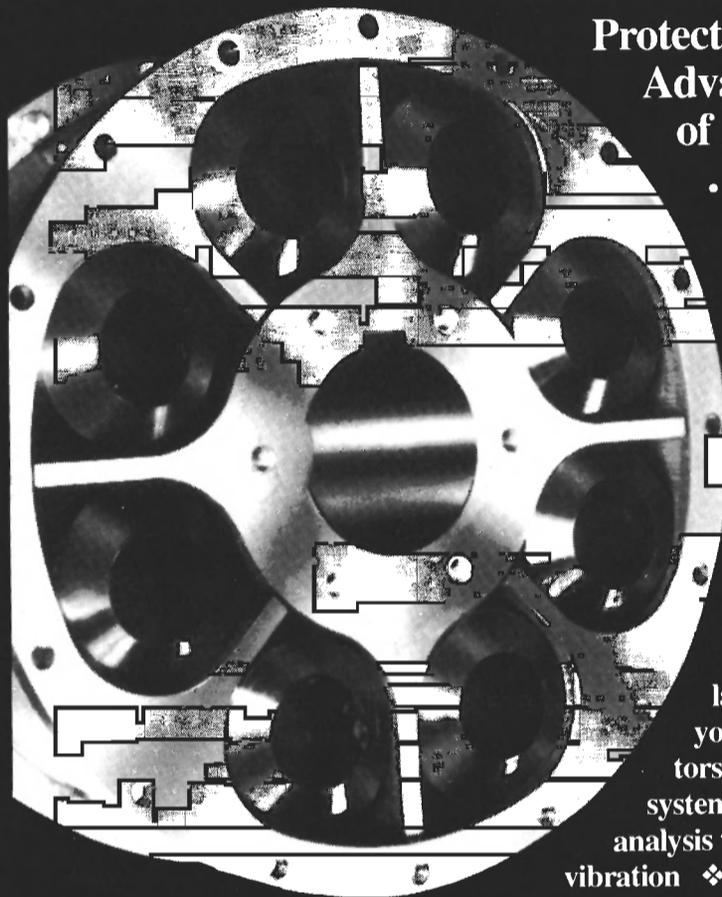
solidly-mounted gearbox to accommodate large transient and small permanent malalignments: radial, angular and axial such as can arise from settling of the engine mounts, shock and movement of the foundations due to bad weather or loading.

These couplings take many forms; the Vulkan RATO system of segmental bonded rubber elements being the most popular.

Geislinger's latest Gesilco cou-

(Continued on page 101)

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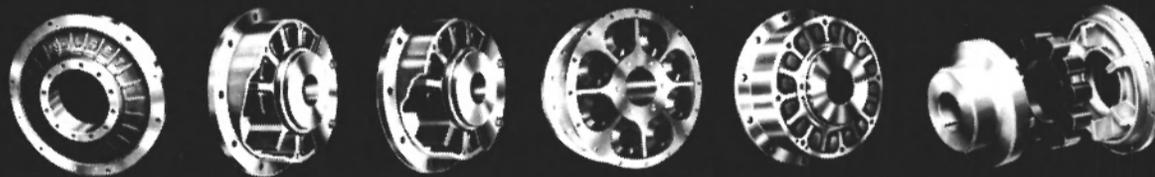


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# Directory of Marine Power Suppliers

*The following is a limited listing of marine power equipment suppliers from around the world. For complete information on each company's product and service capabilities, circle the appropriate number on the Reader Service Card bound in this issue.*

- |   |   |   |  |
|---|---|---|--|
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| <b>Alaska Diesel Electric</b><br>Circle 56 on Reader Service Card | <b>Caterpillar</b><br>Circle 60 on Reader Service Card      | <b>GMT</b><br>Circle 68 on Reader Service Card                        | <b>Lohmann &amp; Stolterfoht</b><br>Circle 78 on Reader Service Card |
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**Westinghouse Electric**

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*(Continued from page 99)*

pling, consisting of corrugated flexible membranes made of advanced glass fiber and epoxy composites bonded to a filament-wound drive tube, shows considerable promise. It can transmit torques of up to 200 kNm using membranes of only 1,500mm diameter, and permit transient and permanent angular misalignments of six and three degrees, respectively. The torque transmission is almost uniform, and the reactive forces which have to be

absorbed by the adjacent bearings are very low. Since the whole assembly is bonded, there are no working parts requiring maintenance. These couplings are light and provide good sound attenuation over a wide range of frequencies.

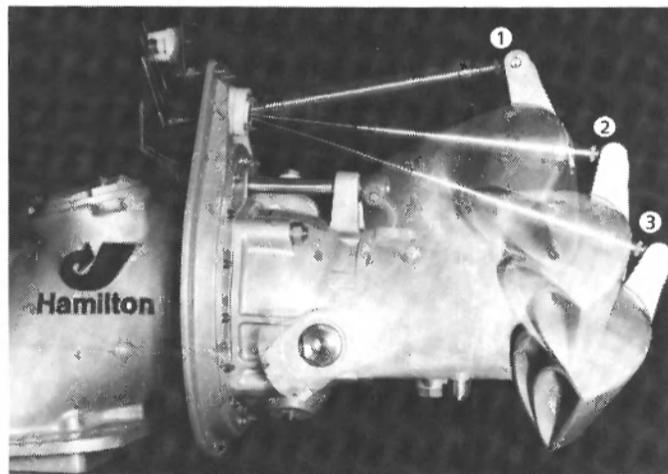
**Transmissions**

The air conditioning and other hotel services of a modern cruise

ship make heavy demands on the electrical system, which may amount to a high proportion of the propulsion power and, moreover, has to be available all the time that passengers are on board. Except in the case of the so-called "power station" integrated propulsion/auxiliary systems, this would normally require the provision of substantial independent generating capacity. In some multi-engined ships with con-

stant-speed cp propellers, two or more of the main propulsion engines have been arranged to drive generators from their "free" ends as a source of electrical power at sea and, by declutching the engine from the gears, also in harbor. This makes it possible to reduce the number of independent generator sets.

This principle is being taken further in the 67,000-gt Oriana, now being built at Meyer Werft in Ger-



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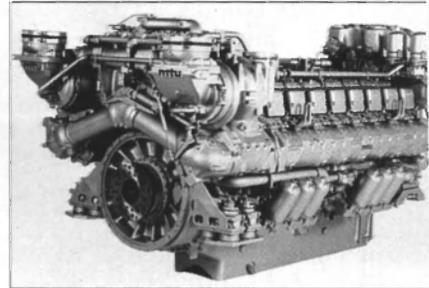
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many for P&O Cruises. Main propulsion is by four MAN B&W medium-speed engines of the largest L 58/64-type, one with nine cylinders and one with six cylinders, totalling 39,750 kW (54,060 bhp) and coupled to each Lips cp propeller through

Renk Tacke reduction and combining gears. A two-ratio power take-off system on the pinion shaft for each of the smaller engines provides for driving a 4,200 kW generator at sea, and in harbor if necessary. It will also allow these generators, when switched to operate as 4,000 kW motors supplied from the ship's 16 MW independent generating station, to supplement the output of the main propulsion engines on the few occa-

sions when maximum speed is required. This will save the first cost of some main engine cylinders and provide exceptional flexibility, with a power management system able to select for optimum economy from a permutation of diesel engines of about 12 MW and eight MW, and the four-MW motor.

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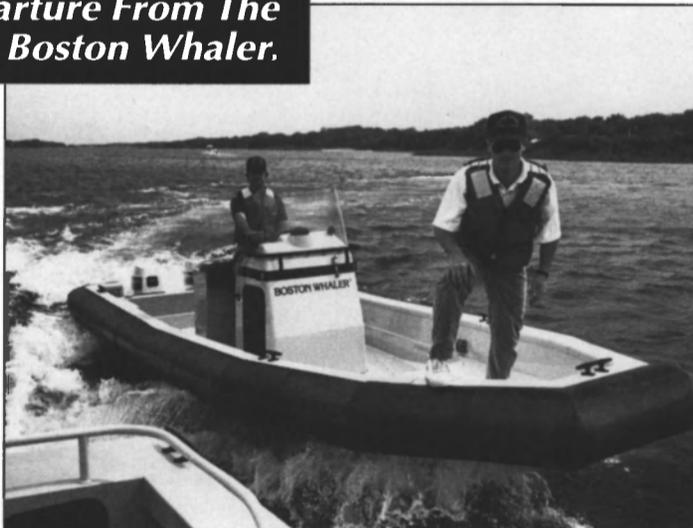
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the U.S.S. Supply, lead of a class of fast combat support ships of the U.S. Navy. They have the same outfit of prime movers as the 31-strong Spruance-class destroyers: four General Electric LM2500 gas turbines, driving two propellers. There the similarity ends, because while the destroyers have Bird Johnson-KaMeWa cp propellers, the support ships have fixed-pitch propellers and Cincinnati locked-train double-reduction gears which incorporate a maneuvering train with an SSS-Tori reversible converter coupling. This is a hydraulic turbo-type coupling in which it is possible to insert or retract a series of radial blades between the input and output cups. These blades have a profile which reverses the direction of the fluid issuing from the driving half so that the driven half rotates in the opposite direction. To date, the aircraft-carrier Garibaldi of the Italian Navy (also with four LM2500s) has been the only ship at sea with this transmission, which enables a highly-loaded shaft to be reversed with astonishing rapidity.

The new generation of very large, fast and weight-sensitive dynamically-supported SWATH-type and monohull ferries require reduction gears of light construction to transmit high powers from gas turbines to water jets. Renk Tacke GmbH supplied three-stage vertically-stacked C-form gears, to transmit 15,000 kW from MTU-GE 1600 gas turbines, with a speed reduction of 7,000/652 rpm to KaMeWa water jets in the trans-Atlantic record-breaker Destriero. Drive-through gears connect two of the new MTU 595 engines and a MTU-LM 2500 gas turbine to the water jets of the 40-knot Aquatrada-type 350-passenger and 150-car ferry Guizzo mentioned earlier.

MAAG Gear Co. of Zurich have recently begun the manufacture of lightweight gears suited to gas turbine drive. The double-reduction vertically-stacked MGO-110/2 gear sets for the Kvaerner Fjellstrand Foil Cat have a steel center section carrying the secondary and output shafts, with light alloy upper and lower casings. They reduce the input speed from 6,600 rpm to 904 rpm. A recent major success is the order for the gears transmitting a total of 60 MW in each of the Stena High Speed Sea Service ferries.

### Water Jets

The water jet has emerged as the most effective propulsor for fast light draft vessels, where a conventional

r modified propeller is at a disadvantage when required to absorb very high powers. They are already in service handling engine and gas turbine outputs, which would have been unthinkable a few years ago.

Many of the leading propeller manufacturers are now active in this field, KaMeWa and Riva-Lips having achieved significant references. Mitsubishi's foil-borne "Rainbow" as their own design of MWJ-5000A water jets with an interesting design of two-stage impeller. They are built at the company's Takasago turbo-machinery factory, where a version for 25,000 hp is being developed.

#### Contra-Rotating Propellers

Several months' sea experience is now available from the 258,000-dwt tanker Cosmo Delphinus, which has the first installation of high-powered machinery driving contra-rotating propellers. A Mitsubishi 7UEC75LSII engine with a maximum power of 20,600 kW (28,000 hp) at 84 rpm drives a three-bladed 29-foot diameter after propeller directly. The five-bladed 32.5-foot diameter forward propeller is driven at 50.4 rpm through a transmission consisting of a large-diameter hollow Geislinger flexible coupling, a Renk Tacke planetary gear having seven planet wheels and a concentric outer shaft. The otherwise lost wake energy from the forward propeller is recovered by the after one and converted to additional thrust. The plant is mechanically complicated, but the components -- damper, gear, bearings and glands -- have been rig-tested for long periods. Extensive loaded trials and sea service have confirmed the anticipated 15 percent reduction in engine power needed to attain the same speed in a conventionally-powered sister ship. This represents a substantial saving in fuel cost to be set, over the life of the ship, against the increased capital expense. An economic forecast is awaited with interest.

#### Argentina Lures Owners With Relaxed Crew, Insurance, Tax Regulations

Argentina is encouraging shipowners from around the world to register their ships under the Argentine flag, and relaxing restrictions on such things as crew levels, insurance, taxes, and paperwork.

Officials reportedly expect these measures to place Argentina on a level with Norway's registry laws, saying the new law resembles Norway's international ship register by requiring shipowners to follow international staffing levels to ensure vessel security and safety. Other staffing levels are left to the discretion of the shipowner, who may use crewmembers from any country. Other provisions include the elimination of bureaucratic delays in the registration and deregistration process.

Local maritime sources reportedly said roughly 80% of Argentine vessels now operate under foreign flags to avoid high costs and bureaucratic delays. It is hoped the new measures will immediately lure Argentine shipowners and their Southern Cone neighbors in Brazil and Uruguay.

#### First Cyclone-Class Ship Commissioned

The Cyclone, lead ship of the new Cyclone class of ships, was commissioned in early August at the U.S. Naval Academy. The new ship has a crew of four officers and 24 enlisted personnel. Its primary mission, and that of the 12 Cyclone-class ships slated to follow, will be coastal patrol and surveillance. With a top speed of 30 knots, it is armed with Stinger missiles, 40 mm grenade launchers, machine guns and chain guns. The Cyclone was the first ship ever to be commissioned at the U.S. Naval Academy.

## Oil Pollution Declines As Shipping Measures Take Effect

Oil pollution of the oceans as a result of human activity has decreased in recent years, largely because of the success of measures designed to prevent marine pollution from ships, reports a new study from the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).

The study, "Impact of Oil and Other Related Chemical Wastes on the Marine Environment," is the 50th to be produced by the group, which is made up of experts nominated by eight United Nations bodies, including the International Maritime Organization, the agency concerned with maritime safety and the prevention of pollution from ships. The report finds that oil pollution resulting from shipping operations has decreased during the past three decades. The entry into force in 1983 of the International Convention for the Prevention of

Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) had what the report calls "a substantial positive impact." It is calculated that the input from shipping activities declined from 1.47 million tons in 1981 to 0.54 million tons in 1989.

Tanker accidents contribute about five percent of total oil input, based on the 1990 estimate, but the actual total can vary considerably from year to year. However, the reduced adhesion to surfaces and the reduced biological impact in some situations, such as mangroves, make dispersed oil a generally less harmful pollutant than untreated oil. The most effective strategy for protecting sensitive coastlines is to disperse the oil offshore. The report concludes that if properly applied, dispersants can help remove oil from the water surface and dilute it to non-toxic concentrations.

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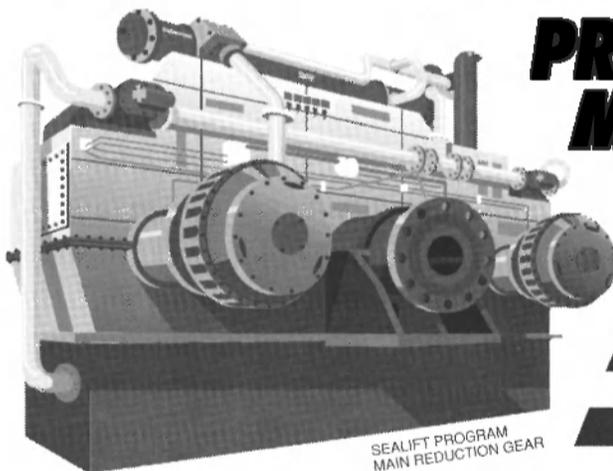
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## South Korean Curbs On Shipbuilding To End Amid Controversy

South Korea's Ministry of Industry, Trade and Energy said that next year it will end its regulation of domestic shipbuilding, despite warnings from three major domestic shipbuilders of a market glut.

"The government has no inten-

tion of extending the current rationalization program — limiting new entrants and capacity expansion — which expires at the end of this year," a ministry official responsible for domestic shipbuilding affairs reportedly said, adding that the government will let shipbuilders expand capacity according to their own judgment. The rationalization program was imposed in 1989 by the government, which feared redundant investments.

The government's decision allowing shipbuilders greater self-control followed a joint proposal to the ministry by three of the nation's largest shipbuilders, Hyundai Heavy Industries Co., Daewoo Shipbuilding & Heavy Industries, and Hanjin Heavy Industries, urging that Samsung Heavy Industries' plan to expand its shipbuilding capacity by one million tons be abolished. The nation's combined shipbuilding capacity is currently estimated at 4.5 million tons

a year. The three companies assert that increased capacity in current market conditions will cause a glut and excessive competition among domestic companies.

"An expansion of shipbuilding capacity at a time like this when virtual recovery in the order of shipbuilding is yet in sight will exacerbate demand-supply balance," the reportedly asserted in the joint proposal. The companies fear the current rush of orders to South Korea shipbuilders may prove short-lived brought about by external factors such as the stiff appreciation of the Japanese yen, making Korean ship much cheaper.

## Singapore SSE Contracts For Two Building Projects

Singapore Shipbuilding & Engineering (SSE) has won two contracts worth a total of \$17.5 million, the marine arm of the government-owned Singapore Technologies group reportedly said.

It will design and build two landing supply craft, and also provide technical services to a para-military organization in the Middle East. The vessels are expected to be delivered in the third quarter of 1994, and the contract is for a total of \$9.86 million.

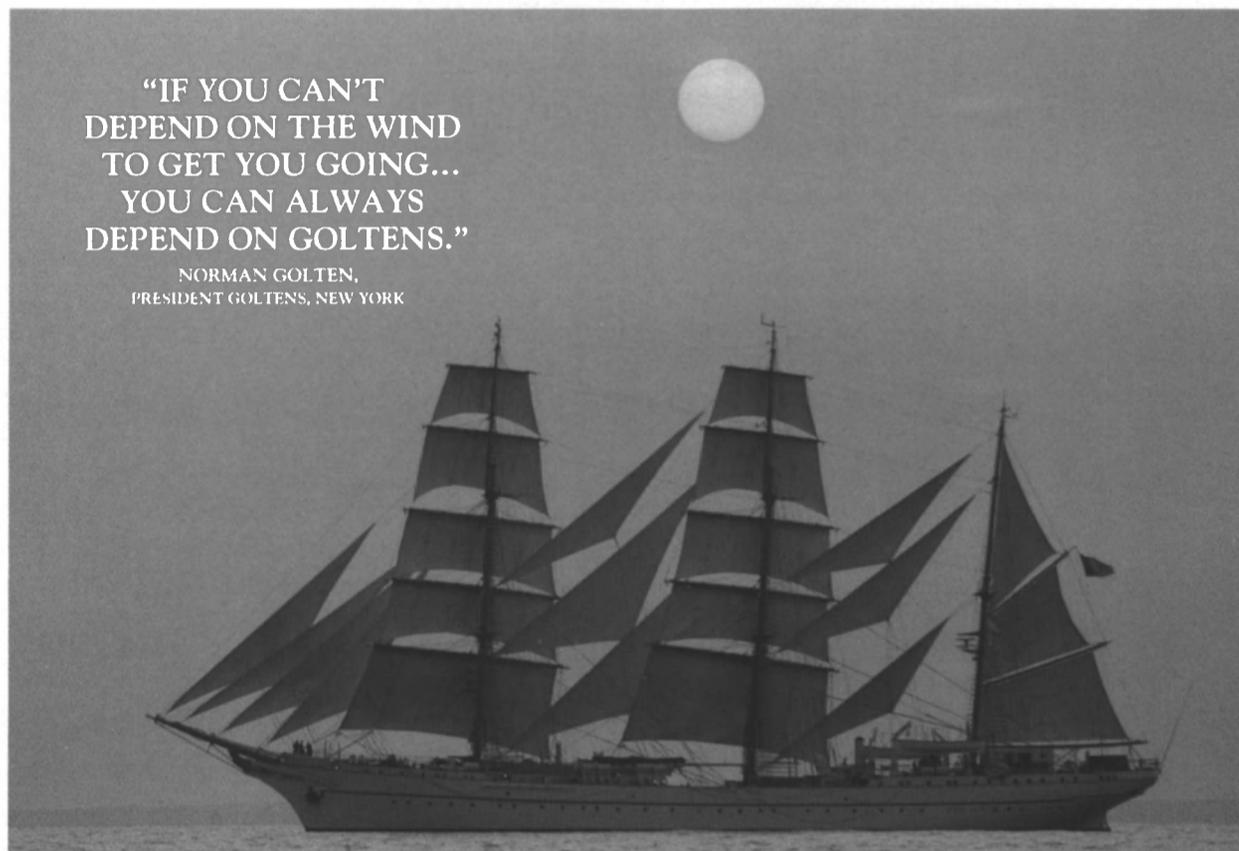
The second contract, valued at \$7.64 million, involves the design and construction of two small floating docks for an undisclosed customer, SSE added. The docks are slated for delivery by the first quarter of 1994. Construction for both projects will take place at SSE's Benoi Road facility.

## Evergreen Orders Five Big Boxships

Evergreen International SA (Panama), the largest carrier operating within U.S. trades, has placed contracts with two Japanese shipbuilders, Mitsubishi Heavy Industries Ltd. and Onomichi Dockyard, for a total of five new R-type container vessels.

Each will be sisters to the recently delivered Ever Royal and Ever Right, both built by Onomichi. Each will have a capacity of 4,229 teu's. A third vessel from the same yard, Ever Round, is due for delivery in late October and, following a lengthening operation in Singapore, should enter service in early December. Onomichi will now build two further vessels to this new design and these will be delivered on September 30, 1994 and January 15, 1995. Unlike the earlier Onomichi trio, jumboization of this pair is the responsibility of the shipyard and will have been completed prior to the vessels' delivery to Evergreen.

Mitsubishi is already building two R-class vessels, the first for delivery in March, the second in June 1994. Now the shipyard is to build a further three for delivery in 1995 in February, May and August. Unlike



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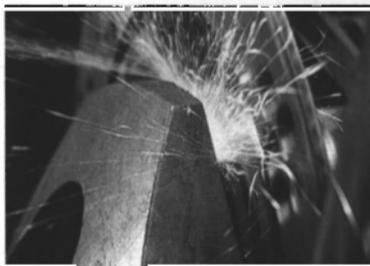
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Onomichi, Mitsubishi is able to accommodate the full 964-foot length of the R-type hull on its building berth. Consequently, these ships will not require lengthening before delivery to Evergreen.

### Navy's MSTO Offers \$3 Billion In Loan Guarantees To Commercial Shipbuilders

The U.S. Navy's Maritime Science and Technology Office (MSTO) is offering federal loan guarantees of \$3 billion for commercial shipbuilders.

The loans may be used for shipyard modernization as well as construction, and will be backed by \$200 million in Department of Defense money transferred to the Maritime Administration.

According to a House Armed Services Committee report, "The committee believes that this defense conversion initiative will preserve the vendor base, critical skill levels, and provide opportunities for modernization that will benefit both commercial construction and Navy construction in terms of lower costs and production options."

### House Panel Cuts Sub Tech Spending

The House Armed Services Committee has decided to spend significantly less than in recent years on submarine technology, and turned its attention to a \$100 million program to promote advanced maritime technology. The Committee transferred \$32.6 million from the

administration's funding request for the Advanced Research Project Agency's (ARPA) advanced submarine technology program into a new program designed to assist commercial shipbuilding.

Over \$1 billion has been spent on advancing submarine technology since 1987, when Congress grew alarmed at the rapid advancement in the quieting of Soviet submarines. Funding was further increased in 1989 when Congress received a report indicating Soviet sub technology was approaching the U.S.'s.

### Winninghoff Chosen To Build 46-Foot OSRV

Winninghoff Boats, Inc. of Rowley, Mass., was chosen to design and build a welded aluminum 46-foot OSRV for Clean Harbors Cooperative of Edison, N.J. The vessel will be used for rapid response in the open waters, bays and rivers of New York Harbor.

Capabilities include the transportation, deployment and maintenance of containment boom, portable and on-board skimming equipment as well as command post activities. An auxiliary hydraulics system will power the crane and skimming equipment.

With a full complement of crew, equipment and 2,000 feet of boom, the twin Volvo TAMD71A's are designed to deliver a top speed of 25 knots.

The 46- by 15-foot design is an in-house effort supplemented by Woodin and Marean, Inc. Delivery is scheduled for this fall. For more information,

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## Mississippi River Update

At press time, the flooding of the Mississippi River was still a source of many headaches. Here's the latest news:

Reportedly 18 bridges over the Missouri River are closed, including U.S. 67 from St. Louis to Alton, Ill., which crosses both the Missouri and the Mississippi Rivers.

Also closed is the U.S. 40 bridge, which runs just west of St. Louis. This places heavy traffic on the I-70 bridge, which was nearly closed due to high waters. The I-70 is the only major bridge crossing the Missouri River in the area between Kansas City and St. Louis.

Other areas of transportation affected by the river's wrath are airports and the marine industry. Twenty airports are reportedly closed, including The Spirit of St. Louis Airport at Chesterfield, Mo., a large general aviation airport in a northern suburb of St. Louis, which is under nine feet of water.

The U.S. Coast Guard (USCG) is now resetting buoys on the Mississippi from Dubuque to St. Paul, and has finished setting buoys on the Illinois River above Peoria. As many as 7,000 river barges are estimated to have been affected by the closing of the Mississippi and its tributaries. The river has been closed to through traffic from Cairo, Ill., where the Ohio River meets the Mississippi, north to Minneapolis-St. Paul. The USCG has also imposed speed restrictions on a stretch of the Mississippi 200 miles south of Cairo, due to the risk of wake damage to saturated levees. Locks 1-16

are now open, but are being used only for limited local commercial traffic.

### Government, Barge Lines Establish Flood Data Center

A central command post for post-flood news has been set up to supply barge lines with the flood information they need as the Mississippi River re-opens.

*Maritime Reporter and Engineering News* spoke to **Wally Feld**, assistant chief for construction and operations in St. Louis for the Army Corps of Engineers. According to Mr. Feld, business was slow at the center's starting date, July 26, but has picked up.

News is available about any Mississippi lock conditions, delays or service restrictions on other closed rivers, which can have a tremendous impact on haulage and crew cost planning for barge lines and supply planning by customers such as grain export elevators and coal-needy utilities. The idea for a flood data center came from the combined efforts of the U.S. Coast Guard (USCG), the Army Corps of Engineers and two federal river agencies and barging leaders who make up a River Industry Executive Task Force.

The flood data center will be an expanded version of the data center the industry used jointly with the Coast Guard and Army Corps of Engineers during the 1988 drought.

To obtain information from the flood data center, call (314) 539-7121.

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## Keel Laying Ceremony At Trinity Yard

There was a keel laying ceremony at Trinity Marine Group's Equitable Yard in New Orleans on August 9, 1993, for the first of two 85-foot towboats being constructed for the U.S. Army Corps of Engineers for a total of \$6 million.

An option for a third vessel, if exercised, would bring the contract

value to \$9 million.

The vessel, which will be called the Fred Lee, will have a 30-foot beam and a 10-foot draft.

It will be powered by two Caterpillar 3512 diesel engines driving through Reintjes reverse/reduction gears. Electrical power will be provided by two Caterpillar 3304 diesels driving 65 kW generators.

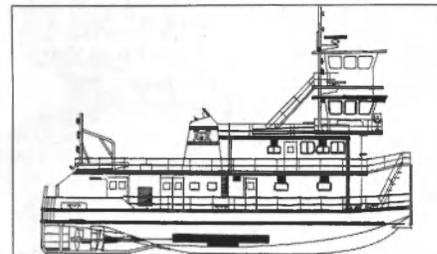
Delivery of the ship is scheduled for May, 1994. The boat will be assigned to the Vicksburg, Miss. dis-

trict for work on the Red River.

The second of the two boats, the Bettendorf, will be of equal length but not a sistership to the Fred Lee. Construction will begin in September, with delivery planned for June, 1994.

Fred Lee, for whom this first vessel was named, worked for the Corps of Engineers for 43 years.

Equitable has also begun construction of the \$35 million, 322-foot Queen of New Orleans gaming



Drawing of the towboat Fred Lee, now being constructed at Trinity's Equitable Shipyard.

boat for the Hilton Hotels Corp./New England Padwheels Inc. joint venture. The shipyard is also cutting steel and fabricating panels for two 245-foot gaming boats for the same joint venture, to be built at a sister Trinity shipyard, Halter Marine, Inc., in Lockport, La.

## U.S. Gives Six Boston Whaler Vigilants To Bulgaria And Romania



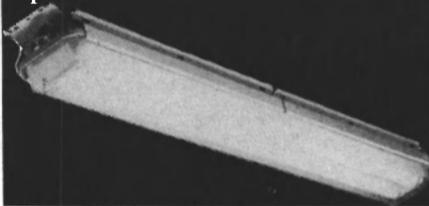
The 27-foot Vigilant model from Boston Whaler, six of which have been given to Bulgaria and Romania by the U.S.

The Commercial Products Division of Boston Whaler delivered six 27-foot, high-speed Vigilant patrol boats to Romania and Bulgaria at the behest and expense of the U.S. Government, to patrol the Danube river against arms smugglers.

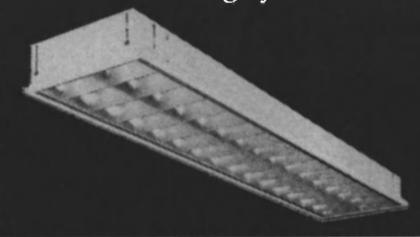
In a Washington ceremony attended by Vice President Al Gore and Rick Thornton, vice president of Boston Whaler, title of the six Vigilants was turned over to the Ambassadors of Bulgaria and Romania. One of the most famous rivers in the world, the Danube winds peacefully from southwest Germany to the Black Sea, between Bulgaria and Romania and on into Belgrade the capital of Yugoslavia. These days, it is also a strategic highway for Yugoslavian ships trying to smuggle supplies to troops fighting in Yugoslavia. According to a news report broadcast on CNN, "the U.S. Government recently gave six high speed patrol boats to Romania and Bulgaria (three to Romania and the other three to Bulgaria) in an effort to help those European countries police the Danube." The purpose behind the delivery of the boats is to

Maritime Reporter/Engineering News

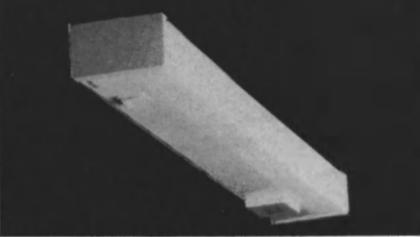
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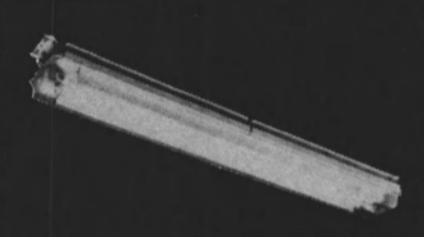
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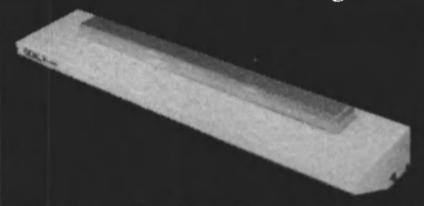
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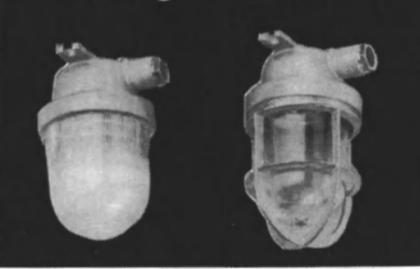
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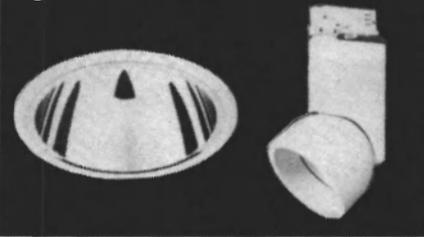
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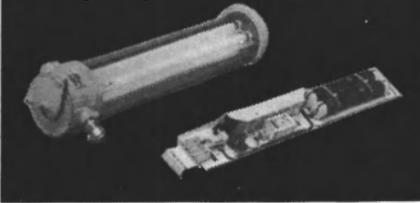
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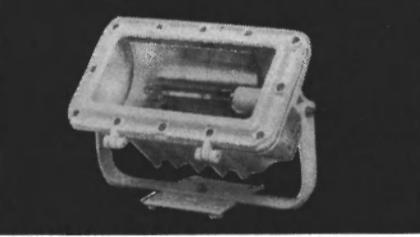
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enforce the Serbia-Montenegro sanctions imposed by the United Nations.

Each of the vessels is driven by twin Evinrude 225 HP engines, has a beam of 10 feet, a draft of 19 inches, a fiberglass pilot house and a lower cuddy cabin. Their "unsinkable" hulls are constructed with a commercial fiberglass laminate. Delivered shrink-wrapped and equipped with twin outboard motors, full electronics, and required law-enforcement equipment, the boats provide efficient patrol service for both Romania and Bulgaria, meeting a national security need.

#### Vigilants Equipment List

Engines .....	Evinrude
Propellers .....	SST
Compass .....	Ritchie
VHF radio .....	ICOM
Radar .....	Furuno
Digital Depth Sounder .....	Datamarine
Anchor .....	Danforth
Air horn .....	Falcon

#### Norshipco Appoints Hankins Sales Director Of Brambledon Plant



Patrick Hankins

Norfolk Shipping and Drydock Corp. (Norshipco) has appointed Patrick M. Hankins to the position of director of sales, Brambledon Plant. A graduate of the Norshipco apprentice school, Mr. Hankins most recently served as manager of the Brambledon Plant and draws more than 30 years of experience in the maritime industry.

"Pat Hankins has thorough knowledge of the capabilities, quality service and competitive pricing that benefit clients of the Brambledon Plant," said John L. Cooper IV, executive vice president of the company. Committed to providing fast, efficient and competitive services to the world's fleet, Norshipco currently provides services for commercial and government-owned vessels.

#### Hardware Specialty Co. Ships Division Broadens Product Range

The Ships Division of Hardware Specialty Company is keeping busy despite the U.S. Navy downsizing, sea closures and home port shifts.

Equally brisk sales of Aeroquip

Hose and fittings, and Raychem (Sigmaform) heat shrinkable tubing reflect their keenly competitive position based upon their firm commitment to inventory and rapid responses. The Ships Division serves the U.S. Navy and U.S. Coast Guard repair, overhaul and conversion locations directly. Throughout the 80s the Division has been a long-established supplier to the major U.S. shipyards in the construction of new vessels. The Division serves a wide

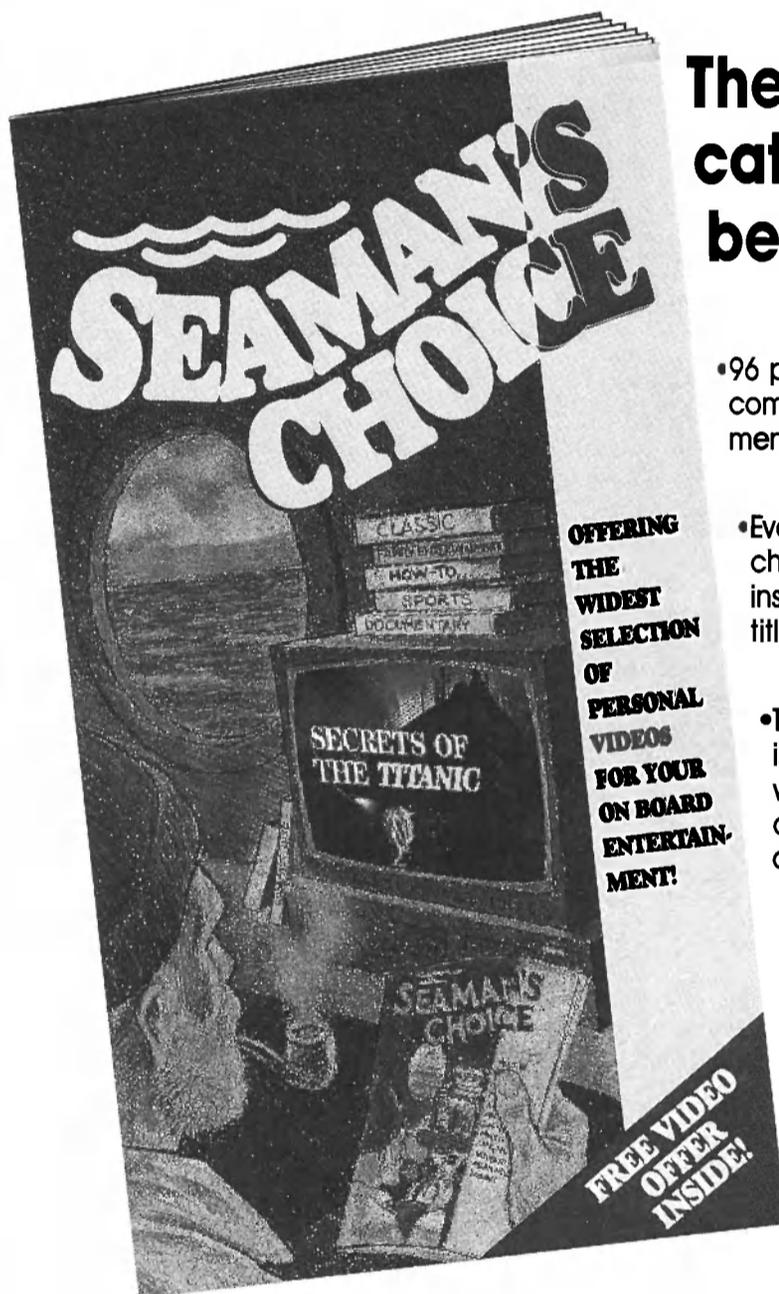
range of subcontractors and fabricators as well as manufacturers of pumps, valves and other high-quality, corrosion resistant sensitive subsystems and electromechanical assemblies. Many installations are serviced by EDI agreements and computer-to-computer contracts.

Overseas sales activity has increased recently in both Europe and the Far East with requests for "special" fasteners to drawings in many different materials.



Clockwise from left: John Pappas, Al Mueller, Mike Shaev, Mike Dlugokenski, Bill Berit, Antonette Perez, and Andrea Spencer.

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## SEPTEMBER

**AWO Fall Convention:** September 7-9, Washington, D.C. Contact: AWO, 1600 Wilson Blvd., Arlington, Va. 22209; tel: (703) 841-9300; fax: (703) 841-0389.

**Offshore Europe '93:** September 7-10, Scotland  
Aberdeen Exhibition & Conference Center. Contact: Offshore Europe Partnership, Rowe House, 55/59 Fife Road, Kingston upon Thames, Surrey KT1 1TA; tel: +44 81 549 5831; fax: +44 81 541 5657/974 8077.

**NEVA '93—The International Shipping Exhibition:** September 14-18, St. Petersburg, Russia  
Contact: **Roderick Keay**, Dolphin Exhibitions Ltd., 112 High St., Bildeston, Suffolk IP7 7EB England; tel: +44 9 741087; fax: +44 9 741628.

**Clean Gulf '93:** September 14-16, Kenner, La.  
Pontchartrain Center. Contact: **Corey Smith**, PennWell, (713) 621-8833.

**SNAME Centennial Annual Meeting and International Maritime Exposition:** September 14-19, New York  
New York Hilton Hotel. Contact: The Society of Naval Architects and Marine Engineers, 601 Pavonia Ave., Jersey City, N.J. 07306. tel: (201) 798-4800; fax: (201) 798-4975.

**National Waterways Conference:** September 15-17, Memphis, Tenn.  
Contact: National Waterways Conference, Inc., 1130 17th St., N.W., Washington, D.C. 20036-4676; tel: (202) 296-4415; fax: (202) 835-3861.

**Icelandic Fisheries Exhibition 1993:** September 15-19, Laugardalsholl, Reykjavik, Iceland  
Contact: **Patricia Foster**, exhibition director, Icelandic Fisheries Exhibition, Reed Exhibition Companies (U.K.), Oriol House, 26 The Quadrant, Richmond-on-Thames, Surrey, U.K. TW9 1DL; tel: +44 81 948 9800; fax: +44 81 948 9870.

**Gateways To Emerging Markets: A Russian Far East and Pacific N.W. Trade Conference:** September 20-22, Vladivostok, Russia.  
Contact: In the U.S., **Sue Simon**; tel: (206) 461-2268, fax: (206) 554-7211; In Russia, **Pavel Gorshenin**, Port of Vladivostok; tel: 4323 219388.

**MTS '93: "Technology Requirements in the Nineties":** September 22-24, Long Beach Convention Center, Long Beach, Calif.  
contact: MTS '93 c/o J. Spargo & Associates, Inc., 4400 Fair Lakes Court, Fairfax, Va. 22033; tel: (703) 631-6200; fax: (703) 818-9177.

**Tanker Industry Convention:** September 27-29, London, U.K.  
Royal Lancaster Hotel. Contact: **Vanessa Stephens**, The Seatrade Organization, Seatrade House, 42-48 North Station Road, Colchester CO1 1RB, U.K.; tel: +44 206 45121; fax: +44 206 45190.

**82nd Annual AAPA Convention:** Sept. 27-Oct. 1, Halifax, Nova Scotia  
The Prince George Hotel and Chateau Halifax. Contact: American Association of Port Authorities at (703) 684-5700.

**45th Virginia Conference on World Trade:** September 29-Oct. 1, Virginia Beach, Va.  
The Cavalier Hotel. Contact: The Virginia Chamber of Commerce, 9 South Fifth St., Richmond, Va. 23219; tel: (804) 644-1607 or (800) 477-7682.

## OCTOBER

**SuperFerry:** October 5-6, Stockholm  
Aboard the Silja Europa, travelling from Stockholm to Helsinki to Stockholm. Contact: SuperFerry 93 Secretariat, 2 Station Road, Rickmansworth, Hertfordshire WD3 1QP England; tel: +44 923 776363; fax: +44 923 777206.

**Oil Spill Prevention and Response Expo:** October 6-8, San Francisco  
Contact: **David Priebe**, (800) 929-0553.

**International Offshore Contracting & Subsea Engineering:** October 13-16, Aberdeen, U.K.  
Aberdeen Exhibition & Conference Center. Contact: Spearhead Exhibitions, Ltd., **Judith Patten**, Neville House, 55 Eden St., Kingston upon Thames, Surrey KT1 1BW; tel: +44 81 547 1566; fax: +44 81 547 1143.

**ASNE Fleet Maintenance Symposium:** October 19-21, San Diego, Calif.  
Contact: ASNE, 1452 Duke St., Alexandria, Va. 22314; tel: (703) 836-6727.

**West European Cooperation in Marine Technology (WEMT '93):** October 20-22, Madrid  
"Ship Production and Ship Procurement" conference. Contact: **Juan Pablo Merino**; tel: 34-1-448 4301; fax: 34-1-446 0198.

**Admiral of the Ocean Sea Awards Dinner:** October 29, New York  
Contact: **Barbara Yeninas** at (201) 226-8580 or **Roger Korner** at (212) 775-1033.

## NOVEMBER

**NSRP Ship Production Symposium:** November 1-4, Williamsburg, Va.  
Contact: NSRP Ship Production Symposium, UMTRI, Marine Systems Division, 2901 Baxter Road, Ann Arbor, Mich. 48109-2150; fax: (313) 936-1081.

**ASNE Naval Engineering Symposium:** November 8-10, Washington, D.C.  
Contact: ASNE, 1452 Duke St., Alexandria, Va. 22314; tel: (703) 836-6727.

**Ship Repair & Conversion '93:** November 9-10, London, England  
Contact: **John Gwynn-Jones**, BML Business Meetings Ltd., 2 Station Road, Rickmansworth, Herts WD3 1QP, England; Tel: +44 923 776363; Fax: +44 923 777206.

**Ship Structure Symposium '93:** November 16-17, Arlington, Va.  
Sheraton National Hotel. Cosponsored by SNAME and the Ship Structure Committee. Contact Cdr. **Stephen E. Sharpe**, Commandant (G-MI/SCC), 2100 Second St., S.W., Washington, D.C. 20593-0001; tel: (202) 267-0003; fax: (202) 267-4677.

**26th Europort:** November 16-20, Amsterdam  
RAI International Exhibition Center. Gastech RAI, Ltd., tel: +44 71 436 9774; fax: +44 71 436 5694.

**Maritime Technology 21st Century Exhibition & Conference:** November 23-26, Melbourne, Australia  
Contact: **Eileen M. Lavine**, Information Services, Inc., 4733 Bethesda Ave., #700, Bethesda, Md. 20814; tel: (301) 656-2942; fax: (301) 656-3179.

## DECEMBER

**Marintec China 93:** December 7-10, Shanghai  
Contact: **Chris Cotton**, The Seatrade Organization, 44/F China Resources Building, 26, Harbor Road, Wanchai, Hong Kong; tel: +852 827 9128; fax: +852 827 7831.

## FEBRUARY 1994

**Underwater Intervention '94:** February 7-10, 1994, San Diego, Calif.  
Town & Country Convention Center. Contact: Underwater Intervention '94, P.O. Box 261149, San Diego, Calif. 92196; tel: (619) 422-8918; fax: (619) 426-4421.

### Lykes Bros. Withdraws Transfer And Sale Requests

Lykes Bros. Steamship has withdrawn its request for approval of the transfer of its operating differential subsidy agreement to Louisiana Vessel Management (LVM) and the sale of LVM to independent investors.

### MarAd Awards Tanker Conversion Contract

MarAd awarded a contract for the conversion of the tanker SS Mount Washington as the fifth in a series of offshore petroleum discharge ships (OPDS). Valued at more than \$9 million, the contract was awarded to Marine Hydraulics International, Inc. of Norfolk, Va.

The system is designed to deploy up to four miles of hose from ship to shore and begin delivering petroleum products within 48 hours. The conversion work is expected to be completed within 13 months. The OPDS ships are part of the MarAd Ready Reserve Force (RRF).

### MarAd Receives Request To Sell And Transfer Drill Rig

The Maritime Administration Maritime Subsidy Board has announced MarAd has received an application from Penrod Intl. Drilling Co., Lafayette, La., for permission to sell and transfer to Republic of Vanuatu registry the 5,555-dwt drill rig Penrod 67. The proposed purchaser, P&P Drilling Ltd., c/o Alliance Bank & Transit, Nassau, Bahamas, would use the vessel in oil and gas exploration off the coast of Mexico.

### Fire Training Center Provides Fire Fighting Training Course

The Fire Training Center (FTC) Toledo, Ohio, is providing a fire fighting training course that is approved by the U.S. Coast Guard (USCG) to meet the requirements for merchant seamen in obtaining an original upgrade of a Merchant Marine License. The facility offers a five-day Combined Basic/Advanced Shipboard Fire fighting course to meet the requirements of 46 CFR 10.205 and 10.207F and IMO Resolution A.437(XI).

The Combined Basic/Advanced Fire Fighting course is designed for licensed officers or other personnel who may be in control of fire fighting operations and training on board ships. Topics include: fire prevention; chemistry of fire; extinguishing agents; portable and fixed extinguishers; self contained breathing apparatus; organization and training of fire parties; fire fighting safe hazardous materials; fire control planning; and procedures. Hands-on fire fighting evaluations under live fire conditions will be experienced by all who attend. The fee for the course is \$125. For more information, contact the FTC at U.S. Department of Transportation, Maritime Administration, Great Lakes Fire Training Center, 2600 Eberle Swanton, Ohio 43558-9645. Tel: (419) 259-6362; Fax: (419) 259-6363.

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As marine applications became more demanding, the rope industry faced a new challenge -- to engineer a better performing polyester rope product.

Through a program of intense fiber research, AlliedSignal engineers discovered the solution. By applying a unique and proprietary SeaGard® finish to the ACE polyester fibers, a better performing wet abrasion resistant rope was now able to be constructed.

In independent testing and in field testing by several rope manufacturers, ACE Polyester SeaGard ropes -- 3-strand and braided -- outlasted and out-performed ordinary polyester ropes by incredible margins, even under the most severe wet abrasion conditions.

Today, rope manufacturers have found that they require a higher level of performance plus cost-effectiveness for the most demanding applications, such as: tethers for balloons, underwater surveillance systems, offshore oil rigging and transmission and distribution (T&D) lines. ACE Polyester SeaGard meets these requirements. And, for the sailor who wants the best in performance, SeaGard ropes offer that certain added security plus easy, smooth handling.

For further information and test results, contact:  
Dept. A-S, Suite 1500, 224 West 35th St., NY, NY 10001.

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## New MSPX 303 System Saves Operator \$4,500/ Month In Field Tests

As the cost for landing and disposing of waste streams containing oil and sludge mount, owner/operators are on the continual lookout for systems which save money.

With the introduction of the MSPX 303 Oil Recovery and Sludge Treatment System, Alfa Laval is

providing a product which is designed to effectively and economically solve problems associated with the disposal of sludges accumulating in marine and power diesel engine installations.

The MSPX 303 separator is the key component in a dedicated system solution specifically for sludge treatment, and in addition to the separator and feed pump, the system includes the proven HEATPAC heater and EPC 41 control unit.

According to the manufacturer, field tests carried out onboard eight vessels operating worldwide have proven that the MSPX 303 system can handle all of the sludge from the lube and fuel oil separator sludge tank, along with all filter drains as well as any oil water waste generated.

The success of the system hinges on a unique dual paring disc discharge arrangement which ensures maximum removal of oil and water,

and enables the system to handle oil sludge with a high concentration of impurities and large density variations.

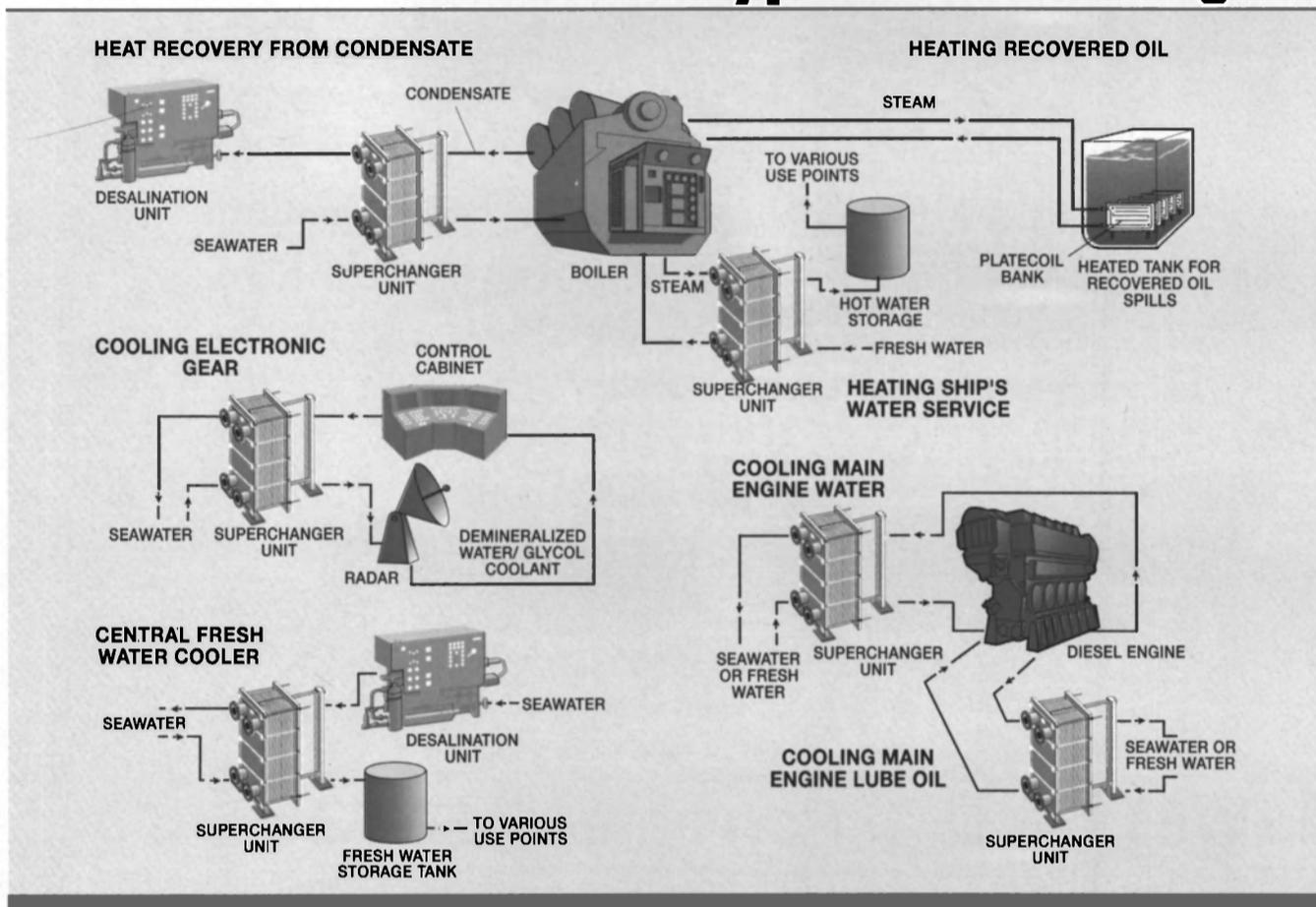
According to Alfa Laval, use of the MSPX 303 system onboard the M/S Mariella, a Viking Line cruise ferry powered by a 30-MW engine, showed a monthly savings in landing costs of nearly \$4,000.

With the added value of the recovered oil used as fuel for the boiler, the system provided an additional \$500 per month savings.

For more information on the new technology of and potential cost savings with the MSPX 303 system from Alfa Laval,

Circle 21 on Reader Service Card

# How to Operate More Efficiently At Lower Cost With Tranter Plate-type Heat Exchangers



Naval ships, fleet oilers, commercial containerships, tankers and dredges are successfully finding new ways to operate more efficiently at lower cost, by utilizing Tranter's unsurpassed plate-type heat exchanger technology. Schematics presented here illustrate typical ways they are doing it.

Superchanger® plate and frame heat exchangers are used in a wide variety of shipboard applications—particularly for cooling main engine jacket water and cooling main engine lube oil with fresh water or seawater; cooling the ship's central fresh water; cooling electronic equipment; or recovering heat from condensate. They are far more efficient than tubular systems, and provide heat transfer coefficients from two to five times greater than those achieved by shell and tube units. They also require 10% to 50% less deck space and weigh up to one-sixth less.

Superchanger units can be equipped with titanium plates which offer the best resistance to corrosion and erosion when exposed to seawater. Intermixing or cross-contamination

of hot and cold liquids is virtually impossible. Low fouling rates reduce cleaning requirements for Superchanger units, that are designed for easy maintenance. They can be cleaned-in-place by backflushing, or quickly disassembled by hand, cleaned and put back in operation.

Platecoil® prime surface heat exchangers offer optimum temperature control. A Platecoil bank-in-tank unit provides wide interspaces for effectively passing solids while efficiently heating seawater containing oil from spills.

Platecoil bayonet heaters provide a large amount of efficient primary heating surface in a single unit for maintaining desired temperatures in storage tanks. These heaters help promote convection currents for better heat transfer rates and tank temperature uniformity. Platecoil suction heaters provide immediate heating for pumping oil out of tanks.

Tranter plate-type heat exchangers can be supplied in full compliance with codes and specifications as required by the ABS; the U.S. Coast Guard; shock testing per MIL-S-

901C; vibration testing per MIL-STD-167-1; and ASME U stamp per Sec. VIII Div. 1.

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Circle 32 on Reader Service Card

## MH Associates Introduces New Software For Barge Industry

MH Associates has begun marketing a family of Personal Computer (PC) software designed for the barge industry.

The first two products are designed from an operations point of view, automating on a PC format the major functions of barge dispatching. Currently under development is a "tow" version, which is designed to automate the control and reports required for boat operations.

"Barge Tracker" is designed to track barges as they move through the empty to loaded to empty cycle. The new system can also reportedly automatically compute the distance between any two navigation points (presently the software has the Mississippi River system entered, but is expandable to handle deep water points also).

## Evac Marine To Design And Supply 10 Polish-Built Ships

The re-emergence of the Polish shipbuilding industry in the international market place has resulted in a series of significant contracts for marine vacuum sewage system designer Evac Marine of Helsinki, Finland.

Evac has secured the contracts to design and supply the complete marine sanitation systems to 10 vessels being built in Poland for Finnish and German owners.

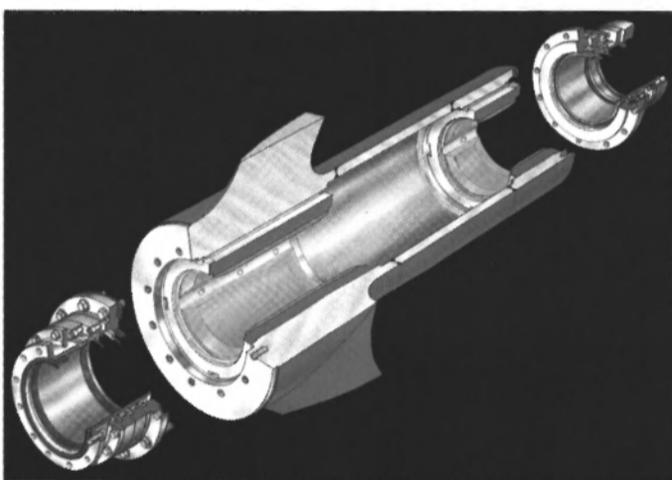
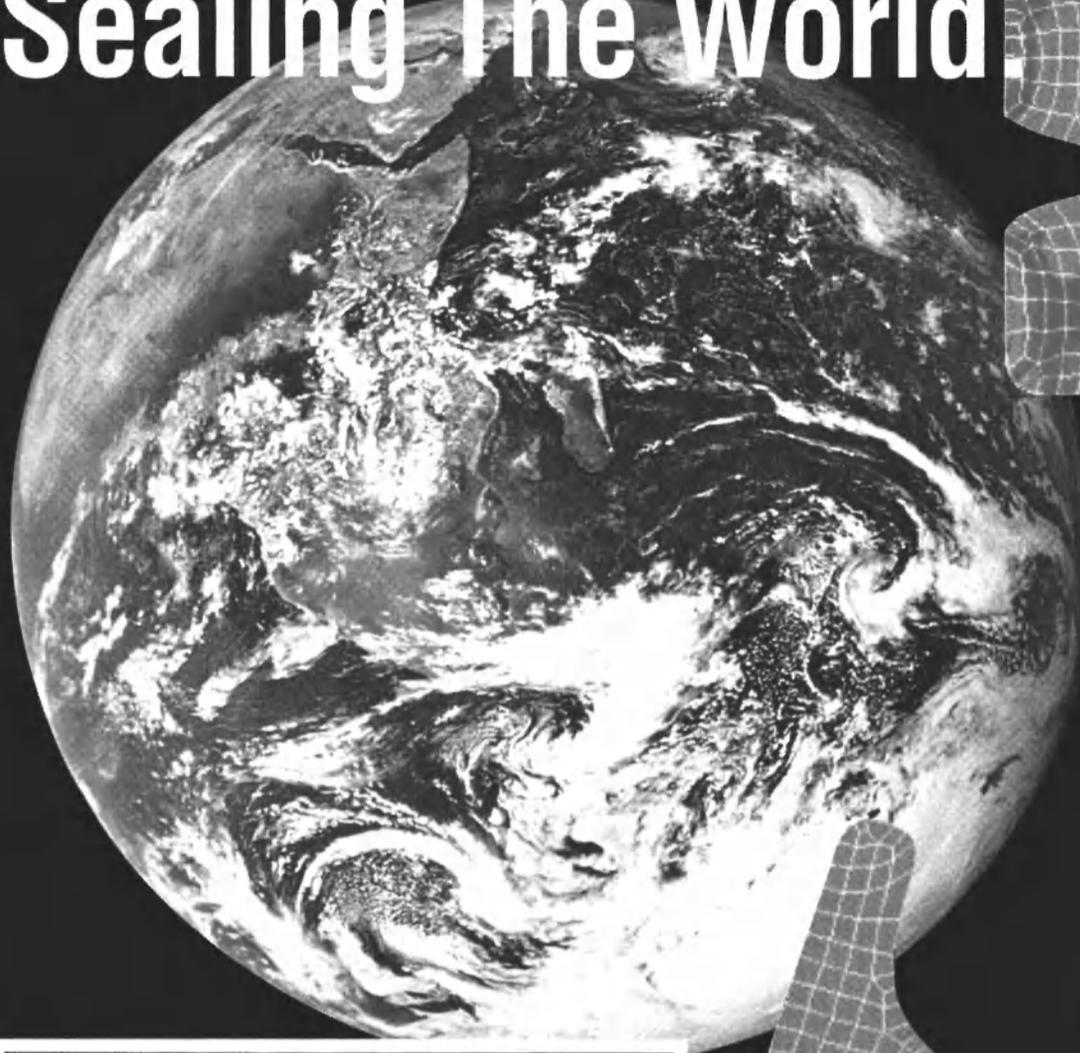
These vessels include four 20,000-gt combi Ro/Ro's being built at Gdanska Shipyard for FinnCarrier, of which 68 Evac 90 wall-mount toilets will be provided for each.

Evac will also supply systems for six containerships being built at Gdynia New Shipyard.

The vessels, of varying sizes and capacity, are being built for three separate owners and all are currently scheduled for delivery at various times in 1994.

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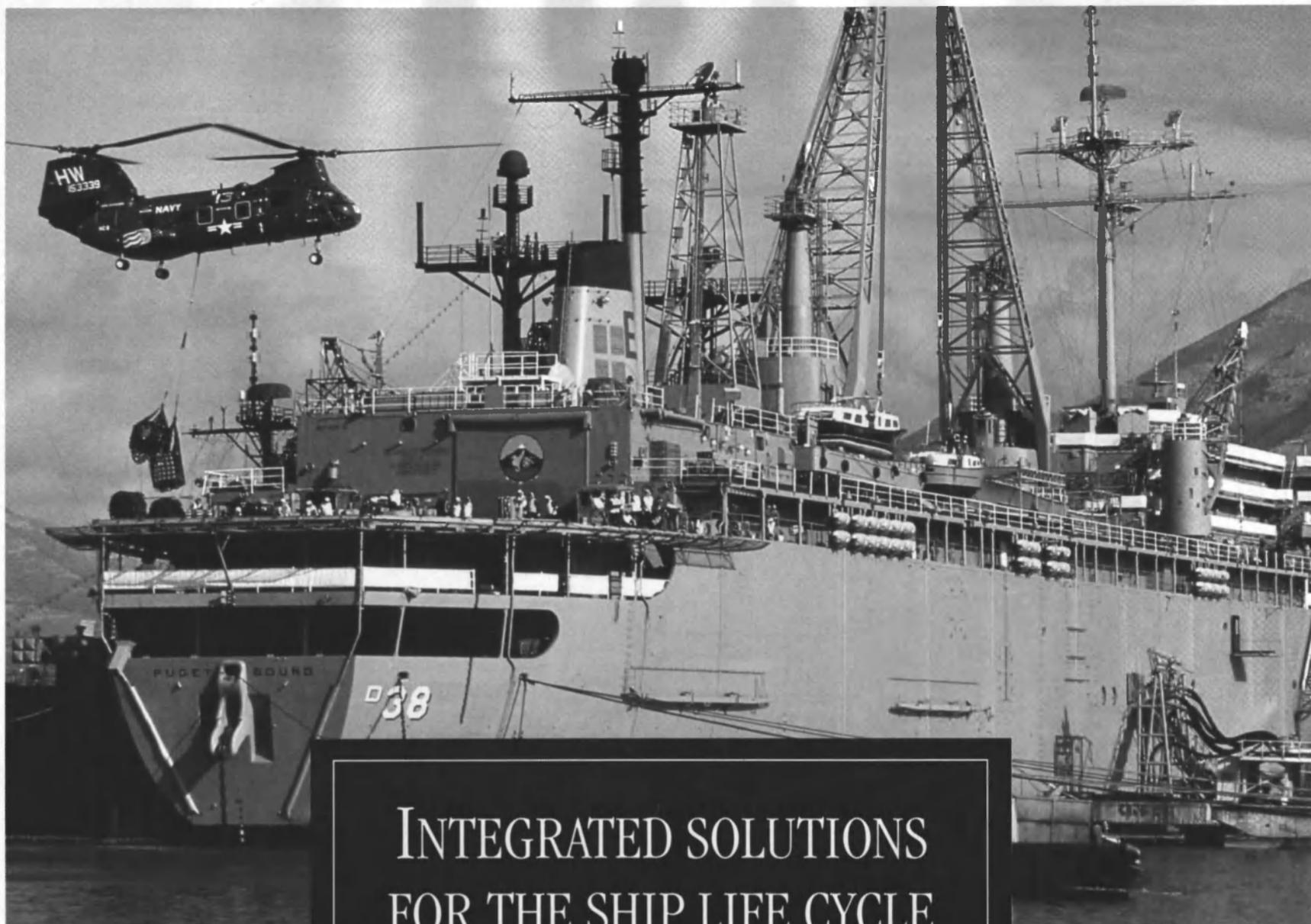
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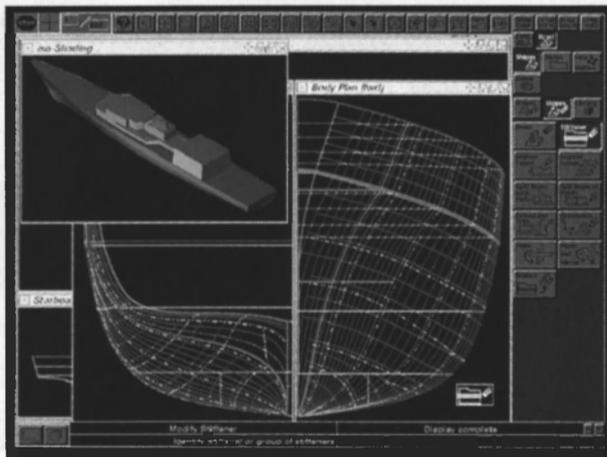
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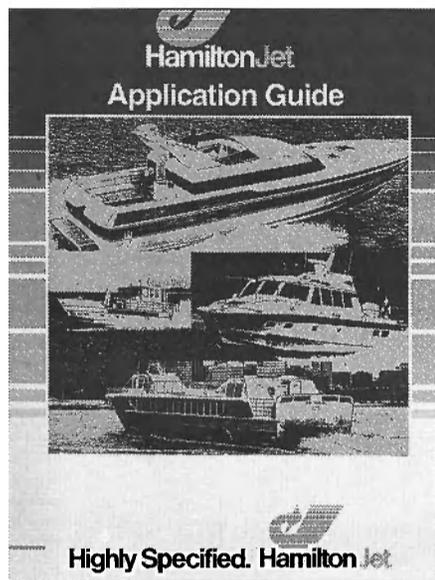
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**Circle 260 on Reader Service Card**

## HamiltonJet Offers Free Application Guide



HamiltonJet has updated its Application Guide for its waterjet propulsion systems.

The guide is intended as an initial reference for determining the suitability of hull shapes for efficient waterjet propulsion and for electing an appropriate HamiltonJet propulsion system. The 12-page black and white brochure comes complete with full product information and photos.

For a free copy of the HamiltonJet brochure, Write: HamiltonJet, 1000 Sunnyside Road, Middleton Christchurch, 4 New Zealand, P.O. Box 709.

## Power-Lite Introduces New Plasma Cutting System

Power-Lite™ has announced a new plasma cutting system for cutting up to 5/8-inches ferrous and non-ferrous metals. The PL-55 utilizes Power-Lite's unique Phaser™ technology that provides 55 amps of power in a compact, 29-pound unit.

The system's reported greatest benefit is its low cost to own and operate. All Power-Lite equipment, accessories and consumables are available direct from the manufacturer.

## ECO Awarded Contract To Deliver Ship Handling Simulator

Engineering Computer Technologies, Inc. (ECO) of Annapolis, Md. was awarded a contract from Great Lakes Maritime Academy for a real-time, full-mission, ship bridge training simulator. The Captains™ IV ship handling simulator will enhance student training in ship han-

dling, wind and current effects, radar and visual piloting, auxiliary propulsion unit operation and restricted waterway maneuvering.

The Captains IV ship handling simulator is ECO's premier model available from an assortment of real-time, ship bridge training simulators offered by ECO, ranging from portable desktop simulators to a suite of networked, full-mission ship bridge simulators with a wide range of hardware and options. All of ECO's Captains models have the capability

to simulate any class of ship, in any port, under any condition of wind and current.

## Moxie Media Releases First Of Safety Series Video; More To Come

Moxie Media, Inc. released the

first two programs in its new Marine Survival Safety Video series.

The topics covered in the first two videos are "Emergency Platform, Rig and Vessel Abandonment," and "Emergency Helicopter Abandonment."

Some topics to be covered in future video editions are: "Lifeboat Operation and Survival Practices," "Liferaft Operation and Survival Practices," "Water Entry and Survival Techniques," and "Man Overboard."



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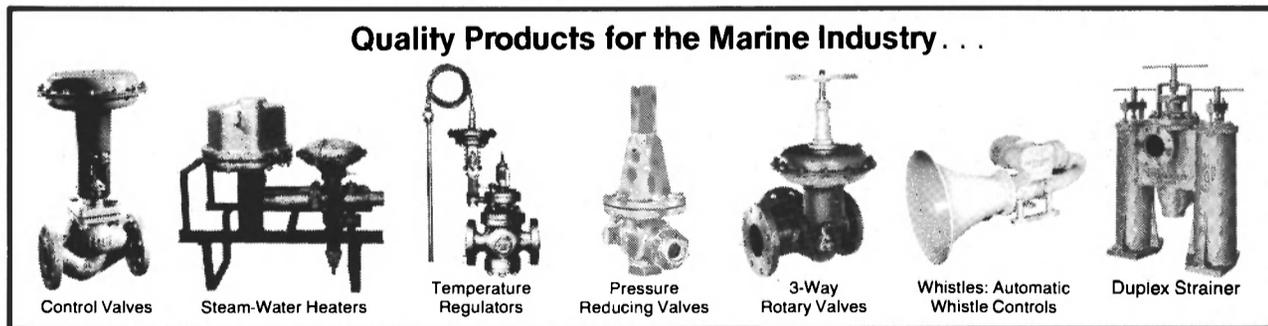
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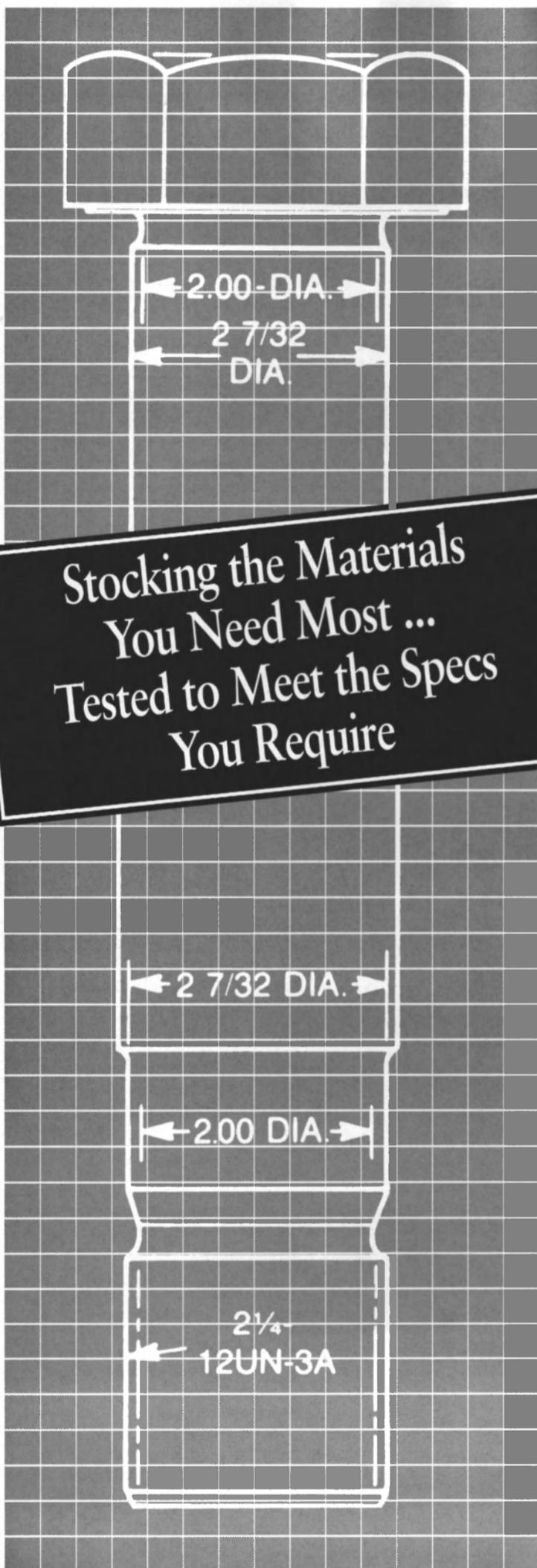
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## New Corrosion Inhibitor Stops Chloride Attack In Offshore Structures

A new product by Cortec<sup>®</sup> Corporation can be used to stop the attack of chloride in sea air and water for existing concrete structures. The product, called MCI<sup>®</sup> 2020, can be used to stop corrosion in high strength structural foundations and machinery pads; concrete tanks and vessels; wharves, piers and off-shore concrete structures.

The product is applied to the surface of the structure, and it then migrates through the concrete and seeks out ferrous metal in the foundation, deck or ramp.

The MCI 2020 attaches to reinforcing bars, galvanized rebar, steel mesh, aluminum and other metal members to form a thin protective layer of MCI's.

The product reportedly even protects degraded areas of epoxy-coated rebar in new structures.

The inhibitor will migrate for a considerable distance through concrete to seek out the ferrous member and protect it.

The MCI's protective layer prevents chemical reaction between the combination of moisture, chlorides, sulfur and nitrogen dioxides with the ferrous metals in the structure to stop further corrosion.

## N. American Marine Jet Redesigns Skid Pack For Traktor I Jets

North American Marine Jet, using technology gained from the manufacture of Traktor I Jets, has redesigned the "Total Installation Skid Pack" into an all steel weld unit, as well as the aluminum model.

Oil field operators in Portugal referred steel instead of aluminum construction for their new seismic unit boat, which is being built by Roberts Engineering in Vancouver, B.C. The seismic boat will feature dual Traktor Jet IA units.

The Traktor Jet steel model has the strength to withstand the repeated shock waves generated by seismic gun boats and also features a unit incorporated heat exchanger system to cool the Cummins 6BT engines.

The change to steel required extra cooling capacity.

## New Ameroid Expands Its Welding And Refrigerant Product Line

With the introduction of plasma cutting equipment for efficiently cutting metals up to 19mm thick, Drew Ameroid Marine has expanded and enhanced its welding and refrigerant product (WRP) line.

Drew's new AMERARC<sup>™</sup> plasma

systems are portable and reportedly easy-to-use, and require only access to electrical power and compressed air to produce a clean, high-quality cut.

Drew's plasma systems reportedly offer advantages over the conventional process for cutting all steels of less than 10mm thick, as plasma cutting eliminates the serious dross problem associated with the oxy-fuel process.

For more information on Drew

Ameroid's new plasma cutting equipment,

Circle 20 on Reader Service Card

## Cloud Company Offers Wide Range Of Tank Cleaning Products

Cloud Company Inc. offers a com-

plete range of hard-working tank cleaning products for the chemical and oil transportation industries. Cloud's latest internationally-patented fluid-driven rotary machine, the Model 180 Directional, is specially designed for the removal of product residuals on the bottom of tanks or for the cleaning of open top vessels. The Model 180 is designed to deliver powerful 180-degree concentrated cleaning action to problem tank interiors.

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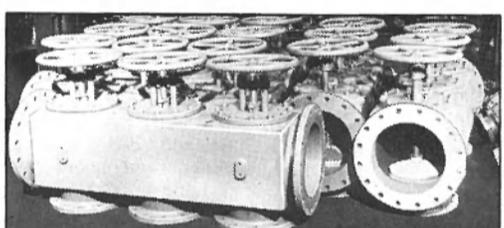
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## BOATS AND BARGES

### 'Neocastrum' Fast Ferry Commissioned At Cantiere Navale Foschi In Italy

A new 115-foot, 350-passenger fast ferry dubbed Neocastrum was commissioned at builder Cantiere Navale Foschi in Italy, for owner Foderaro Navigazione.

The vessel soon after started service between the southwest coast of Italy and the islands off the north coast of Sicily, making daily round trips of approximately 160 nautical miles.

The ferry features an innovative monohull design featuring a quasi-constant deadrise, double-chine underbody.

The vessel is powered by a pair of

Mitsubishi S 16 R MPTK diesel engines coupled to Reintjes U-drives via Vulkan double cardan shafts and torsional joints.

The engines deliver 2,189 hp each, enabling the vessel to attain a top speed of 31 knots during sea trials. Service speed is 27 knots at half load.

Radic supplied the vessel with high-efficiency propellers, as well as propeller struts, shafts, through hulls and rudders.

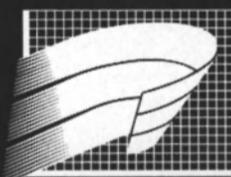
Electronic engine controls are by MMC, and a pair of Onan auxiliary generators provide electricity.



The Neocastrum, a Cantiere Navale Foschi-built fast ferry, is powered by Mitsubishi diesel engines.

This is the 15<sup>th</sup> vessel designed by Sciomachen for Cantiere Navale Foschi, and the second to be built for Foderaro Navigazione.

Sciomachen is currently working on a 122-foot water-jet driven fast ferry, to be operated in the 35-knot range.



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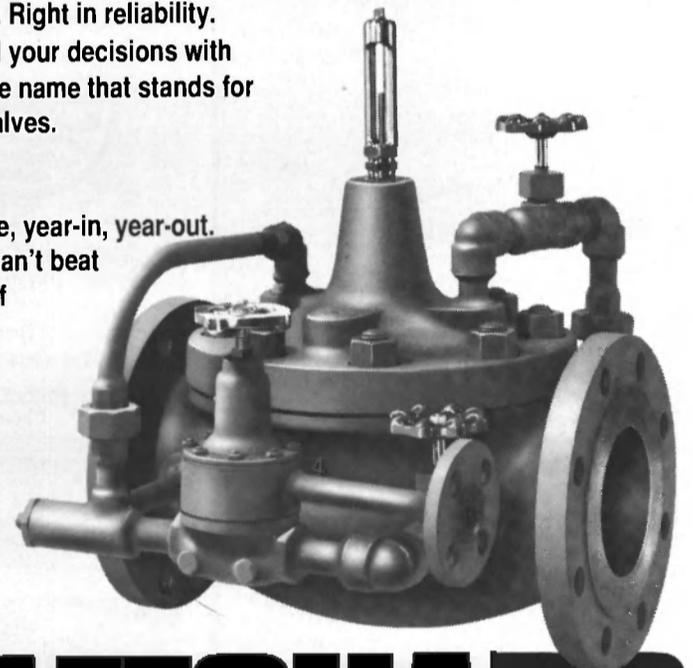
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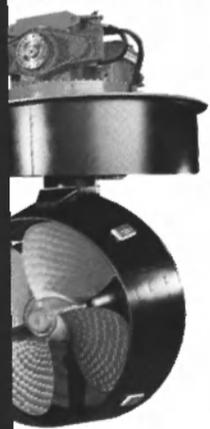
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## Intergraph Outfits M/V Mississippi With ECDIS

The newly launched M/V Mississippi carries the U.S. Electronic Chart Display and Information System (ECDIS) Test Bed developed by Intergraph Federal System Division in Reston, Va.

The version of ECDIS aboard M/V Mississippi is being used in river charting and navigation tests being conducted by the Corps of Engineers' Lower Mississippi Valley Division (LMVD), Waterways Experiment Station (WES) at Ft. Belvoir, Va., and the Topographic Engineering Center (TEC) at Vicksburg, Miss.

The ECDIS system is designed to make river navigation safer, easier and more productive. Data from shipboard sensors are integrated into a single display showing ship movement against a chart-like graphic background of the river.

## New Shipboard Separator Leaves Less Than 5 ppm Oil In Waste Water

A new separator called Clearwater, introduced by Merlin Teknologi of Kristiansand, Norway, claims to purify bilge and ballast water and industrial waste waters to an unprecedented low of less than 5 ppm (.0005%) oil.

The Clearwater reportedly will satisfy the strictest of any pollution restrictions, as the IMO's is that of 15 ppm oil in bilge and ballast discharge in coastal waters.

The separator has no filters or coalescing elements, needs no prewarming of the oily water, works unattended, is self-cleaning, has modest maintenance needs and is easy to install, reportedly.

## Aanderaa Offers New Wind Monitoring System

The new Wind Display System from Aanderaa Instruments is designed for ship installation. It is reportedly reliable, rugged, waterproof and furnished in hard-anodized aluminum. The unit consists of wind sensors, sensor bracket, sensor cable and the Wind Display Panel (WDP 3400).

The analog display of wind speed and direction is performed by two circles of light emitting diodes. This indication is primarily intended for a quick reference and a more accurate indication is shown digitally just below the circles by light-emitting displays. Display of data at two or more locations is possible by connecting several panels in series.

## Tangent Intl. Offers Vessel Schedule & Log Software

Tangent International Computer Consultants has made available a network-ready Vessel Schedule and Dispatch Log software system, com-

plete with multiple support modules.

Developed in the Microsoft Windows environment, the software was developed in conjunction with Morania Oil Tanker Corp. of Stamford, Conn. The package reportedly provides cost effective cargo vessel scheduling with customer and cargo log recording, shipping history, billing and demurrage. The system also comes standard with a fully-

featured graphic display of activity and movement for greater executive manageability, pending orders, extensive reporting and telecommunications.

## Atlantic Marine To Build Par-A-Dice Riverboat

Atlantic Marine, Inc. of Jacksonville, Fla. has signed a contract with

Greater Peoria Riverboat Corporation of Peoria, Ill. to build the Par-A-Dice Riverboat Casino, an ultra-modern gaming vessel with a capacity for 1,600 passengers. The new vessel will replace the existing sternwheel casino vessel, Par-A-Dice, built by Atlantic Marine in 1991. Delivery is scheduled for the summer of 1994. The new vessel will be powered by Caterpillar 3412TA, 764-hp engines.



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- 27 agents and representatives worldwide.

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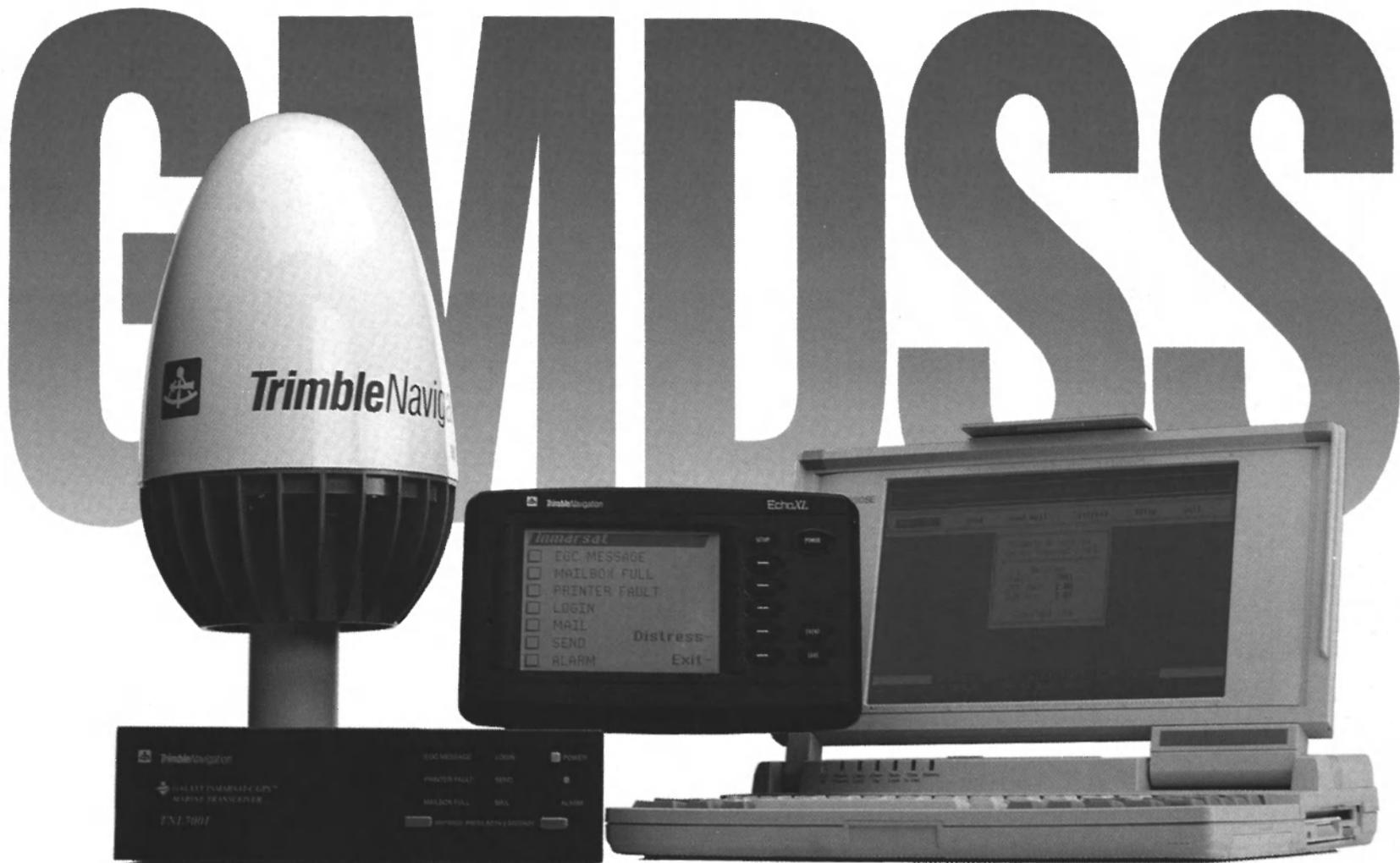
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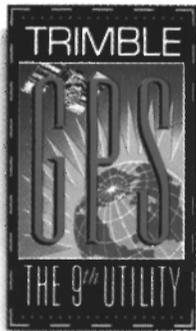


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## Two of the brightest ideas in maritime safety.

For those at sea, GMDSS is a great idea—the first truly “global” system for responding to distress. But for those saddled with the responsibility for selecting equipment to meet the new standards, GMDSS itself can be quite distressing.

Now there's help at last. Introducing Galaxy — the first Inmarsat type-approved system to combine the world-wide communication powers of Inmarsat-C, with the precision of GPS navigation, in a single integrated unit. Together they not only exceed the applicable communication requirements of GMDSS, but also provide a host of new capabilities for tracking and communicating with ships at sea.



The tracking and communication capabilities of Galaxy give fleet operators a powerful new tool for managing their ships. The home office can broadcast up-to-the-minute routing information to specific ships, redirecting them to suit changing

business opportunities. And since messages from the ship can include GPS position, the office can precisely monitor the movements of every ship in the fleet.

In an emergency, the push of a button on the Galaxy remote alert panel transmits a distress message to the selected Rescue Coordination Center. Included are the ship's identity, its position, speed, course, and the time and type of distress. No time is wasted, and with GPS position information rescuers will know right where to look.

To help ships stay out of distress situations, Inmarsat's SafetyNet™ service broadcasts weather and other safety notices to vessels within specific geographic areas. Galaxy automatically selects the appropriate NAVAREA based on its GPS position data. Other NAVAREAs may be selected manually.

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## Norcontrol System Used To Help Tow Draugen Platform 435 Nautical Miles

To help navigate the Draugen platform from Vats to Haltenbanken, while carefully navigating the fjords near Stavenger—a total distance of more than 435 nautical miles—the Norcontrol Rig Move

Control Systems was chosen to help. The Rig Move Operation Control System was developed and installed by Norcontrol Seacraft a.s., and the actual towing operation was carried out by Norwegian Contractors in Stavenger.

The Rig Move Control is designed to fulfill all requirements as defined by major oil companies, and it capitalizes on the latest technology on visualization of electronic sea chart

and survey data and operator communication technique.

The system can run both on work stations and Personal Computers (PCs), offering the operator the same operational interface on color displays.

Norcontrol Rig Mover Control Display station is meant to give the helmsman all necessary information to keep the rig on a planned towing line.

## Miller Introduces 60M Series Feeder/Controller For Pulsed MIG Welding

Designed primarily for the pulsed Gas Metal-Arc (MIG) welding process, the new 60M microprocessor based wire feeder/controller from Miller Electric Mfg. Co. features side panel programming controls to meet virtually everyone's needs.

The 60M includes eight preprogrammed synergic pulse FMAW programs in the control's memory.

Once a program is set, the operator only needs to select the desired wire feed speed and arc length.

All other parameters are synergically set.

For free literature on the new Miller Electric Product, call toll free at: (800) 950-9353.

## Mapeco Adds Keyless Hydraulic Shaft Couplings To Product Line

Mapeco Products (Locust Valley, N.Y.), a division of Walz & Krenze Inc., has added keyless hydraulic shaft couplings to its product line. The addition of the product allows complete shaft fastening packages to be offered by Mapeco.

The couplings are available in both straight designs for joining to straight shaft ends or flanged designs for joining a straight shaft end to a flanged shaft.

The couplings meet ABS requirements for factor of safety against slip of 2.0 for inboard couplings and 2.8 for outboard couplings.

The reported advantage of this type of coupling is that it attaches onto a straight turned shaft end; keys or tapers are required, nor heat required for installation or removal.

## ACR Introduces Lithium-Battery-Powered, Water-Activated Rescue Light

ACR Electronics, Inc. has introduced a new, water-activated personal rescue light, the ACR/L8-6.

The miniature lithium battery-powered rescue light contains circuitry which senses water between two contacts, thus activating the light.

A built-in latching circuit powers the L8-6 for up to 90 seconds, then is reset with each splash of water that comes into contact with the unit.

Featuring a bright, 360-degree horizontal 2.5 candela beam width projects for eight hours, the ACR/L8-6 meets U.S. Coast Guard SOLAS requirements.

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"See Maxim® Evaporators at the International Maritime Exposition in New York, NY, September 15-17, 1993, Booth #100."

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## ZSI Clamping Systems For Distortion-Free Clamping

ZSI, Inc. (Livonia, Mich.) offers the Cush-A-Clamp<sup>®</sup> clamping system for securing pipe, tube and hose. Consisting of a thermoplastic cushion, squeeze control clamp and a channel support, the system reportedly absorbs shock, surge and vibration while preventing galvanic corrosion. The clamp features a non-rotatable shoulder stud anchored to one half, which, secured with a nylon-insert nut, effectively eliminates loosening and potential damage to retained tubing due to over tightening. The clamp is available in zinc dichromate plated steel and stainless steel, in sizes from 5-inch through 6.125-inch.

## Furuno's New CH-34 Combines Advantages Of Searchlight, Scanning Sonar

Furuno's new CH-34 multi-sector color sonar combines the advantages of searchlight and vertical scanning sonar with fast scanning to provide operators of bottom trawlers, tuna seiners and other fishing vessels maximum fish detection and tracking capability. The new CH-34 multi-sector color sonar is loaded with features, including a bright, high-resolution display with a 12-inch diagonal CRT; full-circle and vertical-fan scanning; and a 3-D graphics option. The CH-34's advanced full-circle scanning mode provides full train and tilt functions for pinpointing fish, while the vertical fan scanning mode makes locating fish schools easier.

## Dunlop-Beaufort Canada Launches New Product Line

Dunlop-Beaufort Canada Ltd. (BC), manufacturer, distributor and service facility for SOLAS and other approved Beaufort inflatable ferrets, announced the North American product launch of its Marine Evacuation Chute (MEC).

The system has been developed specifically for quick evacuation of large numbers of passengers off sea vessels.

It is compact, simple to operate, and allows rapid and efficient controlled evacuation of large numbers of passengers.

The chutes have been installed on six new Canadian-built ferries, including the two new British Columbia Super Ferries, and is operational in the Ontario Northland and east coast Northumberland ferry fleets.

The MEC is currently specified on several new American vessels to be built in 1993-94.

## Grinnell Helps Solve Tanker Gasket Performance Problem

Grinnell Corporation, a leader in flow control service and technology, was called upon to conduct a problem-solving inspection on an ecological oil tanker that was experiencing severe problems with gasket

performance within its piping system. During the initial inspection phase of the tanker, a field service representative from Grinnell accompanied the vessel on a cruise from the U.S. mainland to Valdez, Alaska.

The Grinnell representative discovered that the performance of the ship's pipe supports negatively impacted the effectiveness of the piping installed throughout the ship, affecting related equipment as well.

The hangers on the ship were then replaced and adjusted, thus correcting the problem.

According to the Grinnell representative, this case dealt with the correction of hanger-related discrepancies which existed for several years. On newer systems, problems such as these can be avoided with preventative maintenance of the pipe hangers, including a regular inspection schedule.

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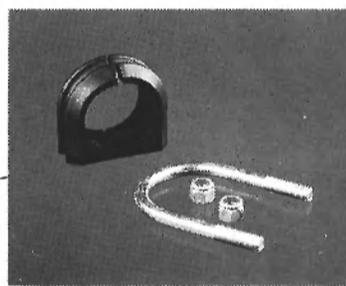
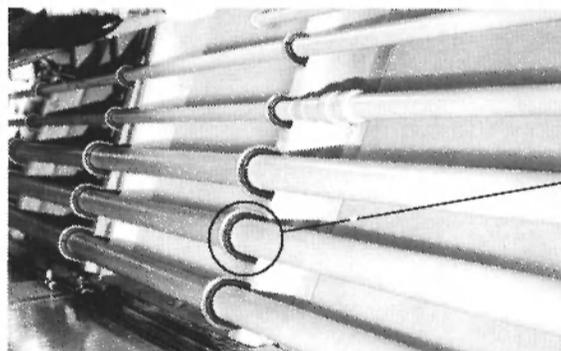


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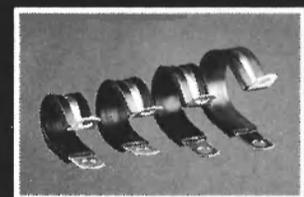
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**Omega Series**  
(Surface Mounted System)



**SPN Series**  
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## PROPULSION UPDATE

### Put To The Test: North American Marine Jet's Nomera 14 Water Jet

Calm water performance tests have been performed on a Patrol Boat, Riverine, with North American Marine Jet's Nomera 14 water jet and a competing product, according to the manufacturer. The Nomera

14 jet was formerly the Jacuzzi jet. The Jacuzzi/Nomera 14 jets are the original design water jets for the Mark II PBR.

The test craft was modified by installing new Detroit Diesel 6V53T

series 7301 engines rated a 275-shp at 2,800 rpm. The standard engine for the PBR is the 6V53N series 7300 with a rating of 210-shp at 2,800 rpm. The purpose of the new engine is to improve the performance of the PBR by extending the combat load and at the same time extending the rpm operating range that the craft can sustain a planing condition. The first jet tested was the Nomera 14, and the craft was able to achieve 31.3 knots at 2,892 rpm and 30.2 knots at 2,779 rpm in the light load condition. For the full load displacement, the Nomera jet produced a maximum speed of 30.2 knots. In the full load condition, the rpm-range of operation capable of sustaining a planing condition of the craft with the Nomera jet was 2,660 to 2,889 rpm, 2,500 rpm in the light condition. Also, in full load conditions, the time to reach planing speed for the Nomera jets was 60 seconds. According to North American Marine Jets, all performance results for the Nomera 14 water jet were better than the competing model's results.

and M/S Selandia, will be rebuilt for the U.S. Navy and used to transport military equipment to crisis areas.

The group's last containership M/S Toyama, has reportedly been sold to A.P. Moller, a Danish shipping line, with delivery scheduled for August.

The sale of these ships represents the last phase in a large restructuring plan, in which most of the East Asiatic's shipping interests have been sold to A.P. Moller.

In the last 18 months, East Asiatic has also sold large portions of its graphics division and its Plumrose food brand to companies in Germany, U.K., Australia and the U.S.



North American Marine Jet's Nomera 14 water jet was recently put to the test on a patrol boat.

### GLO Buys Bulk Carrier For \$7.2 Million

Global Ocean Carriers Ltd. (GLO) announced today that the board of directors approved the purchase of a Panamax vessel for \$7,225,000. The 72,400 dwt vessel is to be named Global Adelaide and delivered in September or October 1993.

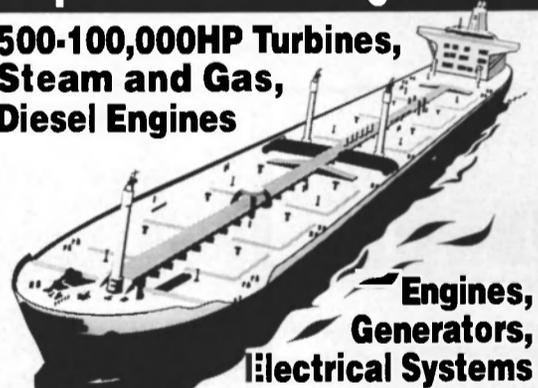
GLO also announced that at a special ceremony organized by the U.S. Embassy in Athens, three of the company's current fleet of six vessels were granted the U.S. Coast Guard Automatic Mutual Assistance Vessel Rescue System (AMVER) Award. The vessels honored were the GL Panorama, the Global Star and the Global Ling.

### Denmark's East Asiatic Sells Two Containerships

Denmark's East Asiatic Company sold two containerships to Newport News Shipbuilding, the last step in a plan designed to restructure the group. Reportedly the two containerships, the M/S Jutlandia

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## Marco Pollution Control Delivers Two OSRVs To Egypt and Indonesia



One 36-foot oil spill response vessel Marco Pollution Control delivered to Petrobel of Cairo, Egypt.

Marco Pollution Control recently delivered two new 36-foot oil spill recovery vessels (OSRVs) to Egypt and Indonesia. The vessel delivered to Petrobel of Egypt will be stationed in the highly-sensitive Red Sea/Suez Canal area; the vessel for Maxus of Indonesia will operate in and around the oil-rich areas of the Java Sea.

Petrobel is a joint venture company formed by the Egyptian General Petroleum Authority (EGPC) and ENI of Italy. Maxus of Southeast Sumatra, Indonesia, is a subsidiary of Maxus Energy Corporation of the U.S.

The Maxus OSRV, a Marco model TOR-11C, is a custom-built aluminum OSRV specially designed to meet the grueling heavy-oil recovery demands of southeast Asia offshore production fields.

The vessel design includes a self-launching cradle so the OSRV can be delivered offshore from the staging site to the spill site on a rig supply boat, then launched without a crane.

The Marco Offshore 36 skimmer built for Petrobel is also equipped with a Marco Filterbelt system, which has a world-wide track record of reliability and performance. Twenty-eight Offshore 36 OSRVs are in service today.

## Kittredge Industries Completes 41<sup>st</sup> Submarine



Kittredge Industries completed its 41<sup>st</sup> submarine.

Kittredge Industries, Inc. of South Thomaston, Maine, has recently completed its 41<sup>st</sup> submarine. The submarine is a standard K-350 one person submarine except for the newly designed tail fin which permits the transducer of the underwater telephone to be as far away from the side of the thrusters as possible. The circular form on top of the tail section will also house a sensor of a flux gate magnetic compass, a responder to respond to the sub tender's marine search sonar and a strobe light. Trials for the submarine were completed during the last week of July when the submarine was moved over to the Submarine Search & Salvage work in attempting to salvage a fiberglass motor boat and a fiberglass trawler.

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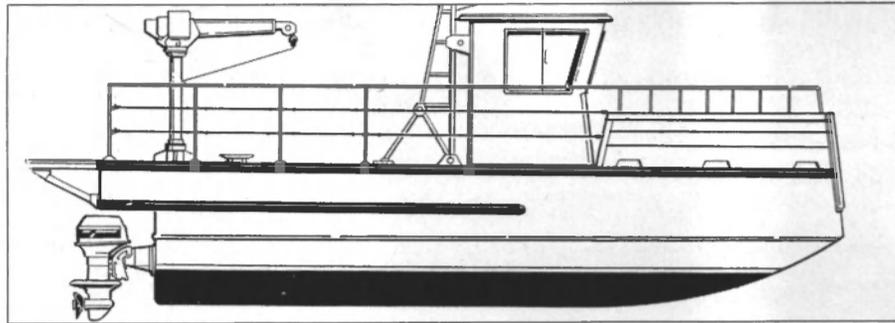
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## BOATS & BARGES

### MET Begins Construction On Coastal Collector-27



An artist's rendition of the "Coastal Collector-27."

Marine Environmental Technology, Inc. (MET) announced that construction on its newest design, the "Coastal Collector-27," has commenced. Custom Boats Manufacturing, Inc. of St. Bernard, La., is building the prototype hull.

The vessel's primary mission is inshore/harbor oil spill recovery. It features an advanced separation capability via a weir device, large capacity on-board oil storage tanks (more than 1,000 gallons), an effective debris handling system, aluminum construction and a trailerable design. The company's president, **Bob Wehrmann**, said that one of the boat's advantages over previous de-

signs is its ability to recover great quantities of oil at faster rates.

The Coastal Collector-27 will have a Volvo Model 2002 pump, a Wemco Hidrostal water separation pump, a Robbins & Meyers Series 1000 oil separation pump and an automated spill recovery system by MET. The boat is designed to be 27 feet long and 10 feet wide.

Companies not directly associated with oil spill recovery have also indicated their interest in the Coastal Collector's design since it may be used on a daily basis for tasks other than spill recovery. The deck layout allows for more than 200-sq.-ft. of usable space.

### Industry Urges Coast Guard To Modify Standards To Foster Competition

In the hopes to persuade the U.S. Coast Guard (USCG) to modify its shipbuilding standards and form a new maritime policy for the U.S., various representatives from all facets of the U.S. maritime industry testified before a House panel.

Both industry and USCG representatives agree that some of the standards that raise U.S. shipbuilding costs can be eliminated or modified.

Suggestions that were proposed included the adoption of Safety of Life at Sea (SOLAS) Convention standards.

However, Adm. **A. E. Henn**, the Coast Guard's Chief of the Office of Marine Safety, Security and Environmental Protection, reportedly admitted that the SOLAS standards provide good general guidelines for vessel design, but the guidelines fail to adequately address all vital safety systems.

Sea-Land Service, Inc. and American President Lines, Ltd., two major U.S. carriers, were reportedly concerned about regulations they claim create "Americanized" versions of international vessel standards.

The concern reportedly stemmed from a desire to avoid implementing an international standard in a manner that is more burdensome and costly for a U.S.-flag vessel than one of a foreign flag.

### AWO Opposes Coast Guard Garbage Disposal Recordkeeping Rule

U.S. Coast Guard (USCG) regulations requiring staffed, oceangoing vessels of 40 feet or more in length to maintain records of all discharges of garbage from the vessel have been formally opposed by the American Waterways Operator (AWO).

AWO claims that additional paperwork burdens would only serve to punish responsible operators and not penalize polluters. AWO notes that the Coast Guard prohibition on the discharge of plastics are well known and reinforced by mandatory on-board placards and fines for noncompliance.

Also in question was the decision to apply the requirements to vessels on the basis of their length.

AWO claims that the length of vessel bears little relevance to the amount of garbage it generates, contending that factors such as the size of its crew, the frequency of its port calls and the nature of its operations weigh far more heavily on garbage generation.

The AWO emphasized that the towing industry was committed to preserving the marine environment but went on to say that tow vessels - which have a relatively small crew, make infrequent port calls and generate no particular operational waste - generally produce relatively small amounts of garbage.

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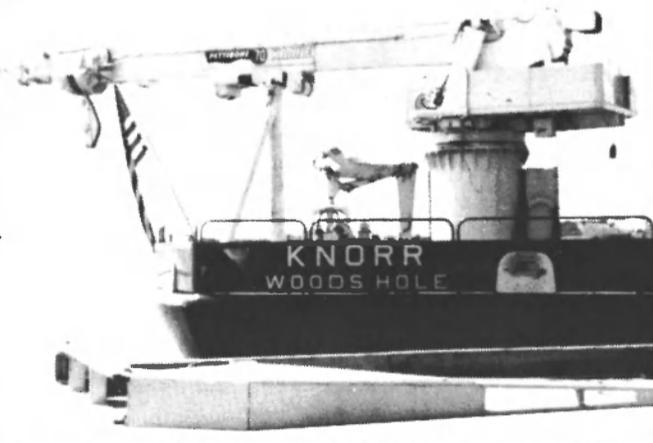
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## Options For Bulk Carrier Trading:

Cargo Opportunities, Trade Practices, Size Preferences in the '90s

As the emerging world economies — almost certainly led by the Asian Pacific States — continue to expand and the established markets achieve some recovery from the recession, the prospects for bulk cargo demand and the consequent options for bulk carrier trading begin to look brighter. Currently, total annual seaborne trade volumes in the dry bulk sector are put at around 1,600 million tons. By the year 2000, the corresponding figures are expected to be nearer 1,865 million tons. Over the period, an increase in shipping requirements from around 7,785 to almost 9,100 million (thousand million) ton-miles is projected.

Not all of this requirement will be handled by bulk carriers. The expectations for this fleet sector are for a rise from 6,800 to 7,975 ton-miles. Less clear is the precise tonnage of active, trading bulk carriers that will be required to work this traffic. The key determinant will be the achieved level of vessel productivity (i.e., the ton-mile/dwt ratio). The actual level will be de-

termined by a combination of factors including the composition of bulk trade (cargo type, route pattern, cargo size preferences), the relative strength of the shipping market, the fleet's ownership profile, charterer's strategies and incidental factors such as port congestion. Assuming a broad balance can be achieved between the rate of shipping and tonnage replacement, which would lead to average bulk carrier productivity remaining around the level recorded in 1992, the implications are that by the end of the decade there will be a bulk carrier requirement of approximately 258 million dwt — an overall increase in the period from 1992 of about 17 percent.

To improve productivity levels beyond this is unlikely, but if maintained could push needs as low as 205 million dwt by 2000. Should productivity levels slump, a case can be built for needs of nearly 300 million dwt by 2000 but this is only likely if speculative over-ordering combines with the virtual demise of the shipbreaking industry. Rates would be driven by lost cost units with new tonnage kept going under pressure to maintain a cash flow. While highly unlikely in unison, each of these elements has been seen before.

Optimizing the trade potential of a bulk carrier can be a complex exercise. Much depends on the nature of the shipowner and, in particular, the stance taken over committing ships long term as opposed to working spot opportunities. Equally, the commodity shipped — and its market needs — will shape charterers' attitudes and shipping strategies. Added to the conundrum is the role played by state-owned bulk carriers — over 38 million dwt or approaching 20 percent of the available fleet.



The bulk carrier "Saabulk America."

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The delicacy of this balance, however, is such that only a relatively small increase in average productivity (say two percent or around ton-miles/dwt per year) would be sufficient to leave end-decade bulk carrier tonnage requirements close

to current levels. To improve productivity levels beyond this is unlikely, but if maintained could push needs as low as 205 million dwt by 2000.

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### Blount Delivers "Miss New York" To Statue of Liberty Ferry

Blount Industries has delivered the Miss New York to Statue of Liberty Ferry, Inc. The vessel was designed by naval architect Robert A. Simons and is certified to carry 800 passengers.

At 132.5 feet by 14.5 feet, the vessel will be used for excursion trips to the National Park System's Ellis Island and Statue of Liberty.

One of the special features of this vessel is the Schottel bow thruster, powered by a Cummins engine through a drive system incorporat-

ing an aqua drive unit and torque tube design. Statue of Liberty Ferry, Inc. ordered its first vessel from Blount in 1953. That ship, Miss Liberty, was launched in April 1954 and since then the vessel has operated continuously for 40 years, during that time reportedly carrying more than 200 million passengers. Since 1954, Statue of Liberty Ferry has periodically contracted with Blount to construct additional vessels, with the Miss New York being the seventh.



**T.S.S. America Undergoes Rebuilding At Hellenic Shipyards:** After an almost 12 year lay up, The T.S.S. America was towed to Hellenic Shipyards (HSY) in Skarmanga, Bangkok in order to rebuild the vessel to its original design and use. The vessel entered into D.D.4. in May, 1993 and undocking occurred in early July, 1993. The vessel's underwater hull area was treated accordingly, including sand blasting SA2, surveyed by ABS and reclassified in order to avoid the need for underwater inspection for the next 12 years. The paints were supplied by Star Marine Coatings, Norway.

## MarineSafety International Makes New Appointment

MarineSafety International has named **Douglas E. Ullman** marketing manager for training and research programs.

Mr. **Ullman** is a 1983 graduate of the U.S. Merchant Marine Academy and has 10 years of experience as an officer in the U.S. Navy.

## American Bureau Of Shipping Opens Spill Response Office In Houston

A marine casualty response center has been set up in Houston by the American Bureau of Shipping (ABS) as part of its oil spill response services.

ABS Marine Services, a part of

ABS, acts as the "qualified individual" for tanker operators, which all tanker owners are required to designate under the Oil Pollution Act of 1990 to implement spill response plans.

After a spill, staff at ABS Marine Services will determine whether ABS personnel at the spill location are able to handle the situation or if staff must be mobilized from throughout the nation.

## Bulker Delivered To Indian Shipping Company

Shipping Corp. of India (SCI) state-owned shipping company recently took delivery of the last series of three 27,000-dwt bulk carriers built by the state-owned Hindustan Shipyard Ltd.

Hindustan Shipyard, which is going to obtain ISO 9000 certification, has modernized its infrastructure over the past year and can build types of vessels up to 50,000 tons. The shipyard is reportedly talking to two South Korean yards, Hyundai and Samsung, to upgrade its design capability and production techniques.

The delivery of this last bulk carrier brings SCI's fleet strength to 128. SCI has reportedly signed contracts worth \$260 million with Hyundai and Samsung yards for large tankers to be built with double hulls and double skins according to the latest environmental safety norms.

## U.K.-Registered Ships Must Have Oil Spill Plans

U.K.-registered tankers over 150-gt and all other ships over 400-gt will be required to submit oil spill response plans to the Department of Transportation for approval.

Under the new regulations introduced by the British government, foreign ships traveling in U.S. waters are not required to have emergency plans.

Tanker regulations went into effect in July for new vessels. Existing ships have until April 1 to comply. The regulations are in line with IMO Convention.

## Shipbuilders Council: "1 Funding For Foreign-Built Icebreaker"

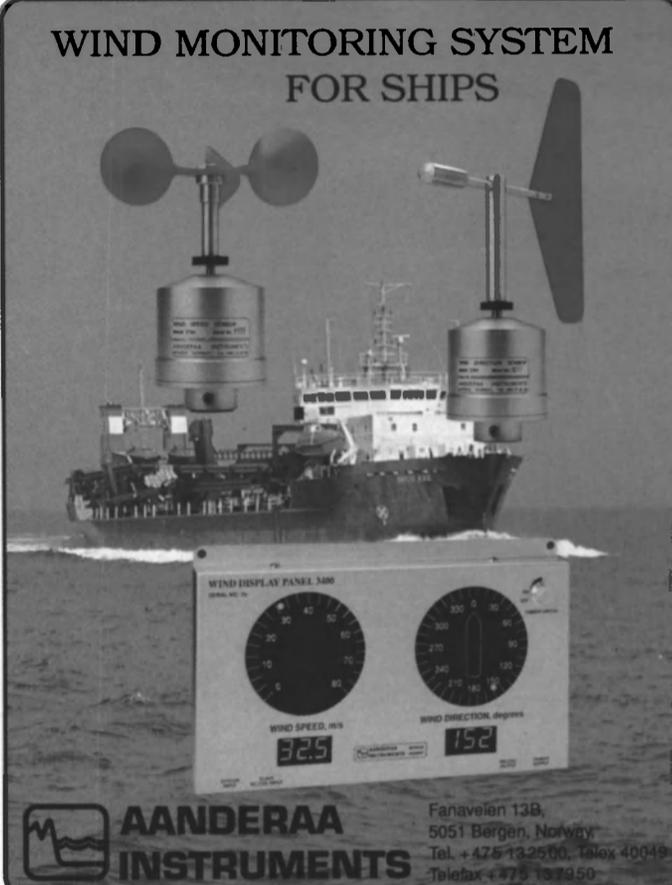
The National Science Foundation (NSF) has been told by the Shipbuilders Council of America that it will receive no funding for a foreign-built ice-strengthened search and supply ship for the U.S. Coast Guard, since the NSF refuses to fund a U.S.-built ship.

The SCA appealed to Congress for control funding for the vessel. It reportedly thought that the ship should be paid for by American taxpayers rather than by a subsidized foreign yard.

The NSF reportedly argued that a U.S.-build requirement is necessary because it would allow the ship for short-term charter.

However, the NSF reportedly could not explain why it requires a charter contract with an American purchase of the vessel.

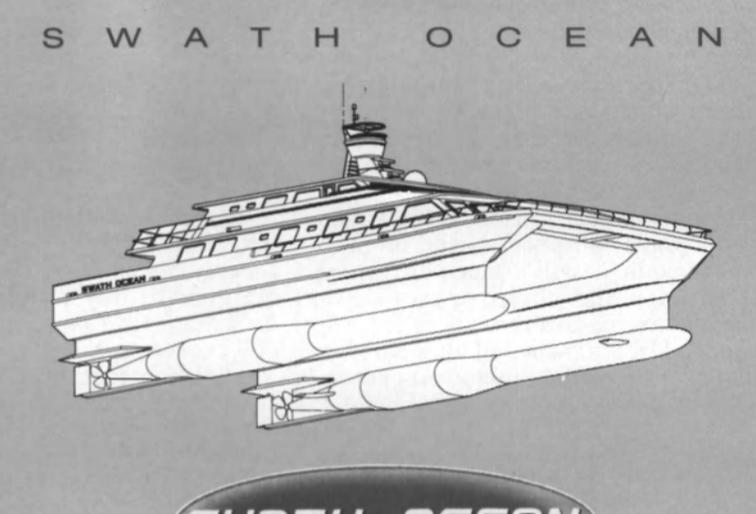
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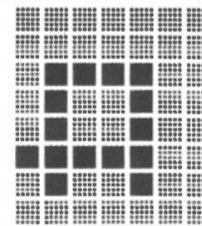


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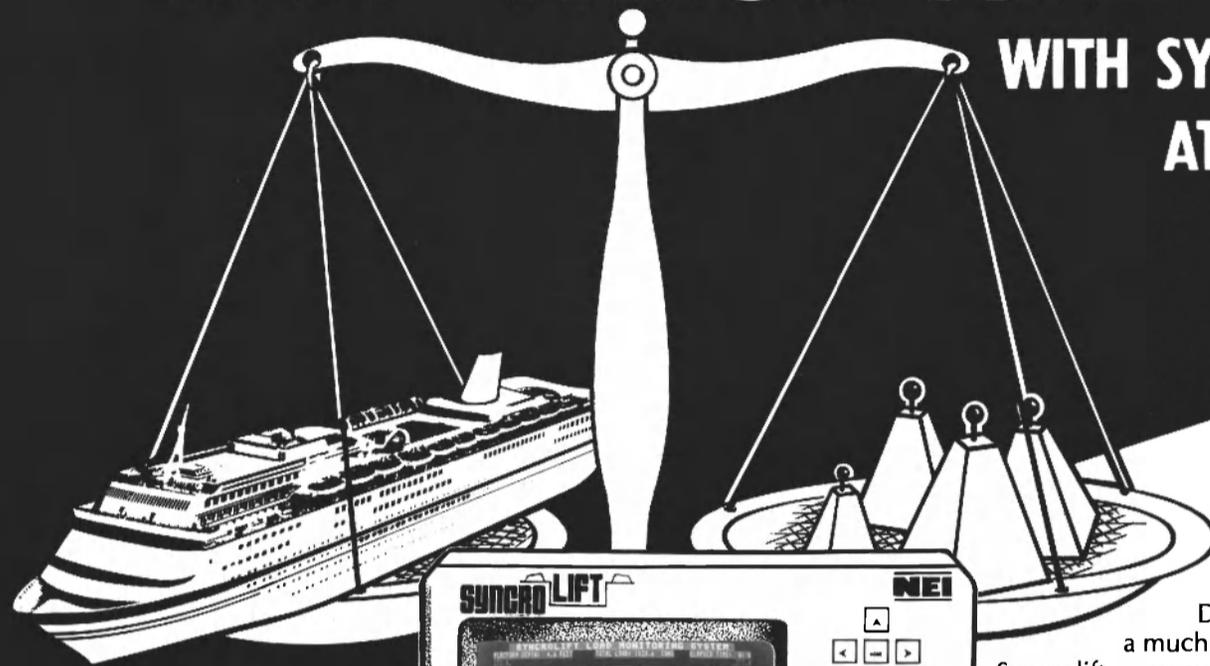
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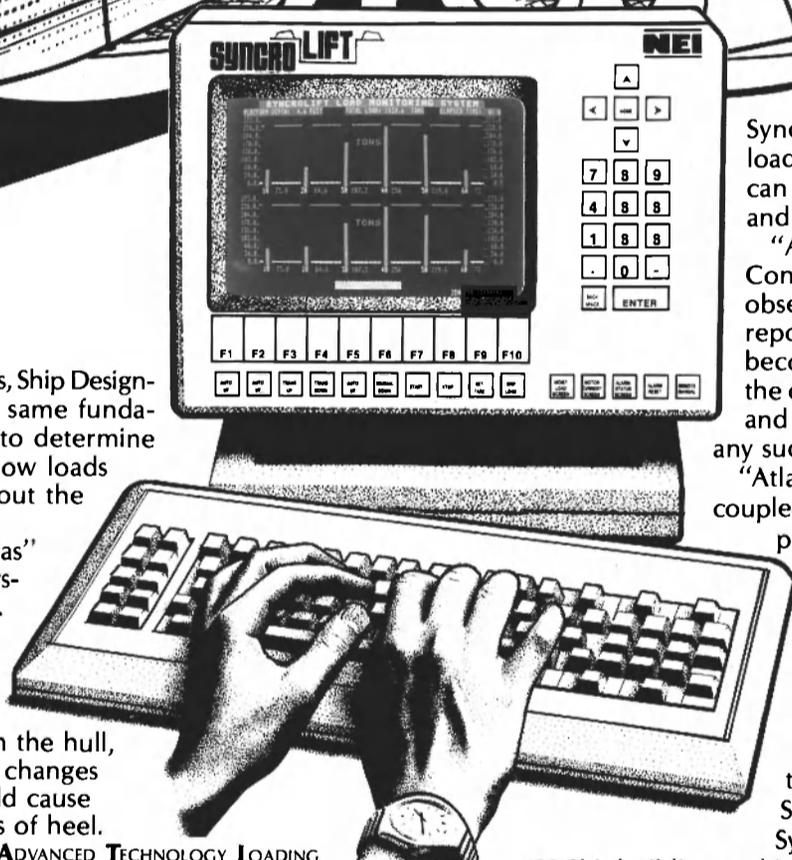


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## Weeks Jamestown Trains First Civilian Salvage Action Response Team



Weeks Jamestown's Salvage Action Response Team in Training.

In June, Weeks Jamestown, Inc.'s first civilian Salvage Action Response Team (SART) began their extensive advanced training at the Brayton Firemen Training Field located at Texas A&M University.

The Weeks/Jamestown group has established this team of marine firefighters to enable petroleum carrying vessels to meet the firefighting requirements mandated in the Oil Pollution Act of 1990.

The Weeks/Jamestown group took advantage of lessons learned from the tanker wars of the Persian Gulf. "Weeks Jamestown, Inc. recognizes the need for a fast-moving Salvage Action Response Team (SART) of professional marine firefighters and transportable firefighting equipment to preclude major shipboard fires," said **Bruce Banks**, president of Jamestown Marine. "A company cannot rely solely on installed firefighting systems tied to a 12-knot salvage tug or to a limited number of harbor tugs with minimal monitor capacity."

The Texas A&M facility is one of the most advanced marine firefighting training centers in the world. Jamestown Marine's staff

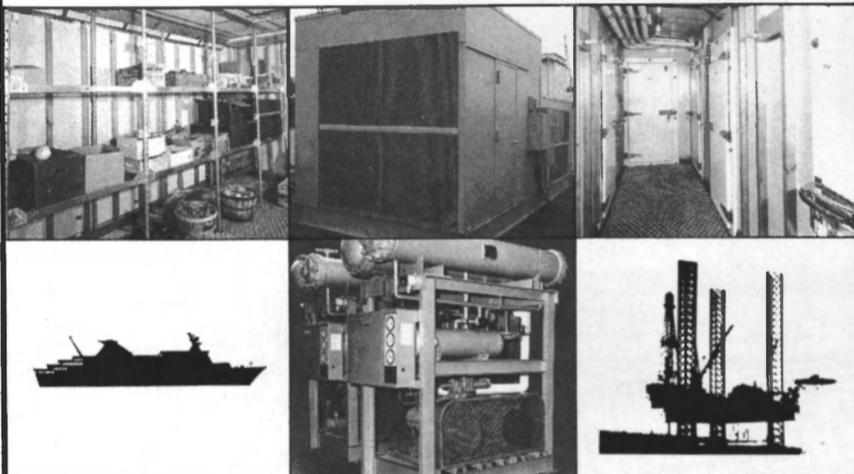
members were active participants in the development of the concept of SART for the U.S. Navy Salvage Forces, and produced the technical and tactical details in the U.S. Navy Salvage Manual Volume Three Firefighting and Damage Control.

The hands-on portion of the team's training took place on board the S.S. William H. Allen, a World War I Liberty Ship which has been reconstructed at the Texas A&M field to form the nucleus of the marine training program.

Her deck and superstructure have been modified to provide realistic marine firefighting training on liquid cargo handling manifolds, topside storage tanks and barrels, P/V vents, deck spills, emergency generator rooms, storage lockers and tanker loading hatches. For a final training scenario, the entire ship was engulfed in fire from stem to stern.

The expertise and background of the Weeks/Jamestown Response Team members cover a broad spectrum, ranging from naval reserve officers, professional firefighter salvage engineers and salvage tug personnel.

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Maritime Reporter/Engineering News-Record

## \$750 Million New Ship Deal Planned For Saudi Shipping Firm

A major new fleet development that has a potential for up to \$750 million is planned for The National Shipping Company of Saudi Arabia (NSCSA) and is reportedly expected to reach the contractual stage in October.

NSCSA is evaluating bids from 12 yards for five double-hulled VLCCs of up to 280,000 dwt that could each draw between \$90- and \$100-million. The firm is also expecting to buy five new Ro/Ro cargo vessels in the 42,000- to 46,000-dwt range, each with a price tag of reportedly \$50 million.

A strong runner for the project is reported to be the South Korean shipbuilding industry, although it is speculated that European organizations are also competing for the project.

## Navy Calls For Engineering Assistance On LX Program

Awards of up to five fixed-price contracts in the amount of \$480,000 each are being issued by the Navy to those responding to a solicitation (N00024-93-R-2221) for specialized ship design engineering services to assist an in-house design team during the contract design phase of the amphibious assault ship (LX) program.

Interested parties should write or a solicitation package to Commander, Naval Sea Systems Command, 2531 Jefferson Davis Highway, Arlington, Va. 22242-5160, attn.: Code 02224.

## Great Lakes Dredge & Dock Wins Qatar Dredging Contract

Great Lakes Dredge & Dock Company has been awarded a two-year dredging project by the State of Qatar.

"This contract reinforces our position as a leader in the international market," stated **Witt Barlow**, resident and CEO of Great Lakes Dredge & Dock Company. "It again demonstrates our competitiveness; this is a big win for us in the face of strong competition from European contractors."

The Qatar contract ranks among the larger projects recently undertaken by Great Lakes, some of which include the deepening of the Kill Van Kull Waterway in New York Harbor; the construction of a port expansion in Long Beach, Calif.; the deepening of the Baltimore Harbor; and the restoration of the beaches in Miami.

Under the terms of the contract, Great Lakes will deepen the entrance channel to the port and cre-

ate landfilled sites for a container terminal expansion and new international airport. The work will be done by Great Lakes' dredges "Illinois" and "Carolina."

Great Lakes Dredge and Dock Company, a 104-year-old company based in Oak Brook, Ill., is reportedly the Western Hemisphere's largest dredging and marine construction organization. It has more than 1,200 employees and has averaged more than \$200 million in annual revenues in the last four years.

## Litton's Oilfield-Services Branch's New Seismic-Survey Ship Is A Success

Western Atlas, Litton's Houston-based oilfield-information-services subsidiary, has taken delivery of its fifth new seismic-survey ship in two years and is using it to search for potential oil and gas deposits off the shore of Norway.

The 255-foot Western Patriot,

built for the company's Western Geophysical division by Ulstein Verft As, Ulsteinvik, Norway, reportedly cost about \$30 million. Western Geophysical operates one of the industry's largest exploration fleets.

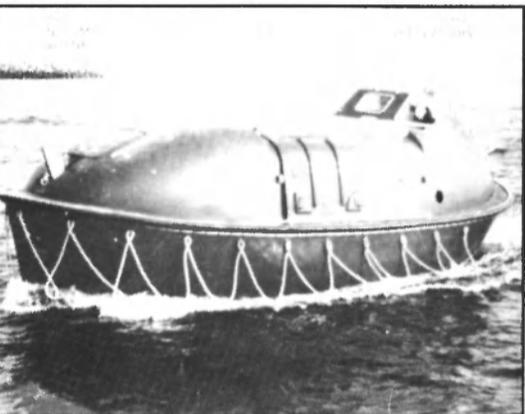
Four other seismic "super ships" have been added to Western Geophysical's fleet since 1991. All are working in European, African and Middle Eastern waters. A sixth new ship will reportedly be delivered this fall.

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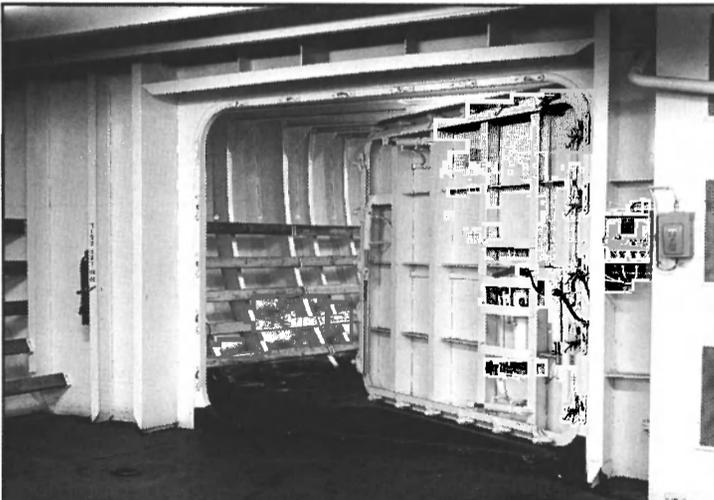
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# ShipRepair & Conversion 93

9-10 NOVEMBER  
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CONFERENCE & EXHIBITION

## DAY ONE - November 9

### SESSION 1 - THE INDUSTRY

#### The future and competitive edge of the repair industry in Singapore

Tong Chong Heong, Vice President ASMI and Executive Director, Keppel, Singapore

#### Hong Kong's shiprepair industry now and after 1997

Yang Shi Lan, Deputy Managing Director, Yiu Lian Dockyards, Hong Kong

#### The United States Shiprepair Industry - a need for international market penetration

Bob Leber, Director Shiprepair, Newport News Shipbuilding & Engineering, USA

### SESSION 2 - OPERATIONS

#### Introduction of Planned Maintenance systems onboard managed tonnage

Lock Parker, Group Technical Executive, Acomarit (UK), Glasgow

#### Life extension onboard Chemical Tankers

Speaker to be announced

#### Operating older tonnage in a hostile environment

Peter Harrap, Chief Engineer Superintendent, BP Oil UK Ltd, UK

#### Engine repair assistance by satellite (ship-to-conference demonstration)

Lars Brodje, Maritime Adviser, Inmarsat, London

### LUNCH FOR REGISTERED DELEGATES

### SESSION 3 - SHIPYARDS

#### Shipyard development

Peter Meanley, Director, Posford Duvivier, UK

#### Shiprepair and ISO 9000

John De Rose, Operations Manager, Quality Services, Lloyd's Register of Shipping, UK

#### Gas safety in repair yards - people and equipment

Karl-Peter Rohlssen, Gas Safety Specialist, Ibeda GmbH, Germany

#### Getting ready for refit - a shiprepairers' point of view

David Blincow, Managing Director and Chief Executive, A&P Appledore (Tyne), UK

### SHIPREPAIR & CONVERSION 93 OFFICIAL EVENING RECEPTION

*The organisers reserve the right to amend this programme*

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Conference fee of £385 plus £56 VAT on taxable element (payable by *each* delegate) includes volume of conference papers, participants list, lunches, coffee breaks and an invitation to the evening reception. Cheques should be made payable to BML Business Meetings Ltd.

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## DAY TWO - November 10

### SESSION 4 - SURVEYS

#### Repair versus Scrap

Kjetel Brun-Olsen, Senior Surveyor, Det Norske Veritas, Norway

#### Vessel inspections-ship approval

Gary Skipp, Manager Marine Services, Texaco Marine Services, Texas

#### How far can a ship's structure deteriorate before it is irreparable?

John Waite, Principal Naval Architect, The Salvage Association, UK

#### Extended operational audits

Tony Brindle, Aim Safety, UK

#### What is an enhanced survey?

Bob Vienneau, Vice President, ABS Europe Ltd, London

#### Owners' Survey - shipyard approval

Speaker to be announced

### LUNCH FOR REGISTERED DELEGATES

### SESSION 5 - CONVERSIONS

#### Ship conversion contracts - The Key Clauses

Simon Curtis, Partner, Watson, Farley & Williams, London

#### Conversion Project A

Speaker to be announced

#### Conversion Project B

Speaker to be announced

### SESSION 6 - NEW DEVELOPMENTS IN PAINTS AND COATINGS

#### A panel discussion with four of the world's leading suppliers

**Hempels** - Svend Johnsen, Deputy Director, Marine

**International** - panellist to be announced

**Jotun** - Ragnar Jahr (water ballast tank concept)

**Sigma** - Rodney Towers, Marketing Manager (ballast tank problems)

**Jered Brown Brothers  
Awards Contract To John J.  
McMullen Associates, Inc.**

Jered Brown Brothers Inc., the prime contractor to NAVFAC for construction of a prototype Elevated Causeway (Modular) System (ELCAS(M)) subcontracted the engineering and ILS support services to John J. McMullen Associates, Inc. (JJMA).

ELCAS(M) is a modular pier extending from a shoreline and is elevated above the water. "Modular" indicates that this causeway is being designed to be broken down into sub-assemblies and easily transported, installed and operated, in remote locations anywhere in the world to support amphibious operations.

The causeway is made up of assemblies (pontoons) that are sized for ISO Standard. Each pontoon is connected to the adjacent pontoons to make up the full pier. The seaward end of the causeway is outfitted with a pair of cranes and pierhead to facilitate Sealift and Auxiliary ship off-loading.

JJMA's involvement in this program includes development of the drawing package to detail design level, development of product specifications for each component, reliability and maintainability engineering, life cycle costing, systems engineering, test plan development, etc. JJMA is also preparing all ILS documentation, technical manuals, technical repair standards and all training documentation, and will be training over 100 Navy personnel in the operation and maintenance of this system. Lastly, JJMA will be involved in the final test of the system.

JJMA is a full service naval architectural firm supporting government agencies, commercial clients and industry with eight offices in locations throughout the U.S.

**First Engines Of Deutz MWM  
645 Series Delivered; Name  
Changes For Engine Series**

The first engines of the Deutz MWM 645 big-engine series (power range from 2,550 to 4,140 kW at 600 rpm) were recently delivered and installed in container vessels at the Sietas yard in Hamburg-Neuenfelde. Altogether seven orders for nine-cylinder engines have been received, among others, from Sietas, all of which are expected to be delivered in the course of this year.

The Deutz MWM 645 engines, which went into series production in late 1992, are medium-speed diesel engines. In addition to marine applications, they will also be used to drive power generating sets and pumps. With a long stroke and op-

timized injection system, the 645 series engines reach optimal fuel consumption values, with extremely low lube oil consumption. The engines' exhaust emissions stay below the limits specified by TA-Luft (German Clean Air Code). The engines running on gas oil can also be operated with heavy fuel up to CIMAC K 55.

Also in Deutz news, the Deutz MWM division of the KHD Group

has now defined 616 as the name of the engines initially presented as 234B series.

The new name characterized the independent development of this series which, although based on the experience gained from the 234 series, features significant technical improvements with relevant effects on major components.

Deutz MWM has proceeded analogously in the case of the further

developed 604B series engines which also differ considerably from the previous models. In the future, these engines will be offered under the name 620.

The new series' names will now apply to the overall Deutz MWM engine range, with the first digit referring to production status and site and the two following digits representing the increased stroke in centimeters.

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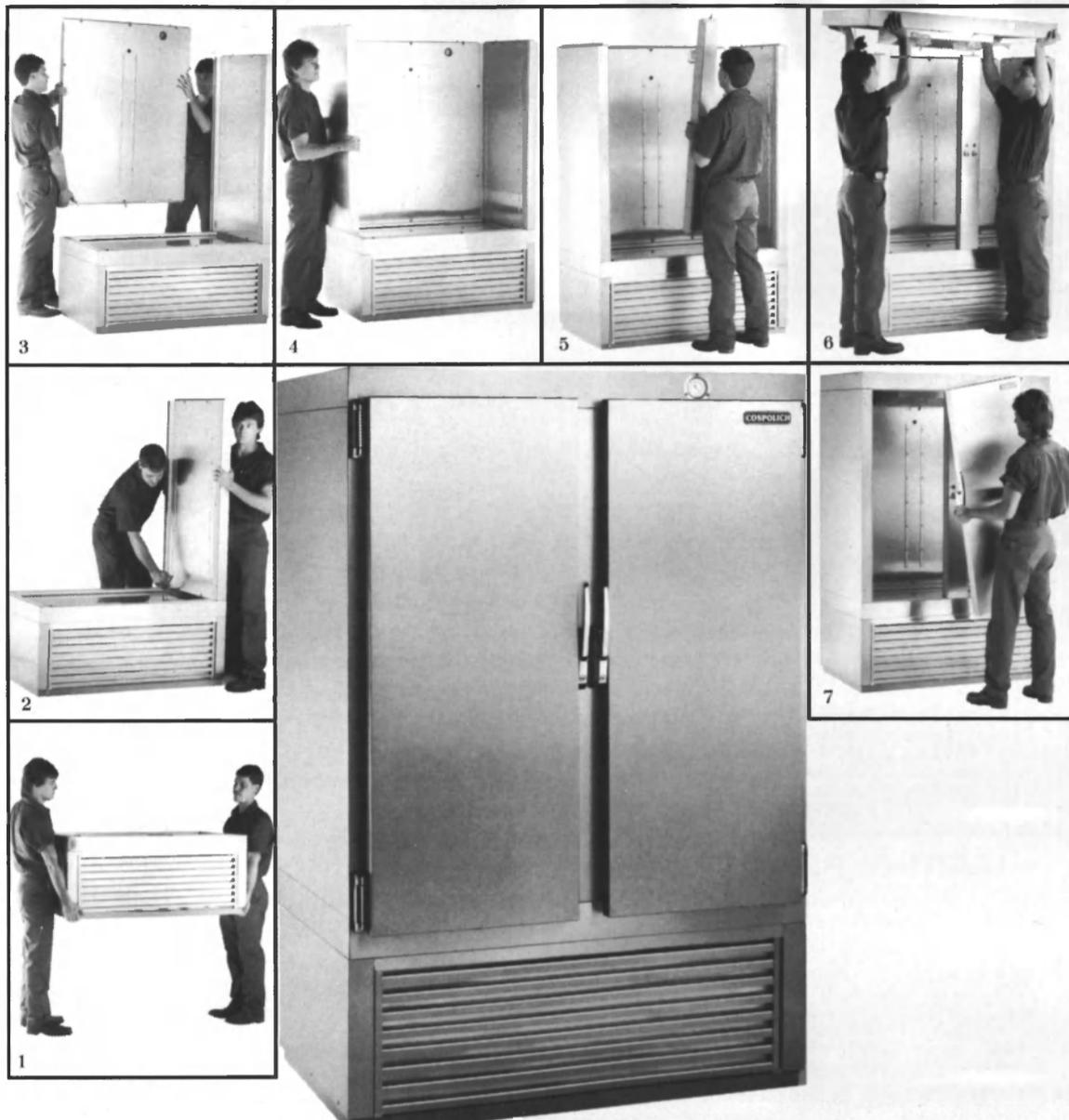
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## Marco Delivers OSRV Aleutian Tern To Clean Sound Cooperative



OSRV Aleutian Tern, delivered by Marco Pollution Control to Clean Sound Cooperative.

Marco Pollution Control has delivered the Aleutian Tern, a 42-foot U.S. Coast Guard certified Oil Spill Response Vessel (OSRV) to Clean Sound Cooperative of Edmonds, Wash. Clean Sound is an organization made up of oil and oil transportation companies in Washington State whose goal is to provide more effective regional control of oil spills.

The Aleutian Tern is a new Marco model Coastal 42, a two-foot longer version of the Marco-built Plover, an aluminum semi-catamaran delivered to Clean Sound in June 1992. The principal difference between the two vessels is in the grade of spilled oil they can handle. The Plover is configured to carry grade D (or lower) recovered product.

The Aleutian Tern is configured to handle and store volatile Grade B cargoes and incorporates measures for gas hazard and ignition source control.

Built and inspected for full compliance with U.S. Coast Guard regulations, the Aleutian Tern is believed to be the first vessel built to receive certification under the USCG 03-92 guidelines for small recovery vessels.

The Coastal 42 utilizes Marco's unique Filterbelt oil and debris recovery system which has proven to be effective in the clean-up of many major oil spills.

The Marco Filterbelt removes oil from water in one state, greatly reducing the need to process large amounts of water aboard the recovery vessel.

Marco says their Filterbelt, effective on all types of oils and in a variety of spill conditions, is the most versatile technology for removing oil and debris from open water.

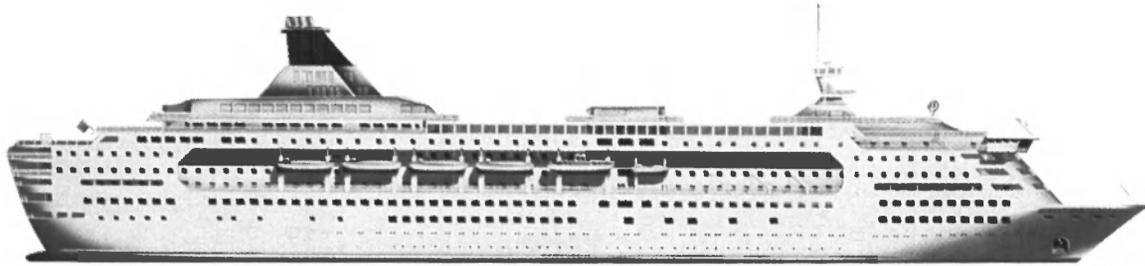
The system on the new vessel is designed to provide oil recovery rates in excess of 1,200 barrels per hour for persistent oil.

"With the refinements we've made on the new Coastal 42 based on Clean Sound's operating experience with the Plover, we consider the Aleutian Tern one of the most technologically advanced vessels of its size and class," said **D. William Lerch**, vice president of Marco Pollution Control.

The Aleutian Tern has an overall length of 42 feet, beam of 15 feet, and an operating draft of three feet.

It carries a normal operating crew of two and is capable of response speeds in excess of 12 knots.

Maritime Reporter/Engineering News



## Cruise Ship And Ferry Costs In The 90s

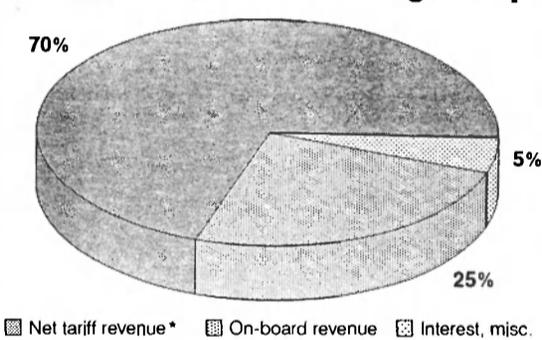
### The Economic Impact Of Increased Safety Demand

The cruise industry, and all vessels carrying fare paying passengers, faced with unprecedented rising costs and slimmer margins, is entering a very radical and expensive phase in its development as it faces up to new safety and pollution control measures, higher insurance premiums, increasingly costly unilateral U.S. legislation and other cost pressures.

As in all other sectors of the shipping industry, the cruise/ferry operator must effectively control costs to survive.

Despite the recent profitability of most cruise operators, many markets are currently near saturation point with substantial discounting becoming the norm. The escalation of costs is inevitable and, therefore, an accurate understanding of the current and future cost structure of the industry is essential, with targeting, costing and pricing policy crucial to success.

**FIG. 1**  
**Total Revenue Of A Passenger Ship**



\*Net tariff revenues = gross less discounts and other dilution.  
Source: Drewry Shipping Consultants.

At the beginning of 1993 the world fleet of cruise liners and ferries capable of carrying more than 100 passengers stood at about 250 ships with a total lower berth capacity of 170,000. Developments in the cruise business over the past two decades have not only led to a rapid growth in the number of passenger berths available but have transformed the industry from one with a "beef tea" image to an imaginative provider of leisure on a very broad front.

Over the period 1990-93 there was growth of over 14 percent in the world lower berth passenger capacity and in excess of five million passengers were carried. It is estimated that the figure will rise to between eight and 10 million by the year 2000. The rapid expansion of the industry has led to the retention of many older ships which do not meet impending safety legislation—hence the recent spate of orders for a new breed of "megaships" costing around \$300 million each.

Tonnage built before 1970 accounts for 48 percent of the world cruise fleet, and 45 percent in terms of berths, whilst similar figures for vessels built before 1980 stand at 62 percent in terms of ships and 61 percent in terms of berths. These figures show the problems facing the industry in upgrading ships to meet the new safety and comfort standards. The stricter safety requirements resulting from amendments to

SOLAS—effective 1997—mean that, for example, more than 40 percent of the current North America-based fleet—i.e. ships built before 1980—will require major, expensive modifications. It is also debatable whether those ships built before 1960 will survive to the end of the decade as the cost of meeting new standards looks prohibitive. If this happens, between 10 and 20 percent of the fleet's total berthage will be lost.

While there have been numerous published studies on the costs of bulk and liner operations, the Drewry Report is the first to analyze in depth the costs of cruise/ferry operations and provides a unique insight into the current and potential economics and costs of the business and, in particular, the impact of impending legislation on future cost levels. **Cruise Ship And Ferry Costs** addresses the vital issues facing an industry which will have to cope with radical change brought about by factors both within and outside the industry.

The report contains extensive data on costs and revenues and indicates that, on average, 25 percent of total revenue is derived from on-board sales. Cost projections are given for a five year period and break-even positions for vessels of various sizes are given, indicating that there are considerable economies of scale in cruise and ferry operations. As the data for a 2,050 berth vessel shows in Fig. 1, the total operational break-even cost is \$112,000/day or \$54/berth.

To put the report in perspective, the cruise ship and ferry markets are described with background details on their development and their position in world tourism and transport. In addition a key section of the report explores how costs may be controlled by the use of modern management systems and techniques.

**FIG. 2**  
**Costs And Revenue Of A Cruise Ship**  
2,050 Standard Berth  
Assuming 100% Occupancy At Brochure Tariffs But  
No Contribution From On-board Sales

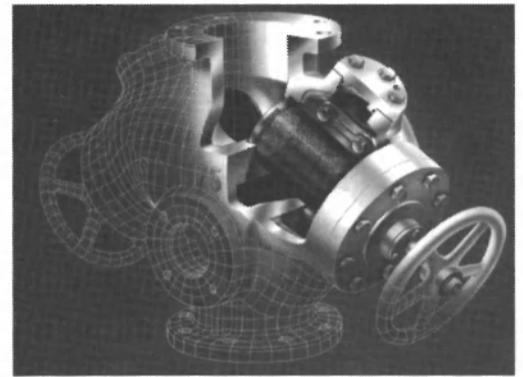
	\$'000/Day
Total Crew Related Costs	38.60
Ship Related Costs	25.00
Passenger Related Costs	23.35
Administration And General	25.00
Total Non-fixed Costs	
(Operational Break Even)	111.95
Capital Recovery	
(\$300m x 8 yrs. x 7%)	139.73
Total Break Even	251.68
Tariff Revenue (\$140pd)	257.12

Basis cruise ship with berths for 2,050, standard class. Average four day cruise from Florida with two ports of call (often as part of a package holiday). Active cruise days per year: 327.

Source: Drewry Shipping Consultants.

**Cruise Ship And Ferry Costs In The 1990s: The Economic Impact Of Increased Safety Demand**, is published by Drewry Shipping Consultants, 11 Heron Quay, London E14 4JF.

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## Oceandril Partners, L.C. Buys Rig For Gulf Operations

Oceandril, Inc. announced that its affiliated company, Oceandril Partners, L.C., entered into a contract to purchase the offshore workover rig, Rio Grande Uno, from Rio Grande KS, a Norwegian investor group. The rig will be renamed Oceandril Ranger and upon completion of repairs and surveys will re-

enter the Gulf of Mexico offshore workover market under Oceandril management. The Rio Grande Uno is a 1981-built Bethlehem designed Ranger class jackup designed for light drilling and workover service in water depths ranging from 12 to 75 feet.

In addition to providing offshore workover services through its newly formed company, Oceandril Partners, L.C., Oceandril provides project management services to the offshore industry and repair parts and services for LeTourneau International.

## Vessel Traffic Services Out Of Canadian Bay To Be Upgraded

A \$9.9-million project has been announced to improve the Canadian Coast Guard's vessel traffic services (VTS) system at Saint John, N.B.

The project, which began in May and will run for three years, calls for the replacement of existing radar, radio communication and VHF direction-finding equipment that was

originally installed in 1975. The Coast Guard's administration building in Saint John will also be renovated.

The Bay of Fundy VTS system was established in 1975 in response to a number of tanker accidents in Canadian and international waters. VTS cuts the risk of accidents by tracking vessels on radar and advising them of navigational hazards, as well as other ships in the vicinity.

The project has been undertaken in response to a November 1990 Public Review Panel's report on Tanker Safety and Marine Spills Response Capability, and also in response to the federal government's June 1991 Green Plan announcement regarding its commitment to improve systems designed to prevent and respond to oil spills.

The Public Review Panel recommended that vessel traffic services be upgraded to reduce the risk of major spills caused by collisions and groundings.

## P&O Receives Last Of Four Boxships From Japanese Yard

Ishikawajima-Harima Heavy Industries Ltd. (IHI) of Japan has delivered the last of four containerships to P&O Containers Ltd. to be operated on the Europe-Far East trade.

Georgiana Woods, wife of Robert Woods, P&O Containers' managing director, christened the ship "Singapore Bay" at its maiden call at Singapore.

All four ships are 958 feet long, with a deadweight of 59,093 metric tons and a capacity to carry 4,038 20-foot teu.

The first three vessels - the "Jervis Bay," "Newport Bay" and "Repulse Bay" - were built by IHI's Kure Shipyard. The "Singapore Bay" was built by Namura Shipyard in Imari, under contract by IHI.

## Harrah's Jazz Co. Revamps New Orleans Casino Bid

Harrah's Jazz Co. has revised its proposal in support of its application to run a casino entertainment complex in New Orleans.

Harrah's Jazz Co., a partnership of Promus Company's (PRI) Harrah's unit and the New Orleans Louisiana Development Corp., submitted the revised proposal to the Louisiana Economic Development and Gaming Corp. (EDGC) following a reopening of bidding after the rejection by Louisiana's attorney general of all prior applications.

The revised bid includes three financial scenarios the EDGC will reportedly select from. The EDGC may choose a \$125 million one-time, up front payment to the commission; a \$275 million payment, which includes a \$75 million one-time, up front payment and a \$200 million prepayment of future compensation due to the commission; and a \$350 million prepayment of future compensation due the commission.

Maritime Reporter/Engineering News



# Money on tap!

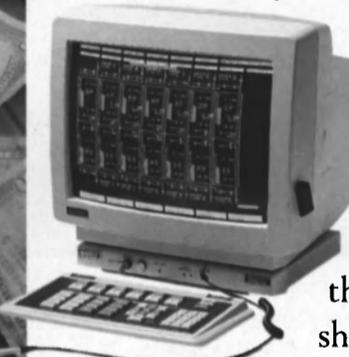
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## Stranded Tugs And Barges Racking Up High Costs

The flood that has stranded at least 2,000 barges and 50 towboats on the Mississippi River, and that has paralyzed the nation's inland river shipping for a month, is reportedly becoming very costly for those stranded on the river.

Thousands of other barges that cannot reach the flooded ports of the upper and central Midwest are idled on rivers from Pennsylvania to Okla-

homa, and Chicago to New Orleans.

Whether a towboat is mobile or tied off at a dock, it and its barges and cargo have a fixed expense of hundreds of dollars an hour. It has been estimated that a large towboat with five barges containing chemicals costs \$441.89 an hour to operate, and even the smallest and cheapest towboat can cost \$200 an hour to run.

Shippers operating on the Missouri River have been forced to switch to costly truck and rail transport because of barge traffic interruptions that may last through the end of the

summer, according to the Army Corps of Engineers. Even when the rain lets up, it is estimated the Missouri may not be reopened for another six weeks. The region affected by the closure of the Missouri River runs from St. Louis, Missouri to Sioux City, Iowa and affects shippers in Kansas, Nebraska and South Dakota, as well as Missouri and Iowa. The loss of the barge traffic reportedly threatens fertilizer distribution and jeopardizes the fall wheat plantings.

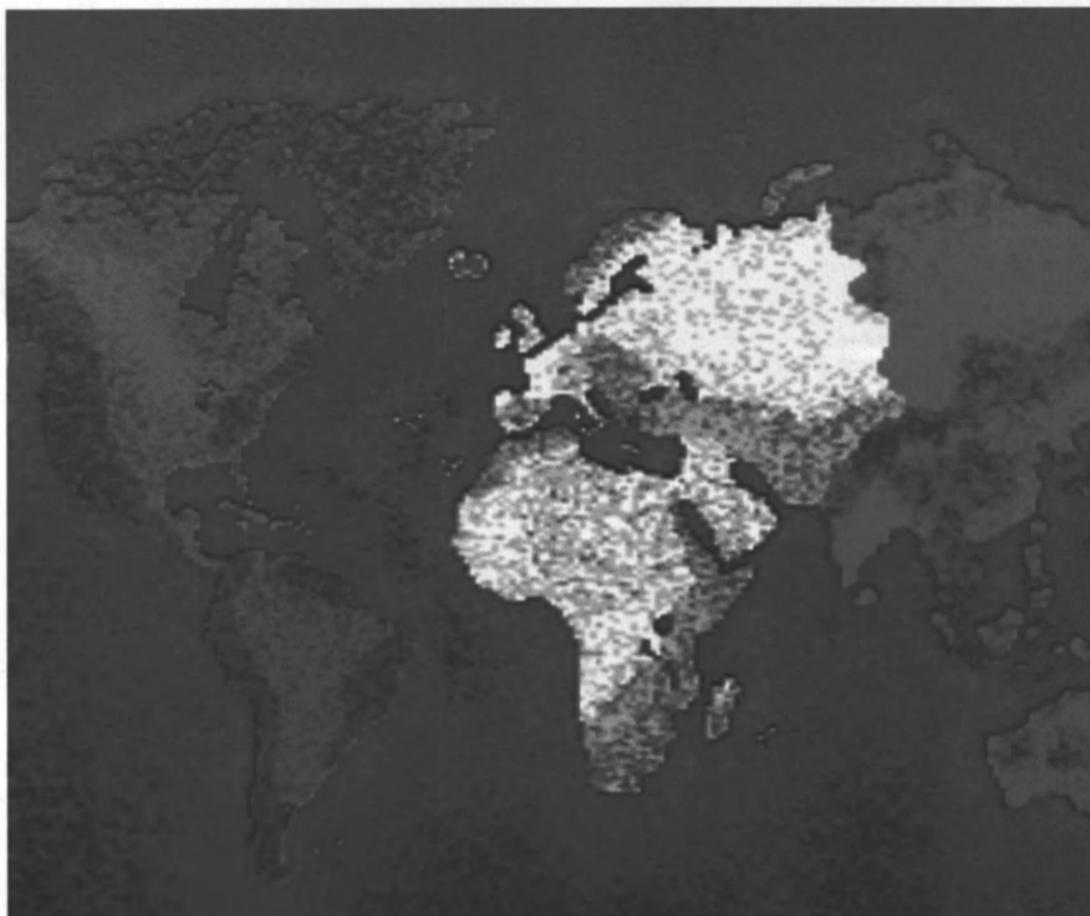
Crews are being paid to be kept

aboard stranded tugs on the Mississippi by the U.S.'s 800 barge operators, many of which are small businesses already heavy in debt that are attempting to continue paying their lenders while paying their crews.

Engines on some towboats have reportedly been kept running around the clock because the barges cannot be securely docked and the towboat may be needed to retrieve the barges if they break loose. The fuel the 4,000-hp towboats run on, No. 2 diesel fuel, costs around 70 cents a gallon - yet another expense incurred by the stranded vessels.

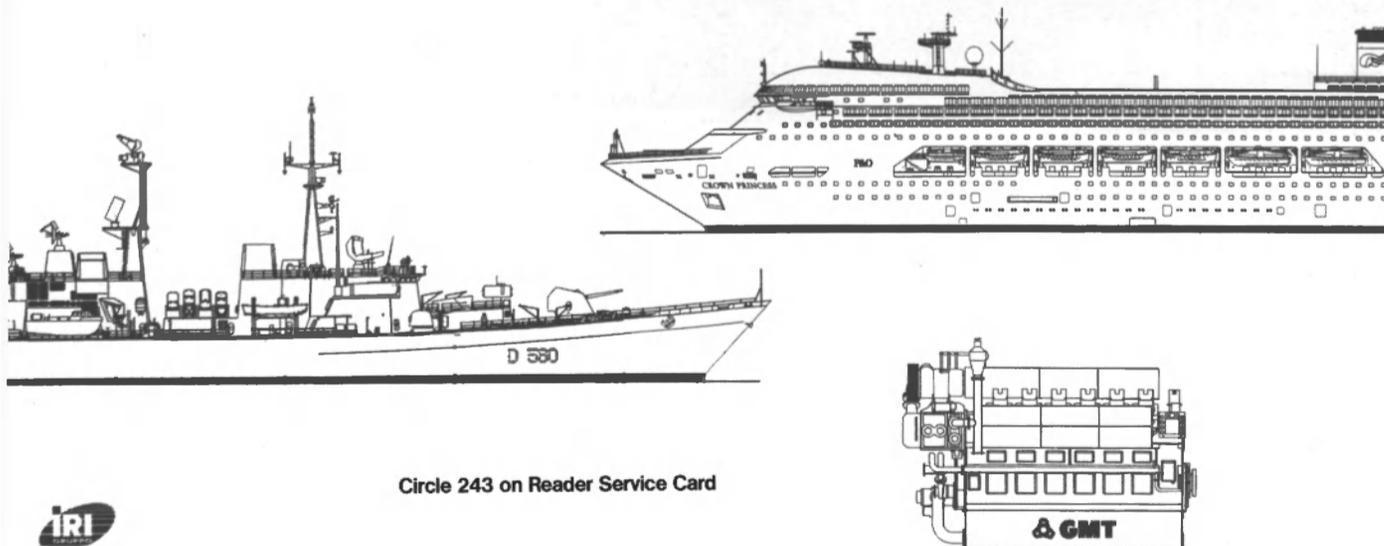
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## Singmarine Delivers Two Aluminium Ferries Worth \$9 Million

Singmarine Industries Ltd. has completed and delivered two high speed ferries worth \$9 million to their respective owners in South China.

Both vessels, a 115-foot catamaran, "Tai An," and a 92-foot monohull ferry, "Dong Qu Yi Hao," were built by Aluminium Craft Pte. Ltd., a subsidiary of Singmarine.

Tai An sailed from Singapore to Hong Kong where it was delivered to its owner, Humen Lungwei Passenger Transportation Co. Ltd. of Guangdong. This \$6 million vessel achieves a maximum speed of 29 knots, is powered by two diesel engines driving two fixed pitch propellers. Fully air-conditioned and furnished with two VIP lounges, Tai An has a capacity for 250 passengers and 10 crew.

The Dong Qu Yi Hao was delivered to its owner, Wan Shan District Company of Zhuhai City, earlier this year.

The vessel, which plies within Zhuhai territorial waters, is performing satisfactorily. With a service speed of 28 knots, it is powered by two marine diesel engines with a total propulsion of 1,700 kW, and has a capacity for 138 passengers.

Both vessels are classed and surveyed by the China Classification Society (ZC).

## "Life Cycle Cost Comparison For Sealift Ships" Study Available From GE

A study is available from GE Marine & Industrial Engines titled "Life Cycle Cost Comparison for Sealift Ships." The study compares the life cycle costs for Sealift ships using three different propulsion configurations: gas turbines; medium speed diesels; and slow speed diesels. The analysis is based on a 950-foot ship design and assumes the same total ship displacement and required power for all configurations to achieve 24 knots. Reviewed are the initial acquisition costs, recurring costs, total life cycle costs, logistical support, cargo carrying area, emissions and environmental impacts, and crew availability. To obtain a copy of the study, contact GE Marine & Industrial Engines, One Neumann Way S 158, Cincinnati, Ohio 45215-6301; Tel: (513) 552-5387.

Maritime Reporter/Engineering News

## Ulstein Opens New Service Station In Florida

Ulstein USA Inc. has opened a new Service Station in Port Canaveral, Fla. This is Ulstein's third location in the U.S. - added to Seattle and New Orleans.

Ulstein USA's president, **Leif Borresen**, predicts a further expansion of the company's activity in the U.S. The Norwegian-based corporation also has a propeller factory located in Vancouver, Canada, with a branch office in Halifax, apart from several companies in 10 other countries. All firms are working within the marine industry. The new Florida-based Ulstein Service Station will initially be staffed by two service engineers covering all Southeastern ports of the U.S., as well as Caribbean Islands. Contact the new facility at: Ulstein USA Inc., Port Canaveral Service Station, P.O. Box 0907, Port Canaveral, Fla. 32920-0907; tel: (407) 799-8384; fax: (407) 799-8385.

## Peterson Builders Conducting Metrication Workshop

As part of the National Shipbuilding Research Program project, "Introduction of Metrication into U.S. Shipbuilding" is being conducted by Peterson Builders of Sturgeon Bay, Wis. The workshop focuses on metrication issues for the shipbuilding industry and will be held Nov. 1, 1993, in Williamsburg, Va. Subjects addressed will be: Government Policy; Market Forces; Supplying Metric Material; Obstacles to Metrication, Material Acquisi-

tion; Tool Conversion; Training; Building a Metric Ship, the U.S. Shipowner's Perspective; and International Issues Facing U.S. Shipbuilders. The workshop is being arranged by the University of Michigan Transportation Research Institute, Marine Systems Division, and is scheduled just prior to the SNAME Ship Production Symposium in Williamsburg, running November 2-4, 1993. Interested parties should contact Al Horsmon at the University of Michigan, tel: (313) 764-5308.

## Kvaerner Sells High-Speed Ship To Korean Firm

Norwegian engineering, offshore and shipbuilding group Kvaerner AS said its Kvaerner Fjellstrand Pte. Ltd. in Singapore sold a high-speed passenger catamaran to Nam Hae Express Co. of Korea. The contract is worth approximately \$5 million.

The 131-foot vessel, with a service speed of 35 knots, will reportedly be delivered in April 1994. The 350-passenger catamaran will operate on a route between the city of Mokpo and Hongdo Island off Korea's southwest coast.

## Once Secret Stealth Ship Cruises San Francisco

One of the U.S. Navy's "stealth" ships, called Sea Shadow, began a series of shakedown cruises in San Francisco Bay. The 160-foot vessel rides on pontoons and has an angular shape that hides it from radar. Lockheed Missiles & Space Co. built the \$50 million test ship in the mid-1980s inside the Hughes Mining

## Freighter and Two Tugs Collide; Ignites Geyser Of Jet Fuel

A freighter and two tugs collided on the morning of August 10 in the main channel leading to Tampa, Florida, igniting a geyser of jet fuel and leaking fuel oil into the water.

According to the U.S. Coast Guard (USCG), the 400-foot freighter Balsa 37, the tug Sea Farer and its gasoline-carrying barge Ocean 255, and the tug Capt. Fred J. Bouchard and its barge the Bouchard No. 155, collided just outside the Sunshine Skyway Bridge at the mouth of the 35-mile channel leading from Egmont Key to the Port of Tampa.

The Sea Farer's barge, Ocean 255, had been carrying approximately 10,000,000 gallons of jet A fuel. The fuel ignited into a geyser of flame that burned for at least a day. Eleven crewmembers were taken from the various vessels to nearby Egmont Key. No one was seriously injured.

The barge Bouchard No. 155 began leaking no. 6 fuel oil, and the resulting slick eventually reached five miles long and hundreds of yards wide before crews could contain it with an oil boom. The 400-foot bulk carrier Balsa 37, which was hauling phosphate, was damaged and had to be run aground at Mullet Key to prevent its sinking.

Bouchard Transportation, whose tug and barge were involved in the collision, was cooperating with local USCG authorities in the clean-up effort. Bouchard Transportation activated its emergency response center in Hicksville, on Long Island, N.Y., and then dispatched a team for Tampa led by **John Johnson**, a former USCG officer who is the firm's vice president for Environmental Marine Affairs. The team included members from the Spill Response Management Corporation. By mid-afternoon, more than 160 experienced clean-up workers were mobilized by Bouchard, and 3,000 feet of boom deployed with another 40,000 feet of boom on stand-by, said Mr. **Bouchard**, who is coordinating the firm's response effort.

As oil spill clean-up measures continue, a Claims Service Center has been established in St. Petersburg to handle claims arising from the incident. Anyone who believes they may have a claim in connection with the incident may call (813) 363-7708, or (813) 363-7608.

Mr. **Bouchard** also made a contribution to the Pinellas Seabird Rehabilitation Center to facilitate their efforts to clean affected birds.

Barge in Redwood City.

## Intl. Power Machines Wins \$2 Million Navy Contract

International Power Machines Corp. (PWR) claims it has received a contract to supply the Department

of the Navy with 15 kVA-100 kVA three-phase uninterruptible power systems, spare parts, ancillary equipment and installation services for worldwide applications. The Navy is not obligated to buy products from this \$2 million contract. The contract has a duration of one year with two optional extensions.



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## Idled Barges Cost States Millions Of Jobs

Approximately 2,400 jobs are lost every month the rivers of Missouri and Illinois are closed to barge traffic.

MarAd claims the economies of Missouri and Illinois together lose more than \$100 million every month the Mississippi, Missouri and other rivers are closed to barges.

The Missouri and Illinois rivers are mostly closed, as is most of the Mississippi River.

Illinois, which has lost 1,775 barge-related jobs a month, has been hit harder than Missouri. The jobs lost include towboat crews, cargo handlers and people who service barges. For each month the rivers are closed, the Illinois economy reportedly loses \$92 million.

Missouri has reportedly lost 699 jobs every month the rivers are closed. Loss of barge traffic costs the economy \$32 million a month.

Other states hit by the rivers' closings are Iowa, Kansas, Minnesota, Nebraska and Wisconsin. Together, these states lose 3,282 jobs and \$160 million every month. Lost income for workers amounts to \$107 million a month.

Although the water has receded from record

highs, no date has been set yet for when the rivers will be navigable for barges again.

## New Tanker Route May Affect Japanese Ship Owners

Oil tankers seeking to avoid the Strait of Malacca are taking a new route that could cost Japanese shipowners up to \$160 million due to excess voyage time.

By avoiding the strait, an estimated five to six days will be added to the voyage time of the 74 tankers that are owned by the Japanese.

The number of ships using the strait has risen dramatically in recent years because of the rapid economic growth in East and Southeast Asia. However, the states of Indonesia, Malaysia and Singapore are considering introducing a levy on tankers using the strait.

The cost of controlling and maintaining the waterway has increased, as well as the number of accidents, evidenced by an oil spill earlier this year which caused extensive damage to fisheries and marine life.

Shipowners are reportedly weighing the cost advantages of avoiding the strait or using the strait and paying the levy.

## French Nuclear-Powered Sub Hits Shell Tanker; Minor Oil Spills Contained

Four ships and a plane were deployed by maritime authorities to contain a small oil slick that leaked from a tanker struck by a French nuclear-powered submarine.

The vessels kept the slick under surveillance about 40 miles south of the Mediterranean port of Toulon. Hot temperatures were reportedly evaporating most of the oil.

Meanwhile, specialists in the industrial port of Fos near Marseille halved the surface of a slick from oil leaked by the Shell tanker Lyria as it docked.

The Lyria reportedly lost 2,000 tons (587,000 gallons) of crude from a 16-inch hole in its side after a collision with the attack submarine Rubis. The tanker was fully loaded with 270,000 metric tons (79.4 million gallons) of crude taken on at Sidi Kerir in Egypt. It was bound for Switzerland via a pipeline starting at Fos.

The Rubis was reportedly rising from a deep dive and its sonar may have been inhibited by the different thermal layers in the Mediterranean this time of year.

Both oil spills were described as minor by maritime authorities and claimed that neither posed a threat to nearby Riviera beaches.

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Maritime Reporter/Engineering News

## Port Authority Group To Hold Convention

The American Association of Port Authorities will hold its 82nd annual convention Sept. 27-Oct. 1 in Halifax, Nova Scotia.

Topics of discussion at the convention include the changing global marketplace, port development and trends in inland transportation.

Public port authority executive directors and staff, port commissioners and others in the maritime industry will gather for the meeting at the Halifax World Trade and Convention Center.

## Lykes Announces Strategic Sea/Air Service To The CIS

Lykes Brothers Steamship Co., Inc. has announced its inauguration of sea/air service between the U.S. and the Commonwealth of Independent States (CIS), designed especially for strategic project and aid cargoes. Under a service agreement with Kent International Airport (KIA) and AirRep (UK) Limited, Lykes can transport cargoes aboard its weekly, North European container service from Houston for arrival at Felixstowe, England, 21 days later. Upon arrival, cargoes are then transferred to Kent International Airport where they are

loaded on board an Ilyushin 76 cargo plane and flown directly to destination in the CIS. The cost will reportedly be half that of a comparable container shipped all air. With KIA serving as the coordinator of the air transport leg, and AirRep (UK) Limited providing the air transport, after Lykes has delivered the cargo to Kent International Airport, cargoes will then be flown directly to location within the Commonwealth. The cargo planes have a 45-ton payload and reportedly do not need commercial airports to land. The cargo planes are designed to land safely in difficult and harsh environments.

## Spill Costs BT Shipping Unit \$4 Million

A subsidiary of BT Shipping Ltd. of Bermuda, Nautilus Motor Tanker Co. of London, agreed to pay \$4 million in natural resource damages and costs to New York, New Jersey and the U.S. to settle a dispute over an oil spill.

The tanker BT Nautilus spilled more than 250,000 gallons of oil into New York Harbor on June 7, 1990, forcing the Kill Van Kull to close from shipping for three days. The oil spill damaged wetlands and harmed such animals as the endangered piping plovers in New York and New Jersey. Nautilus Motor Tanker reportedly initially paid approximately \$20 million to clean up the spill.

## German Study Reveals 20 Percent Of Containerships Should Be Replaced

A study conducted by the Institute of Shipping Economics and Logistics of Bremen, Germany claims that 20 percent of containerships in operation are due for replacement soon.

The report claims that the ships due for replacement have been in operation for about 20 years and represent 13 percent of 20-foot-equivalent-unit capacity in service at the beginning of this year. The average age of ships operated by the 15 top shipping lines ranged from 6.7 years for Kawasaki Kisen Kaisha of Japan, to 14.7 years for P&O Con-

tainers Ltd.

The majority of teu capacity is still registered in industrialized countries belonging to the Organization for Economic Cooperation and Development (OECD), despite the growing trend toward flagging out. However, OECD countries' share of container capacity reportedly fell from 47.1 percent in 1989 to 42.2 percent in 1993.

Panama has reportedly the largest share of registrants, with 11 percent of the container fleet capacity, followed by the U.S. with 10.2 percent and Germany with 9.2 percent.

## Zetec Offers Eddy Current Training Materials

Zetec, Inc., a leader in non-destructive testing instruments, applications and training, has made it easier for non-destructive testing (NDT) professionals to learn about eddy current. The company will distribute its new eddy current training videotapes and manuals through the publications catalog of the American Society for Non-Destructive Testing (ASNT), according to **Jim Cox**, Zetec's training center

supervisor. The set of four videotapes - "Principles of Eddy Current Testing," "Test Coil Arrangements," "Test Coil Design" and "The Effects of Test Object on Test Coil" - cover eddy current theory and principles and were recently revised to include more product demonstrations and descriptive, new computer graphics. ASNT sells the complete program, which includes the four videotapes and an industry specific study guide (either tubing or aircraft). The materials can be used to support existing training programs or to serve as a refresher course for more experienced technicians.

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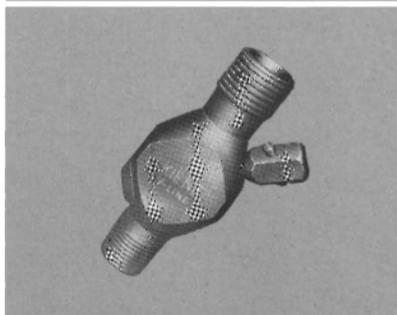
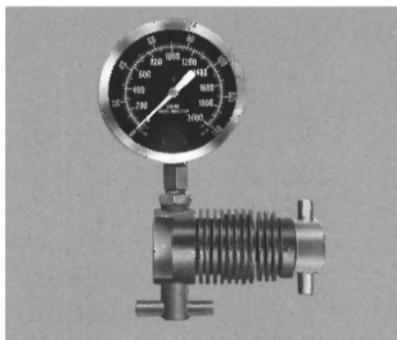
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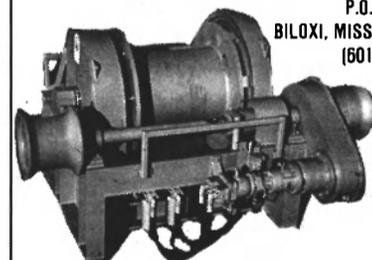
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## MAN B&W Announces APL Ships Order; Introduces S35MC Model

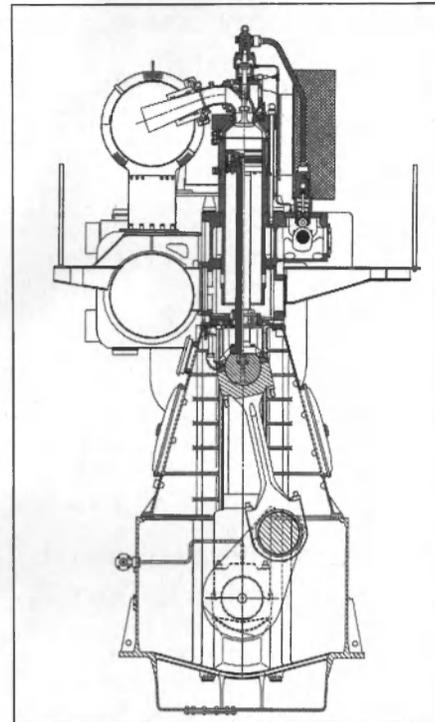
MAN B&W, a leader in maritime propulsion, has announced that three 4,800-teu post-Panamax ships booked by American President Lines (APL) from the HDW yard in Germany will each be powered by one of

MAN B&W's 11-cylinder K90MC-C engines. The 900mm bore/2,300 mm stroke engines, which have a maximum output of 48,840 kW (66,385 bhp) at 104 rpm, will be built in South Korea by Hyundai's Engine & Machinery Division and delivered to the yard during 1994 and 1995.

The customers for K90MC and K90MC-C engines include A.P. Moller, the East Asiatic Company, Hyundai Merchant Marine, NYK,

Mitsui OSK, Hapag-Lloyd, Neptune Orient Lines and the Malaysian International Shipping Corporation.

The design is tailored to large containerships requiring service speeds of 25 knots or more. The comparatively short stroke and light weight of the engine promotes a more compact machinery room and hence optimized box capacity in ships of Panamax or post-Panamax dimensions. Outputs up to 51,830 kW



Cross section of the MAN B & W S35MC Engine.

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(70,440 bhp) are offered by the K90MC and K90MC-C series, ensuring ample reserves of power for contemporary containership projects. MAN B&W also announced the addition of the S35MC long-stroke low speed 350mm bore model to its MC program, designed to deliver even higher propulsion plant efficiency for small- to medium-sized ships. The 1,400mm stroke of the S35MC yields a stroke/bore ratio of 4:1 and a nominal speed of 170 rpm. The layout flexibility enables operators to select maximum continuous speeds between 170 rpm and 145 rpm for optimum propeller efficiency. An output of 700 kW (950 bhp) per cylinder is delivered at 170 rpm. The S35MC series embraces four- to 12-cylinder models covering an output band from 1,900- to 8,400-kW (2,580 to 11,420 bhp), to propel a wide range of ship types economically. A specific fuel consumption of 129g/bhph 175 g/kWh) contributes to lower running costs.

The S35MC design is based on the successful 350mm bore/1,055 mm stroke L35MC, with the same very short length as the L-type, about 900mm higher and only slightly heavier. The S35MC engine joins the MC two-stroke program, which embraces low speed designs with bore sizes from 260mm to 900mm, and outputs ranging beyond 51,470 kW (70,000 bhp).

## USCG Shipyard In Maryland Receives Top Quality Award

The Commandant of the U.S. Coast Guard (USCG) recently announced his selection of the USCG Yard in Curtis Bay, Maryland, as the recipient of the First Annual Commandant's Quality Award. The Yard placed first among 15 other USCG nominees throughout the U.S. The Service's nearly century-old shipyard's winning evaluation was based on quality success stories and unique achievement attained through quality management.

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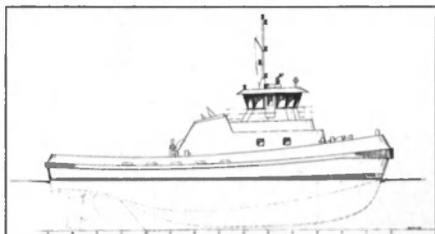


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Outboard profile drawing of an 85-foot ship assist tractor tug now being built by Tri-Star Marine.

## Coos Bay Towboat Company Gives Tri-Star Ship Assist Tug Contract

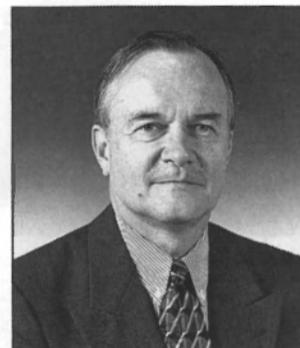
Coos Bay Towboat Company of Oregon has awarded a contract to Tri-Star Marine of Seattle for the construction of a new ship-assist tug.

The 85-foot steel vessel, which will feature twin Ulstein 1650-H Z-drive units, is scheduled for delivery

in April of 1994.

Designed by Tri-Star with engineering provided by Jensen Maritime of Seattle, the new tug reportedly will be similar to the Stellar Wind, which is an 85-foot vessel which was delivered earlier this year to Cook Inlet Tug & Barge of Alaska. Propulsion for the Coos Bay boat will come from a pair of Caterpillar 3516 diesels, providing 4,000 total hp and an expected speed of about 13 knots.

## ZF Industries Names Dostal New President



Ronald Dostal

**Ronald Dostal** was named president and chief operating officer of ZF Industries, Inc., effective August 1. Mr. Dostal had been employed by the Allison Transmission Division of General Motors Corporation as general director of operations for Europe, the Middle East, and South Africa. A U.S. Navy veteran, Mr. Dostal earned a BS degree in aeronautical engineering from Iowa State University, and then an MBA from Indiana University.

Mr. Dostal succeeds **Reinhold M. Tischler**, who held the position in an acting capacity, and who will remain a member of the company's board of directors.

ZF Industries is a division of ZF Friedrichshafen AG of Germany. Like its parent company, ZF Industries manufactures transmissions, axles, steering gears, parking brakes and other parts for automobiles, construction and agricultural equipment, marine vessels and aircraft.



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## Hovercraft Used In Canadian Gold Mine Construction

Cominco, the mining company, used a hovercraft in the construction of its Snip mine in Canada. The same craft is now in constant use freighting supplies into the area and gold ore concentrate out. The Snip gold mine and mill lies in the Iskut River Valley a very difficult terrain.. N.Q.E.A. of Cairns, Australia supplied the craft, which is a modification of a standard passenger AP1-88. The center section of the cabin was removed, a cargo deck fitted and the underfloor and side structures strengthened. Some changes were made for cold weather operation.

During the development phase, the hovercraft carried construction materials and machinery, including small bulldozers. The heaviest load was a 26,000 lb. genset. Now, the AP1-88 is used to carry fuel and heavy freight into Snip. On the return journey, the craft carries gold ore concentrate downriver. The craft is loaded and unloaded by crane at both ends of the journey. In the warmer months of the year, the craft can maintain a block speed of 45 knots along the Stikene. In winter, drag over the smooth ice falls to near zero, resulting in very high speeds, though ice ridges have to be taken more slowly. The winding Iskut limits speed to around 20 knots.

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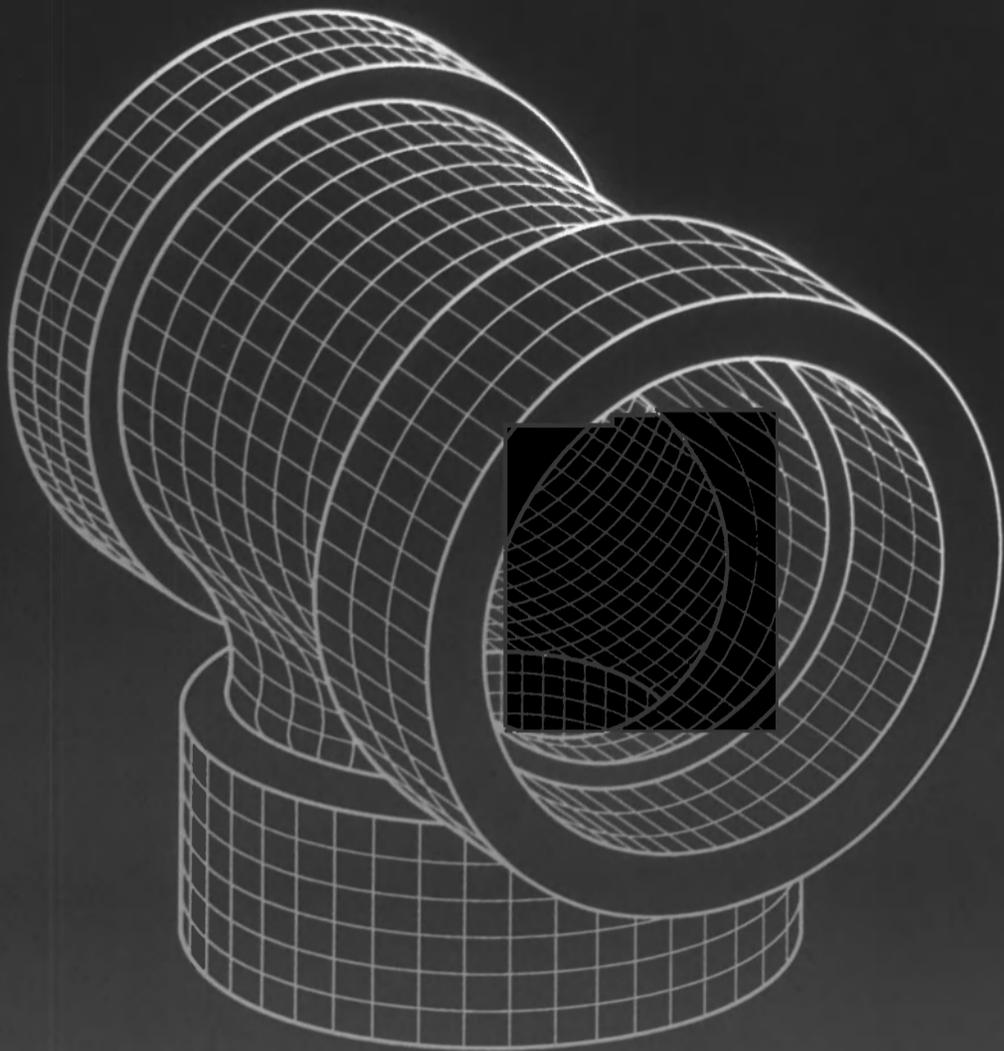
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## Officers Elected For National Association of Maritime Officers

The National Association of Maritime Officers (NAMO) elected new officers at its annual spring meeting in Norfolk, Virginia.

**James S. Provo**, senior vice president of T. Parker Host, Inc. of Norfolk, is NAMO's new president. He replaces **Channing F. Hayden, Jr.**, vice president of the New Orleans Steamship Association, who was instrumental in NAMO's creation.

Serving as vice presidents are **Robert T. Bohlman**, senior vice president with Norton Lilly International in Seattle; **Nicholas D. Manzi**, executive vice president of Rice, Unruh Reynolds Co. in Philadelphia; **Vera Paktor**, president of Communicore, Inc. in Chicago; and **Ted Thorjussen**, president of the Western Gulf Maritime Association in Houston. **J.J. Keever**, executive vice president of Hampton Roads Maritime Association, was elected secretary/treasurer.

NAMO, which is based in Norfolk, is comprised of steamship agencies, maritime exchanges, and other maritime organizations, and was created to give those engaged in international maritime activity a vehicle for expression of their views on national policy affecting waterborne commerce. NAMO has had a significant impact on maritime user fees.

## National Response Corp. Launches First Training Course

National Response Corp. (NRC), a national oil spill contractor, has announced its first oil response training course to instruct contractors and spill response personnel in modern oil spill control equipment.

The NRC program seeks to provide executives and supervisors the training to manage and guide their personnel when handling equipment used in an oil spill response situation using instructors from NRC equipment manufacturers. Seventy senior executives and supervisors from 30 independent contractors on the U.S. East and Gulf coasts, Puerto Rico, and the Inland River System attended the first course.

NRC has established an Independent Contractor Network (ICN) to coordinate and fully utilize existing resources. Network participants have been organized into small, local groups to ensure close field coordination in spill response efforts.

NRC President **Mark Miller** reportedly said NRC will follow up the course with continual on-site training.

NRC was formed in response to the requirement of the Oil Pollution

Act of 1990 and various state oil spill laws to improve oil spill response resources.

## Goodway Tools Introduces The One-Man RAM-4 Model

Goodway Tools Corporation says its new Ream-A-Matic Model RAM-

4 makes tube cleaning a simple, one-person operation.

The unit incorporates a brush or other cleaning tool which is rotated through the tube at the tip of a flexible shaft. As the shaft rotates inside its watertight nylon casing, the unit feeds water through the casing to the cleaning head.

While the operator feeds the rotating shaft assembly through the tube, the water flow carries loos-

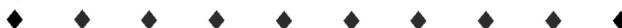
ened deposits into the far header where they are drained off. A solenoid valve automatically activates the water flow only when the machine is running. Shafts and accessories are available for cleaning tubes/pipes 1/4" - 1" I.D.

Typical applications of the Ream-A-Matic RAM-4 include cleaning heat exchangers, condensers, evaporators, absorption machines and chillers.

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## COMSAT First To Receive Approval To Provide Inmarsat-B Service

COMSAT Mobil Communications of Clarksburg, Md. announced that its land earth stations (LES) in Southbury, Conn., and Santa Paula, Calif. are the first in the Inmarsat system to receive approval to provide a new digital service, Inmarsat-B.

COMSAT's Inmarsat-B service initially will provide high-quality voice service at 16 kbps, with fax and data speeds up to 16 kbps to be added by late 1993.

An optional 56- and 64-kbps service is planned for the future.

"Inmarsat-B will be the new standard for high-quality and large volume communications in the maritime and land mobile markets," said **Ronald J. Mario**, president of COMSAT Mobile Communications. "With the full implementation of a digital system, we will be phasing out Inmarsat-A.

However, we will support

Inmarsat-A users for at least 10 years after the introduction of global Inmarsat-B service."

The initial price for COMSAT's Inmarsat-B service has been set at \$6.95 per minute, 30 percent less than base Inmarsat-A prices. For large dish (2.2-meter) antennas with multi-channel capabilities, the rate is \$3.95 per minute.

The Southbury and Santa Paula LES's provide coverage in the Atlantic and Pacific Ocean Regions respectively. Indian Ocean Region coverage is planned for 1994.

## A.W. Chesterton's Diversity Translates Into Longevity

Established in 1884 under the leadership of **Arthur W. Chesterton**, grandfather of the present CEO, the A.W. Chesterton Co. of Stoneham, Mass. is a manufacturer of sealing devices for industry, pumps and pump parts, paints and coatings. Chesterton's sales and

marketing extends through direct operations and a distributor network to reach more than 90 countries around the world. Manufacturing and support facilities operate in three U.S. communities plus Canada, Mexico, Ireland, the Netherlands and Grand Cayman.

Chesterton offers a wide diversity of products, including sealing devices and systems, centrifugal pump packings, live-loading valve sealing, technical products, and pump and pump seal interactivity.

## Hose-McCann Completes Move To New Corporate HQ

Hose-McCann Telephone Co., Inc. has completed its move to a new, larger, state-of-the-art manufacturing facility and corporate headquarters in Deerfield Beach, Fla.

The pioneer in sound-powered telephones is fully-operational and is now supplying thousands of clients worldwide with its full-array of marine products, ranging from sound-powered telephones and general alarm signaling and distribution units to a complete line of U.S. Navy electrical and mechanical equipment.

The new address and phone number is: Hose-McCann Telephone Co., Inc., 1241 W. Newport Center Dr., Deerfield Beach, Fla. 33442; tel: (305) 429-1110; fax: (305) 429-1130.

## Ship's Aid Intl. Appoints New South American Rep

**Tony Minkoff**, president and general manager of Ship's Aid International Ltd., announced that Reproship Ltd., based in Niterio, Rio de Janeiro, Brazil, is the company's exclusive representatives in South America.

**Marcelo Monico**, executive director of Reproship Ltd., will offer his extensive marine experience and training in new construction and ship repair procedures to owners, agents or repair facilities.

## Marine Travelift Wins Contract In Singapore

Marine Travelift of Sturgeon Bay, Wis. has contracted to build a 500-ton capacity Model 500 BFM mobile boat hoist for Siong Huat Shipyard (Pty) Ltd., in Singapore. Siong Huat, a Singapore company, is constructing a new shipyard to build and service commercial vessels including tug boats, offshore supply boats, work barges and some pleasure craft.

The Model 500 BFM is designed to handle the full compliment of vessels planned to be handled in this yard, and will launch and transport these vessels within the shipyard at reportedly five to 10 times faster than any other ship lifting system.

## Pan-United Delivers Integrated Tug Barge

Pan-United Shipyard Pte. Ltd. of Singapore recently delivered an integrated tug barge (ITB). The yard delivered the 8,000-dwt cement barge Burau I and the pusher tug Burau II to its owner Juta Integrasi of Malaysia.

The ITB is powered by a pair of Yanmar 6NZ80-UN main engines, providing a service speed of eight knots. An advanced fluidization system, with a loading rate of 800 tons per hour, was supplied by H.W. Carlsen.

## Sonsub Norway Relocates, Continues Europe Expansion

As part of Sonsub's continued expansion in Europe, Sonsub Norway A/S has relocated to more spacious premises at the Dusavik Supply Base in Stavanger. The new facilities give Sonsub Norway immediate access to the deep water quay, allowing equipment and personnel to be mobilized quickly and cost-effectively.

Project management and engineering development work will be conducted from highly computerized office facilities, while a 1,312-square-foot workshop adjacent to the office building will provide convenient on-site maintenance, refits, and vehicle mobilization. Sonsub will also enjoy access to a further 11,482 square feet of yard area.

Sonsub Norway was established in 1992 to provide diverless intervention equipment, personnel and technology to support exploration, drilling, construction, inspection, repair and maintenance in the North Sea.

Sonsub is a leader in the development and operation of remotely controlled underwater vehicles and specialized tooling systems, and owns and operates a variety of ROV systems including Discovery, Challenger and Triton AROWS, Flexjet II, Viper and Recon IV-S ROVs. The company maintains offices in the U.S., the U.K., Norway, Australia, and Southeast Asia.

## Destroyer USS Slater Departs Greece For NYC

The Houston-based towing contractor, World Marine Transport & Salvage, Inc., has signed a contract with the Destroyer Escort Historical Foundation to tow the 49-year-old Destroyer Escort vessel USS Slater from Crete, Greece to New York City.

Tug and tow departed Crete on August 1, 1993. Arrival and docking alongside the aircraft carrier Intrepid was scheduled for August 24.

In the near future the vessel will be restored to its World War II condition and opened as a museum to the public.

Maritime Reporter/Engineering News

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## Bay & Delta Adds Tractor Tugs



Bay & Delta Tugboats' new tractor tugboats "Delta Billie" and "Delta Deanna."

Bay & Delta Tugboats announced the addition of two revolutionary tractor tugboats to its existing fleet of Harbor Tugs, a fleet which currently services the greater San Francisco Bay Area and its tributaries.

This acquisition will secure Bay & Delta as the foremost environmentally concerned tugboat company in Northern California for tanker escort work, according to the company.

The unique tractor tugboats, named the Delta Billie and the Delta Deanna, were built in Tampa, Fla. Both the Delta Billie and the Delta Deanna are approximately 93 feet long, and each have a beam of 38 feet.

Propulsion is supplied by two Burmeister & Wain engines which generate a bollard pull of approximately 100,000 lbs.

The 197-gt Delta Billie and Delta Deanna distance themselves from conventional tugboats by offering a 360-degree omni-directional thrust propulsion, having the ability to maneuver ahead, astern or sideways equally. These tugs can also tow or push in any direction relative to the assisted vessel, and can travel tethered to an assisted vessel at higher rates of speed than conventional tugs. The tractor tugs are reportedly extremely stable for ocean and bay work and

can turn 360 degrees in their own length.

Existing legislation states that the "best achievable technology be needed for the protection of the bay and its tributaries." Bay & Delta's acquisition of two tractor tugboats meets the spirit of this legislation by reportedly being the first to offer this "state-of-the-art technology" to ensure safety in the bay and protect marine life.

Currently, environmentalists and others are lobbying the state Office of Oil Spill Prevention and Response for new maritime regulations which will require tractor tugs as escort vessels for oil tankers carrying more than 5,000 tons of oil.

Bay & Delta Tugboats, founded in 1982, is reportedly the only escort tugboat service on the Bay that is actually owned and operated by former San Francisco ship pilots. Captains **Jack Going**, **Ron Charlesworth** and **Steve Ware** have a cumulative maritime experience of more than 90 years.

## Construction Of Two Techno-Superliner Prototypes Begins



A rendition of the TSL-F.

According to the Japan Ship Exporters Association, the Technological Research Association of Techno-Superliner recently began construc-

tion of two Techno-Superliner prototypes to evaluate R&D results.

The Techno-Superliner R&D project was begun by the association in 1989, aiming at development of high-speed sea transport at about 50 knots.

The association will complete the TSL-F type and TSL-A type prototypes in March and June 1994, respectively, for experiments at sea. The former is a multi-support ship type using hydrofoils; the latter is a multi-support type using air pressure (air cushion).

The TSL-F R&D has been promoted by the joint efforts of Kawasaki Heavy Industries, Ltd. (KHI), Ishikawajima-Harima Heavy Industries Co., Ltd., NKK Corp., Hitachi Zosen Corp. and Sumitomo Heavy Industries, Ltd. Construction is now underway at KHI Kobe Works.

The TSL-A R&D has been conducted jointly by Mitsubishi Heavy Industries Ltd. (MHI) and Mitsui Engineering and Shipbuilding Co., Ltd. (MES). The fore section of the TSL-A is now being built by MES, and the aft section by MHI.

### Principle particulars of the prototypes are:

#### TSL-F:

Length, o.a.: ..... 56 feet

Breadth, mid.: ..... 20 feet

Main engine: ..... Gas turbine

Propulsion system: ..... Waterjet pump

#### TSL-A:

Length, o.a.: ..... 230 feet

Breadth, mid.: ..... 62 feet

Main engine: ..... Gas turbine

Propulsion system: ..... Waterjet pumps

## IMPORTANT EPIRB SERVICE BULLETIN

Internal changes of the knifeblade holder of the hydrostatic release mechanism manufactured by C.M. Hammar Handels AB (HAMMAR) for the ACR Electronics, Inc. (ACR) RLB-23 Category I, 406 MHz EPIRB has affected the ability of the hydrostatic release to cut the ACR retaining rod. This cutting action enables the unit to be automatically released from the case when it is submerged.

ACR was only recently made aware of the design changes. ACR will issue a modified rod replacement kit to anyone who purchased the model RLB-23 Category I, 406 MHz EPIRB or a hydrostatic release and/or rod kit for the RLB-23, subsequent to August 31, 1992 when the design changes were implemented. Kits will be sent to any users who have registered their units with the National Oceanic and Atmospheric Administration, and to distributors who were shipped RLB-23 Category I, 406 MHz EPIRBs or hydrostatic release/rod kits after August 31, 1992. Detailed, easy-installation instructions are included with each kit.

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## Bisso Wins Two Contracts; Assists Titan With 220-Ton Loading Conveyor

Bisso Marine of New Orleans, La. has been awarded the contract by Exxon Company to set three bridges and one deck for the Mobile Bay Project. The 600-ton D/B Lili Bisso will be used for the work.



A Bisso Marine derrick repositions a 220-ton ship loading conveyor on its pivotal foundation.

Bisso has also been contracted by Flash Gas & Oil Southwest, Inc. to remove two well caissons and one platform in Galveston Block 310-L. For this job, the 700-ton D/B Cappy Bisso will be used.

The Cappy Bisso was also used recently to assist Titan Maritime Industries, Inc. in Ocean Cay, Bahamas, lifting a 220-ton ship loading conveyor back onto its pivotal foundation.

The derrick was towed to the Ba-

hamas by the 110-foot tug Darlene Bisso.

## Prepares For MTS '93 Marine Technology Society

MTS'93 Conference & Exposition Technology Requirements in the Nineties, Sept. 22-24, is an international business forum and exposition designed to strengthen dialogue between industry and the federal government regarding available technology and existing procurements. For more information call MTS at (800) 336-4583.

## Bardex Skidding System To Be Used In Wheeled Bogie Transfers

Bardex Corporation of Goleta, California has been selected by General Dynamics, Electric Boat Division to provide a hydraulic skidding system to transfer wheeled bogies operating on 105 lb. crane rail within a test facility at the Aberdeen Proving Grounds. The wheeled bogies will be used to transfer a large vehicle containing components to be shock-tested from a barge to a marine railway that lowers the components into a test pond. The Bardex system will consist of four 25-ton push-pull capacity rail gripper-jack assemblies, a hydraulic power unit equipped with a hydraulic oil heat exchanger, a 3,000-psi piston pump and an air cooled 112-hp diesel engine, plus a control console for control of the gripper-jack assemblies and hydraulic lift cylinders.

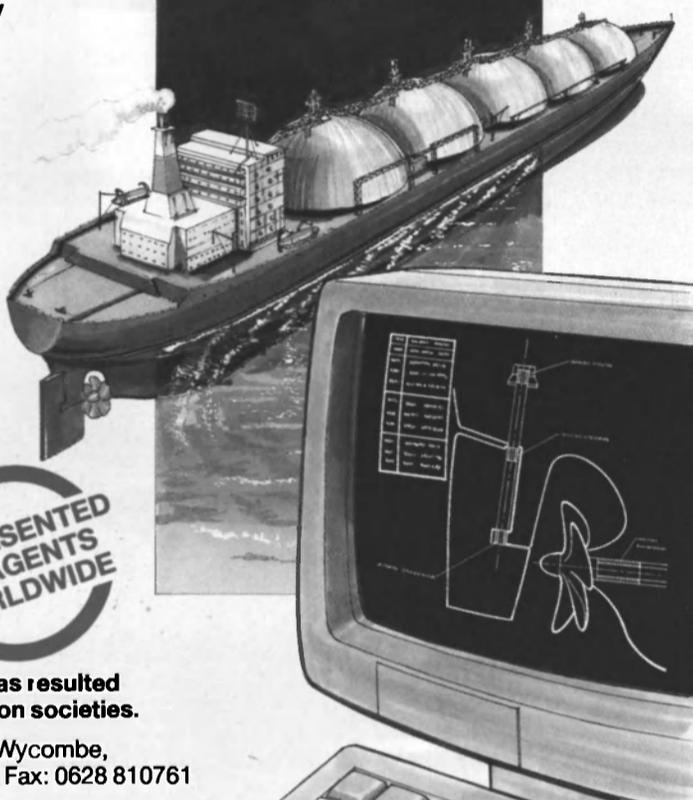
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## HMS Marine Becomes Dealer For NT Falcon Co.

HMS Marine Hardware, Inc., maker of ships habitability hardware products and smoke-containment curtains, has been appointed authorized dealer for NT Falcon Co.

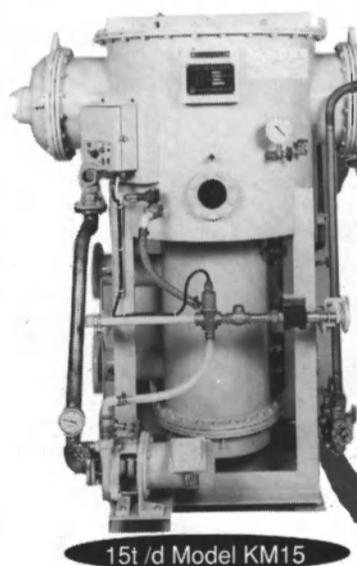
NT Falcon manufactures a full line of door locking devices, including all-stainless steel joiner door locksets (designated X-series), fully certified to U.S. Navy and U.S. Coast Guard specifications of heavy duty marine-grade locksets.

HMS Marine will carry a full line of the all-stainless steel locksets in stock for immediate delivery of the most popular lock functions.

## Bandera Wins Zaafarana Contract For Oil Platform In Gulf Of Suez

Bandera Engineering Inc., of Houston, Texas, was awarded a turn-key contract by Zaafarana Oil Company of Cairo, Egypt, to design, construct, transport and install a four-pile well protector/production platform in the Gulf of Suez. The platform will have at least one helideck as well as boat landings, and will be constructed in 189 feet of water.

Maritime Reporter/Engineering News



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# ASNE 1993 Fleet Maintenance Symposium

The 1993 Fleet Maintenance Symposium, jointly sponsored by the Commander in Chief, the U.S. Pacific Fleet and the American Society of Naval Engineers (ASNE), is scheduled for October 19-21, 1993 at the Town & Country Hotel and Convention Center in San Diego.

The seminar will focus on fleet maintenance strategies supporting "From the Sea." The U.S. Navy has engineered a new strategy, called littoral strategy, which concentrates on how to structure fighting forces around the sea. Capt. **Thomas Kelley**, USN, will give the welcome and administrative remarks at 8:00 a.m. on Tuesday, October 19, to be followed by the kickoff by Adm. **Robert J. Kelly**, USN. For more information, contact ASNE: 1452 Duke Street, Alexandria, Va. 22314-3458. Tel: (703) 836-6727.

## Schedule of Events:

### Tuesday, October 19:

8:00 a.m.

Welcome and administrative remarks, Capt. **Thomas Kelley**, USN

8:15 a.m.

Kickoff, Adm. **R. J. Kelly**, USN

9:00 a.m.

#### Session 1A - AEGIS Engineering/Support:

- AEGIS Maintenance Philosophy - Engineered Approach to Maintenance. **D. Herman**, GE

- Downsizing the Availability Planning Process - A Break with Tradition. **G. Sturtevant**, PMS 400; **J. Bianco/R. Davies**, PRC

- AEGIS Maintenance Monitoring. **D. Collins**, NSWC Carderock; **P. Steward**, PRC

- AEGIS Maintenance 2000. **R. Benavidez**, GE

#### Session 1B - Maintenance Strategies:

- Incremental Maintenance for USS Nimitz Class Aircraft Carriers. Capt. **J.T. Mansvel**, PMS 312; **J. Knight**, PERA (CV)

- Modularity and Standardization Impacts on Warship Maintenance. Cdr. **M. Bosworth**, SEA 05R

- The Maintenance Requirements System Risk-based Resource Programming at Work. **K. Jacobs**, SEA 915; **G. Soderstrom**, AMS

- Shipboard Maintenance: A "Re-tooling" Process. **A. Cieri** and **A. DiGiovanni**

11:30 a.m.

Lunch. Keynote Speaker, The Honorable **John Dalton**, Secretary of the Navy

1:30 p.m.

#### Session 1C - AEGIS Engineering Support:

- AEGIS Weapon System, R, M & A Program. **R. MacBride**, GE

- Maintainability Planning - AE-

GIS Engineering Development Model 4B. **J. Sessommas**, GE

- AEGIS Weapon System - Operational Readiness Test System (ORTS) Upgrade Program. **J. Barger**, GE

- Acquisition Engineering for AWS Microwave Tubes - Tube Improvement Program. **W. Kaiser**, NSWC Crane Division

#### Session 1D - Maintenance Management:

- Navy Vendor Motivation Program. **Capt. R. Couchot**, USNR, NAVSEA VPM Det 319

- Intermediate Maintenance Activities Interoperability. **J.E. Beebe**

- The Power of Tags and Tagout (Will Anyone Listen?). Cdr. **B. Martinez**

- (Potential pitch by **Capt. Wheeler** on "X-MRMS")

### Wednesday, October 20:

8:00 a.m.

#### Session 2A - Mechanical Maintenance

- Effects of Air System Operations and Integrity on Performance and Reliability of High Pressure Air Compressors. **J.J. Craighead**

- Reduced Maintenance Duplex Strainer for CG-47 Class Ships. **R. Erskine**, Ingalls and **A. Kuntz**, Cleveland Gear

- Engineered Approach to Valve Sealing Systems. **J. Webb**, **A.W. Chesterton**

- Shipboard Oil/Water Separator System (OWS). **H.M. Gallardo**

#### Session 2B - Maintenance Determination

- Ship Systems Test and Trials/Maintenance Training Program. **T. Shaner**

- Automated Diesel Engine Trend Analysis - An Example of Implementing a Maintenance Program Fleetwide. **R. Caccese**; **J. Fortune**, George G. Sharp, Inc.; **R. Conway**

- Main Propulsion Shaft Alignment Assessments Using Strain Gauge Technology. **M. Bouve**; **R. DeJesus**; **G. Hull**

- Micro Calibration and Scheduling Management (MICRO-CSM). **Lcdr. P. Sumner**

11:30 a.m.

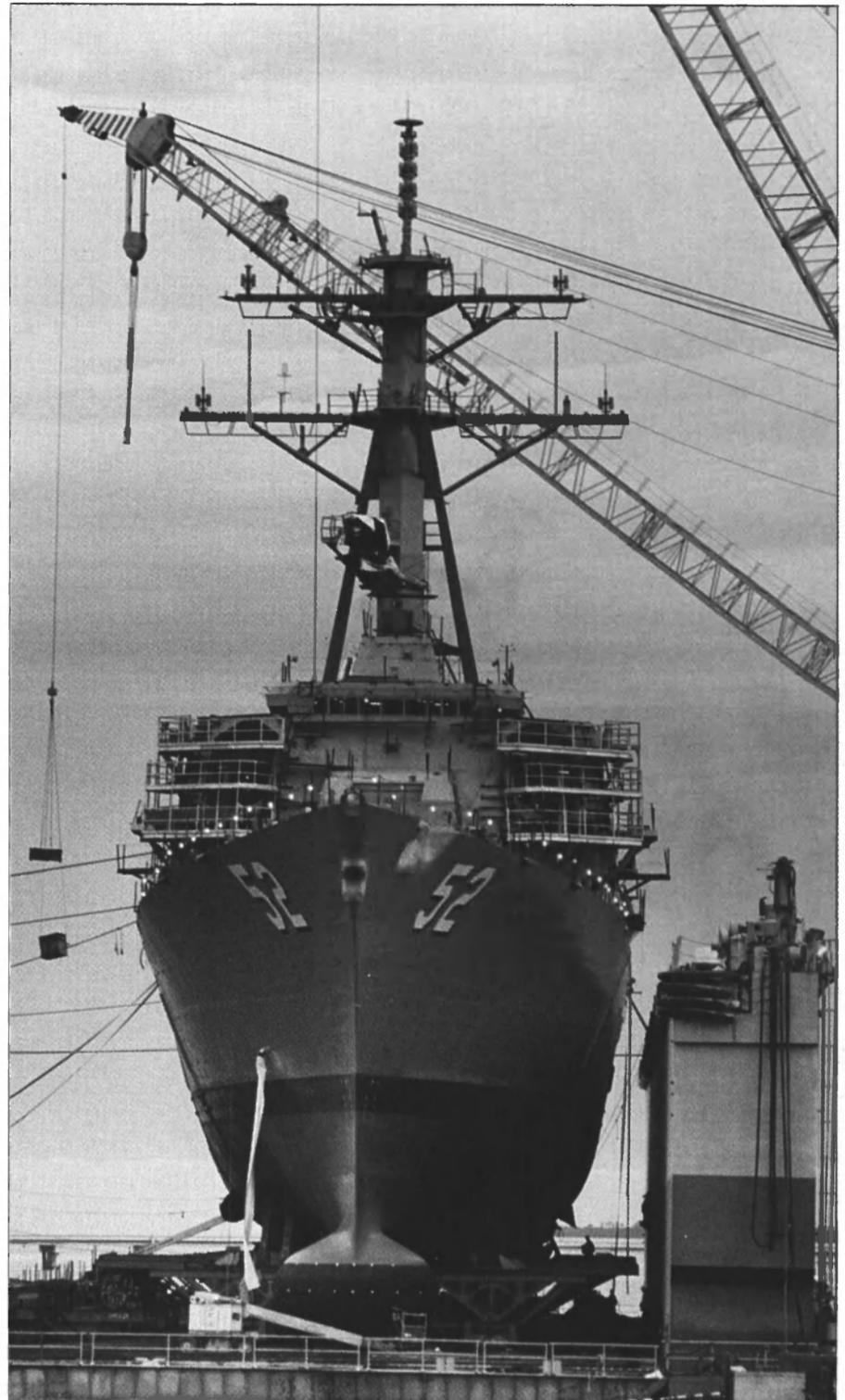
- Lunch. Keynote Speaker, Mr. **Richard H. Vortmann**, Chairman, Shipbuilding Council of America.

1:30 p.m.

#### Session 2C - Electrical Maintenance:

- Power Quality Analysis of NATO Sea Sparrow Missile Systems Aboard CV-64 and CVN-70. **W. Walden**, George G. Sharp, Inc.; **G. Durrant**

- The Effect of Changes in Environ-



mental Regulations on the Availability, Performance and Disposal of Batteries Used in Naval Systems/ A Review of the Use of Lithium Batteries in the Navy with a Focus on the Navy's Safety Policy. Dr. **J. Barnes**, Electro-Chem Branch, NSWC Dahlgren

- Static Frequency Changers (SFC) Versus Motor-Generator (MG) for 400HZ Distribution Systems. **Kirk, Martin and E. Morris**

- (Tentative Paper for "The Naval Reserve Engineering Duty Program: Fleet Maintenance Multiplier During Crises Response." Cdr. **E.M. Golda**, USNR

#### Session 2D - Corrosion Control/Prevention

- A Practical Data Base for Aircraft

Carrier Tank and Void Maintenance Planning. **R. G. Wheeler**, PERA

- Prevention of Premature Non-skid Failures. **T. Stack**, NSWC CD

- U.S. Navy Coating Systems, An Update. **G. Bossie**, SUPSHIP San Diego

- The AEGIS Combat System Corrosion Prevention and Control Program: A "Full Spectrum" Response to a Fleet Need. Dr. **J. Barnes**, NSWC Dahlgren

**Session 2E - Fleet HM&E Issues** Kickoff by Maintenance Officer **Radm. M.T. Coyle**, USN

**Thursday, October 21:**

8:00 a.m.

**Session 3A - Fleet HM&E Issues** Keynote by Maintenance Officer **Radm. A. Clark**, USN

## Norshipco Announces Agency Appointment

Norfolk Shipbuilding & Drydock Corp. (Norshipco) has announced the appointment of Penn International Marine Agencies, Ltd., as an addition to its commercial sales and marketing division.

"This appointment will enable Norshipco to expand its present commercial activities," said **John L.**

**Roper III**, president and CEO of Norshipco. "Mr. **Louis Gomlick**, a well-known member of the maritime community, brings to us a wide range of knowledge and experience."

## Superior Boat Works Plans Reorganization

Superior Boat Works, Inc., a ma-

rine construction and repair facility located in the Greenville Harbor Industrial Park, announced that it has filed a voluntary petition for reorganization under Chapter 11 of the Federal Bankruptcy Codes in the U.S. Bankruptcy Court for the Northern District of Mississippi, Greenville Division.

Superior stated that its filing was a direct result of not being fully paid for the construction of the Lady Luck I, a gaming boat presently docked in Natchez, Mississippi. The sched-

ules filed together with its Chapter 11 petition reflected a claim against the owners and the vessel Lady Luck I in the amount of \$3.5 million, which exceeds the amount Superior owes creditors.

Superior will be filing a lawsuit for monies due for the construction of the Lady Luck I which it contends the owners of the Lady Luck I failed to pay.

Under Chapter 11, a company continues to operate under court protection from creditors while seeking to work out a plan of reorganization to repay its creditors.

## California Firm Wins Queen Mary Repair Engineering Contract

The City of Long Beach has awarded a contract for engineering services to Giannotti Marine Services, Inc. (GMS) of Ventura, Calif. to repair the RMS Queen Mary, a project to be managed by PK Marine of Camarillo, Calif., under subcontract to GMS.

A thorough ship check and engineering analysis will be performed to identify repairs, limiting repair recommendations to those necessary in the next five years.

Upon review of the city's recommendations, solicitation for repair bids will begin. The GMS/PKM team will prepare bid packages, provide technical support throughout the bidding period, review bids, and provide inspection services during the execution of repair work.

Control of the RMS Queen Mary was recently transferred from the Port of Long Beach back to the city, in an agreement which included an allowance for necessary repairs. The ship was officially reopened as an attraction and hotel on June 23.

## Ship Scrapping Proposal Introduced

A proposal has been introduced by Rep. **Curt Weldon** (R-Pa.) for the authorization of \$15 million for a program called "Ship To Share" to scrap retired naval vessels in U.S. yards. The program has reportedly been endorsed by **Helen Bentley** (R-Md.), who reportedly hopes the program will create work for, among others, Bethlehem Steel's Sparrows Point Shipyard.

## J. Gilbert & Assoc. Provides Damage, Intact Stability Calculations For Steiner Boat

In an August advertisement, John Gilbert & Associates was incorrectly identified as the designer of a Steiner Shipyard vessel. Damage and intact stability calculations were provided by John W. Gilbert & Assoc. Actual design and arrangements were designed by Steiner Shipyards.

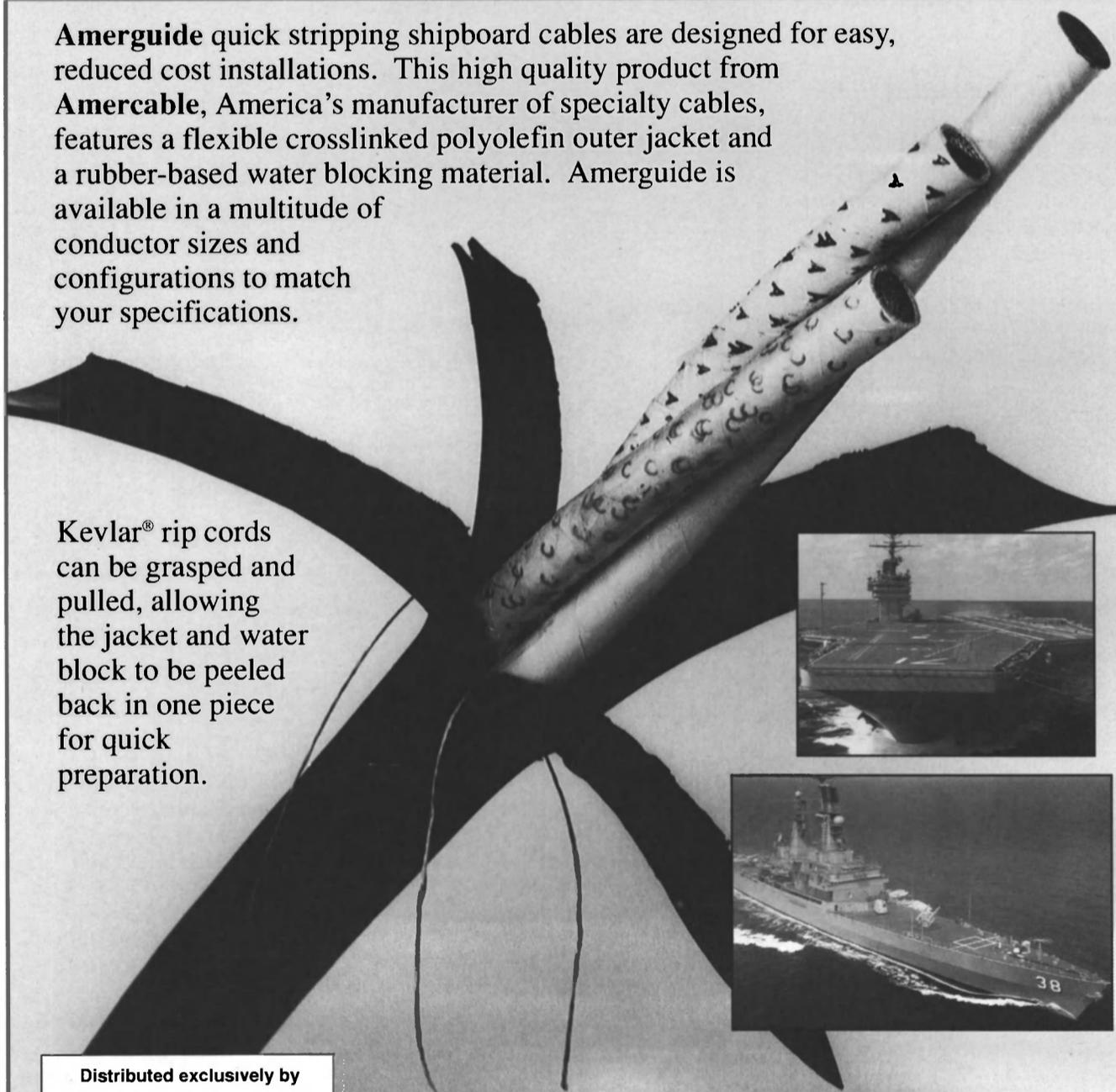
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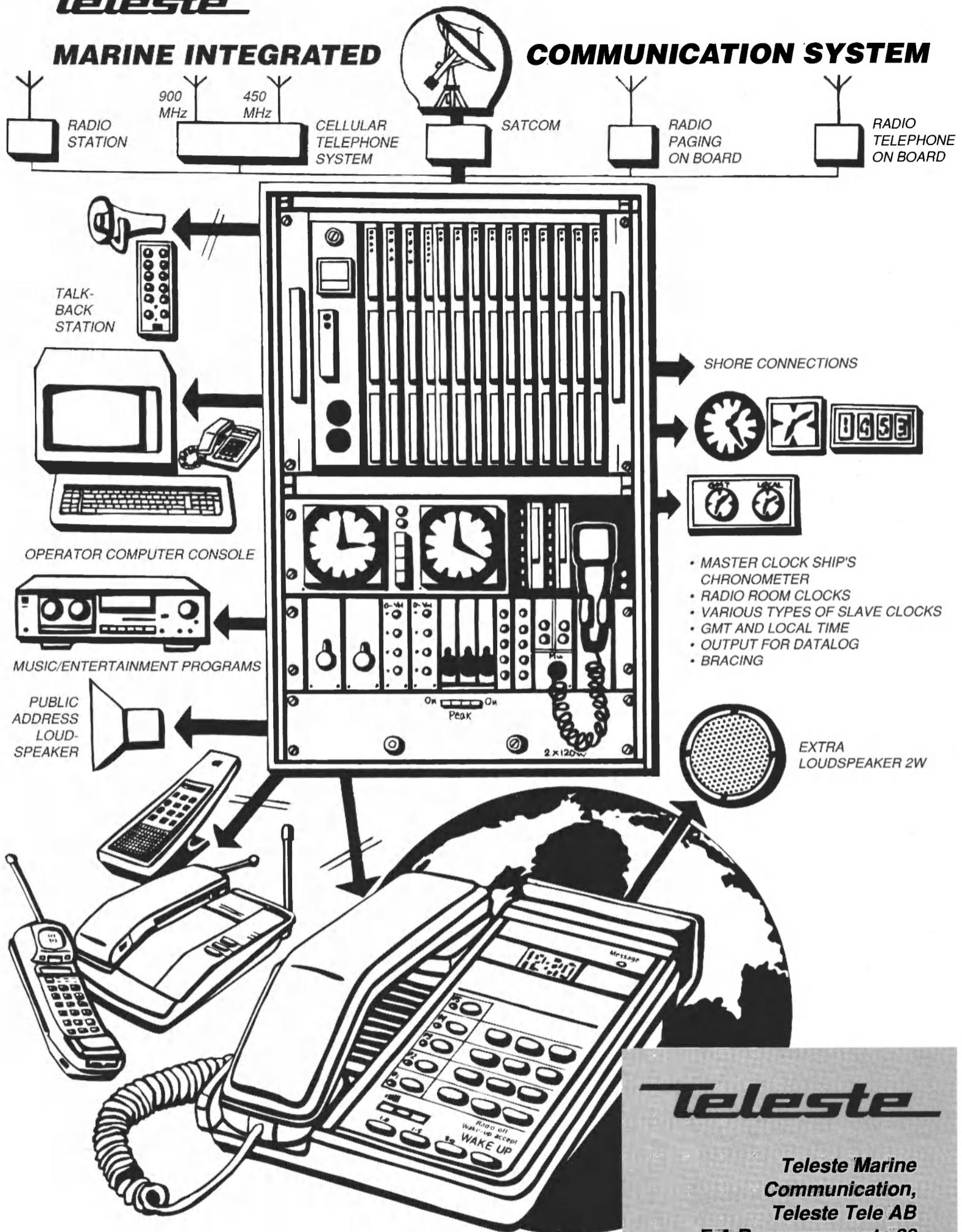
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# BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

## ABRASIVES

Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219  
Ervin Industries, Inc., 3893 Research Park Drive, Ann Arbor, MI 48106-1668  
Stan-Blast Abrasives, 3300 River Rd., P.O. Box 968, Harvey, LA 70059

## ABSORBENT PRODUCTS

Haz-Maz Response Technologies, 5841 Box Canyon Rd., La Jolla, CA 92307  
Sorbent Products, 645 Howard Ave., Somerset, N.J. 08873

## AIR CONDITIONING AND REFRIGERATION—Repair & Installation

Adrick Marine, 141D Central Ave., Farmingdale, NY 11735  
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001  
Callenberg Engineering, 2010 North Miami Ave., FL 33127  
Carrier Transicold, P.O. Box 4805, Syracuse, NY 13221  
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031  
Stal Refrigeration AB, Butangsgatan 16, S-601 87 Norrköping, SWEDEN

## BALLAST

Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219  
Genstar Stone Products, Executive Plaza IV, Hunt Valley, MD 21031  
Mineral Research & Recovery Inc., P.O. Box 986, Sonoita, AZ 85637

## BARGE BUILDING

Conrad Industries, P.O. Box 790, Morgan City LA 70381  
Zidell Marine Corp., 3121 SW Moody Ave., Portland, OR 97201

## BARGE—Leasing

McDonough Marine Service, 2300 Surekote Road, New Orleans, LA 70117  
Zidell Marine Corp., 3121 SW Moody Ave., Portland OR 97201

## BASKET STRAINERS

Beard Industries, P.O. Box 31115, Shreveport, LA 71130

## BEARING—Rubber, Metallic, Non-Metallic

B.F. Goodrich, Engineered Polymer Products, 150 Division Dr., Wilmington, NC 28401  
Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY;  
U.S.A. Repts: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
In-Place Machining, 1929 N. Buffum St., Milwaukee, WI 53212  
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Orkot Engineering, 2535 Prairie Road-Unit D, Eugene, OR 97402  
Tenmat Inc., 511 Interchange Blvd, Newark, DE 19711  
Thordon Bearings Inc., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6

## BERYLCO SAFETY TOOLS

NGK Metals Corporation, P.O. Box 13367, Reading, PA 19612

## BOAT STORAGE

Miracle Steel, Waterford Tower, Ste. 500, 503 N. Hwy 169, Minneapolis, MN 55441

## BOILER—Manufacturers

Aalborg Ciser (Miami) Inc., 2449 Northeast 13th Avenue, Ft. Lauderdale, FL 33305

## BROKERS

151 Maritime Services, 34062 El Encanto/B, Dana Pt. CA 92629  
Captain Astad Company, Inc., P.O. Box 350486, Ft. Lauderdale, FL 33335  
Emerald Yacht & Ship Brokers, 759 N. Milwaukee St., # 552, Milwaukee, WI 53202  
Jack Faulkner, 2419 Caddy Lane, P.O. Box 371, Flossmoor IL 60422  
Mowbray's Tug & Barge Sales Corp., 35 De Hart St., Morristown NJ 07960

## BULKHEADSEALS

Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY  
U.S.A. Repts: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
John Crane Marine USA, 1536 Barclay Blvd., Buffalo Grove, IL 60089

## BUNKERING

Crowley Maritime, 155 Grand Ave., Oakland, CA 94612  
Zidell Marine Corp., 3121 SW Moody Ave., Portland OR 97201

## CELLULAR TELEPHONE SERVICE

Celinet Corp., 400 Main St., Ste. 800, Stamford, CT 06901-3004

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Crandall Dry Dock Engineers Inc./Marit Chain, 21 Pottery Lane, Dedham MA 02026  
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston TX 77020  
Washington Chain & Supply Inc., Box 3645, Seattle, WA 98124  
G.J. Wortelboer Jr. B.V., Postbus 5003, 3008 AA Rotterdam, NETHERLANDS

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Sales Agents: American United Marine Corp., 5 Broadway, Rt 1, Saugus, MA 01906,

## COMPOUNDS

ITW Philadelphia Resins, 130 Commerce Dr, Montgomeryville, PA 18936

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Autoship Systems Corp., #403, 611 Alexander St., Vancouver, BC, Canada V6A 1E1  
Coastdesign, Inc., Unit 201, 12837 76th Avenue, Surrey, BC CANADA V3W 2V3  
Intergraph Corporation, 2051 Mercator Drive, Reston, VA 22091-3413  
Kockums Computer Systems AB, PO Box 50555, s-202 15 Malmo, SWEDEN  
TIMSCO, P. O. Box 91360, Mobile AL 36691

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Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160  
Wright Austin Co., 3250 Franklin St., Detroit MI 48207

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American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906  
Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY  
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950  
IMO Industries, Gems Sensors Division, One Cowles Rd., Plainville CT 06062  
MMC International, 60 Inip Dr, Inwood NY 11696  
Marine Electric RPD, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135  
Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006  
Siemens Energy & Automation, Inc., Systems Div., Marine Systems No. America (A23N), 100 Technology Drive, Alpharetta, GA 30202  
Teleflex Naval technologies, 205 Church Rd., North Wales, PA 19454

## COUPLINGS

Lo-Rez Vibration Control Ltd., 156 West 8th Avenue, Vancouver, BC CANADA, V5Y 1N2  
American Vulkan, P.O. Drawer 673, Winter Haven, FL 33882

## CRANE-HOIST-DERRICK—WHIRLEYS

Bisso Marine Co. P.O. Box 4113, New Orleans, LA 70178  
The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101  
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072  
Hagglunds Inc, Marine Div. Headq., 50 Chestnut Ridge Rd, Montvale, NJ 07645  
Liebherr-Werk Nenzing GES.mbh, P.O. Box 10, A-6710 Nenzing, AUSTRIA  
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New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150  
Pettibone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883  
Smatco Industries, P.O. Box 4036, Houma, LA 70361  
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New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150  
Skookum/Rope Master, P.O. Box 280, Hubbard, OR 97032  
Smatco Industries, P.O. Box 4036, Houma, LA 70361  
Smith Berger Marine Inc., 516 South Chicago Street, Seattle, WA 98108  
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Smatco Industries, P.O. Box 4036, Houma, LA 70361  
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Kiene Diesel Accessories, 325 S. Fairbanks St., P.O. Box 386, Addison, IL 60101  
Pow-R-Quik, 5518 Mitchelldale, Houston, TX 77092

## DIESEL ENGINE—Spare Parts & Repair

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Klattenberg Marine, 17 Grandview Ave., W. Orange, NJ 07052  
MAN B&W Diesel AG, Stadtbachstrasse 1, D-8900 Augsburg 1, GERMANY  
MAN B&W Diesel, 17 State St., New York, NY 10004  
MTU of North America, 10450 Corporate Dr., Houston, TX 77478  
Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, GERMANY  
National Maintenance & Repair, Foot of Hawthorne, Hartford, IL 62048  
New Sulzer Diesel, Inc, 200 Park Ave, New York, NY 10166  
Paxman Diesels, P.O. Box 8, Paxman Works, Colchester, Essex, CO1 2HW, ENGLAND;

## Paxman Diesels USA, (A Div. of Ruston Gas Turbines, Inc.), 15950 Park Row, Houston, TX 77084

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SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116  
Siemens Energy & Automation, Inc., Systems Div., Marine Systems No. America (A23N), 100 Technology Drive, Alpharetta, GA 30202  
Universal Marine Electric Co., Inc., P.O. Box 266-923, Houston, TX 77027-6923

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Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY

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## ELECTRONIC INFORMATION SUPPORT

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Instruments, Computers, & Controls, Inc., 6942 Haven Creek Dr., Katy, TX 77449

## EPIRBs

ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale

FL 33310-5247

Alden Electronics, 40 Washington St., Westborough, MA 01581

Lifton Special Devices, 750 W. Sprout Road, Springfield, PA 19064

## EQUIPMENT—Marine

Byrne, Rice & Turner, Inc., 1172 Camp St., New Orleans, LA 70130

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

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Alfa-Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974

Beard Industries Inc., P.O. Box 31115, Shreveport, LA 71130

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Jamestown Distributors, 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02835

Revcar Fasteners, P.O. Box 345, Roanoke, VA 24003

Robbins Manufacturing, 1200 Airport Rd., Fall River, MA 02722

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BF Goodrich, 150 Division Drive, Wilmington, N.C. 28401

## FENDERING SYSTEMS/BUOYS - Dock & Vessel

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston, TX 77020

Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624

Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160

Ultra Poly Inc., 2926 South Steele, Tacoma, WA 98409

Viking Fender Co., 50 Church Street, Sea Bright, NJ 07760

## FIBERGLASS PIPE & FITTINGS

Ameron Fiberglass & Pipe, 61 Executive Ave., Edison, NJ 08817

## FIBER OPTIC SYSTEMS

AT & T, Cables System/Fiber Optic Div., 111 Madison Ave., Morristown, NJ 07962

## FIN STABILIZERS

Blohm & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY;

U.S.A. Repts: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168

## MARINE FIRE PROTECTION

Hiller Systems, 3710 Lakeside Court, Mobile, AL 36693

## FIRE DETECTION SYSTEMS

Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY

## FIRE STOP PRODUCTS

NMP, 12437 E. 60th St., Tulsa, OK 74153

## FLAME CUTTING MACHINE

Bug-O-Systems, 3003 West Carson St., Pittsburg, PA 15204

## GALLEY EQUIPMENT

Atlas Marine Services, 6960 NW 46th St., Miami, FL 33166

Cospolich Refrigerator Co., 949 Industry Rd., Kenner LA 70062

Gayford Industries, 10900 S W Avery St, P.O. Box 1149, Tualatin, OR 97062

Lang Manufacturing, P.O. Box 905, Redmond, WA 98073

Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031

Toastmaster, 1400 Toastmaster Dr., Elgin, IL 60120-9272

## GANGWAYS, LADDERS

Sea Systems Inc., 65 Avco Road, Ward Hill, MA 01835

Wooster Products Inc., 1000 Spruce St., P.O. Box 896, Wooster, OH 44691

## GENERATORS

Belyea Co. 45 Howell St., Jersey City, NJ 07306

Mercantile Manufacturing, P.O. Box 895, Minden, LA 71058

## GROUND FAULT PROTECTION & LOCATION EQUIPMENT

Bender, inc., 400 Gordon Drive, Bldg. 501, Exton PA 19341

## HATCHES

L. S. Baier, 7527 NE 33rd Dr., Portland, OR 97211

## HEAT EXCHANGERS

Alfa-Laval Separation Inc., 955 Mearns Rd., Warminster, PA 18974

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

A/S Vesta, P.O. Box 548, DK-9100, Aalborg, DENMARK US Agent: Aalborg Ciser (Miami) Inc., P.O. Box 906, Angleton, TX 77515

Beard Industries Inc., P.O. Box 31115, Shreveport LA 71130

Tranter Inc, Old Burk Road, Wichita Falls, TX 76307

## HORNS/WHISTLES

Kahlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

## HYDRAULIC FLUSHING SYSTEM

Consolidated Fluid Power, Ste. 22 Glendale Dr., LR, Jacksonville, Nova Scotia, Canada B4C3M1

## HYDRAULICS

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

Cunningham Marine Hydraulics Co., 201 Harrison St., Hoboken NJ 07030

Del

American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906  
 Boston Whaler, Inc. Commercial Products Div., 1149 Hingham St., Rockland, MA 02370  
 Fr. Fassmer GMBH & Co., D-2876 Berne 2, Wese, GERMANY  
 Norsafe AS, P.O. Box 115, N-4818 Faerвик, Norway  
 Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806  
 Zodiac of North America, P.O. Box 400, Stevensville, MD 21666

**LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights**  
 ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale, FL 33310-5247  
 Archway Marine Lighting, 4501 Swan Ave., St. Louis, MO 63110  
 Fishermans Wholesale Marine Supply Co., Inc. 4540 B Downman Road  
 New Orleans, LA 70126  
 Golten Marine, 160 Van Brunt St., Brooklyn, NY 11231  
 The L.C. Doane Co., P.O. Box 975, Essex, CT 06426  
 Julian A. McDermott, 1639 Stephen St., Ridgewood, NY 11385  
 Nautilus Equipment Ltd., P.O. Box 66, Station M, Halifax, Nova Scotia B3J 2L4, CANADA  
 Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearland, TX 77581  
 Phoenix Products, 6161 N 64th St., Milwaukee WI 53218

**LINE BLINDS**  
 Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474

**LIQUID LEVEL INDICATORS**  
 Setcor, 2 Dean St., Tenafly, NJ 07670

**LIQUID OVERFILL PROTECTION SYSTEMS**  
 E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026  
 Setcor, 2 Dean St., Tenafly, NJ 07670

**LOGISTICS**  
 VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs MS 39564  
 QED, 4646 N. Witchduck Road, Virginia Beach, VA 23455

**LUBRICANTS**  
 Pre-Lube, 13790 NW 4th St., Ste. 111, Ft. Lauderdale FL 33325  
 B P Marine Americas, 200 Westlake Park Blvd., Houston, TX 77079-2682

**MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING**  
 Del Gavio, 619 Industrial Rd., Carlsbad, NJ 07072  
 Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315  
 Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231  
 New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

**MACHINERY MONITOR AND CONTROL SYSTEMS**  
 Electronic Marine Systems, 800 Ferndale Pl., Eahway, NJ 07065

**MACHINING—On Site Repair**  
 Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315  
 In-Place Machining, 1929 N. Buffum Street, Milwaukee, WI 53212

**MARINE ACCOMMODATIONS**  
 Directions in Design Inc, 633 Emerson, Suite 100, St. Louis, MO 63141  
 Hopenam Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22980  
 Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Ave., Boca Raton, FL 33431  
 Marine Accommodations Inc., 8535-3 Baymeadows Rd, Ste 140, Jacksonville, FL 32256  
 Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031

**MARINE COATINGS**  
 Vecom USA, 236 St. George Avenue, Jefferson, LA 70121

**MARINE ELECTRONICS**  
 High Seas Technology, Inc., 2965 West State Rd., Fort Lauderdale, FL 33312

**MARINE FURNITURE**  
 Directions In Design, 633 Emerson, Ste. 100, St. Louis, MO 63141  
 Engineered Data Products, P.O. Box 565, Woodbury, NJ 08906-7565  
 Jamestown Metal Marine Sales, Inc., 4710 NW Second Ave., Boca Raton, FL 33431  
 Marine Accommodations Inc., 8535-3 Baymeadows Rd, Ste 140, Jacksonville, FL 32256  
 Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031  
 Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA 98102

**MARINE GEARS**  
 Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227

**MARINE RADAR COMPONENTS**  
 EEV, Inc., 4 Westchester Plaza, Elmsford, NY 10523

**MARINE SHIP MANAGEMENT**  
 Barba Arkhon, 1810 Chapel Ave. West, Cherry Hill, NJ 08002

**MARITIME EDUCATION**  
 Seamens Church Institute, 741 Water St., New York City, NY 10038

**METAL PRODUCTS**  
 Engineered Data Products, P.O. Box 565, Woodbury, NJ 08906-7565  
 Jamestown Metal Marine Sales, Inc., 4710 N.W. Second Ave., Boca Raton, FL

**MULTI-CABLE PENETRATION DEVICE**  
 NMP, 12437 E. 60th St., Tulsa, OK 74153

**NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS**  
 Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy., Arlington, VA 22202  
 CDI Marine Co., 9487 Regency Square Blvd., Ste. 500, Jacksonville, FL 32225  
 Childs Engineering Corp., Box 333, Medfield, MA 02052  
 Crandall Dry Dock Engrs., Inc., 21 Pottery Ln., Dedham, MA 02026  
 Crane Consultants, 15301 First Ave S., Seattle, WA 98148  
 C.R. Cushing, 18 Vesey St., New York, NY 10007  
 Arthur D. Darden, 3200 Ridgeway Dr., Suite 403, Melairie, LA 70002  
 Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129  
 Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320  
 Encon Mgmt & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706  
 GHM Inc. (Ind. Measurement Consultants), P.O. Box 1836, Newport News, VA 23601  
 Gibbs & Cox, Inc., 50 West 23rd St., New York, NY 10010  
 The Glosten Assoc. Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104  
 Guido Perla & Assoc., 4039 21st Ave., Ste. 300, Seattle, WA 98199  
 Morris Guralnick Associates, Inc., 130 Sutter St., Ste. 400, San Francisco, CA 94104  
 C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110  
 Hydrocomp, Inc., 45 James Farm-Lee, P.O. Box 865, Durham, NH 03824  
 J.H. Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08034  
 R. D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073  
 James S. Krogen, 1515 NW 7th St., Ste. 124, Miami FL 33125  
 Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225  
 David P. Levy Enterprises, 527 Legendre Dr., Slidell, LA 70460  
 MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626  
 Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063  
 John V. McCollum, Inc., 1199 Long Point Road, Mt. Pleasant, SC 29464  
 McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454  
 John J. McMullen Associates, Inc., 1 World Trade Ctr, Ste 3000, N.Y., NY 10048  
 MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090  
 Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401  
 Marine Design & Operations, Inc., 226 Chestnut St., Roselle Park, NJ 07204  
 Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902  
 Marine Power Associates, 1010 Turquoise St., Ste 217, San Diego, CA 92109  
 Maritech, Seacliff, Bay Road, Newmarket, NH 03857  
 Maritime Design, Inc., 3020 Hartley Rd., Jacksonville, FL 32257  
 R.J. Mellusi & Co., 71 Hudson St., New York, NY 10013  
 Nautical Designs, Inc. 2101 S. Andrews Ave., Suite 202, Ft. Lauderdale FL 33316  
 Northern Marine, P.O. Box 1169, Traverse City, MI 49685  
 Ogden Government Services, 3211 Jermantown Rd., Fairfax, VA 22030  
 Olsen Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777  
 Omega Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1100, Houston TX 77079  
 QED Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455  
 M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 620 Fulsom St., Ste. 301, San Francisco, CA 94107  
 Sargent & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112  
 Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702  
 Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 975, Barnegat Light, NJ 08006; 2 Skyline Pl., 5203 Leesburg Pike, Suite 700, Falls Church, VA 22041; 1305 Franklin St., Suite 210, Oakland, CA 94612.  
 George G. Sharp, Inc., 100 Church St., New York, NY 10007  
 R.A. Steam, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
 TIMSCO, P. O. Box 91360, Mobile AL 36691

**NAVAL BOAT BUILDERS**  
 Atlantic Boat Group, Inc., 1850 Lake Park Dr., Ste. 216 Smyrna, GA 30080

**NAVIGATION & COMMUNICATIONS EQUIPMENT**  
 AT&T, High Seas Dept., 412 Kemble Ave., Room C380, Morristown, NJ 07960  
 Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY  
 Cellnet Corp, 400 Main St, Stamford, CT 06901-3004  
 Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024  
 C. Plath, 222 Severn Ave., Annapolis, MD 21403  
 Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065  
 Fairtide Enterprises, Inc., 2536 Sonata Dr., Columbus, OH 43209  
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
 Hose McCann, 9 Smith St., Englewood, NJ 07631  
 Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950  
 IDB Mobile Communications, 1828 L Street NW, Suite 660, Washington, D.C. 20036  
 Kenwood USA Corp., Marine Prod. Div., 2201 E. Dominquez St., Long Beach, CA 90810  
 Mackay Communications, 441 US Highway #1, P.O. Box 331, Elizabeth NJ 07207  
 Marine Electric RPD, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135  
 Megapulse, Inc., 8 Preston Court, Bedford MA 01730-2380  
 Nautronix, 15401 Vantage Pkwy W., Houston, TX 77032  
 Norwegian Telecom, P.O. Box 6701, Oslo 1, NORWAY  
 Novatech, 820 Cormorant St., Victoria, BC V8W 1R1, CANADA  
 Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearland, TX 77581  
 Raytheon Marine Co., 46 River Road, Hudson, NH 03051  
 Robertson Marine Systems, 3000 Kingman Street, Suite, 207, Metairie, LA 70006  
 SPD Technologies, 13500 Roosevelt Blvd., Philadelphia, PA 19116  
 Scandinavian Micro Systems P.O. Box 155, N-1411, Kolboten, NORWAY  
 Simrad, 19210 33rd Avenue West, Lynnwood, WA 98036  
 Sperry Marine Inc., 1070 Seminole Trail, Charlottesville VA 22901  
 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009  
 Summer Equipment Ltd., 24 West 4th Ave., Vancouver V5Y 1G3, CANADA  
 Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086  
 Waterway Communications System, Inc. 453 E. Park Pl., Jeffersonville, IN 47130  
 World Communications Sys., 11834 Canon Blvd., Newport News, VA 23606

**OIL—Marine—Additives**  
 Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001  
 Shell Oil, P.O. Box 2463, Houston, TX 77252  
 Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

**OIL/WATER SEPARATORS**  
 ACS Industries, Inc., 14208 Industry Rd., Houston, TX 77053  
 Alfa-Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974-0556  
 Blohm & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY  
 U.S.A. Repps: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
 Centrico, Inc. (Westfall Separators), 100 Fairway Court, Northvale NJ 07647  
 Fast Systems, 3240 North Broadway, St. Louis, MO 63147  
 MMC International, 60 Inip Dr., Inwood NY 11696  
 Nelson Industries, Highway 51 West, Stoughton, WI 53589

**PAINT—COATING—CORROSION CONTROL**  
 Amclean Coating Removal, 12920 S.W. 99 N. Ave., Miami, FL 33176  
 Ameron, 201 N. Berry St., Brea, CA 92622  
 The Arnesen Corp., Corrosion Dynamics Div., 1100 Walnut St., Rosell, NJ 07203  
 Esgard, Inc., P.O. Box 2698, Lafayette, LA 70502  
 Jamestown Distrib., 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02835  
 Hempel Coatings, Foot of Curie Avenue, Wallington, NJ 07057  
 International Paint, 6001 Antoine, Houston, TX 77292  
 Melvin Pierce Marine Coating, Inc., P.O. Box 93, Semmes, AL 36575  
 Microphor, Inc., Marine Div., 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490  
 Royal Chemical, 2705 Concord Road, Belle Chasse, LA 70037  
 Sigma Coatings, 8979 Market St., Houston, TX 77029, 330 Rover Rd., Harvey, LA 70059, 1100 Adams St., Hoboken, NJ 07030  
 UT Technologies Ltd., Box 31114, Robie St. RPO, Halifax Nova Scotia Canada B3K5T9

**PAINT REMOVAL**  
 LTC Americas, 101 G. Executive Dr., Sterling, VA 22170

**PIPE FITTINGS/CONNECTING SYSTEMS**  
 Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248  
 Stanley G. Flagg Co., 1020 W. High St., Stowe, PA 19464

**PORT SERVICES**  
 Port of Portland, 5555 N. Channel Ave., Portland, OR 97217

**PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines**  
 Avondale Industries, Harvey Quick Repair, P.O. Box 116, Harvey, LA 70058  
 American Air Filter, P.O. Box 35690, Louisville, KY 40432  
 ABB TURBOCHARGER, INC., 1460 Livingston Avenue, N. Brunswick, NJ 08902  
 ASE A Brown Boveri (Stromberg), P.O. Box 185, 00381 Helsinki, FINLAND  
 Aquamaster-Raum Ltd., Box 220, SF-26101, Rauma, FINLAND  
 Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081  
 Brunvoll A/S, P.O. Box 370, N-6401, Molde, Norway  
 CWF Hamilton & Co., Ltd., P.O. Box 709, Christchurch, NEW ZEALAND  
 Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320  
 Coltec Industries (Fairbanks Morse Engine Div.), 701 Lawton Ave, Beloit, WI 53511  
 Electro-Motive, div. General Motors, 9301 W 55th St., La Grange, IL 60525  
 Fincantieri, Diesel Engines Div.—GMT, Bagnoli della Rosandra 334, Trieste, ITALY  
 Fundiciones RICE, AV Rios Espinoza No.88, COL BENITO JUAREZ, Mazatlan, GE Naval & Drive Turbine Systems, 166 Boulder Dr., Fitchburg MA 01420  
 Harbormaster Marine, Inc., 31777 Industrial Road, Livonia, MI 48150  
 Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
 Krupp MaK, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9  
 Lohmann & Stolterfoht, P.O. Box 1860, D-5810 Witte, Germany  
 Mapeco Products Inc., 90 Forest Ave., Locust Valley, N.Y. 11560  
 Marine Gears, Inc., P.O. Box 689, Greenville MS 38707  
 Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY  
 MAN B&W Diesel, 17 State St., New York, NY 10004  
 MAN B&W Diesel A/S, Ostervej 2, DK-4960 Høleby, DENMARK  
 MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15, DK-9900 Frederikshavn, DENMARK  
 MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1 GERMANY  
 Mathers Controls, 675 Pease Rd., Burlington, VA 98107  
 Mitsubishi Heavy Industries America, Inc., 630 Fifth Ave., Ste. 3450, NY, NY 10011  
 New Sulzer Diesel, Ltd., CH-8401, Winterthur, SWITZERLAND  
 Omnithruster Inc., 9515 Sorensen Ave., P.O. Box 2144, Santa Fe Springs, CA 90670  
 Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND  
 Rolla SP Propellers USA, 4030 Mustang Road, Melbourne, FL 32934, USA  
 Karl Senner Inc., 25 W Third, Kenner LA 70062  
 Schottel-Werft, D-5401 Spay, GERMANY  
 Siemens Energy & Automation, Inc., Systems Div., Marine Systems no. America (A23N), 100 Technology Dr., Alpharetta, GA 30202  
 Stewart & Stevenson, 1400 Drestrehan, P.O. Box 8, Harvey LA 70059-0008  
 Textron Lycoming, 550 Main St., Stratford, CT 06497  
 Thrustmaster of Texas, 12227-K FM 529, Houston, TX 77041  
 Ulstein Bergen Diesel A/S, P.O. Box 924, N-5002, Bergen, NORWAY  
 J. M. Voith GmbH, Marine Division, Postfach 1940, D-7920, Heidenheim/Brenz, GERMANY U.S. Rep: Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021  
 Oy Wartsila Ab, Vasa and Abo Divisions, P.O. Box 244, SF65100 Vasa, FINLAND  
 WestTech Gear Corp., 2600 E. Imperial Highway, Lynnwood, CA 90262  
 Westinghouse Marine Div., 401 E Hendy Ave., Sunnyvale, CA 94088

**PROTECTION MATERIALS**  
 Megafilm, Bone Lane Industrial Estate, Newbury, Berkshire RG14 5SH EENGLAND

**PROTECTIVE WRAPS**  
 FANA (Film Applicators of North America), 1260 E Woodland Ave., Springfield PA 19064

**PUMP—Repair—Drives**  
 Coffin Turbo Pump, Inc., 326 S. Dean Street, Englewood, NJ 07631  
 Del Gavio, 619 Industrial Rd., Carlsbad, NJ 07072  
 Gilkes, Inc., PO Box 628, Seabrook, TX 77586  
 Jim's Pump Repair, 48-55 36th St., Long Island City NY 11101  
 Leistriz Corporation, 165 Chestnut Street, Allendale, NJ 07401  
 Vita Motivator, 99 W Hawthorne Ave., Suite 622, Valley Stream NY 11580

**REFRIGERATION EQUIPMENT/SERVICES**  
 Adrick Marine, 141D, Central Ave., Farmingdale, NY 11735  
 Bailey Refrigeration Co., 2323 Randolph Ave., Avenel, NJ 07001

**REMOTE VALVE OPERATORS**  
 American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906  
 Teleflex, Inc., 771 First Ave., King of Prussia, PA 19406

**ROPE—Manila—Nylon—Hawsers—Fibers**  
 Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018  
 Dupont, Montgomery 403, 1011 Centre Road, Wilmington, DE 19805  
 United Ropeworks (USA), Inc., 151 Commerce Dr., Montgomeryville, PA 18936

**RUDDER STOCK SEALS**  
 Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY  
 U.S.A. Repps: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
 John Crane Marine USA, 1536 Barclay Blvd., Buffalo Grove, IL 60089

**SAFETY LIGHTING**  
 Locite Luminescent Corp., Etna Road, Lebanon, NH 03766

**SAFETY TOOLS**  
 NGK Metals Corp., P.O. Box 13367, Reading, PA 19612

**SANITATION DEVICE—Pollution Control**  
 Elitech International Corp, 12850 Bournewood Dr, Sugarland TX 77478  
 Jered Brown Brothers, 56 South Squirrel Rd., Auburn Hills, MI 48326  
 Byrne, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130  
 Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111  
 Fast Systems, 3240 North Broadway, St. Louis, MO 63147  
 Microphor, Inc., 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490

**SCALE MODELS**  
 Markitect, PO Box 225, Oconomowoc, WI 53066  
 Sturgeon Bay Model Shop, 187 N Ninth Ave., Sturgeon Bay WI 54235

**SCUTTLES/MANHOLES**  
 L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211

**SHIPBOARD COMMUNICATIONS**  
 Hose-McCann, 1241 West New Newport Center, Deerfield Beach, FL 33442

**SHIPBUILDING EQUIPMENT**  
 NEI Syncrolift, Inc., 8970 S W 87th Ct., Miami FL 33176

**SHIPBUILDING—Repairs, Maintenance, Drydocking**  
 Astilleros Espanoles S.A., Padilla 17, 28006 Madrid, SPAIN  
 Atlantic Marine, Inc., P.O. Box 3202, Mobile, AL 36652  
 Atlantic Marine, Inc., 8500 Heckscher Dr., Jacksonville, FL 32226  
 Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150  
 Balehi Marine Inc., P.O. Box 600, Lacombe, LA 70445  
 Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601  
 Bender Inc., 400 Gordon Drive, Bldg. 501, Exton, PA 19341  
 BethShip, Sparrows Point Yard, Sparrows Point MD 21219  
 Bisso Marine Co., P.O. Box 4113, New Orleans, LA 70178  
 Bollinger Lockport & Larose, P.O. Box 250, Lockport, LA 70374-0250  
 Boston Whaler, Inc., Commercial Products Div., 1149 Hingham St., Rockland, MA 02370  
 Bourg Drydock, P.O. Box 1852, Houma, LA 70361  
 Chris-Marine AB, P.O. Box 9025, S-2000 39, Malmö, SWEDEN  
 Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381  
 Curacao Drydock Inc., P.O. Box 3012, Curacao, Netherlands Antilles  
 Eastern, 505 North Sam Houston Pkwy. East, Ste. 150A, Houston, TX 77060  
 European Ship Repair, 120 NE 20th St., Miami, FL 33137  
 Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY  
 G. Marine Diesel, PO Box 050221, Brooklyn, NY 11205  
 Gulf Craft, Inc., 3904 Highway 182, Patterson, LA 70392  
 Hall Buck Marine, P.O. Box 35, Baton Rouge, LA 70816  
 Hitachi Zosen, Hitachi Shipbuilding & Engineering Co., 1-1-1 Hitotsubashi, Chiyoda-ku Tokyo 100, JAPAN  
 In-Place Machining, 1929 N. Buffum St., Milwaukee, WI 53212  
 Institute for International Research, 437 Madison Ave., N.Y., N.Y. 10022  
 Jacksonville, Shipyards, 750 E. Bay St., Jacksonville, FL 32202  
 Jeffboat, Inc., P.O. Box 610, Jeffersville IN 47130  
 Knaag Transporttechnik GmbH, Daimlerstrasse 14, D-89079 UIM, Germany  
 Kvichak Marine, 615 N 34th St., Seattle, WA 98103  
 Leevac Shipyards, P.O. Box 1190, Highway 90 East, Jennings, LA 70546  
 Lisnave, Apartado 2138, 1103 Lisbon, Codex PORTUGAL  
 MIL Davie, Inc., P.O. Box 130, Levis, Quebec, CANADA  
 Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199  
 Master Marine, Highway 48 at the Shrimp Basin, Star Rte #3, Brownsville, TX 78520  
 Munson Manufacturing, 150 Dayton, Edmonds WA 98020  
 National Maintenance & Repair Inc., P.O. Box 38, Hartford, IL 62048  
 Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607  
 Nichols Brothers Boat Builders, 5400 South Cameron Rd., Freeland, WA 98249  
 Norconsult Engineering Co., Inc. P.O. Box 529, 5785 Plantation Rd., Theodore, AL 36582  
 North Florida Shipyard, Inc., P.O. Box 3255, Jacksonville, FL 32206  
 Portecno, Ltd., Rua Eugenio Castro, 13A-r/c, 2800 Almada, PORTUGAL, U.S. Rep: Walter Thorsen, Inc., 79 Oweno Rd., P.O. Box 755, Mahwah, NJ 07430-0755  
 Thomas Marine, 37 Bransford Street, Patchogue, NY 11772  
 SeaArk, P.O. Box 210, Monticello AR 71655  
 SeaFab, P.O. Box 1651, 4111 Cedar St, Pascagoula, MS 39567  
 Service Marine Industries, P.O. Box 3606, Morgan City LA 70381  
 Skipperliner Shipyards, 621 Park Plaza Dr, Dept 21, LaCrosse WI 54601  
 Steiner Shipyard, Inc., P.O. Box 742, Bayou la Batre, AL 36509  
 Swath Ocean, 979 G Street, Chulia Vista, CA 92011  
 Textron Marine Systems, 6600 Plaza Drive, New Orleans, LA 70127-2584  
 Trinity Marine Group, Box 3029, Gulfport, MS 39505-3029  
 Willard Marine, Inc., 1250 N. Grove St., Anaheim, CA 92806  
 Zidell Marine Corp., 3121 S.W. Moody Street, Portland, OR 97201  
 Zodiac of North America Inc., Thompson Creek Rd., P.O. Box 400, Stevensville, MD 21666

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ERL Marine Products div, PO Box 1026, New Albany, IN 47151-1026  
Ian-Conrad Bergan, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561  
IMO Industries, Gems Sensors Division, One Cowles Rd, Plainville CT 06062  
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Jered Brown Bros., 56 S. Squirrel Rd., Auburn Hills, MI 48326

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Hydra-Search Co Inc, 120 Admiral Cochrane Dr, Annapolis, MD 21401-7399

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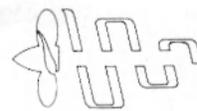
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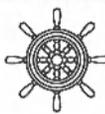
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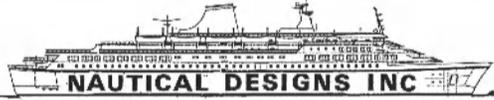
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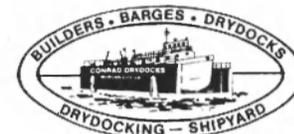
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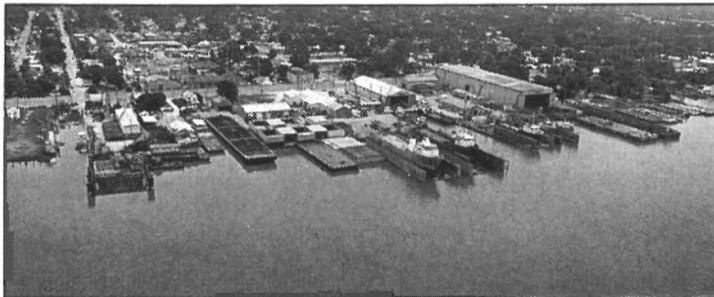
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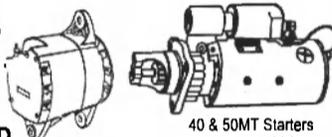
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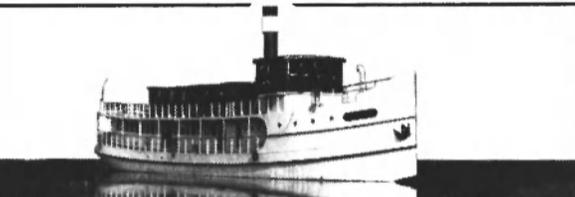
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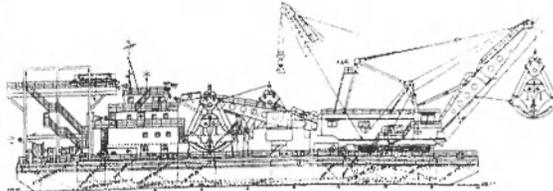
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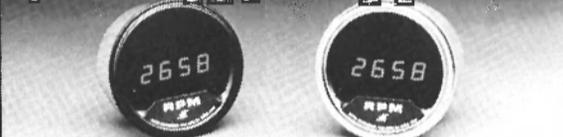
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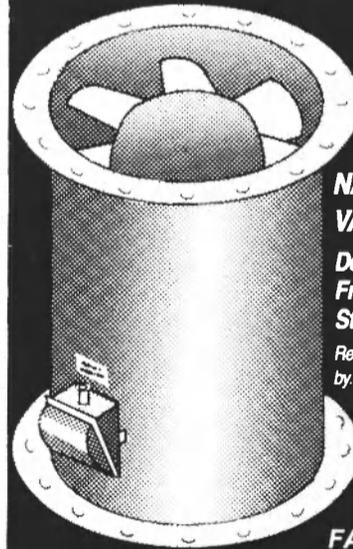
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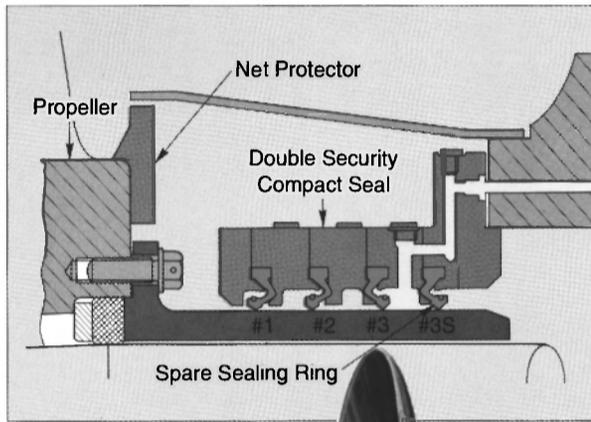


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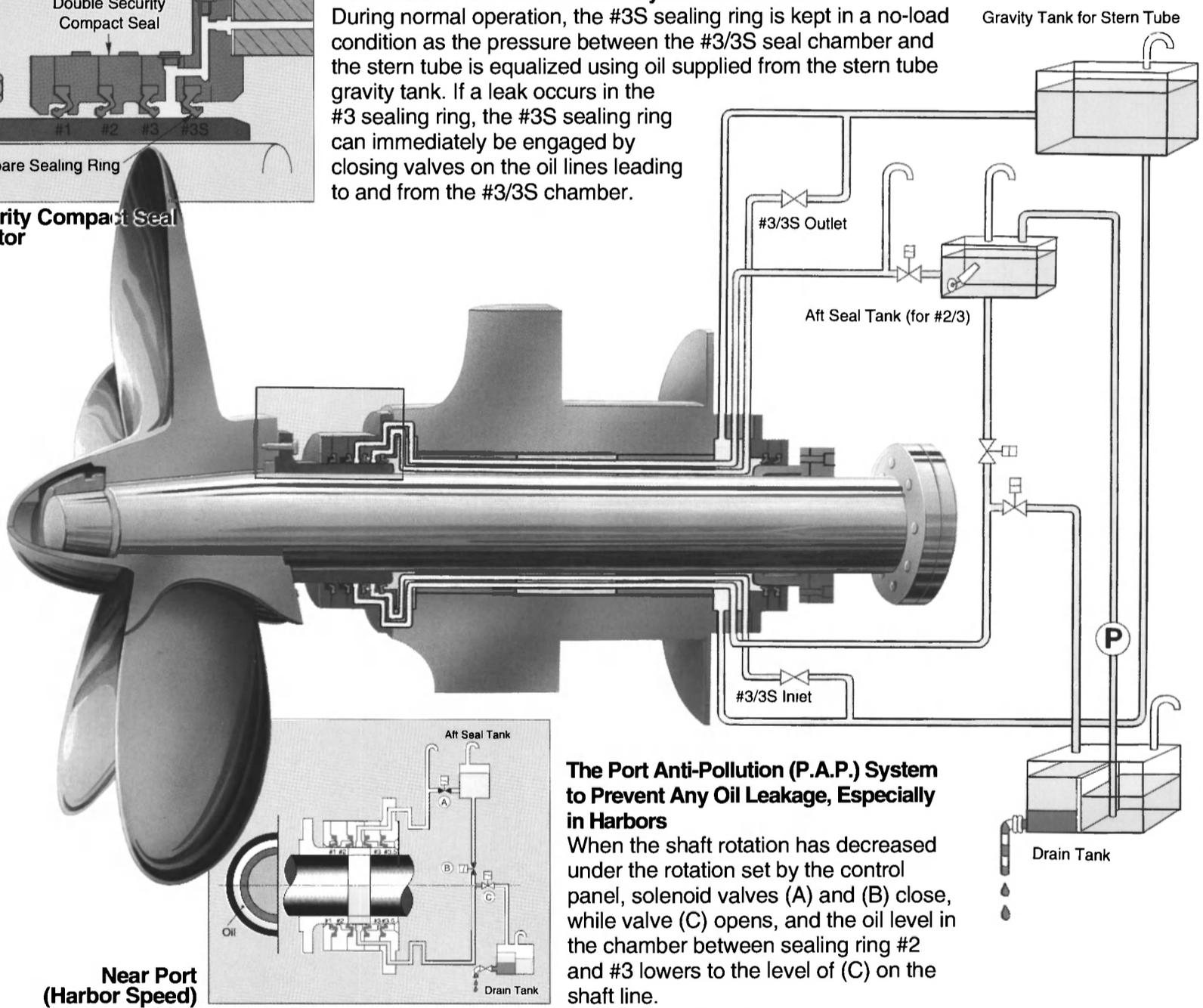
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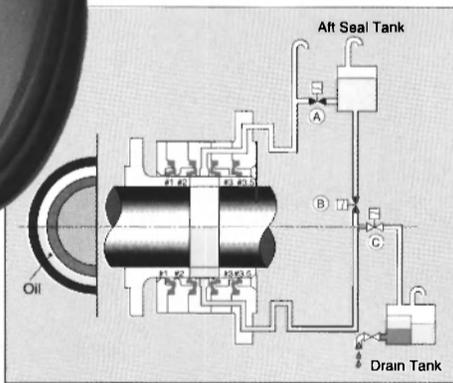
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