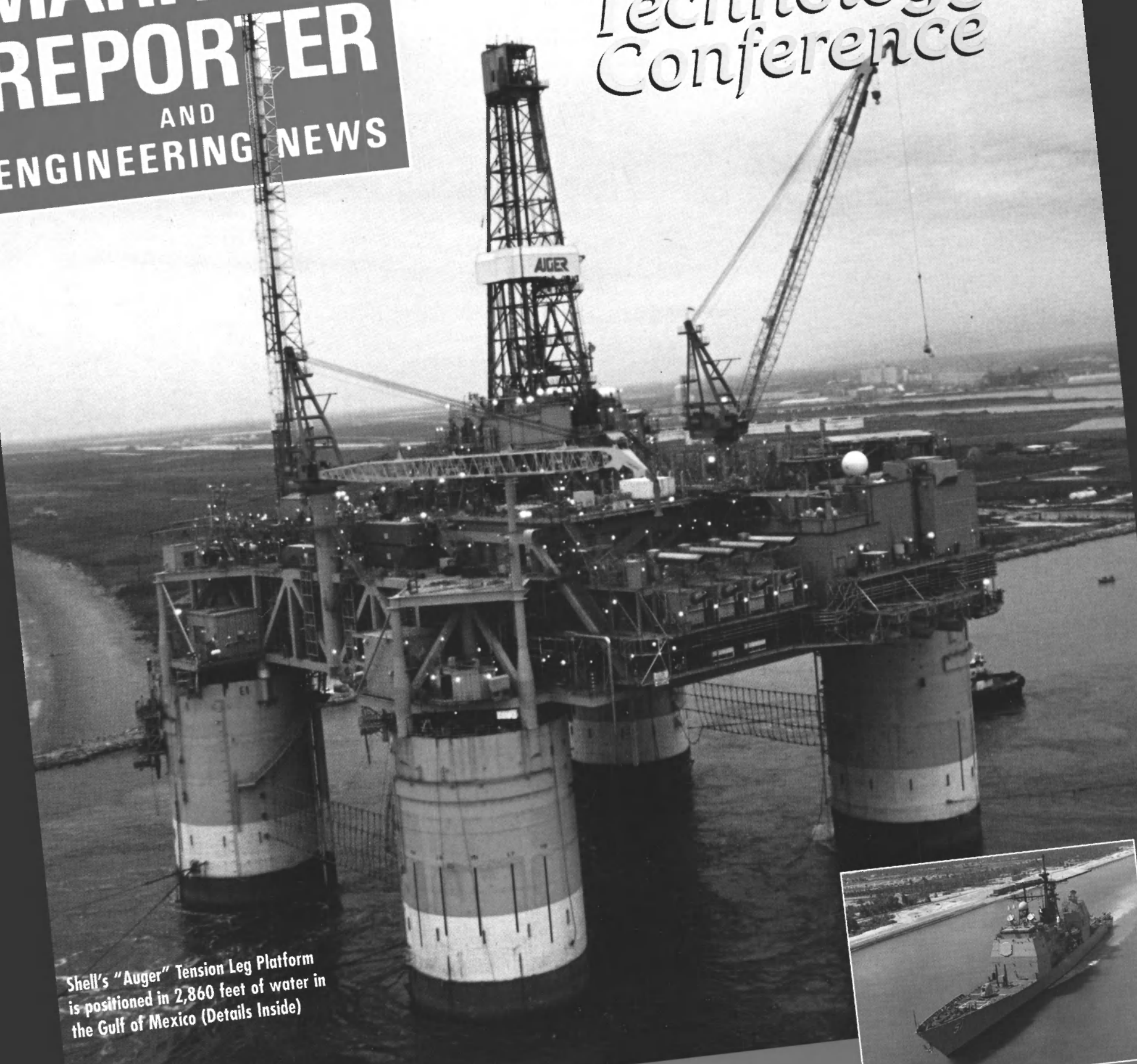


**MARITIME
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1994
Offshore
Technology
Conference



Shell's "Auger" Tension Leg Platform is positioned in 2,360 feet of water in the Gulf of Mexico (Details Inside)



1994 Military Suppliers Guide

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**Preview:
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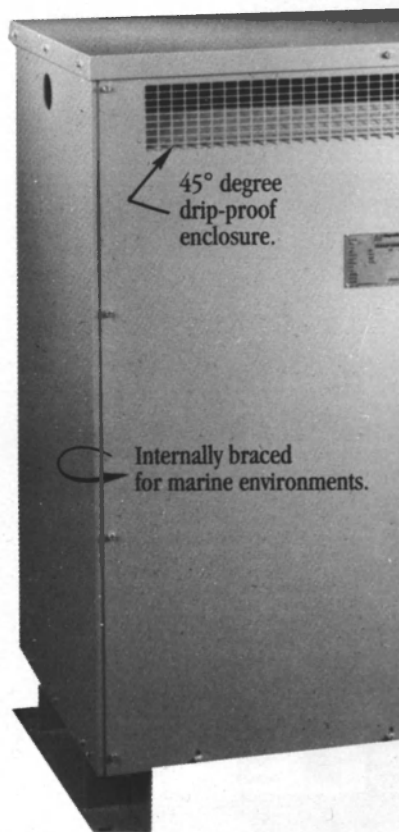
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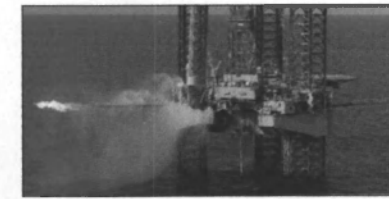
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ON THE COVER

The Shell Auger Tension Leg Platform pictured on the cover, installed in 2,860 feet of water 255 miles southeast of Houston, reportedly set a world water-depth record for a drilling and production platform. Auger's deck was built by McDermott, its hull by Belleli S.p.A. of Italy. The \$1.2 billion project is expected to yield an estimated 220 million barrels of oil and gas equivalent. For full technical details on the project, please turn to page 18 of this issue.

17 Offshore Technology
OTC '94 appears strong, as more than 1,250 companies will gather in Houston next month. **PLUS:** Hibernia, on-track for 1997 production, finalizes contract plans.



47 ASNE Day
The military market is down, but it is still a multi-billion dollar market; ASNE Conference to focus on Technical Challenges. **PLUS:** 1994 Military Suppliers Guide.



58 A New Era
Market projections indicate a newbuilding upturn. Newport News unveiled a new product tanker design to capture commercial business.



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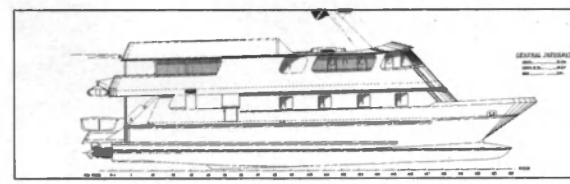
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Nichols Brothers To Build Second Catamaran For South Pacific, Hopper Barge For Portland Company

Nichols Brothers Boat Builders, Inc., will build a second cruise/dive catamaran for Alaska Dive Boat, according to Matt Nichols, president of the Whidbey Island, Wash. shipyard. The yard also recently won a contract to build a 237.5-ft. (72.4-m) split hopper dump barge for Manson Construc-

tion Co. of Portland, Ore. Owner Dave Usibelli, president of Alaska Dive Boat, said the new 100-foot (30.5-m) catamaran will operate out of Palau in Micronesia, as part of an Aggressor Fleet, Inc. franchise. The vessel will be about 30 ft. (9.1 m) wide and draw 4.5 ft. (1.4 m). The new vessel will be larger than the 80-

ft. (24.4-m) *Kona Aggressor II* that Nichols built for Mr. Usibelli's Live/Dive Hawaii in 1992. The new catamaran, designed by International Catamarans, Ltd. of Australia, will accommodate 49 passengers on day dive trips or 16 on extended cruises. It will utilize longer "Zee hulls" developed by InCat that reportedly cut wake, enhance fuel



Drawing of a cruise/dive catamaran to be built by Nichols Brothers for Alaska Dive Boat.

efficiency and improve ride. The boat will be powered by Caterpillar 3412TI, 1,050 bhp diesel engines driving Hamilton 571 waterjets through 1:2.03 reduction gears, providing a speed of 22 knots. Service power will be provided by a pair of 50-kW Northern Lights generators. The hopper barge will be built from 1,167 tons of heavy steel and will have a complex spoon bow. The barge will have a 54-ft. (16.5-m) beam and an overall depth of 22 ft. (6.7 m). A machinery space will enclose an 8712 General Electric diesel engine to power the hydraulic system that will operate the split hoppers to dump dredge tailings. Nichols also built earlier vessels for Manson construction, such as a 220-ft. (67-m) by 54-ft. (16.5-m) ABS ocean load line cargo barge and the 267-ft. (81.4-m) by 54-ft. (16.5 m) 4,000-cu.-yd. split hull hopper dredge, *Neuport*. For more information on Nichols Brothers,

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USCG Approves First Oil Spill Response Plans

The U.S. Coast Guard (USCG) has begun approving oil spill response plans for private companies, as mandated by OPA 90. The first approval was for Naess Shipping Company BV of Holland, while the first approval for a U.S. company was for Coastal Towing, Inc., a Houston tank barge company.

Any foreign or domestic vessel operator — from supertankers to barges — planning to carry oil in U.S. waters has been required via OPA 90 to submit its plans to the USCG in 1993 for review and approval. The plans must include detailed response measures to be taken in the event that some or all of a vessel's petroleum cargo is released into U.S. waters.

Adm. Arthur E. Henn, chief of Headquarters' Office of Marine

Safety, Security and Environmental Protection was joined by Knut S. Bjerke, president of Naess Shipping, as well as company and USCG officials in a Headquarters ceremony to mark the first approval.

"This is only the first," USCG Capt. Michael J. Donohoe, branch chief for Headquarters' Marine Environmental Protection Division, said of the Naess approval. "Presently, we are processing over 1,700 plans for more than 7,000 vessels,

and we expect additional approvals in the near future." True to that statement, announcements of the Coastal Towing approval followed about a week later. The USCG expects a complete review of the vessel response plans currently being processed by August 1994, and it continues to receive five to eight additional plans per week.

Coastal Towing has created a response team at its Houston headquarters to activate the company's plan in the event of a spill. Its response will include environmental protection, clean-up, and other specialized emergency services. The company has a network of response contractors along the Gulf Coast and throughout the central U.S., and conducts regular spill drills to maintain preparedness. Each vessel carries a copy of the response plan.

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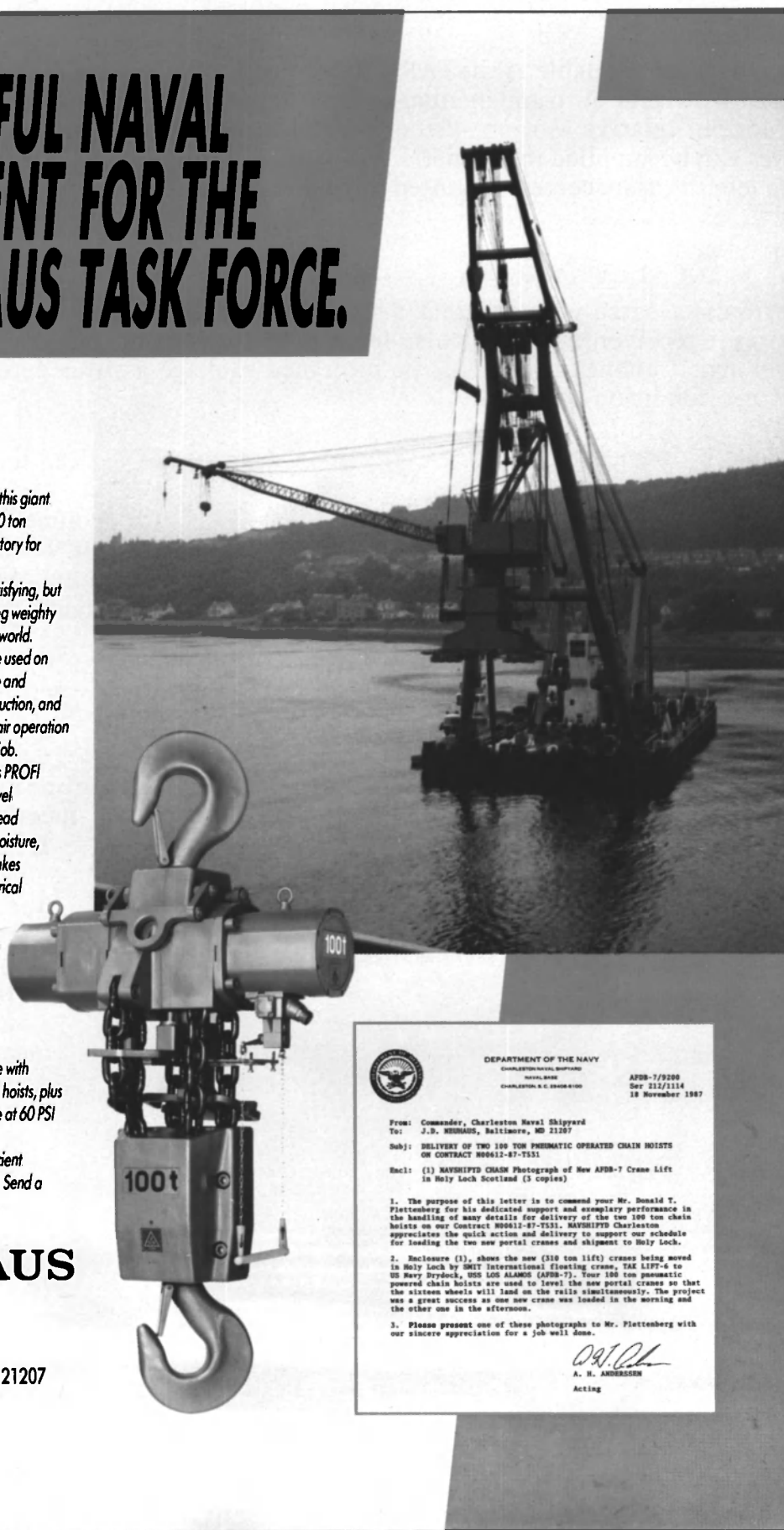
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Daewoo Buys Shipbuilding Profiles From Inexa

Daewoo Shipbuilding & Heavy Machinery Ltd. and Inexa Profil AB have signed a contract for the delivery of 6,000 tons of bulb flats from Inexa's steel mill in Lulea, Sweden, to Daewoo's shipyard in Okpo. It will be the first delivery of Inexa bulb flats to Korea.

Inexa Chairman Karl-David Sundberg signed the agreement with Hee-Kuy Kim, Daewoo Shipbuilding & Heavy Machinery Ltd.'s executive managing director.

I.S. Park, deputy general manager of steel procurement at Daewoo, said he looks forward to future business with Inexa Profil.

NYK Line and Stolt Parcel Tankers Inc. Announce Joint Venture

Nippon Yusen Kabushiki Kaisha (NYK) Line and Stolt Parcel Tankers Inc. have formed three joint venture companies—StoltNYK Asia Pacific Services, Inc., Stolt NYK (Australia) Pty. Ltd., and NYK Stolt Shipholding Inc.—which will own and operate parcel tankers in the Asia Pacific region.

NYK Stolt Shipholding, Inc. has acquired ships previously owned by Oyeno Unyu Shokai, its affiliates and related companies: M/T Stolt Sunrise, M/T Stolt Azalea, M/T Stolt Lily, M/T Stolt Camelia, M/T Stolt Magnolia and several time charter ships. This modern and technically advanced fleet will operate primarily between Japan/Korea/China and Australia/New Zealand.

Stolt-Nielsen SA provides worldwide distribution services for bulk liquids through a fleet of transoceanic and coastal parcel tankers, intermodal tank containers, storage terminals, barges, rail cars and tank trucks.

NYK Line is one of Japan's leading shipping lines, with one of the world's largest fleets of container and conventional vessels, tramp and specialized carriers and tankers.

International Oil Spill Conference Sponsors Enter New Partnership

The steering committee of the 1995 International Oil Spill Conference and Exposition announced a new partnership with two international sponsors of the 14th biennial conference: The International Maritime Organization (IMO) and the International Petroleum Industry Environmental Conservation Association (IPIECA).

"Achieving and Maintaining Preparedness" is the theme of the 1995 conference on the prevention, behavior, control and cleanup of oil spills, an event which will be held Feb. 27 through March 2, 1995 at the Long Beach Convention Center in Long Beach, Calif.

"The worldwide importance of oil spill planning, response and cleanup makes our new partnership with IMO and IPIECA a welcome and needed addition to achieve confer-

ence goals," said Dr. **Jim Ray**, 1995 conference chairman and manager of Environmental Science for Shell Oil Company in Houston.

The conference, first held in 1969, historically has been sponsored by the U.S. Coast Guard, the U.S. Environmental Protection Agency and the American Petroleum Institute. The conference provides an international forum for the introduction of new prevention and cleanup technology, the latest scientific research on cleanup operations, contingency planning, damage assessment, fate and effects of oil, and liability and compensation issues.

For more information on the conference, contact Cdr. **Bob Pond**, U.S. Coast Guard, (G-MEP) Room 2100, 2100 Second Street, S.W., Washington, D.C. 20593, tel: (202) 267-6860.

Oakland Dredging Environmental Impact Report Issued

Culminating a process initiated 24 years ago, the Army Corps of Engineers distributed the environmental impact statement and report for deepening the Oakland harbor, the fourth busiest U.S. gateway for container cargo.

The report recommends maximum use of the dredged material for restoration of a 300-acre North Bay tidal marsh known as Sonoma Baylands, a habitat for three endangered species.

Save San Francisco Bay Association, the Sierra Club and other groups endorsed legislation authorizing and funding the Sonoma Baylands project last year. The report also calls for disposal of dredged material at a federally-certified ocean disposal site 50 miles west of the Golden Gate, the port-

owned land now housing the Galbraith Golf Course in Oakland.

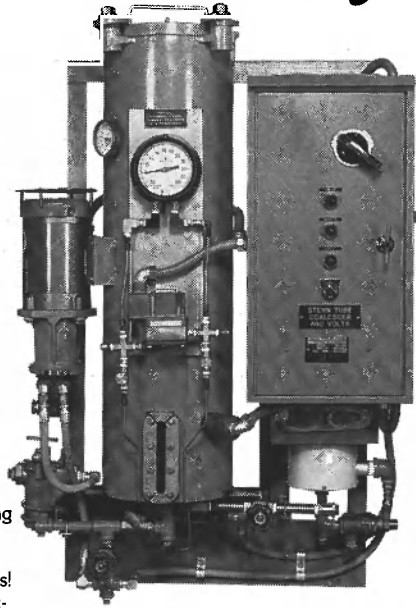
Port officials say the \$100 million project is urgently needed to restore the port's competitiveness, create up to 2,400 jobs and generate economic impacts of more than half a billion dollars.

The study took nearly three years to evaluate 23 alternative land, bay and ocean disposal sites for the dredged material, and focused on a short list of eight. Since none of the eight can handle the entire 5.6 million cubic yards of sand and clay to be dredged, the sites were grouped together to provide five alternative disposal plans. These range from almost complete ocean disposal, to disposal partly in the ocean and partly in the bay, to disposal entirely on land.

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Ship Structure Committee Publishes Reports On Fatigue Curves And Underwater Repair Procedures

The Ship Structure Committee has recently issued two new reports on the following topics: Reduction of S-N Curves for Ship Structural Details, and Underwater Repair Procedures for Ship Hulls (Fatigue and Ductility of Underwater Wet Welds). Report SSC-369 "Reduction of S-N Curves for Ship Structural Details" presents a set of fatigue S-N curves for design and analysis of ship structural details. The set of fatigue curves is based on a re-analysis of fatigue data presented in the Committee's SSC-318 report.

The methodology used to develop the fatigue S-N curves is presented. Examples are presented to illustrate the application of S-N curves for plating under one-inch thick. A glossary of terms used is provided and recommendations are presented for future research. Report SSC-370 details the use of underwater welding for the repair of damage below the waterline of a ship or marine structure. These procedures have developed greatly in recent years. However, these procedures have generally only been acceptable

as emergency repairs and temporary. Uncertainties with regard to the long term properties of the repairs have prevented a greater acceptance. This report addresses specifically the fatigue performance and low tensile elongation properties of underwater wet weld repair methods. The report concludes with recommendations for future research. These reports, and any other SSC report, may be ordered from National Technical Information Service, Springfield, Va. 22151, tel: (703) 487-4650; fax: (703) 321-8547.

For report SSC-369 ask for accession number PB94-121928; for report SSC-370 ask for accession number PB94-121936.

SWATH Intl. Appoints Managing Director, Unveils New Design

SWATH International Ltd. has appointed Capt. C. William Hayes the company's managing director. Capt. Hayes replaces Timothy A. Kelley, who recently resigned as chairman and managing director of the company. Capt. Hayes has been marketing director for SWATH International since joining the company in 1990.

SWATH has also unveiled a brand new design, their Channel Class 61.3-ft. (19-m) shore to cruise ship tender. To be constructed of aluminum, the vessel would have a small waterplane area twin hull form, and is designed to achieve

exceptional ride quality while sustaining service speed even in a degraded seaway. Passenger cabin area will accommodate 100 passengers. The beam of the vessel is 24.9 ft. (7.6 m) with a full load draft of 5.2 ft. (1.6 m). The vessel will attain a speed of 22 knots.

Gaming Council To Sponsor St. Louis Meeting

A special two-day conference planned for May 23-24, 1994 will be sponsored by the Gaming Cruise Council of the Passenger Vessel Association (PVA). The meeting will be held at the Regal Hotel in St. Louis, Mo., and will bring together

managers, regulators and operators of casino vessels to address various safety issues.

Among the sessions planned are: *Introduction to Maritime Safety Regulation: How the System Works; Developing Safety Awareness Within Your Company; Marine Crew: The Key to Reducing Liability; Marine Insurance Underwriting Liability; Preparing Emergency Disaster Programs; Making Safety Codes Work for You; and Crime and Casino Vessels — Minimizing the Impact on the Local Community.*

For more information, contact PVA at tel: (202) 785-0510; fax: (202) 785-0540. Invited speakers include USCG Adm. Paul Blaney, district commander; Tom Purcell, and president of the Missouri Gaming Commission.

POLY RUBBER BUGGY BUMPERS

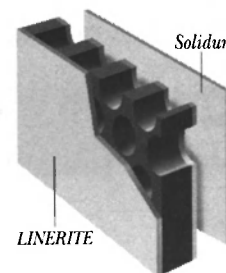
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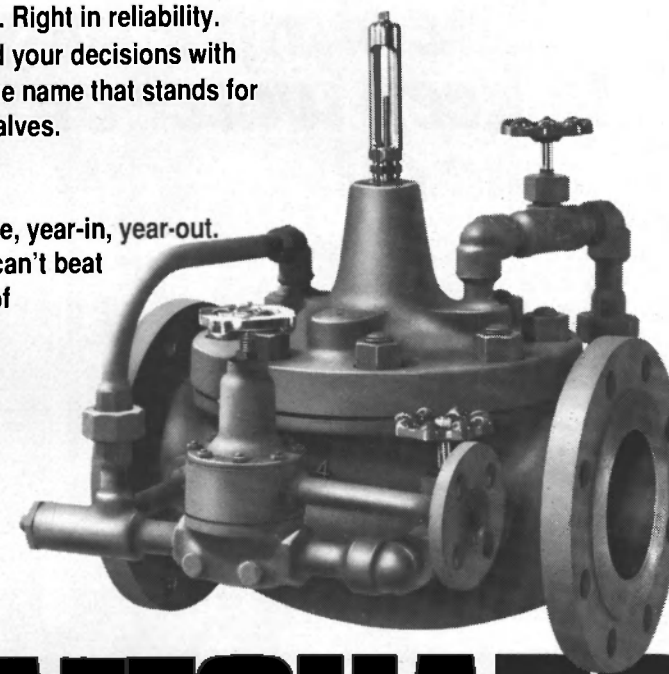
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Maritime Reporter/Engineering News

**Greek Cruise Company
Considers Using
Massachusetts Shipyard To
Build Cruiseships**

**Local Group Eager
To Find Commercial Business
For Historic Yard**

Regency Holdings, Inc. is interested in using the Fore River Shipyard to modernize its fleet and build up to 15 cruise vessels, said **James Sheets**, the mayor of Quincy, Mass., where the shipyard is located. Although nothing is finalized, the mayor indicated a leasing arrangement is likely.

The mayor said there had been discussions between Quincy 2000, the group responsible for marketing the shipyard, himself, and Regency — and that the results had been favorable.

"They've met with the host committee, made a presentation to them and to me," said mayor **Sheets**, who also said Regency executives had visited the shipyard.

Further, the mayor indicated an agreement may be close.

"They're ready for the next step, which is an action plan," said the mayor, who also said the parties involved were discussing the possibility of formulating such a plan.

Mayor **Sheets** said the possibility of Regency using the yard could be an important opportunity for the line and for the city. He noted that President **Clinton** had made available \$30 million in loan guarantees or the shipyard's modernization and \$200 million in loan guarantees for ship construction.

"It's probably the most promising prospect we've had with regard to the re-use of the yard," the mayor said. "I think it's doable, I think it can happen."

Shipbuilding has firm roots in the area, as there has been a shipyard in Quincy since 1696. The Quincy Shipyard Revitalization is viewed as a means to not only bring jobs to local workers, but to also demonstrate how America's national economic and security needs for shipbuilding can be met.

**MarAd Awards
NMI Ship Management
\$2.8 Million Contract**

The Maritime Administration has awarded a \$2.8 million contract to NMI Ship Management Inc., New York, N.Y., for activation, installation of an aqueous film forming foam fire fighting system and deactivation of the Ready Reserve Force (RRF) vessel *Cape Mohican*.

The Military Sealift Command requested that MarAd activate this vessel to serve in Operation Freedom Banner '94.

The work is expected to be performed at Norfolk Shipbuilding &

Dry Dock Co. in Norfolk, Va. It is scheduled to be completed by March 14. MarAd maintains the RRF as a select group of cargo ships to meet surge sealift needs in the early stages of military contingency operations. During Operation's Desert Shield and Desert Storm, MarAd activated 79 of its 96 RRF vessels. MarAd has also approved a request from Lykes Bros. Steamship Co., Inc. to terminate *Ashley Lykes'* current voyage

in East Africa and to commence a subsequent voyage in a foreign port following a charter of the ship to the Military Sealift Command.

**Moore Joins Blue Star Line's
Toronto Office**

Shirley Moore has joined Blue Star Line's (BSL) Toronto office as a customer service representative.

Ms. Moore is responsible for bookings, rates and general customer inquiries for BSL, which provides northbound and southbound shipping services between North America and Australia, New Zealand and the South Pacific Islands. Eastern Canadian cargoes move intermodally through Blue Star's Philadelphia hub. **Ms. Moore** brings seven years of customer service experience in the transportation industry to BSL.

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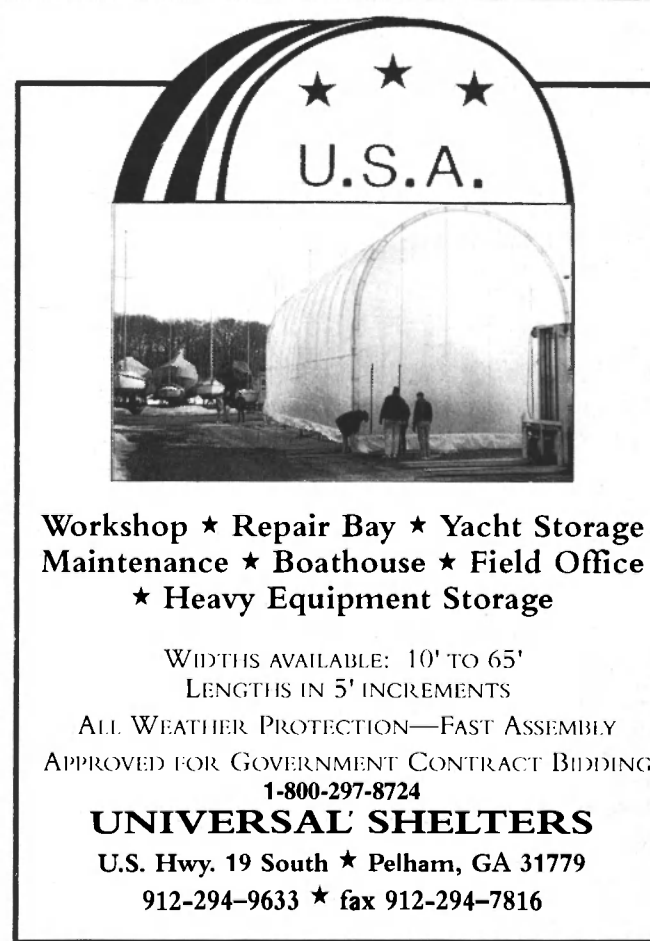
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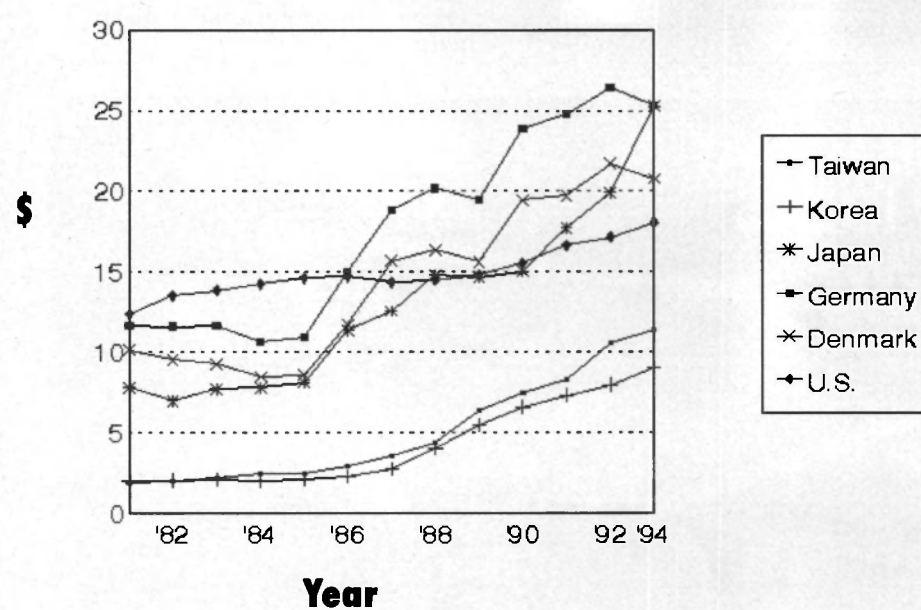
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INDUSTRY TRENDS

By
Jim McCaul, president
IMA Associates, Inc.



U.S. shipyards can be very cost competitive in the world market, as increased labor costs and exchange rate changes have made shipbuilding labor costs in Japan and Northern Europe significantly higher than labor costs in the U.S. (Note: 1994 results reflect up to April).

ASIS Issues Newbuilding Forecast To '97

Association for Structural Improvement of the Shipbuilding Industry of Japan Report Details of Tanker, Bulk Carrier Demand

The Association for Structural Improvement of the Shipbuilding Industry (ASIS) of Japan started research on the worldwide shipbuilding demand in 1991 to provide information on trends in the shipbuilding demand.

The final report in English is not yet completed, but full details of the finished report will be published in the June edition of *Maritime Reporter & Engineering News*.

ASIS used two scenarios, combined with prevailing and predicted world economic conditions, to provide its detailed analysis of the ship-

building and supply market for the next three years.

Trends in shipbuilding orders, completion and ship supply and demand balance were simulated in the following two cases:

- Case A: the conventional ship ordering and order receiving pattern bringing with speculative ordering upon the market recovery;
- Case B: Shipbuilding capacity will be also expanded.

For additional information on obtaining the report,

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SNAME Meeting Honors Member

SNAME's March 10 meeting at Stevens Center, Stevens Institute of Technology in Hoboken, N.J. featured 45-year SNAME member **Connie Gradilone**, as well as **Brunello Acampora** of Victory Design Srl — designer of the monohull speedboat *SM Racer*. The N.Y. Metropolitan nominations for 1994-5 were carried unanimously: **Richard C. Rodi** for chairman; **Alfred J. Bozzuffi** for vice chairman; **Christopher J. Reyling** for secretary; and **William S. Peters** for treasurer. The technical session of the meeting featured **Brunello**

Acampora, who discussed the design and practical operation of the 48-ft. (14.6-m) *SM Racer*, a monohull powerboat. Reportedly, monohull speeds are generally considered limited to 80 or so knots; any speed above 50 or 60 knots raises horizontal stability concerns. *SM Racer* reportedly defies this limitation. Its ability to do so is ascribed to its steep-planing hull design, but today's hydrodynamic theory can't account for why the hull design affords this extrastability. When Mr. **Acampora** finished his presentation, Prof. **D. Savitsky** made remarks —including very high praise in achieving the design, but also disappointment that there were no numbers to go along with its performance.

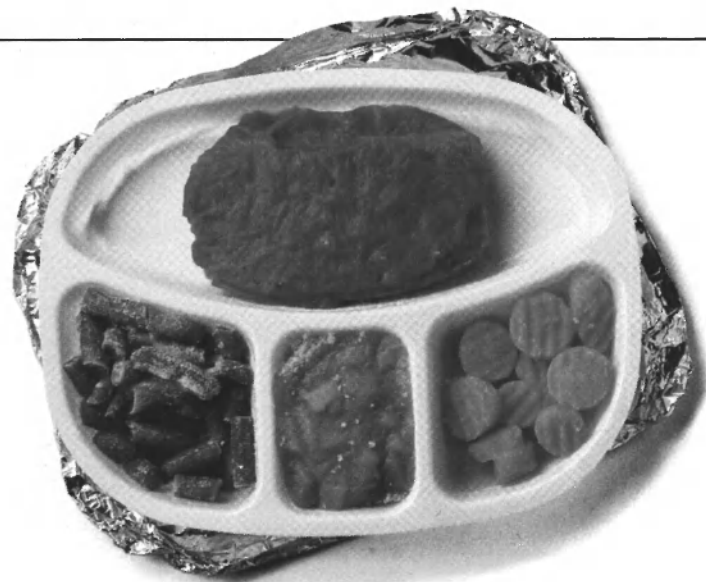
A few simple truths from Trimble:

- 1) We have no intention of getting into the refrigerator business.

- 2) No, we don't own the satellites.

- 3) And, yes, we did just launch a few new products that are causing a bit of a ruckus.

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1) There are undeniable advantages to focusing on one thing—and one thing only. Take our competitors. Let's start with the big ones. You'll see they're all in a lot of different businesses.

Businesses like inventing new space telescopes, maybe missiles, or, yes, even refrigerators. Businesses that, though they do develop one's engineering prowess, have very little to do with marine GPS.

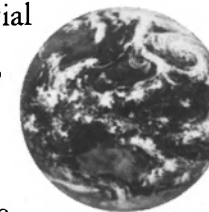
At Trimble, GPS is all we do. It's where we pour our R&D efforts—more than two million man-hours to date. We've focused our entire company on inventing cutting-edge GPS solutions.

If we're to be honest about it, we got a head start on our competitors. We were dedicated to GPS long before it was even a buzzword, let alone the most precise way to navigate through inland waterways, rocky coastlines, and high seas.

This head start enabled us to bring to market the world's first commercial GPS product in 1984. And in 1985, the world's first marine navigation system. And in 1989, the world's first large flat-screen display and GPS system in one—complete with NOAA charts. Then in 1990, the world's first totally integrated GPS receiver and antenna system, Acutis, and then in 1992, our popular hand-held Ensign.

All of which is a long-winded way of saying we're rather fixated on building the most innovative, most accurate, and most dependable GPS solutions around.

2) With performance this good, you might think we owned the whole damn GPS satellite network. Here's a true story: Last month, we were out testing some of our new differential products with customers. First, we used one of our differential receivers to prove we can pinpoint any buoy, dock, or isthmus within ten meters—anywhere in the world. Then we showed how Trimble can get a lock on your location within seconds. And then we demonstrated just how true our readings are, even when you radically change your speed.

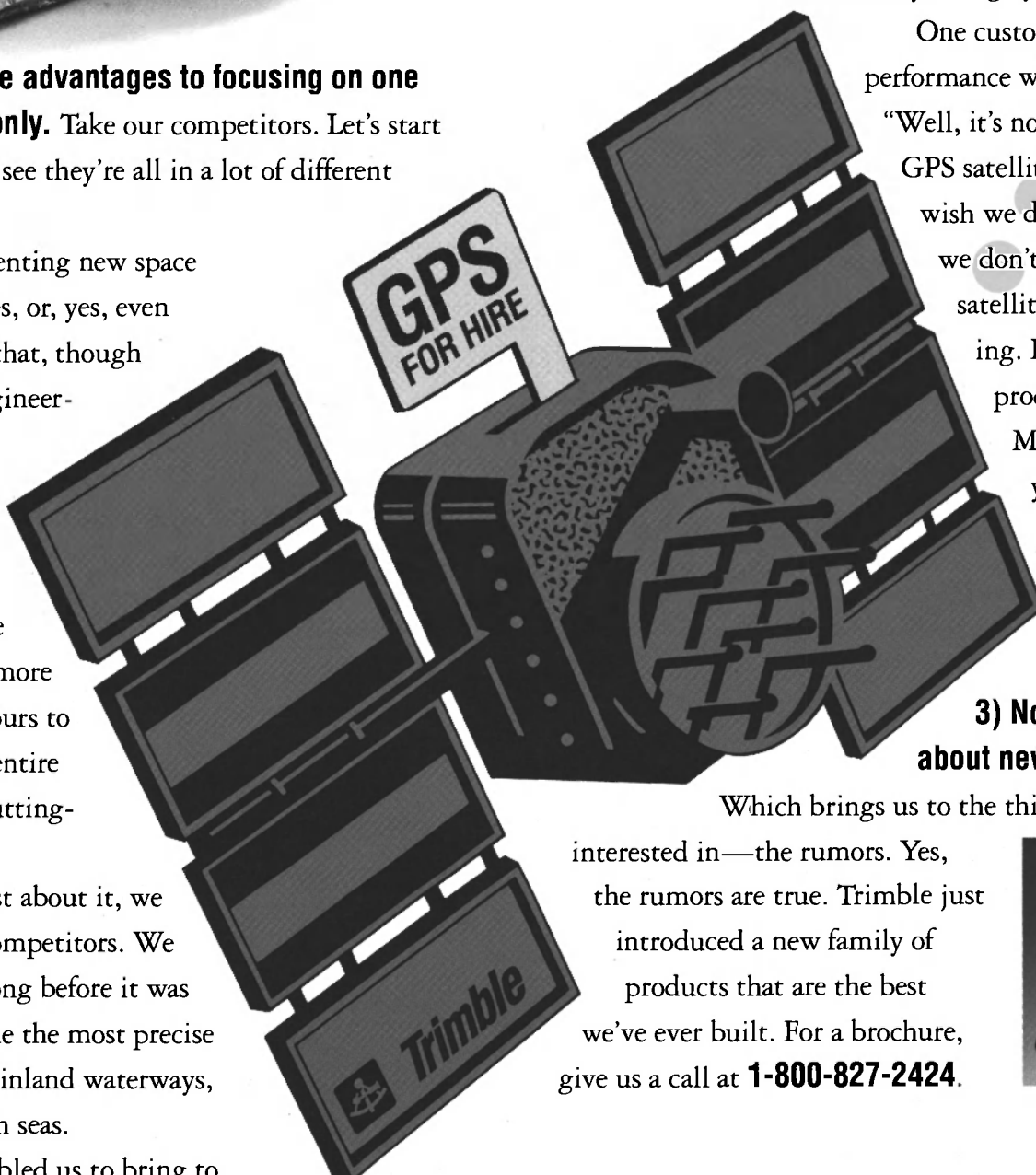


One customer, comparing that performance with our competitors, said, "Well, it's not fair—you own the whole GPS satellite system." Of course, we wish we did. But we have to admit we don't. The fact is that all GPS satellite data is free for the taking. It's just that not all GPS products are created equal.

More than anything else, your accuracy and performance is determined by one thing—whose product you buy.

3) Now about that gossip about new products from Trimble.

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Studds Acts On Maritime Reform Legislation Issues

Massachusetts Congressman **Gerry E. Studds**, chairman of the House Merchant Marine and Fisheries Committee, has been actively pursuing resolutions on several maritime issues, including towing safety, clean water and fish conservation.

Towing Safety

New legislation introduced by Sen. **Studds** — HR 4058, the Towing Safety Act — would abolish the operator's license and require towboats to be operated by licensed masters and, depending on size, carry up to three licensed mates. The bill would also require inspections of towing vessels that move oil and hazardous cargoes, and impose new licensing and staffing requirements on all towing ves-

sels. Earlier this year, Sen. **Studds**, Rep. **Billy Tauzin** (D-La.), Rep. **Jack Fields** (R-Texas) and Rep. **Howard Coble** (R-N.C.) introduced legislation to greatly increase requirements for navigational equipment these vessels must carry, and to require for the first time that operators demonstrate proficiency in the use of that equipment.

Sen. **Studds** stressed the necessity to require operators to demonstrate proficiency.

"These vessels should be inspected and those entrusted with operating them should be required to demonstrate that they can do so safely," he said.

The issue of towing safety has been brought very much into the public attention since the accident last year

near Mobile, Ala. in which a barge hit a railroad bridge, knocking it out of alignment and allegedly causing Amtrak's Sunset Limited train to plunge into the bayou — a tragedy that resulted in 47 fatalities.

"Polluter Pays" Clean Water Funding Act

In line with his emphasis on the safe operation of tows pulling barges laden with oil or other hazardous cargo, Sen. **Studds** spoke with more than 150 Clean Water Action community organizers from around the country, among hundreds drumming up support for his bill to provide \$4 billion in revenues to fund clean water projects.

"This nation's commitment to clean water is very much in jeopardy over our inability to pay for it," said Sen. **Studds**. "To me it is only logical that we turn to those that are the source of the problem: the polluters." Sen. **Studds'** HR 2199, the "Polluter Pays" Clean Water Funding Act, would impose a tax on toxic discharges into water and in-

dustrial water use. To help control polluted run-off, the bill would tax fertilizers, pesticides and animal feed.

Marine Mammal Protection Act Re-Authorized

The House passed Sen. **Studds'** Marine Mammal Protection Act Amendments of 1994 (HR 2760) on March 21 to re-authorize the Marine Mammal Protection Act for six years.

The Senate passed their own re-authorization, and differences between the two bills were being worked out at press time. The original bill was enacted in 1972 to prevent the taking of marine mammals in fishing operations.

The House bill would establish a program to manage interactions between the commercial fisheries and marine mammals.

For fisheries where incidental takes are possible, the bill provides authorization if vessels comply with monitoring and reporting requirements in the Act, and with plans to reduce takes.

The level of takes is dependent upon the numbers of a species necessary for a stable population. "Incidental take reduction teams" composed of fishermen, biologists, government, environmentalists, and others to work with the National Marine Fisheries Service (NMFS) would be established to develop take reduction plans.

SUNY Maritime College Honors Adm. Miller; Appoints Piccirillo

Hailed as a Rickover nuclear navy pioneer who now "has earned the role of national legislative spokesman for the nation's six state maritime colleges," the president of SUNY Maritime College, Rear Admiral **Floyd H. Miller**, USN (Ret.), was honored by the Maritime College Alumni Association.

Adm. **Miller**, a 1953 alumnus of the SUNY Maritime College, received the college alumni association's highest honor, its annual distinguished alumnus award, at a luncheon at the Whitehall Club at Battery Park in Manhattan March 10. SUNY Maritime College has also appointed a new development officer. **Nanette Piccirillo**, a former aide to Sen. **Earnest F. Hollings** of South Carolina, has been appointed development officer at the SUNY Maritime College at Fort Schuyler in Throgs Neck, N.Y.

Rear Adm. **Miller** said Ms. **Piccirillo's** appointment will aid final fundraising for completion of the College's Center for Simulated Marine Operations.

The simulator center already has nine different simulator units. The center and a pierside training tanker complete with a half dozen tank level indication systems make the Maritime College one of the most advanced simulator training centers, one used widely by the maritime industry.

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Artist's impression of a Type 2000 Frigate under construction for the Royal Malaysian Navy. The vessel is equipped with KaMeWa 3F2-type Controllable Pitch Propellers with five blades of the latest high-skew design.

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USCG Seeks Comments On Proposed Passenger Vessel EPIRB Requirement

The U.S. Coast Guard (USCG) is seeking comments on a Supplemental Notice of Proposed Rule Making (SNPRM) that would require Emergency Position Indicating Radio Beacons (EPIRBs) for certain uninspected passenger vessels and uninspected vessels engaged as vessel assistance towing vessels.

The proposed regulations are in response to the EPIRBs on Uninspected Vessels Requirement Act, and identify an uninspected passenger vessel as one that carries six or less passengers for hire and is referred to as a "charterboat." The regulations would apply to the vessels when operating more than three nautical miles from the coastline or when more than 4.8 km (three statute miles) from the coastline of the Great Lakes. Under specific circumstances, these vessels may be exempt from proposed regulations.

The USCG is also recommending that all uninspected vessels on coastal waters not currently required to carry visual or distress signals, be required to carry such safety devices. The USCG emphasized that these two requirements will enhance search and rescue operations and will be effective in reducing the possibility of loss of life at sea and/or damage to marine property. Comments must be received prior to June 17, 1994 and addressed to the Executive Secretary, Marine Safety Council, G-LRA-2, U.S. Coast Guard Headquarters, 2100 Second St. SW, Washington, D.C. 20593-0001, or by calling at tel: (202) 267-1477.

Clinton To Channel \$30 Million For Northeast Fishing Industry Aid

The U.S. Department of Commerce will have access to \$30 million in emergency funding to provide assistance to the Northeast fishing industry, President Clinton told Congress. The money will also be used to aid communities affected by that industry's collapse, and will provide loan guarantees for fishery facilities and vessel retrofits. The funds for the assistance will come from the Presidential contingency disaster fund provided by the Emergency Supplemental Appropriations Act of 1994 and distributed to two bureaus of the Dept. of Commerce:

- \$18 million will go to the Economic Development Administration for development assistance programs for the fishing industry, as well as affected communities. The funds will be used mainly for restructuring or refinancing debt, technical aid, and planning.
- \$12 million will go to the National Oceanic and Atmospheric Association (NOAA) to help expand processing and marketing of underutilized species and develop aquaculture opportunities. NOAA will also provide loan guarantees to

finance/refinance fisheries production equipment, including on-shore facilities and vessel retrofits.

Lady Luck Wins Mississippi License Renewal

Lady Luck Gaming Corp.'s Natchez, Miss. subsidiary was re-

cently granted a renewal of its license to operate in Mississippi — the first renewal the state has issued — by the Mississippi Gaming Commission. Lady Luck was also reportedly the first company to be granted a license in Mississippi, in March 1992.

"This operation has been an excellent demonstration of how a community and a gaming organization can work successfully together," said

Andrew Tompkins, Lady Luck Gaming Corp. chairman.

Lady Luck Natchez, the company's first riverboat, is a showboat-themed casino which resembles the historic *J.M. White Mississippi* riverboat that docked at Natchez in the late 1880s. The company also recently received approval from the Commission for Lady Luck Vicksburg, a casino project to cost approximately \$45 million.



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French Yard Delivers *Paglia Orba*, 544-Ft. RoRo Ferry

Ateliers et Chantiers du Havre (ACH) recently delivered the RoRo passenger vessel *Paglia Orba* to her owner, Societe Nationale Maritime Corse-Mediterranee (SNCM). Her keel was laid on July 6, 1992 and she was launched on June 3, 1993. The date of delivery was March 15, 1994.

She will be able to accommodate 200 passengers, with a high decoration standard, and will mainly sail between Marseilles and Bastia (Corsica). The *Paglia Orba* derives its name from a mountain in Corsica.

The builder says the ship's structure is extremely complex due to the absence of interior support systems inside the garages, which would have been detrimental for commercial purposes, and also due to the extreme loads and the considerable static loads and dynamic stresses at

play on the heavy seas. The distribution of passenger quarters was developed in close cooperation with SNCM, and the visual result is a streamlined silhouette of the vessel, the vertical volume being visible midships.

The ship has an overall length of 544 ft. (165.8 m), a width of 95 ft. (29 m) and a 7,644-ft. (2,330-m) roll lane length, and very high overhead clearance for vehicles, particularly at access doors. The design of the passenger doors will reportedly enable high-speed loading and unloading, the internal access ramp for the upper garage deck is more than 40 percent of the total vessel length.

Propulsion is provided by four 4,930 kW, medium-speed Wartsila Vasa 16 V 32 DF diesel engines connected through two shaftlines to

a double input/single output Maag gearbox with 1,600 kW PTO, then to two KaMeWa cp propellers. The configuration gave the vessel a 20-knot trial speed, and a 19-knot cruising speed. Wartsila Vasa also provides the electrical power generation with three 1,180 kW gensets using Wartsila's 4 R 32 DF model.

Paglia Orba is fully automated as per AUT-PORT CNC 1 BUREAU VERITAS mark, conforms to the latest safety rules, and is fitted with an ACH two-fin anti-rolling stabilizer, which the builder says are the largest ever built in the world.

For more information on Ateliers et Chantiers du Havre,

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Paglia Orba Equipment List

Main engines	Wartsila Vasa
Gensets	Wartsila Vasa
Gearboxes	Maag
Propellers	KaMeWa

New York SNAME Section Sponsors Symposium

The New York Metropolitan Section of the Society of Naval Architects and Marine Engineers (SNAME), in conjunction with the Institute of Marine Engineers (IME), the American Society of Naval Engineers (ASNE), the Society of Marine Consultants and the Connecticut Maritime Association will be sponsoring a ship Operations, Management and Economics Symposium on May 12, 1994 at the U.S. Merchant Marine Academy, Kings Point, N.Y. Paper topics will include: Navy, MSC, U.S. Coast Guard and NOAA Operations, Design and Construction; Maintenance and Repair; Environmental Issues; Management and Operations; and Regulatory classification issues.

The luncheon keynote speaker will be Adm. **Albert Herberger**, the Maritime Administrator of the U.S. Department of Transportation, and Shipbuilders Council of America (SCA) chairman **John J. Stocker** will present a paper called *The Task Before Us: The Transition of American Shipyards to the Global Market*.

For more information on the event, contact: Lcdr. **Kevin Carpentier**, U.S. Coast Guard, MLC Atlantic (VR), Building 400M, Room 305, Governors Island, N.Y. 10004.

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Alabama Shipyard To Build Two Tank Barges For Penn Maritime

Alabama Shipyard has signed a contract with Penn Maritime, Inc. of Stamford, Conn., to build two 460-foot (140-m) by 72-foot (22-m) by 36-foot (11-m), 100,000-barrel oil tank barges. The first vessel will be delivered in the first quarter, and the second vessel in the second quarter of 1995.

The barges are double skin with ship-shape bow and deep notch stern arranged for the "Intercon Coupler" system. They will be constructed to American Bureau of Shipping Maltese Cross A1 Oil Tank Barge specifications—unmanned, unrestricted ocean service, and in compliance with OPA '90.

The barges will be equipped with thermal oil heating for the carriage of asphalt products.

Schuller & Allan, Inc. of Houston, Texas, are the naval architects for this project.

Penn Maritime, in conjunction with Morania Oil Tanker Corp. is reportedly the largest carrier of asphalt products in the U.S.

Alabama Shipyard, Inc. is a wholly-owned subsidiary of Atlantic Marine Holding Company, Inc. of Jacksonville, Fla.

For more information on Alabama Shipyard,

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Touted as the leading worldwide forum for the exchange of technical information vital for exploration and development of ocean resources and protection of the offshore environment, the 1994 version of the Offshore Technology Conference (OTC) once again offers a strong cast of exhibitions and conferences.

Scheduled for May 2 to 5 at the Houston Astro-dome U.S.A. Complex, OTC primarily serves the offshore industry engineers, managers and scientists from around the globe.

Considered a leading international event, the OTC exhibition will include approximately 1,250 manufacturers and suppliers of offshore equipment and services, occupying more than 225,000-sq.-ft. of space in the ExpoCenter, Astrohall and outdoor exhibition arena. Recent exhibit space reservation statistics indicated a 10 percent increase over last year's show, a fact show management attributes to increased emphasis on overseas operations and a general expansion of the world market. National stands will include companies and delegations from: Canada, the European Community, Finland, France, Germany, Italy, Japan, Monaco, The Netherlands, Norway, Scotland, Sweden, the U.K. and, for the first time, Australia.

Since OTC's inception more than a quarter of a century ago, more than one million registrants representing 100 countries have attended the technical programs and exhibitions. "The field-ready nature of our technical papers has always been an OTC hallmark," said **Stephen Cassiani** of

Exxon Exploration Co., and the incoming Chairman of the OTC Board of Directors. Of the papers for presentation, the focus will vary and address a wide range of topics considered crucial to more efficient, safer and environmentally conscious offshore oil and gas operations.

Two highlights of the 48 session technical program are "Incentives/Disincentives in Offshore Developments" on Tuesday, May 3; and "U.S. Natural Gas Supply Options" on Wednesday May 4. The former will examine emerging trends that serve as indicators of the future of offshore development projects, spotlighting promising opportunities, while the latter will offer opinions on the strategic options available

to meet projected increased U.S. demand for natural gas, with a discussion of alternative sources.

A total of 244 papers were accepted for presentation, and while the topics, speakers and times are too lengthy to provide in their entirety, morning sessions will be held from 9:00 a.m. to noon, Monday through Thursday; afternoon session will be held from 2:00 to 5:00 p.m., Monday through Wednesday. A sampling of the topics for discussion include: Instrumentation and Control Systems; Gryphon Field Development; Mobile Offshore Drilling and Production Units; Floating Production Systems; Design & Repair of Offshore Structures; and Environmental Compliance — Industry Trends.

For additional information on OTC '94, contact: OTC, P.O. Box 833868, Richardson, Texas 75083-3868, tel: (214) 952-9494, fax: (214) 952-9435.



OTC '94

26th Annual Conference
Slated For May 2 to 5



OTC '94 Technical Program Highlights

Day/Time	Topic/Description
Monday, May 2:	Topical Luncheon - "HIBERNIA": Bob Kimberlin , president of the Hibernia Management and Development Co., Ltd., will detail the challenges of Hibernia, the first major oil development production project offshore Newfoundland on Canada's east coast.
Monday, May 2:	Topical Luncheon - "Offshore Vietnam: Business Opportunities for Operators, Contractors and Vendors": A revealing presentation on the Vietnamese oil and gas industry, including information on existing fields and proven discoveries. Discussion to include descriptions of the Vietnamese State's decision-making structure, and how oil and gas policies are established and carried out.
Tuesday, May 3:	"Incentives/Disincentives in Offshore Developments": Widespread offshore development of subsea hydrocarbons has become a global enterprise and competition for large producing companies finite operating capital is a relatively new phenomenon to the industry.
Wednesday, May 4:	Topical Luncheon: "AUGER—One Giant Step in Deepwater Evolution": R.A. (Rich) Patarozzi , general manager of the Deepwater E&P Div. for Shell Offshore Inc. in New Orleans, will discuss the evolution of the exploration and development of the deepwaters of the Gulf of Mexico. The design, fabrication and installation of the record-setting Auger tension leg platform and pipelines have been completed under budget. (See related story, page 18.)
Wednesday, May 4:	"U.S. Natural Gas Supply Options": While U.S. demand for natural gas is rising 2.5 percent annually, the U.S. supply is declining. As a result, gas prices are rising. A panel of government officials and industry executives will discuss the options to meet projected U.S. demand.

April, 1994

17

Auger

Shell Sets Record With Gulf Of Mexico Tension Leg Platform

Late last year, following four years of construction, Shell Oil Company's record-setting "Auger" tension leg platform (TLP) was towed out to its new home, some 255 miles southeast of Houston, Texas, in the deep water Gulf of Mexico. Installed in 2,860 feet (871.7 m) of water, the Auger TLP reportedly set a world water-depth record for a drilling and production platform, and surpassed the existing Gulf of Mexico record by more than 1,000 feet (304.8 m).

"It (Auger) opens a new chapter in industry's efforts to tap the tremendous potential of this deep water frontier," said Jack E. Little, Shell's executive vice president of Exploration and Production. At the installation site, 12 tendons made of steel pipe, each more than half a mile long, attach to the corners of the floating platform and anchor to footings on the sea floor. The entire Auger project will cost approximately \$1.2 billion. Production, which at press time was just about to begin, is expected to reach a peak daily rate of 46,000 barrels of oil and 125 million cubic feet of gas in the year 2001. Total recovery from the Auger field is estimated at 220 million barrels of oil and gas equivalent. Auger's deck was built by McDermott Inc. in Morgan City, La., and the hull was built by Belleli S.p.A. in Taranto, Italy. The deck and hull were connected at sea last October, and from there the structure was towed for its final hook up. The deck section measures 290 feet (88.4 m) by 330 feet (100.5 m). Shell also announced plans to build its second TLP to develop its Mars field in the Gulf of Mexico. The Mars TLP will be installed by 1996 in 2,933 feet (893.9 m) of water, surpassing Auger's water depth record.

AUGER TLP SPECIFICS

The Auger Prospect encompasses four OCS leases in the Garden Banks Area—blocks 426, 427, 470 and 471—located about 255 miles southeast of Houston and 214 miles southwest of New Orleans. The



Pictured: McDermott's Derrick Barges 16 and 28 were moored adjacent to the hull and provided crane and rigging support and quartering for mating operations. McDermott's Derrick Barge 50 was used to install the preset portion of the lateral mooring system.

leases were acquired for \$11.3 million, and are 100 percent owned by Shell Offshore Inc.

The discovery well was drilled on block 426 in 1987; one other well and three sidetracks were drilled on the four blocks and 3D seismic information was used prior to making the

decision on development.

Shell Offshore Inc. made public its decision to develop Auger in December, 1989. The Auger TLP is the first in the Gulf of Mexico to support both a drilling rig and complete production facilities. Of the total \$1.2 billion project cost, about 65 percent

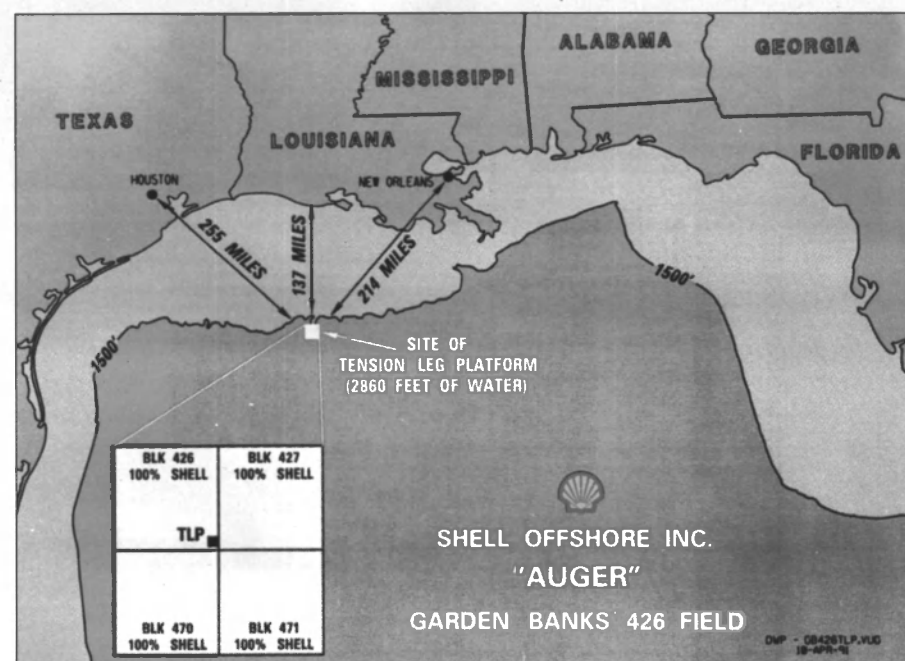
was spent for fabrication and installation of the hull, deck, facilities, drilling rig and pipelines; with the remaining 35 percent going for drilling and completion of the wells.

• Construction & Fabrication: The Auger superstructure was designed and engineered by Shell Oil Company, and in total, more than 740 companies in 30 states and 33 countries were involved in the construction of the TLP. The steel weight of the TLP is 39,000 tons, and it is designed to withstand hurricane-force waves of 71 feet (21.6 m) and winds of 140 mph. The hull, which weighs approximately 20,000 tons, is comprised of four circular steel columns, 74

feet (22.5 m) in diameter and 159 feet (48.5 m) high, and four rectangular steel pontoons, 35 feet (10.7 m) wide and 28 feet (8.5 m) high, which connect the bottoms of the four columns. The deck design is an open truss box steel girder, and weighs approximately 10,500 tons.

• Tendons: Various components of the tendons were manufactured by Oil States Industries in Arlington, Texas; ABBVetco in Houston; and Hunting Oilfield Services in Aberdeen, Scotland. The tendon sections were assembled by Aker-Gulf Marine at Ingleside, Texas. There are 12 tendons, three per corner, each with a diameter of 26 inches and a wall thickness of 1.3 inches. Each tendon is approximately 2,760 feet (852.2 m) long, and the total weight for the 12 tendons is 5,800 tons.

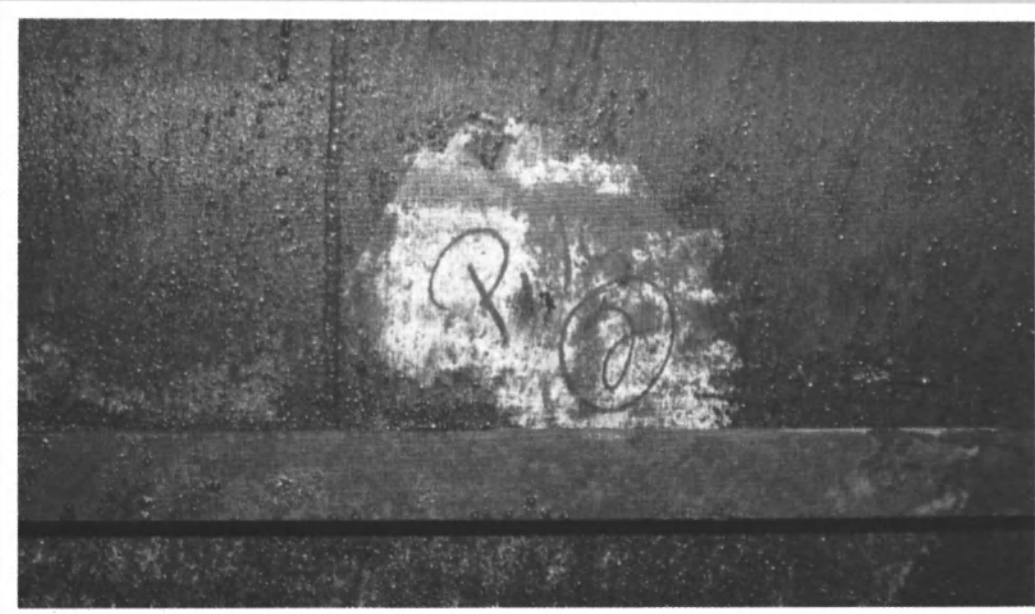
• Foundation Fabrication: The foundations were fabricated by Aker-Gulf Marine, and installed on location by Herremac. There are four foundations, one per corner, consisting of templates held in place with piles. The piles are connected to the templates by means of Hydro-Lok connectors. The templates are steel truss frames, 60 feet (18.3 m) by 60 feet by 30 feet (9.2 m) high. There are four piles per template, each 72 inches (183 cm) in diameter and 427 feet (130.1 m) tall. The four templates weigh 2,440 tons, total; the piles weigh 3,250 tons, total.



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Hibernia

Canadian Project Still Has Many Contracts To Award

Despite recent reports regarding delays and cost overruns, the \$3.8 billion (preproduction costs) Hibernia Project will still achieve its goal of oil production in 1997, according to **Bob Kimberlin**, president, Hibernia Management and Development Co. Ltd. Hibernia, which is projected to produce 125,000 barrels per day (150,000 barrels per day at peak capacity) for 19 years, has created much interest and activity in the marine sector recently with contract award and bid announcements.

While Mr. Kimberlin conceded that there is a \$223 million overrun in the construction costs of the Gravity Base Structure (GBS) (versus original forecasts), he maintains that costs are below forecasts in other areas, and combined with ongoing savings measures, the project will come in within budget.

Recently a team of experts—including Hibernia, NODCO and Norwegian Contractors personnel—was assembled to improve GBS construction techniques.

"The Norwegian Contractors team has many years of experience in building GBSs in Norway," said **Henk van Zante**, construction general manager.

RECENT PROGRESS

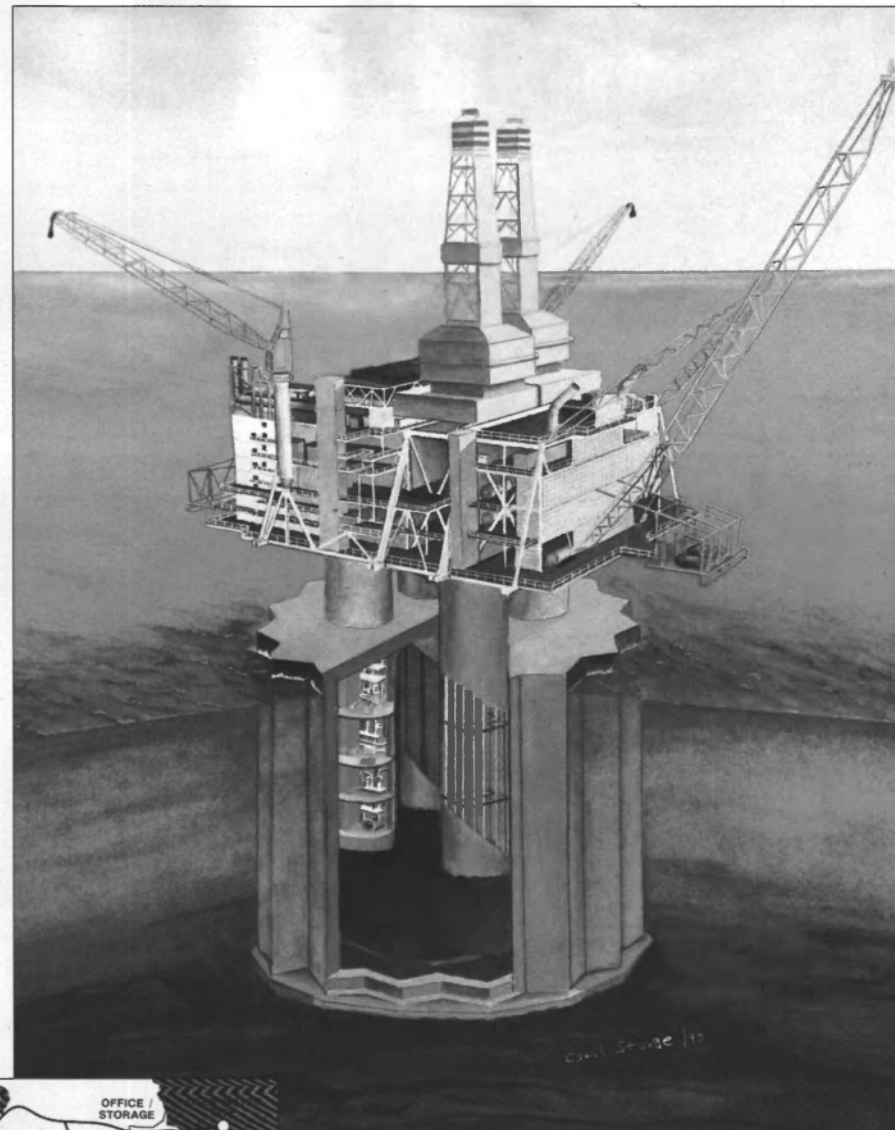
In the Topsides area at Bull Arm, the Wellhead module fabrication is 40 percent complete, and final fabrication is expected by December. In mid-February, the first steel plates

were cut for the Topsides Mounted Structures (helideck, life boat station, auxiliary life boat station and flare boom). Construction of the Topsides Mounted Structures is expected to be complete in March 1995.

In the overseas fabrication yard, work is also progressing. The Process Module and Living Quarters and Services Module, which are being built in South Korea, are 35 percent complete. The Mud Module and Utility Module, which are being built in Italy, are 25 percent complete. These modules will be completed in early 1995 and transported to the Bull Arm construction site for assembly and hook-up.

Neptune Heavy Lift of Norway was awarded the contract for loadout, transportation and mating with the GBS. The scope of the contract includes the design, engineering and execution of the mating operation of the topsides drilling and production facility with the GBS at the deep water site at Bull Arm.

Once the five Topsides supermodules have been assembled on the assembly pier, barges will be aligned under the completed facility. The drilling and production facility weighing 37,000 tons will be transferred from the pier to barges, which will then be towed in a catamaran fashion to the GBS at



Construction Site Facilities, Bull Arm, Newfoundland.

THE TOPSIDES

The most significant changes in the Hibernia project since its original design is the approach to the Topsides. The original Topsides design used the steel Main Support Frame (MSF) as its principal structural member. Developments in integrated structure technology suggested that weight, and costs, could be saved by assembling the Topsides with fewer, larger modules, and by using skidding techniques instead of heavy lift vessels to bring the modules together.

The Hibernia consortium studied the feasibility of applying this new technology to the project. The new design has eliminated the MSF and accommodated the Topsides in five large modules and seven smaller topside-mounted structures.

These design improvements have not only resulted in significant cost savings, but have also enhanced the operation safety of the platform.

LOADING & TRANSPORTATION

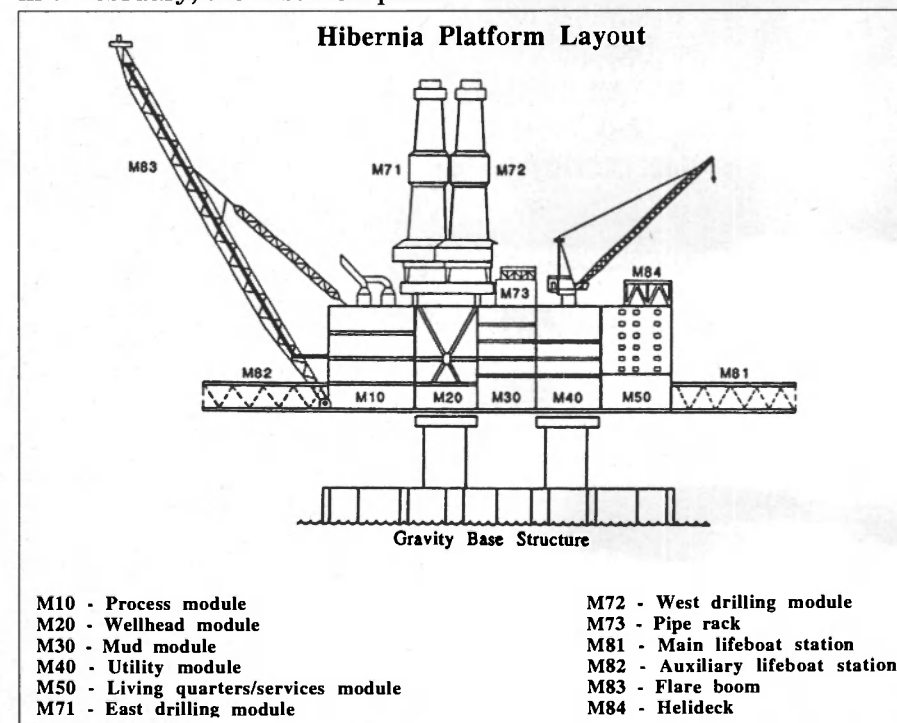
The loading and transportation system will include pipelines connecting the platform to the two offshore loading systems (OLS). They transfer oil from the pipelines to tankers which will transport Hibernia oil to the market. Each OLS will be capable of loading 55,000 barrels of oil per hour, and of being

the deep water site for mating.

THE GRAVITY BASE STRUCTURE

The GBS design was selected for the Hibernia project in 1985. Affiliate companies of two of the Hibernia owners, Mobil and Chevron, have gained considerable experience from developing and operating GBS projects in the North Sea.

The GBS will consist of three components: a concrete base slab, a concrete caisson (ice wall) reaching from the seabed to about 16.4 feet (5 m) above mean low water level, and four concrete shafts starting at the base slab and extending above the caisson. The four shafts—two drill shafts, a riser shaft and a utility shaft—will support the topside facility. When completed, the GBS will have a total height of 364.2 feet (111 m). The topsides facilities will be mated to the GBS and the completed platform towed to the field site. During tow-out, the completed platform will weigh about 600,000 tons. At the field site, the platform will be grouted and solid ballast will be added to secure it to the ocean floor.



flushed and filled with water in the event of potential impact by a large iceberg. The size and number of tankers to be used has not yet been finalized. As set out in the development plans, three 120,000-dwt double-hull tankers with a cargo capacity of approximately 900,000 barrels of oil each will be used. Contracts for the tankers and submerged Offshore Loading System are separate from other contracts for the project, and will be directly managed by the Hibernia company. For additional information on the Hibernia project,

Circle 43 on Reader Service Card

Hibernia Fast Facts

Owners: Mobil Oil Canada Properties (33.125%)
Chevron Canada Resources (26.875%)
Petro-Canada Hibernia Partnership (25%)
Murphy Atlantic Offshore Oil Co. (6.5%)
Government of Canada (8.5%)

Operating Company: Hibernia Management & Development Co. Ltd.

Position: 315km east southeast of St. John's

Capital Cost (to start production) \$5.117 billion

Expected Recovery: 615 million barrels of oil

Production Capacity: 150,000 barrels per day

Development Wells: 83

Module Assembly/Hook-up: April 1995

Mating of GBS & Topsides: April 1996

Tow out to offshore production site: July 1996

First Oil Production: July 1997

Hibernia Contract Update

Contract	Award Date
Support vessels	1st Qtr. '94
Anchor handling tug	1st Qtr. '94
Heavy lift crane	1st Qtr. '94
Fabrication riser tower/drill decks	1st Qtr. '94
Supply of marine construction tug vessels	1st Qtr. '94
Supply of marine operations vessels	1st Qtr. '94
Supply of ferry vessels	1st Qtr. '94
Solid ballast deep water site	2nd Qtr. '94
Supply & Fabrication titanium piping	1st Qtr. '94
Fabrication of crude oil piping modules	2nd Qtr. '94
Shuttle tankers	2nd Qtr. '94
Drilling contractor	3rd Qtr. '94
Turbine exhaust & structural supports	2nd Qtr. '94

Schelde Shipbuilding Gets Order For MaK-Powered RoRo Ship

Commodore Ferries has placed an order with Schelde Shipbuilding for the delivery of a new twin screw RoRo freight vessel, scheduled for delivery in May 1995. The vessel will reportedly be the largest to operate a freight service on the Channel Islands routes. The ship will measure 414 feet (126.3 m) long, 70.2 feet (21.4 m) wide, and

will have a deadweight of 5,215 tons.

Each propeller will be driven by a MaK engine of 4,500 kW at 500 rpm through a Schelde Gears designed and built propulsion gear. Each gear has an 800 mm horizontal offset between input and output shafts and a built-in quillshaft-mounted, hydraulically operated multi-plate friction clutch. All gear elements, which have single helical teeth and are hobbled, carburized, hardened and ground, run in journal bearings.

For more information on the capabilities of Schelde Gears,

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Daytona Marine Diesels Focuses On Maritime

Daytona Marine Diesels builds engines only for the marine industry, and is dedicated to the develop-

ment and production of high horsepower, light weight power plants to fill a plethora of propulsion needs. The company offers a range of engines in four- and six-cylinder inline, and V-8 configurations.

The engine makers' turbo-charged and inter-cooled diesels deliver ratings ranging from 120 to 820 horsepower. For more information on Daytona Marine Diesel,

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LEGISLATIVE UPDATE

Ferry Contract Dispute Settled By Legislature

By
Kathleen Gleaves, contributing editor

In mid-September the Washington State Ferry System (WSF) awarded the propulsion system contract for its three new Jumbo Mark II ferries to Siemens' Automation and Drives Division. The celebration was short-lived. Six weeks after the formal announcement, NC Machinery filed a lawsuit to halt the \$47 million award.

NC Machinery, whose CAT engines were not part of the winning

Siemens proposal, claimed that the state did not follow its own procurement laws in awarding the contract. Citing a single sentence in the Revised Code of Washington (RCWs) they claimed the bid evaluation committee was required to do a life-cycle analysis, an analysis they believed would have earned its engines top placing in the final evaluation. Ferry system lawyers argued that the law required only that a determination be made as to whether a life-cycle analysis was in the best interest of the State. WSF management and State Procurement analyzed it and determined that it was not the best method for selecting the engines. State professional and licensed engineers maintain that in a strict life-cycle analysis, fuel efficiency swamps all other criteria including factors they deem more important, such as reliability, maintenance and commonality.

The December court hearing lasted two days during which attorneys for both sides presented an avalanche of technical data to the judge who eventually enjoined the state from proceeding with the Siemens contract, halting all work in progress.

Ferry system managers objected, stating that due to previous difficulties with the procurement department the project had already been out for bid twice, it was months behind schedule and further delays would cost taxpayers additional dollars and leave them without badly needed ferry capacity for at least another year.

Shortly before the judge's written decision was presented, a deal was struck between the state and NC Machinery to remove the engines from the propulsion package and bid them separately, allowing Siemens to remain as the propulsion system vendor and work to continue.

The ferry system then turned to the state legislature for help, asking for one-time permission to remove the life-cycle analysis requirement for its engine selection. The bill passed the House on February 26 and the Senate on March 5.

Lobbyists for every major engine manufacturer were working hard in Olympia attempting to add wording to the proposed law that would favor their product. Ferry system representatives worked equally hard to keep the bill free of encumbrances. Upon passing, the bill carried only one amendment, which requires the state to consider only the technical data that appears on the manufacturer's specification sheet in its analysis. No personal knowledge, field experience or outside information can be used in the evaluation process.

Though unhappy with the amendment, ferry engineers feel they can work with the bill as written and will be able to get the project back on track.

Siemens' original proposal package contained EMD 710 diesel engines. Rounding out the system are Kato alternators, Trafo transformers and Bird-Johnson shafting and propellers. Siemens will supply their own switchboard, propulsion motors

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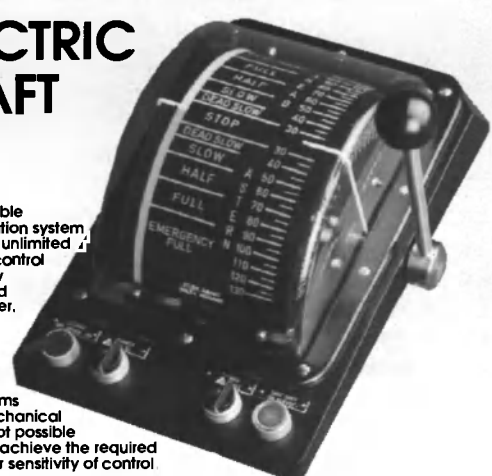
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and control, alarm and monitoring systems.

The specification package for the hull design should be on the street by late April. Bids are expected from Todd Shipyards, and a consortium of small yards in the Seattle area who are proposing a modular construction package similar to that utilized in the construction of the two Spirit class ferries recently built in British Columbia.

Astilleros Espanoles Sells 20 Percent Of Manises To MAN B&W Diesel A/S

Spanish state-owned shipbuilder Astilleros Espanoles has partially privatized its diesel engine factory in Manises, Valencia, by selling a 20 percent of the shares to MAN B&W Diesel A/S, the Danish two-stroke diesel engine designer and manufacturer.

Manises factory has become a new company, named Manises Diesel Engine Company, S.A., acting independently and separately off the Astilleros Espanoles group. Nevertheless, the new company maintains the strong links with the parent group deriving from the share of 80 percent kept by Astilleros Espanoles.

Manises Diesel Engine Co. manufactures two-stroke diesel engines in unit sizes of up to 75,000 bhp for both marine propulsion and stationary power generation purposes.

AESA has been licensed from MAN B&W Diesel A/S to manufacture two-stroke diesel engines since 1939, and the cooperation between the Spanish shipbuilding group and the Danish manufacturer has been increasing over the years, particularly in the technical field.

The Manises factory has mainly delivered engines to the Spanish market, Spanish shipyards and power generation plants in the Spanish Balearic and Canary islands, and few times to foreign markets.

Through the new basis of cooperation with MAN B&W Diesel A/S, the Manises Diesel Engine Co. will get an extended access to other markets. For more information on the new venture from Astilleros Espanoles,

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ABB Propulsion Package Chosen To Drive World's Largest Cruise Ship

ABB Marine signed a contract with Fincantieri of Italy for the delivery of the electrical propulsion and power systems for the 95,000-grt cruise vessel under construction for Carnival Cruise Line (CCL) of Miami. The vessel is due to enter service in 1996.

In all, ABB Marine will deliver: four main generators, 11.2 MW each; two main generators, 8.4 MW

each; a main switchboard; two main propulsion motors, 20 MW, speed-controlled by 6.6 kV water-cooled cycloconverters; three bow thruster motors, 1.72 MW; three stern thruster motors, 1.72 MW; five air conditioning compressor motors, 1 MW each; two motor/generator sets; ten distribution transformers (various ratings); and one emergency generator.

ABB Marine in Helsinki (ABB Industry Oy), responsible for the

technical coordination, is providing the basic systems engineering and supplying the main generators and the Cyclo propulsion system. ABB Marine in Italy (ABB Industria S.p.A.) will supply the main switchboard, the transformers, the motor/generator sets, the thruster and air conditioning motors, as well as the emergency generator.

Similar ABB systems are being installed in five of CCL's Fantasy-class ships under construction at

Kvaerner Masa-Yards, and four of Holland America Line's Statendam-class vessels being built at Fincantieri's Monfalcone shipyard.

ABB propulsion and power plants have been ordered for a Crystal Cruise vessel, the Crystal Symphony, under construction at Kvaerner Masa's Turku yard. For more information on the propulsion packages from ABB Marine,


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BWS To Help Outfit NNS-Built Sealift Ships

Newport News Shipbuilding & Drydock awarded BWS Marine, Inc. a contract to supply two shipsets of Delta Marine Incinerators for the Strategic Sealift Conversion Program. The incinerators will be made in the U.S., under license from Detegasa (of Ferrol, Spain) in com-

pliance with the contract's "buy American" provision.

The Delta Marine incinerators enable the ships to meet the requirements of Marpol 73/78 Annex V "Pollution by garbage from ships." For further technical information on the complete range of Delta Marine incinerators and BWS's full line of marine equipment available from BWS Marine, Inc.,

Circle 129 on Reader Service Card

Daihatsu Names In-Place Machining Authorized Parts & Services Company

Daihatsu Diesel Mfg. Co. has designated In-Place Machining Co. (IPM) as "Authorized Parts and Service Company" for the complete line of Daihatsu Diesel generator and propulsion engines. When crankshaft replacement is impractical,

In-Place Machining Co. refinishes crankpins in place utilizing equipment specifically designed for Daihatsu Crankshafts. If cast iron parts are cracked or broken, IPM performs Metalstitch repairs. For more information on In-Place Machining,

Circle 131 on Reader Service Card

Thordon Bearings Offers Array Of Marine Bearings

Thordon Bearings, Inc., a member of the Thomson-Gordon Group, designs and manufactures low friction bearing systems for ships, power plants, pumps and many other applications.

Available in three grades and two configurations, Thordon bearings can be lubricated with water, grease, oil, Thor-Lube (an environmentally friendly lubricant) or in some cases run without lubrication. Marine applications include propeller shaft bearings for all types of vessels, rudder bearings, bearings for deck machinery, pumps and other shipboard applications.

Thordon Bearings guarantees the wear life performance of Thordon SX self-lubricating pintle, stock and carrier rudder bearings. For full technical information on the entire Thordon Bearings line,

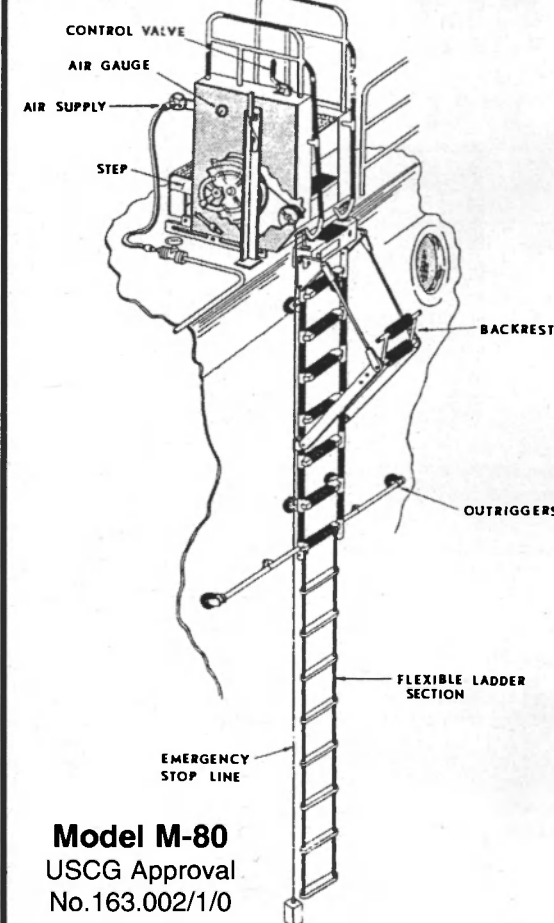
Circle 130 on Reader Service Card

ITS '94 Professional Program Details Revealed

The International Tug, Towage & Salvage Convention & Exhibition (ITS '94) received roughly twice the amount of papers that that the conference can support, a fact which makes for a stronger, balanced and well-rounded program according to show management.

Scheduled for October 17 to 21, 1994 at the Grand Harbour Hotel in Southampton, U.K., ITS '94, has to date recorded strong response to the coming show. Following are some of the papers scheduled for presentation. For additional information on ITS '94, contact: **Allan Brunton-Reed**, managing director, The ABR Company Limited, Dunelm, Church Road, Claygate, Esher, Surrey KT10 OJP, U.K.; tel: +44 372 468 387; fax: +44 372 468 388.


- Design of Ship-Assist Tugs
- The Donaldson Report and its Implications for the Towage and Salvage Industry
- Dynamic Loads on Towlines
- Antillana: 20 Years Salvage in the Caribbean
- Legal & Technical Aspects of Cargo Recovery from the Ocean Bed
- Hydrodynamic effects of Shiphandling Tug Hull Forms
- Tug Design: A Practical Approach
- Damages Flowing from Oil Pollution
- Emergency Towing System
- Exhaust Emissions
- The Role of Inmarsat in Salvage
- A New Salvage Vessel



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Details Of U.S. Maritime Subsidy Program Revealed

New Tonnage Fees On Foreign Ships To Pay For Program

The Clinton Administration revealed a 10-year, \$1 billion program for subsidizing the U.S. maritime industry, to be financed by increasing tonnage fees on foreign vessels entering U.S. ports. The plan, which would cost approximately \$100 million per year, was incorporated into legislation recently submitted to Congress called the Maritime Security and Trade Act of 1994, and constitutes a departure from previous proposals in that it contains a plan for paying subsidy costs.

Transportation Secretary **Federico Pena** reportedly estimated that 52 ships would qualify for the program. However, only 32 would be allowed to enter the program in the first year.

Backing the plan, **Gerry E. Studds**, chairman of the House Merchant Marine & Fisheries Committee, said "The fight for maritime reform, the fight to ensure that this nation has a strong and competitive U.S.-flag fleet, and the fight to see that it happens in our lifetime, have stretched out far too long. Secretary **Pena's** announcement today reinforced the commitment President **Clinton** made to Senator **Breaux** and me last year to help us win this fight, and I believe we will win."

Formally debated on March 10, the Merchant Marine and Fisheries Committee convened a hearing on the plan on March 17.

The program provides subsidies at the rate of \$2.5 million per U.S.-flagged ship until 1997. The subsidies would decrease to \$2 million per vessel from 1998 until 2004 when the program expires. In order to qualify for the program, owners would have to make their vessels available to the military in the event of a national emergency. Vessels would have to be U.S. flagged, have U.S. crews, and be less than 15 years old. Foreign-built vessels in the program can be no older than five years old.

Transportation Department Maritime Administrator **Albert Herberger** reportedly said increased tonnage fees to support the program would amount to roughly \$1.50 per teu per year. Put in other terms, it amounts to less than 15 cents per ton of bulk cargo, a penny per barrel of fuel and 38 cents added to the price of each cruise ticket. Administrator **Herberger** referred to the program as deregulatory, noting that program participants would be free of U.S. limits on which routes they may serve, which cargo they may carry, and other restrictions of the current operating differential subsidy (ODS) program. Owners of vessels in the current program may keep the vessels in that program or apply for ODS or other vessels to enter the new pro-

gram, but may not apply to the new program pending termination of existing ODS agreements. The Mari-


time Administration will not consider applications that extend the subsidizable lives of ODS ships.

Transportation Department officials reportedly warned that without the new program, the U.S. faced the possibility of losing all vessels under its flag. Among companies affected by the new legislation would be Lykes Brothers, reportedly the largest recipient of U.S. subsidization funds.

Maritime officials reportedly con-


vinced the President that allowing U.S.-flagged vessels to re-flag would constitute disaster. U.S.-flag vessels provide sealift services to the U.S. military during military actions and wartime. Larger crews and stricter rules aboard U.S.-flag vessels make U.S.-flagging vessels as much as \$1 million per vessel per year. CSX Corp.'s Sea-Land Service Inc. subsidiary reportedly said in

(Continued on page 26)



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Airborne Express Adds Ocean Transport To Customer Options

Airborne Express announced the introduction of ocean transportation to its international service package, giving customers more options and greater savings for less time-sensitive shipments. Responding to an evolving shipper requirement for single-source transportation solutions, Airborne now provides customized shipping strategies by air, land or sea to the more than 200 countries it serves.

"Airborne can now provide service to companies that want flexibility of an air and ocean option under one roof," said Jack Cella, Airborne's executive vice president, international. The new ocean division will be headed by Charles Ogle, a former Sea-Land executive with more than 19 years of international ocean shipping experience.

Airborne is establishing its own Non-Vessel Operating Cargo Carrier (NVOCC) and filing a tariff with the Federal Maritime Commission (FMC) to be effective by mid-April 1994. The new service will provide an array of ocean services including Less-than-Container-Load (LCL), Full-Container-Load (FCL), and turnkey project transportation packages all fully supported by Airborne's sophisticated FOCUS information system.

Hong Kong To Build First Terminal Handling Pearl River Delta Cargo

Hong Kong is to build its first terminal designed to handle Pearl River Delta cargo, the Hong Kong government said. According to a statement issued by the Information Services Department, the river trade terminal will be part of the territory's massive new port project which will provide up to 24 new container berths by 2011. Plans call for the terminal to be built at Tuen Mun in the New Territories, to the west of the busy Ma Wan Channel and northwest of the proposed new container port on Lantau Island, the biggest outlying island in Hong Kong.

It will be built and operated by private enterprise with the first phase projected for completion by late 1997. Rapid growth in river trade between Hong Kong and China is projected by the Port Development Board. It said 20.7 million tons of freight carried by river last year will double by 2001 and quadruple by 2011.

Avondale Wins Preliminary NAVSEA Design Contract

NAVSEA recently announced the award of contracts to Avondale Industries Inc. and four other ship-

Maritime Reform

(Continued from page 25)

mid-June 1993 that without subsidy reform, some of their vessels would have to be re-flagged and recrewed — which might cause the loss of up to 500 jobs, as well as allow the owner to refuse emergency Defense Department use of the vessels. To pay for the ship subsidiza-

tion, tonnage fees for the first five entries a foreign vessel makes into the U.S. from Western Hemisphere ports would be increased from \$0.09 per net registered tonnage (NRT) to \$0.15. Fees for foreign vessels entering U.S. ports from other foreign areas will be increased from \$0.27 to \$0.44 per NRT. The U.S. deep-sea merchant fleet is down to about 160 ships, employing some 27,000 civilian U.S. seafarers.

yards for preliminary design studies on the LX (LPD 17) ship. Expected to last approximately one year, the contract amounts to \$480,000.

The construction program for the LPD 17 is expected to be a multi-ship project, with the first contract for construction expected by around 1996.

Current plans call for 12 of the vessels to be constructed, to address a major obsolescence problem expected to be caused by the decommissioning of more than 30 Navy amphibious ships in the next 10 years.

Avondale is a leader in marine fabrication. In addition to shipbuilding capabilities, the company specializes in boat construction and is a major repair contractor for commercial and Navy ships.

For more information on Avondale,

Circle 107 on Reader Service Card

PROPULSION UPDATE

Detroit Diesel And Volvo Penta Announce U.S. Agreement

Detroit Diesel Corporation and Volvo Penta announced a new strategic North American business agreement.

Detroit Diesel has become the exclusive distributor for Volvo Penta's Compact Collection and 61-162 Series marine diesel engines and service parts in the U.S., Canada and Mexico. Engines and parts will continue to be sold under the Volvo Penta name. As part of the agreement, Volvo Penta will gain access to Detroit Diesel's North American distribution network to market in-board marine diesels. These engines will also provide a natural complement to the range of larger

units produced by Detroit Diesel.

The Volvo Penta marine diesel engine line includes the Compact Collection engines, ranging from 10- to 80-hp, and the 61-162 Series, which provide up to 612 hp. Detroit Diesel will also work with Volvo Penta of the Americas in select markets to distribute the Volvo Penta 31-42 Series marine diesel engine product line. Select Detroit Diesel distributors throughout North America will sell and service the Volvo Penta marine diesel engines. Service parts for the Volvo Penta engines will be distributed from Detroit Diesel Corporation's 575,000-sq.-ft. Parts Distribution

Warehouse in Canton, Ohio. The Detroit Diesel Parts Distribution Warehouse is capable of shipping parts worldwide 24 hours a day, 365 days a year. "The primary purpose of this agreement with Detroit Diesel Corporation," according to Lennart Hammarstrom, presi-

dent and CEO of Volvo Penta of the Americas, "is to enable Volvo Penta to expand our regionally strong marine diesel distribution much more rapidly throughout NAFTA."

Volvo Penta has supplied engines to hundreds of thousands of leisure and commercial craft owners since the early 1950s, as well as to industrial users. The U.S. Navy is one of the company's largest customers.

Detroit Diesel Corp. provides marine diesel power up to 2,400-hp for yachts, patrol boats, ferry boats, tug boats, supply vessels and sport fishing boats. The company is engaged in the design, manufacture, sale and service of heavy-duty diesel and alternative fuel engines and engine parts and offers a complete line of heavy-duty engines ranging from five- to 2,500-hp. These include the Perkins line of engines, which complements those manufactured by Detroit Diesel.

For more information on Detroit Diesel,

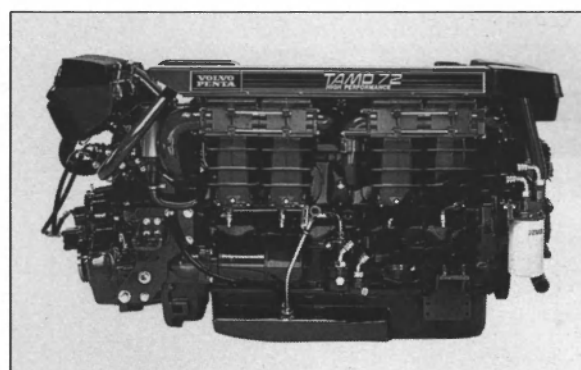
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For more information on Volvo Penta,

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Circle 278 on Reader Service Card

Worldwide Accord On Maritime Law Expected

The first worldwide accord on the law of the sea will go into effect Nov. 16 — and after 25 years of talks, the measure is reportedly expected to have U.S. approval. Negotiations between the U.S. and the United Nations on the issue began in 1969. Only some fine tuning remains to

be done, and all substantive issues have already reportedly been agreed upon.

Finnyards-Built Radisson Diamond Ship Wins Award

The editors at *Popular Mechanics* magazine have named the twin-hull *SSC Radisson Diamond* the first ship ever to receive its presti-

gious Design & Engineering Award, praising the vessel's futuristic design and technical sophistication. The 354-foot (108-m) vessel was launched in 1992 by Finnyards Oy of Rauma, Finland. Noted among the vessel's features were its small water plane twin hull (SWATH) design, which reportedly reduces pitching, rolling and heaving — as well as propeller noise and vibration — and the vessel's sophisticated satel-


lite communications systems. Launched in May 1992 in London, the *Radisson Diamond* is owned by Diamond Cruise of Helsinki, Finland. Radisson Hotels of Minneapolis manages the sales, marketing and hotel operations.

The magazine reportedly called the new futuristic-looking vessel the "new way to ride on the high seas."

For more information on the capabilities of Finnyards,

Circle 31 on Reader Service Card

FINALLY, A RUDDER BEARING GUARANTEED TO LAST





Above: Matson container ship R.J. Pfeiffer equipped with SXL rudder bearings. Left: David Read, Thordon's president displays a variety of SXL rudder bearings.

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Circle 278 on Reader Service Card

Litton Division Wins \$19 Million Contract For Missile Decoy Buoys

Litton's Applied Technology Division of San Jose, Calif., won a \$19 million U.S. Navy contract to build Active Electronic Buoys — ship defense decoys. The program will continue through spring 1997. Work on the decoys, Navy-designated AN/SSQ-95 (V), will be done in the division's facilities in San Jose and Grants Pass, Ore. Launched from ships or aircraft, Litton's buoys electronically confuse enemy weapons systems. Litton is a leader in worldwide technology markets for advanced electronic and defense systems and a major designer and builder of large multimission combat ships for the U.S. Navy and allied nations. For more information on Litton,

Circle 108 on Reader Service Card

C&M Technology Wins Naval Contract

C&M Technology, Inc. was awarded a follow-on contract from the Naval Undersea Warfare Center for the calibration and repair of instrumentation use for quantitative measurements. The contract has a three-year period of performance and is valued at \$611,431.

For more information, Circle 109 on Reader Service Card

Flender Werft Wins Follow-Up Contract For Two Containerships

The shipyard Flender Werft AG of Lubeck has received a follow-up order for two containerships. The 3,450-teu ships will have a length of 761 feet (232 m), a breadth of 105.6 feet (32.2 m), and will be approximately 44,000 dwt at maximum draft. With a propulsion of 37,000 PS provided by a B&W/MAN main engine, the ships will sail at a speed of 23.5 knots each. The deliveries are scheduled for June 1995 and December 1995. A long-term charter contract could already be stipulated. For more information on Flender Werft,

Circle 110 on Reader Service Card

Hollywood Casino Envisions Two Riverboats On Proposed Site

Hollywood Casino Corporation has secured a three-year option on a 27.5-acre site for a proposed gaming and entertainment complex in Hampton, Va. Plans for the facility include the construction of two 300-foot-long riverboats, boat slips, a water terminal pavilion and covered

pavilion and covered pier, a festival market place including ticketing pavilion, waterfront retail space, several restaurants, a 2,000-seat auditorium and a 3,000-space parking garage. There is currently no gaming legislation in Virginia, and the Virginia General Assembly

has not set a timetable for a voter referendum. However, recent opinion polls reportedly show increased support for gaming in Virginia's general population. Development of gaming facilities on this property is subject to the legalization of gaming in the state.

Celebrity To Build Third Century Series Vessel With Meyer Werft

John Chandris, chairman of Celebrity Cruises, announced that Celebrity has exercised its option for a third ship in its Century series of vessels.

All of the vessels in the three-vessel series will be built by Meyer Werft, Papenburg, Germany.

Construction has already begun on the Century Series' first 70,000-ton, 800-foot vessel, scheduled for delivery in late 1995.

Celebrity plans to introduce the second and third sister ships in Fall 1996 and Fall 1997, respectively. The award-winning Celebrity cruise ships *Horizon* and *Zenith* were also built at Meyer Werft.

With the confirmation of the third vessel, Celebrity's premium level fleet will have a capacity of over 9,000 berths. For more information on Meyer Werft,

Circle 111 on Reader Service Card



Bay Area 4C's Standardizes RIN Procedure

The Bay Area 4C's, a regulatory body and industry group established in the San Francisco Bay area to address maritime regulatory issues, recently completed a Total Quality Management (TQM) process to recommend a procedure for U.S.-flag, deep-draft vessel re-inspection (RIN).

Working in close cooperation, the team included the U.S. Coast Guard (USCG), the American Bureau of Shipping (ABS), the Maritime Administration (MarAd), American President Lines (APL), Arco, Chevron, Crowley, International Maritime Carriers, Matson, Sea-Land, San Francisco Dry Dock (SFDD) and Alpha International.

Utilizing quality tools, the group focused on mid-term or RIN inspections conducted by the USCG in the San Francisco Bay area as a topic to analyze for improvement.

Meeting monthly, the group evolved through the process and developed a procedure that, if utilized, should provide an efficient cost-effective RIN while complying with regulatory safety requirements.

The group initially identified 28 specific areas or "problems" that were felt to be worthy of investigation for possible process improvement.

Upon reaching the final phase of implementation for the RIN process, 16 of the original 28 issues has been addressed and eight of them resolved. The Bay Area 4C's (Customer, Contractor, Coast Guard, Communication) was established in October 1992 by Southwest Marine/SFDD. The group's mission statement has been established: "To provide a forum for maritime regulatory issues to promote understanding and process improvement through information sharing and problem resolution."

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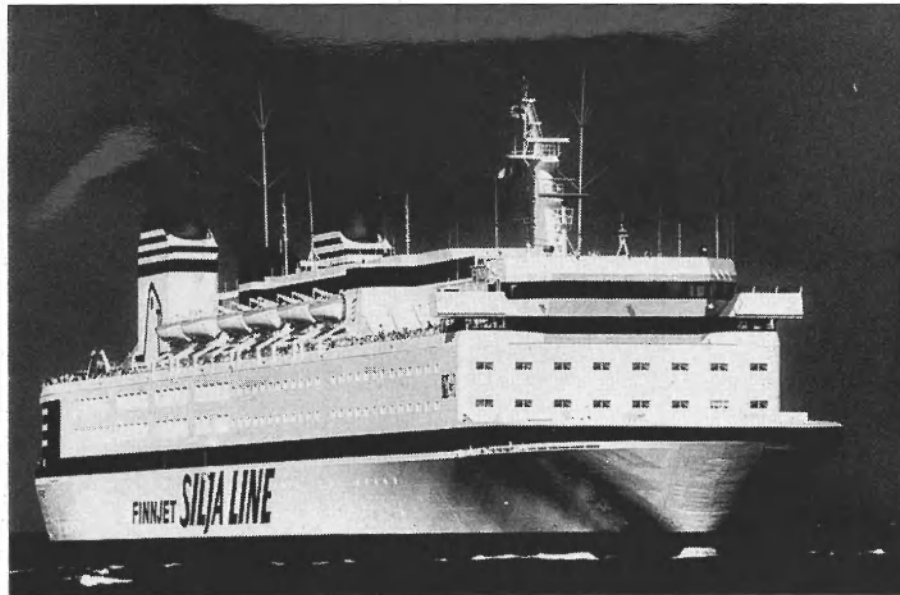
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Effjohn's Finnjet was ordered to receive a CODELAG gear system of Renk-Tacke design.

Renk-Tacke Supplies Gear Units For Retrofit Of Finnjet Superferry

In spring 1993, Renk-Tacke, Augsburg, received an order from the Finnish group Effjohn Oy AB, which includes Silja Line and others, for the delivery of a completely new gear unit system valued at approximately \$68.24 million to be retrofitted in the superferry Finnjet.

The Finnjet is reportedly the world's largest commercial gas turbine-powered vessel (25,900 grt). This fast ferry runs between Travemunde and Helsinki all year round with a maximum speed of 30

knots and a crossing time of only 22 hours.

The CODELAG gear system (COmbined Diesel-Electric And Gas turbine) can be run in three different modes: diesel-electric, gas turbine only or in combined operation, depending on the required ship speed. To minimize fuel consumption, the most favorable propeller speed is obtained by using three different gear ratios on the electric drive side.

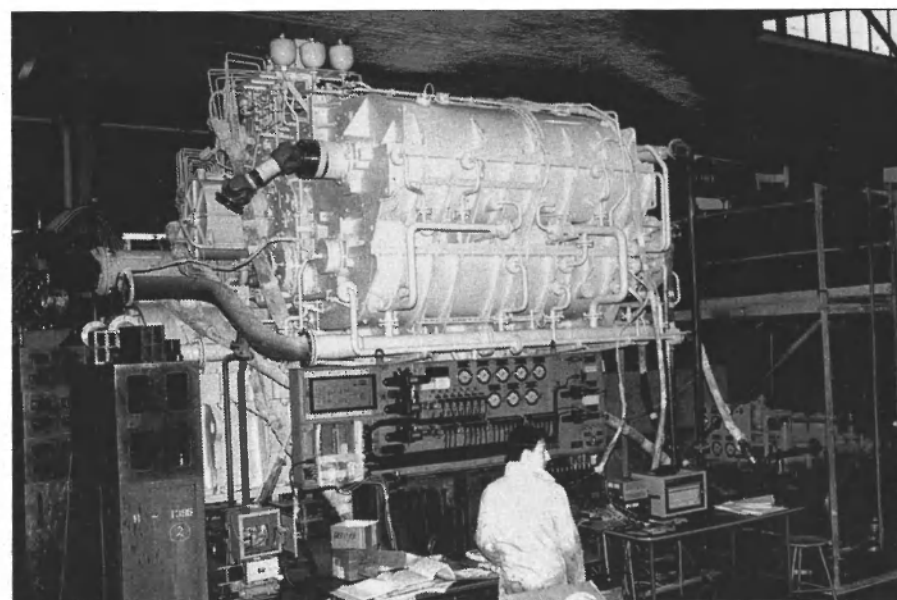
The two gear units — with a

weight of approximately 90 tons — transmit a total power of 60,000 kW to two controllable pitch propellers by way of a three-stage gear; each gear stage using double helical, case hardened and ground gears to achieve a maximum propeller speed of 176 rpm. The gear system is rated according to Det Norske Veritas's (DNV) highest ice class "1A super" rating. The gear units will be supplied this month after a design and build period only 13 months and a test of the system on March 4. The exchange of gear systems must be completed with a basic overhaul period of 14 days. The completely

assembled gear units will therefore be transported along the car deck to directly above the engine room and then lowered in place by means of special lifting equipment.

The options offered by the gears will reportedly allow very economical cruising, and the main wheels were treated by Renk-Tacke's "SLE" procedure to minimize noise. Renk-Tacke says the structure-borne sound limit curves that can be achieved are comparable to those of frigate gear units. For more information on Renk-Tacke,

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Renk-Tacke's CODELAG gear system for the Finnjet offers three modes of operation: diesel-electric only, gas turbine only, or a combination mode.

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RIBs, Skiffs & Other Small Workboats

Workskiff Debuts New Boat

Workskiff, Inc., manufacturer of tough skiffs for workboat and fishing applications, has introduced the new Workskiff 23, an outboard-driven vessel that continues the firm's work in developing super strong boats for severe environments.

George Lundgren, designer of the boat and president of the Seattle firm, said that the new model was built for rough work. "The Workskiff 23 is trailerable and unsinkable," he said. "It offers a large, adaptable and self-bailing work deck. It has a hydrodynamically smooth hull for efficient operation with no external keels, chines or bottom strakes." The craft is constructed with 1/4-inch roll formed 5086 aluminum bottom and transom and 3/16-inch sides. As with all Workskiff boats, the interior is uncluttered with ribs, although this larger boat has full-length, longitudinal side stiffeners for added strength. Mr. Lundgren said the boat's deck provides a strong foundation for heavy equipment like reels, pumps, tanks, winches or other machinery.

While the Workskiff 23 is offered with a standard console for steering, additional options are available. Center consoles are offered with or without windshields and "tee" tops, as is a forward deck with windshield. Pilothouse options include both walk-around and full-width, walk-through styles.

RTK Awarded MOD Contract

RTK of Poole, Dorset have been awarded a contract by the U.K., Ministry of Defense (MOD) for its 21-foot (6.5 m) Beach Raider, Large Rigid Rafting Craft. The improved cathedral hull form gives a dry, soft ride with a high degree of static stability, according to the company. The craft carries eight fully-equipped troops and two crew who ride on ergonomically-designed seats of elastomer-coated foam to give a comfortable ride at high speed. Fitted with twin 140-hp outboard engines, the craft is capable of speeds in excess of 30 knots when laden and more than 40 knots light.

Carolina Skiff: Commercial And Sport Applications

Carolina Skiff, Inc. is a small boat manufacturer located in Waycross, Ga. Carolina Skiff, Inc. offers the Carolina Skiff, a boat which the buyer is able to custom rig with the dealer to fit the buyer's needs. The Carolina Skiff is designed to meet the needs and demands of the commercial and sport fishermen who work the choppy and shallow bays and sounds of the Carolina coast. Carolina Skiff introduced its new line of Jon Boats in April 1993. The Carolina Skiff J-Models offer an inexpensive fiberglass alternative to aluminum. J-Models are available in 12-foot, 14-foot and 16-foot lengths. The company claims the patented foam-filled box beam construction process gives you an unsinkable hull with a deck that is self bailing under most circumstances. Carolina Skiff has an expanded component accessory line. For the J-series, Carolina Skiff has added a Rear Deck with Dual Livewells and a new 12-inch High Pedestal Seat. For the standard models Carolina Skiff has added



RTK's 6.5 m Beach Raider



Safe-T-Craft's 14-foot model.

a Short Rear Deck and a Rear Deck with Dual Livewells. Carolina's Stick Steering Bracket and its Over The Transom Livewell are options that will fit all models.

Ambar Producing Aluminum SOLAS RIB

Ambar, Inc. of Lafayette, La. is approaching the production stage for 23-foot (7 m) and 29.5-foot (9 m) RIBs using the company's Norwegian design. Ambar has contracted with Bollinger Machine Shop and Shipyard of Lockport, La. to construct the RIBs. The design currently meets SOLAS requirements and is expected to be on the market by June 1994. It features a single point lift, a foam filled collar and diesel driven water jet.

Bollinger Expands RIB Product Line To Commercial Market

Bollinger Machine Shop and Shipyard, Inc., as the sole U.S. manufacturer and distributor of England's Halmatic, Ltd. RIBs, has expanded its RIB product line from the military market to the commercial sector. According to Bollinger, the demand for "top quality RIBs" is the fastest growing segment of the market. Its most popular 20-foot RIB has no encapsulated wood and all glass stringers. Bollinger has experience in building RIBs for the U.S. Navy Seals, evidenced in Bollinger's commercial RIBs.

The 31-foot fiberglass Enforcer, designed by **Dave Sintes** of Sintes Fiberglass Designs, Inc., New Orleans, and built by Bollinger, is, according to the company, versatile and capable of meeting the demands as an economical workboat. The Enforcer was originally envisioned as a paramilitary craft for harbor patrols and fire/rescue operations, but its rugged construction, handling and more than 50 mph top speed has earned it a home in the petroleum and charter fishing industries.

Almar Offers Versatile Rigid Aluminum Inflatable Vessel

Aluminum Marine Construction, Inc. (Almar) has developed its RAIV (Rigid Aluminum Inflatable Vessel) in response to international interest in a high speed, soft riding, unsinkable vessel. Almar's RAIV is a combination of its heavy duty welded aluminum hull and a five compartment MIL SPEC Cooley Polyurethane tube assembly. The RAIV is offered from 16- to 35 feet. The 24

degree hull has a foam filled core and self-bailing deck with large scuppers. The RAIV can be used in oil spill response, as a yacht tender, tour boat or recreation boat. Characteristics include shallow draft, maneuverability, stability and ease of operation, making the RAIV useful for Marine Law Enforcement.

Steiger Craft's Stringer System Built In One Piece

In 1990, Steiger Craft introduced an all fiberglass stringer system. This stringer system is constructed in one piece and then is completely glassed into the hull. This system eliminates the need for any wood below decks. Each compartment formed by the grid becomes a separate water-tight area which is filled with foam flotation. No wood below deck means no rot, and because the all-fiberglass stringer system is constructed in one piece it can never come apart.

Winninghoff Predicts A Design-Driven Future

Winninghoff Boats, Inc. has been designing and building welded aluminum, commercial boats for more than 18 years. While the company has always emphasized suitability of design, the marketplace is ever more demanding specialized designs for specific applications.

Mandates for improved performance and safety in an expanding range of applications, combined with technological developments in design and production, are leading customers away from stock hull toward semi-custom and custom hull, according to Winninghoff. Over the past several years Winninghoff has designed and built 20 different Vee hulls in the 16- to 50-foot range.

Response Marine Develops Smaller Fire/Rescue Boats

Since 1989 Response Marine, Inc. has developed 20- to 35-foot fire/rescue boats and marine fire fighting systems. The company continues to offer new developments in jet drive and fast, outboard-powered fire/rescue boats with the goals of increased safety, performance and mission capabilities. Due to increasing municipal responsibilities and decreasing municipal budgets, there is a trend toward smaller vessel with better fire/rescue performance, according to Response Marine. This trend is well suited to Response Marine's custom hull and outfitting packages.

JBF Soon To Introduce New VOSS Skimmer

In 1993, JBF Scientific Co., Inc. delivered the first five of its new 24-foot Model 2200 Fast Response Skimmers to the Texas General Land Office. The new unit incorporates dynamic incline plane technology, uses inflatable flotation, is trailerable, has a 10-inch draft allowing it to work right up to the shoreline, and is ideal for cleaning up spills in lakes, rivers and harbors. JBF will soon introduce a new, low cost, portable VOSS skimmer for use off docks and workboats and in holding areas.

SeaArk Boats Develops Vee-Bottom Skiff

SeaArk Boats, sister company to SeaArk Marine, Inc., has introduced a line of large, heavy-duty jon boats in eight models from 16 to 24 feet long. SeaArk Boats developed a large modified vee bottom skiff which is part of the company's line of "Super Jons." Designed for commercial work or fishing applications, the Super Jons are constructed of .100 gauge all-welded aluminum and have deep sides, wide bottoms, oversized ribs and heavy-duty gunwales. The Super Jon is similar to its cousin, SeaArk Marine's "River Runner," but is constructed of lighter gauge aluminum and does not have a floor or splashwell as standard design features. Although at present time cabins are only offered on the River Runners, plans are in the works to eventually offer a drop-in cabin on the Super Jons.

Kvichak Builds 32-Foot Response Vessel

Kvichak Marine Industries of Seattle built a 32-foot multi-purpose oil spill response vessel for



Almar

Clean Seas Cooperative. The all-aluminum boat combines containment-boom-handling capability with an onboard Lori recovery system. It can also accommodate other systems, including Marco Filterbelts, Rope-Mops or disk skimmers. Available in sizes from 28 to 40 feet, with propulsion from outboards to waterjets, this design can be built in full compliance with U.S. Coast Guard Policy Letter 3-92.

Bentz Boats Completes Twin Jet Boat

Bentz Boats of Lewiston, Idaho completed a 32-foot twin jet boat with TAMD 42 Volvo Penta engines and Hamilton 211 jets. The owner, who is affiliated with Mississippi River Adventures at Vicksburg, Miss., will use the boat for two purposes: personal camping and exploring; and occasional small group tours. The jet boat will have a small portable self-contained galley for personal use. Bentz Boats has also completed both gas- and diesel-powered jet boats that have been delivered to Nepal, India and Saudi Arabia.

Safe-T-Craft: Combined Benefits Of RIBs & Aluminum

Safe-T-Craft manufactures tubular-sponsored aluminum boats, which have been manufac-

tured and distributed in New Zealand and Europe for several years. A hybrid of RIBs and welded aluminum boats, the Safe-T-Craft vessels are innovative products which combine the safety characteristics of RIBs with the durability of welded aluminum; available in lengths from 12 to 26 feet. Safety is foremost, especially when the Safe-T-Craft is used as a workboat; it can reportedly be swamped without loss of operability. Forward motion in a swamped Safe-T-Craft activates the self-bailing system, which is designed to completely bail the boat in seconds. Another trademark of the boat is its stability, as it was originally designed for divers in the rough Foveaux Strait and Stewart Island waters off the southern tip of New Zealand. To date, approximately 35 percent of the craft sold have gone to commercial operators; 50 percent to the recreation market; and 15 percent to the Coast Guard, harbor boards and governmental departments.

For additional information on the manufacturers reported in this story, please circle the corresponding number on the Reader Service Card in this issue.

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HydroComp Completes Work On Caterpillar MPS Version 2

HydroComp Inc. of Durham, N.H., developer of ship propulsion software NavCad™ and Easy Prop™, has recently completed the second revision of the technical portion of Caterpillar's Marine Power System (MPS) program.

Under contract to the Engine Division of Caterpillar, Inc. since 1988, HydroComp provides the internal algorithms and analysis code for the vessel power prediction and propeller selection capabilities incorporated into MPS.

According to Dr. **Donald M. MacPherson**, VP technical director, the analytical code of MPS Version 2 was built from a small subset of the function library found in

HydroComp's popular NavCad™ performance prediction and propeller selection program.

HydroComp also provides contract services to design agencies and shipyards, as well as to engine and propeller manufacturers.

For more information on HydroComp,

Circle 164 on Reader Service Card

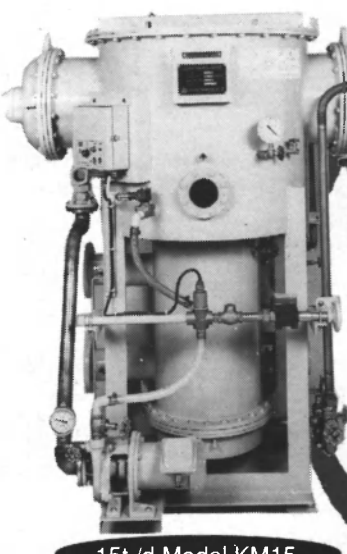
Renk Tacke Superposition Gear Unit For Five Shell Tankers

Renk Tacke GmbH, part of the MAN group, was awarded the order for the delivery of gear units for the current generation aboard five 300,000-dwt double hull VLCCs by the Daewoo Shipbuilding & Heavy Machinery Ltd. shipyard in South Korea. The vessels are intended for the English Shipping Company Shell International Marine Limited.

Each vessel is driven by a low-speed diesel engine, type 7 RTA 84 T, manufactured by New Sulzer Diesel, yielding a power of approximately 26.5 MW via a fixed pitch propeller. During the voyage a considerable part of the engine power is used for the current generation on board. Propulsion of the generator is effected via a "step-up-gear" to increase the speed and via a "conspeed" planetary superposition gear unit. Both gear units and the generator are attached to the front side of the main engine. The variable main engine speed of approximately 50 to 70 min⁻¹ is converted into a constant speed of 1,800 min⁻¹ (60 Hz) for the generator. The electric power of the generator is 950 kW. Renk Tacke already supplied nearly 200 such superposition gear units in the power range from 550 to 1,800 kW for economic current generation on board.

For more information on Renk Tacke,

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Magnavox Sells Commercial GPS Business

Magnavox Electronic Systems Co. announced the sale of its commercial GPS positioning and navigation business group to Leica, Inc. of Buffalo, N.Y.

According to **Vito Brenna**, senior vice president and general manager, Magnavox Electronic Systems Co., West Coast Division, Leica will assume responsibility for development, manufacturing, marketing, sales and technical support for Magnavox commercial GPS products. Magnavox retains responsibility for all military GPS products and systems, and the AVLS business at its Deer Park, N.Y. facility.

The transaction includes Magnavox's marine and land-based GPS products, as well as the company's high-accuracy differential GPS systems, including the ACC-Q-POINT™ FM-broadcast DGPS network. The sale to Leica will allow Magnavox to focus on its traditional Inmarsat market. Magnavox has been involved in this market since the start of Inmarsat service in 1982. It continues to supply both marine and land transportable terminals, and it offers the MX 2020 MAGNAPhone for portable Inmarsat-A terminals. For more information on Magnavox,

Circle 34 on Reader Service Card

Simrad Acquires Shipmate

Simrad, the marine electronics group headquartered in Norway, has entered into an agreement in principle to acquire all the Shipmate manufacturing and marketing companies.

Shipmate, headquartered in Denmark, manufactures navigation instruments and has a wide range of GPS navigation receivers, plotters and VHF communication equipment. Joint distribution ventures already are in place in Europe with one of the Simrad Group companies, Simrad Robertson.

The purchase of Shipmate confirms Simrad's commitment to marine electronic instrumentation markets ranging from pleasure craft to large ship navigation, subsea technology, dynamic positioning systems, vessel automation and underwater cameras.

Following its purchase in 1993 of the Norwegian Robertson Group and Stowe, the British instrumentation manufacturer, the acquisition of Shipmate signals that Simrad intends to expand the application of its advanced technology to a broad range of marine products serving the navigational needs of owners and operators to private power boats, sailboats, fishing craft and smaller commercial shipping.

Shipmate will be able to participate in the technology-sharing program between all Simrad companies, a program which has resulted in an extensive product range. Simrad offers technology, product and support service to meet customer needs for every type of craft from the smallest cruiser to the superyacht.

For more information on Simrad,

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European Consortium To Develop A Ship Hull Integrity Program

An advanced ship-based system, designed to continuously monitor the structural condition of ship's hulls throughout their operational life, is to be developed and evaluated by a European consortium which includes Kelvin Hughes.

Kelvin Hughes will work alongside British Maritime Technology Limited (BMT), the French classification society Bureau Veritas, and the Hellenic Steamship Corp. of Greece.

The Ship Hull Integrity Program (SHIP) is a European Union (EU) subsidized project which will require major investment by all the partners.

Kelvin Hughes will integrate its advanced vessel monitoring systems with stress monitoring devices and software techniques developed by BMT. Trials of a prototype system will take place aboard a tanker from Hellenic Steamship.

Based upon the continuous monitoring of the vessel's structural be-

havior, SHIP will develop a predictive system to identify normal safety parameters and abnormalities, calculate the significance on-line and indicate when remedial action must be taken.

Accumulated voyage data will be made available to vessel managers, enabling them to determine repair policy and set new operational limits to maintain a consistent standard of safety throughout the ship's life.

A major feature of SHIP, not provided by existing monitoring systems, will be its ability to monitor through life corrosion, crack propagation and cumulative structural stress, as well as identifying when abnormal stresses are being encountered due to loss of structural strength. Kelvin Hughes, the Naval and Marine Division of Smiths Industries Aerospace, is a supplier of marine equipment and services,

providing integrated bridge systems, radars, comprehensive conventional and electronic chart systems and nautical publications and full Global Maritime Distress and Safety System (GMDSS) equipment to navies and merchant fleet operators worldwide.

For more information on Kelvin Hughes,

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PROPULSION UPDATE

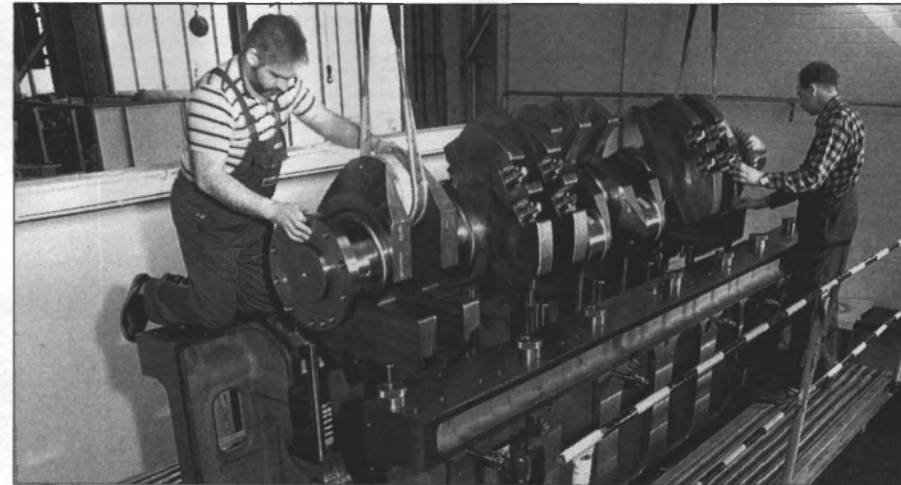
MaK Introduces The M32

By
Alan Thorpe, international editor

Krupp MaK regards itself as manufacturer of four-stroke diesel engines in the output range between 900 and 10,000 kW. At the moment the range covers this output with five designs, these series now to be expanded by the introduction of the M32, once it has been completely launched on the market. The smallest engine of the Krupp MaK engine program is the M20 which is being produced as six, eight and nine cylinder versions. This engine was introduced two years ago and more than 170 units have already been sold.

The M32 is the bigger brother of the M20.

Taking into account the Economic Continuous Rating (ECR) the in-line version of the M32 covers the output range from 2,400 to 3,960 kW, the V-engine from 4,800 to 7,700 kW. The M32 engine is designed for marine and stationary applications. Therefore the in-line engines, which are mainly destined for marine applications have a particularly long stroke for utmost robustness, economy and environmental compatibility. For stationary application the V-type engines will be de-



Krupp MaK recently unveiled the M32 engine

signed with a shorter, however, still comparatively long stroke.

It is well known that a high compression ratio can increase the economy of an engine. However, this must be in combination with a combustion chamber presenting a favorable shape, so that the injected fuel jets can mix with the air unimpeded. If the aim is to obtain a particularly favorable combustion chamber and a high compression, there is no other solution than to design a long stroke — as for the M32 engine. The stroke/bore ratio of 1.5 of the M32 engine is very favorable.

Via several influence quantities the high compression ratio determines fuel consumption which is particularly low on the M32:

- there is the purely thermodynamically calculable advantage

for efficiency.

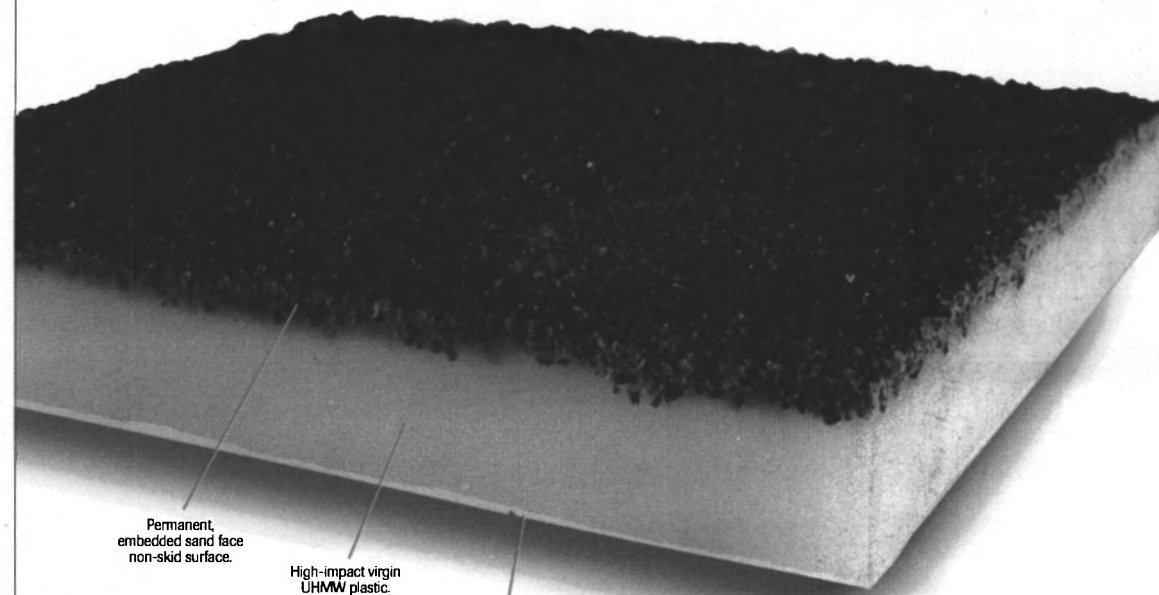
- there is the high compression end temperature resulting from the long stroke which leads to very low ignition lags and at the same time substantially enhances the capacity to burn even the worst kinds of heavy fuel,

- and there is lastly the smooth combustion process, because the difference between firing pressure and compression pressure is low, a fact which at the same time also has a very favorable influence on emission values. As its predecessors the M32 in-line engine is to be provided with a pulse charging system. If the engine utilizes the energy of the shock waves by conveying them in tight pipes directly to the turbine, it will have a charging pressure

(Continued on page 37)

Title	In-line engine	V-type engine
Bore (mm)	320	320
Stroke (mm)	480	420
Stroke/bore	1.5	1.31
Speed (1/min)	600	750
Output/cyl. (kW)		
• MCFN	440	440
• SCXN	-	480
BMEP (bar)	22.8	22.8
Piston speed (m/s)	9.6	10.5
Number of cyl.	6,8,9	12,16

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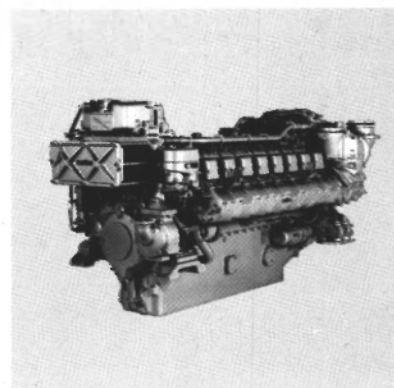
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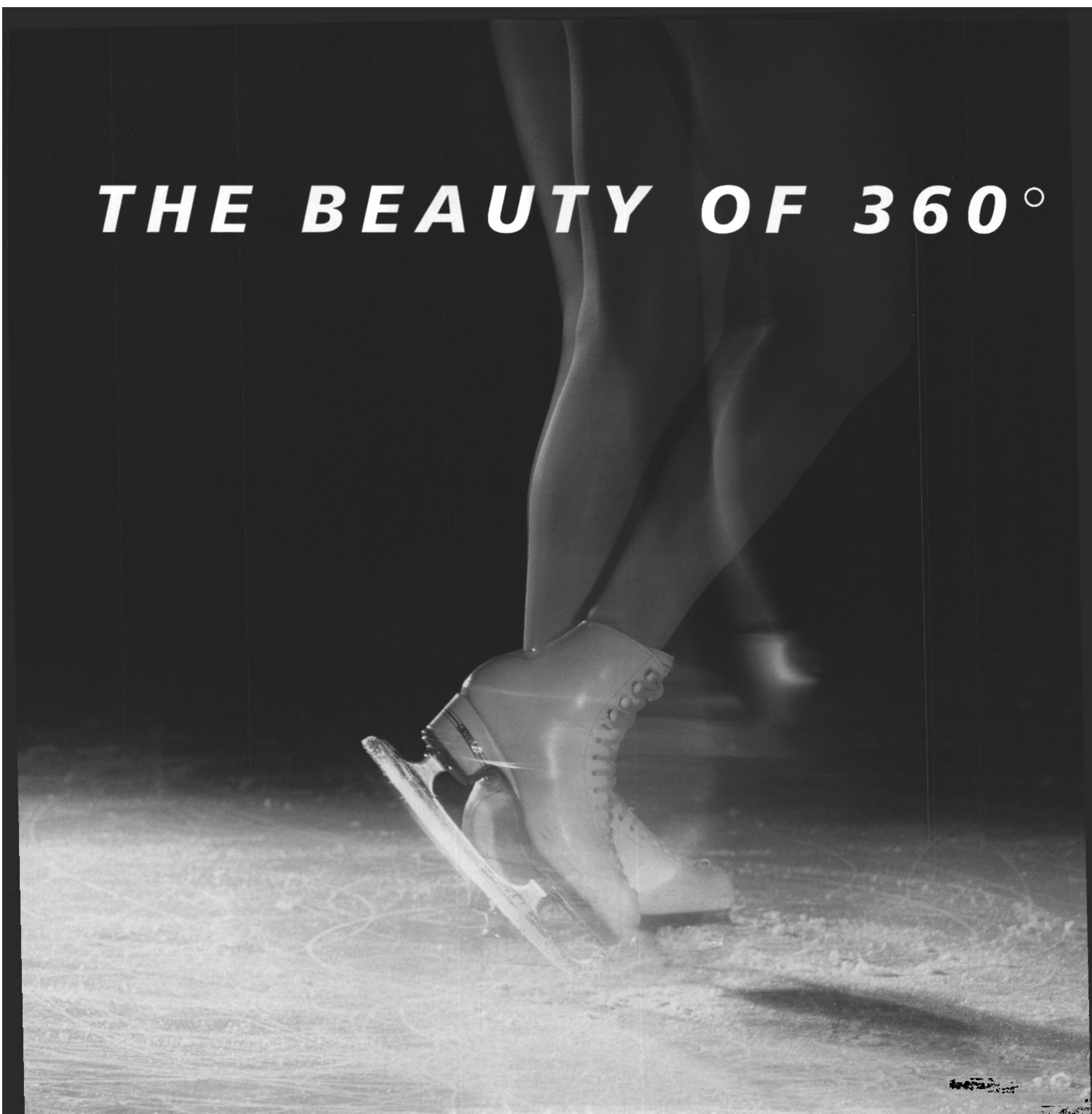
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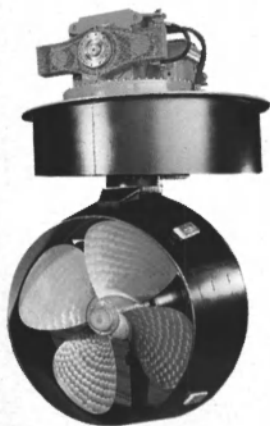
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Circle 205 on Reader Service Card

(Continued from page 34)

which is higher than the mean exhaust gas backpressure even at part load. The great share of fresh air in the cylinder permits not only a favorable torque, but also keeps the combustion chamber components cool. The exhaust valves and piston rings have a higher service life, because they are working under favorable operating conditions. Particularly favorable is the low temperature before turbine also at part load when driving a fixed-pitch propeller. This significantly reduces the frequency of turbine cleaning.

The six- and nine-cylinder engines are working according to the ideal three-pulse process. Three cylinders at a time at a firing angle distance of 240 crank angle send their respective pulse energy through a pipe, each to the corresponding section of the turbine surface. The MaK eight-cylinder engines combine the impulses of two cylinders each in one exhaust gas pipe. The four pulse pipes end in a special pulse rectifier. The collected pulse energies then act on the full turbine surface. Both pulse charging systems permit permanent engine operation on the propeller curve.

As an option for particularly difficult applications, the M32 in-line engine can be equipped with a control of the turbine surface according to the MaK VMP-system. The pulse rectifier here is used for all three cylinder numbers. An adjustment mechanism permits to utilize the concentrically divided turbine surfaces either in only one ring or in two rings together. By reducing the turbine surface at part load the air admission to the engine is significantly increased. Particularly fast acceleration, low temperatures as well as high part load torques are possible.

On the M32 the pressure difference between charging pressure on one side and exhaust gas pressure on the other side is mainly for the benefit of scavenging and efficiency of the engine. The speed energy after compressor is converted into pressure energy before charge air cooler by diffusers. In an even admission flow the charge air then flows through the amply dimensioned charge air cooler with low differential pressure. Out of the cast-in air duct the air then flows via convolutions favorable for the flow and an even continuity of surfaces to the inlet valve. The inlet as well as the exhaust duct are optimized in terms of flow characteristics and in their tandem conduits they show excellent flow coefficients. The exhaust gases flow through diffuser ducts up to the exhaust gas pipes to transmit their pulse energy then directly onto the turbine.

The turbocharging efficiency, which is kept at a high level by many minute measures, has a very positive influence on consumption, heavy fuel capability and part load behavior of the engine.

Latest orders won by Krupp MaK include:

- eight 6 M 552 C units as propulsion engines for two ferries for TT-Line/Germany, building at Finnyards, Finland;

- six 6 M 552 C units as propulsion engines for three special transport Gorthon, Sweden, building at AESA, Spain;
- six main and 10 auxiliary engines of the series M 552 C and M 20 for four product tankers and two container vessels for Bomta, China, building at Lindenau, MTW and Brand;
- 36 x 6 M 20 units as propulsion engines, including gear box for 18 sea-going river tankers for Liko

- Promarket, Russia, building at Rouse Shipyard, Bulgaria;
- two 6 M 20 units as propulsion engines including gear box for a sea-going river tanker for the Ministry of the Republic of Tatarstan, building at Gorkowo, Tatarstan. This is the first vessel of a series of three;
- 12 x 6 M 20 units as auxiliary engines for four container vessels for Dohle, Duesberg, and Interiorient all in Germany, build-

- ing at Kvaerner Werft, Germany;
- eight engines of the series M 453 C for the state-owned company PLN for public supply in Indonesia; this is part of a total number of 76 engines for 19 power stations and a total output of more than 200 MW has been or will be delivered respectively.

For more information on Krupp MaK,

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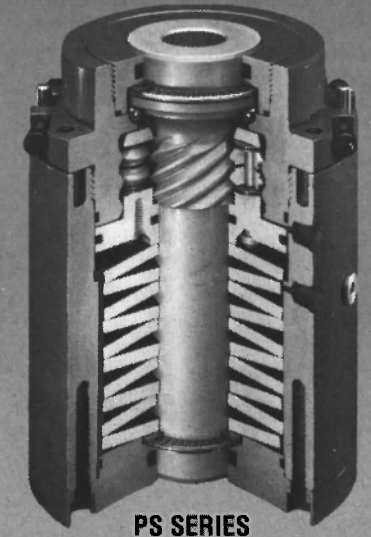
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If you have an Elliot Liferaft manufactured between January 2, 1992 and January 31, 1994, please contact your nearest United States Coast Guard approved Elliot service station as soon as possible. Corrective action by an authorized service technician may be required on your raft. You can find the date of manufacture on the metal nameplate which is affixed to the raft container.

We regret any inconvenience this may cause you, but your safety is our primary concern. If you have any questions or need the name of your nearest authorized Elliot service facility, please call 1-800-531-7238 on the East Coast or 1-206-575-2660 on the West Coast. We urge you to contact your service station as soon as possible.

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PROPULSION UPDATE

Wartsila Vasa 20: Test Results Are In

Following 18 months of extensive testing and performance mapping, Wartsila Diesel International reports that the Vasa 20 engine is showing good results in all major areas.

The tests, which must be performed and analyzed before the engine enters the market, include a wide variety of tests, including: the thermal load on vital engine components (pistons, liners, valves, injection nozzles and turbochargers); performance data for specific fuel, lube oil and air consumption; wear data and wear patterns of vital engine components; and much more.

CYLINDER PERFORMANCE

Good liner conditions are a prerequisite for correct engine performance, as excessive liner wear may lead to a number of potential problems, including broken piston rings which could let gases enter the crank case and foul the lubricating oil. To ensure proper liner performance, the Vasa 20 engine is equipped with an anti-polishing device, and based on test results, it works. After 500 hours test on heavy fuel operation, the liners were in excellent condition (see figure 1). Another important indication of excellent liner performance is the lubricating oil consumption, and the Vasa 20 again performed well. Figures show that the lube oil consumption was steady at .53 g/kWh, low compared to state-of-the-art up to now, according to the manufacturer, but seemingly a stable value for the anti-polishing liners.

PISTON & PISTON RINGS

The very heart of the engine are the piston and combustion space, and if the piston function is not correct, more frequent overhauls are the likely result. It is usually impossible to accurately predict all piston temperatures in the design stage because the shaker effect in the piston cooling gallery is complex, reports Wartsila. High piston cooling gallery temperatures were recorded at a relatively early stage of the Vasa 20 testing. The shaker effect was modified to give the correct temperature profile and reduce the top temperatures by about 70° C. The details are shown in figure 2. The engine manufacturer contends that the forced skirt lubrication provided via the circumferential groove in the piston and the anti-polishing device are a good combination to ensure long overhaul intervals, and points to the condition of the piston after more than 500 hours of operation on heavy fuel oil (see fig. 3).

INJECTION SYSTEM & ENGINE PERFORMANCE

The injection system must be analyzed in

detail, as its function is usually reflected in many engine parameters, such as fuel consumption, heat release behavior, pressure rise in cylinder, smoke emissions and thermal load. If the injection duration is too long, the heat released in combustion of the final portion of the fuel will not be transferred into the desired mechanical energy for shaft rotation. Test results (see figure 4) on the Vasa 20 indicate that the heat release is rather quick and well-defined, which is the reason behind the low fuel consumption measured at 191 g/kWh. This value indicates a specific fuel consumption of 187 g/kWh according to ISO 3046/1 without engine driven pumps.

Figures which back the effectiveness of the fuel spray configuration include hydrocarbon values running below 50 ppm on heavy fuel and a good carbon monoxide emission below 40 ppm.

NO_x EMISSIONS

After it was concluded that all main engine components were functioning well, other optimization procedures started, procedures including NO_x emission measurements. Today there exists no international marine emission legislation. The existing proposals within IMO, however, indicate NO_x emission limits around 11-12 g/kWh for the Vasa 20 engine class. The California Air Resources Board (CARB) proposal also indicates NO_x limits being of the same order of magnitude, except for new ships. If the CARB proposal will be used, it requires exhaust cleaning systems (SCR) for main engines in new ships. The NO_x reduction optimization work of the Vasa 20 has shown that the engine can meet both the CARB and the IMO proposals (see figure 5).

As of December 1993, the six-cylinder prototype Vasa 20 engine had accumulated more than 2,000 running hours in the diesel laboratory, and the manufacturer reported that no major malfunctions were recorded. Only minor adjustments, such as the modification of the piston shaker effect, mentioned earlier, have proved necessary. To speed up the test program, a nine-cylinder Vasa 20 was installed in the diesel laboratory in 1993. The engine is equipped with an engine control unit (ECU) and accumulated 500 running hours last fall. For more information on the Wartsila Vasa 20 engine program,

Circle 18 on Reader Service Card

Wartsila Wins Contracts For Engines On Tankers In S.E. Asia

Wartsila Diesel recently won several contracts for main and auxiliary engines for coastal tankers under construction in the South East Asia region. They include seven tankers, all of which will be equipped with Wartsila Vasa 32 main engines and Wartsila SACM Diesel UD25 auxiliary engines. Four of the vessels are 5,000-dwt coastal tankers owned by Malaysia International Shipping Corp. (MISC), Perbadanan Nasional Shipping Line Bhd (PNSL), AHS Marine Sdn Bhd and Gaya Shipping Sdn Bhd. Each vessel will have a six-cylinder Vasa 32 main engine and three six-cylinder Wartsila SACM UD25 auxiliary engines. Two of the vessels are 7,200-dwt tankers owned by Neptank, the coast shipping arm of the National Shipping Line of Singapore (NOL). These two will each have a six-cylinder Vasa 32 main engine and two six-cylinder Wartsila SACM UD25 auxiliary engines. Also, both of these will feature Wartsila Propulsion's Wichmann PR 82/4 controllable pitch propeller with shaft alternator.

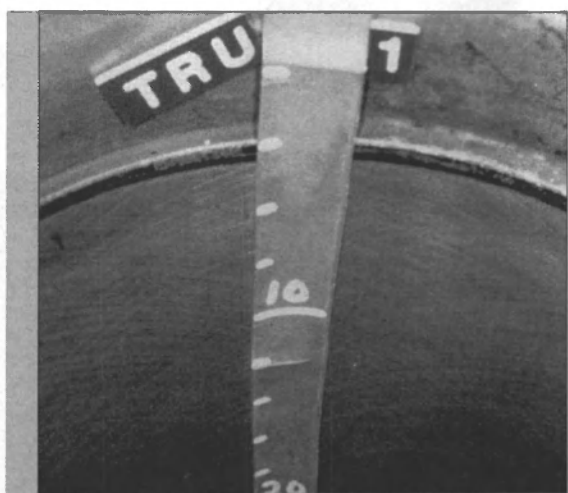


Fig. 1: More than 500 hours of heavy fuel operation have not affected the liner and no polished surfaces can be seen.

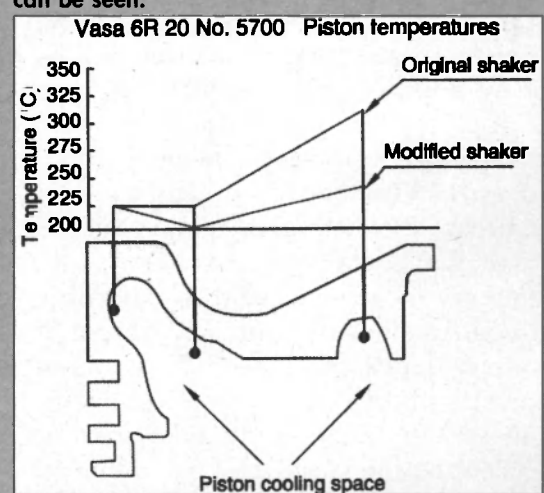


Fig. 2: A modification for the piston cooling gallery shaker effect was introduced to reduce excessive temperature levels. The resulting temperature profile is even and acceptable.



Fig. 3: The condition of the piston after more than 500 running hours on heavy fuel oil. Note the clear ring grooves and piston lands.

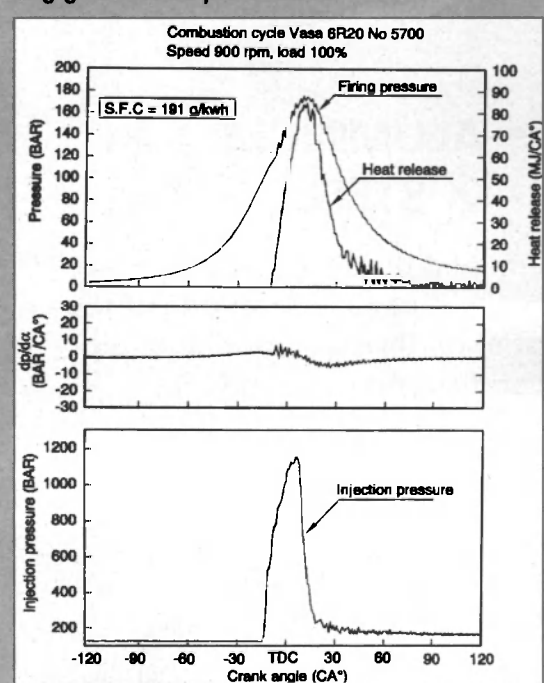


Fig. 4: Vasa 20's cylinder pressure, heat release, cylinder pressure rise speed and injection pressure.

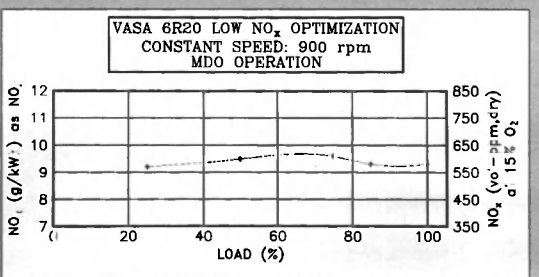


Fig. 5: NO_x emission measurements recorded during low NO_x optimization of the Vasa 20.

IGBE Fact Book

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Above: 322 ft. Casino Vessel (under construction).

Top left: 189 ft. Paddlewheel Excursion Vessel.

Bottom left: 184 ft. Excursion Vessel.

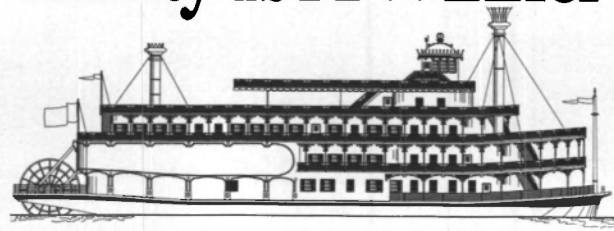
Top right: 200 ft. Trinity Space Ship.

Bottom Right: 140 ft. Excursion Vessel.

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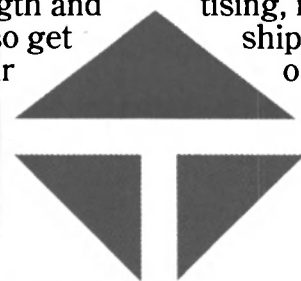
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IGBE '94

MGM Grand Hotel to host show; top industry figures on tap

Touted as the show for industry newcomers and veterans alike, the International Gaming Business Exposition '94 (IGBE) will feature a wealth of cutting-edge information via educational seminars, and showcase the latest product and service offerings, on display by the industry's top companies.

Scheduled for April 26-27 at the MGM Grand Hotel in Las Vegas, IGBE's seminar program is geared to maximize the profits of any and all casino operators. Issues specifically within casino gaming, such as building a customer base, increasing revenues through new technol-

ogy, successful direct mail marketing programs and new games and wagers in casino—are all focused on preparing casino operators to re-evaluate their business strategies to prepare for change. The IGBE program provides a strong foundation for current or future casino operators to keep up with industry trends and changes.

Along with the seminar program is a strong line-up of exhibitors; top companies which supply product and service to the industry all under one roof, ready to help casino operators maximize their business potential.

The seminar program kicks off Tuesday, April 26 at 7:45 a.m. with the keynote address and breakfast. Delivering the address is **Larry J. Woolf**, chairman, president and CEO of the MGM Grand Hotel Inc. Mr. **Woolf** will reportedly address the growth of the gaming industry throughout the country, and ways in which the industry is faced with the challenge of creating new attractions to maintain and expand the customer base.

The educational seminars begin

after the keynote, starting at 9:15 a.m., and in total encompass 35 separate seminars over the two days. Included are a wide variety of topics, some new to the show this year, including: Creating an Outstanding Customer Service Team; Political Threats to the Gaming Industry; An Approach to Security System Designs; Reducing Your Gaming Taxes; The Key to Riverboat/Dockside Start-ups; Cruise Ship Gaming—Building on a Successful Market; Expanding Your Gaming Operations into New Jurisdictions; and Power Techniques for Casinos Who Want to Grow Their Customer Base. En-

listed to present the seminars is a long and distinguished list of gaming and political figures. The exhibit portion of IGBE will be open from 11:30 a.m. to 6:00 p.m. on Tuesday, April 26th, and from 11:30 a.m. to 5:00 p.m. on Wednesday the 27th. Included in the exhibitor list are many companies specific to the marine market (please see exhibitor list), as well as other product manufacturers and service providers to the gaming industry.

For more information on attending or exhibiting at IGBE '94, contact: IGBE/CMC, **Christopher McCabe**, 200 Connecticut Ave., Norwalk, Conn. 06856-4990; tel: (203) 852-0500; fax: (203) 838-3710.

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Trinity Marine Group — 14 Yards, No Waiting

The recent gaming vessel craze is an exciting and important part of Trinity's broad product mix, as Trinity has built more vessels than any other small- to medium-sized shipyard in the U.S.

Trinity has the capability to design casino boats with its own in-house naval architects. Its experienced engineering staff of over 100 people has developed preliminary plans for gaming vessels ranging from 220 to 405 feet in length, with passenger capacities from 1,200 to 3,500. Trinity can design these vessels as modest or as glamorous as the client likes. These vessels are sternwheel, imitation sidewheel or ultra-modern, and can be modified to meet particular requirements. In addition to building boats to its own designs, Trinity has successfully worked with numerous naval

architects to build boats to their or to the owners' designs.

Trinity has developed a 337-foot by 68-foot by 15-foot Great Lakes Casino Boat which has approximately 43,000-sq.-ft. of gaming area, and can accommodate 2,500 passengers.

Trinity has also completed a 245-foot by 62-foot by 12-foot Casino Paddlewheel for Hilton/New Orleans Paddlewheel. This boat has 23,000 sq. ft. of gaming area and can accommodate 1,800 passengers. In addition, Trinity is completing a second identical boat, and in October will complete the 332-foot by 90-foot by 14-foot *Queen of New Orleans*. This vessel has 30,000 sq. ft. of gaming area, and can accommodate 2,700 passengers.

The *Queen of New Orleans* was designed by Trinity's in-house engi-

neering staff and its luxury will rival that of any casino boat.

Trinity currently operates 14 shipyards, and its large capacity enables the construction of numerous boats concurrently. Once a contract is signed, a capable and experienced program manager is assigned to every project to ensure a smooth and trouble-free boat-building experience. Trinity's strength lies in its vast experience, quality construction, and on-time delivery. Trinity says its number of repeat customers, plus the financial backing of its parent company, Trinity Industries, is unsurpassed. Trinity also has extensive experience building to the standards of the U.S. Coast Guard, ABS, Lloyd's, DnV and other standards. Please visit Trinity Marine Group at Booth 335. For more information on Trinity Marine Group,

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Datrex also manufactures a complete range of marine safety equipment.

Some of the products manufactured by Datrex are lifejackets, lifebuoys, marine distress signals and liferaft and lifeboat loose equipment spares. For additional information on Datrex,

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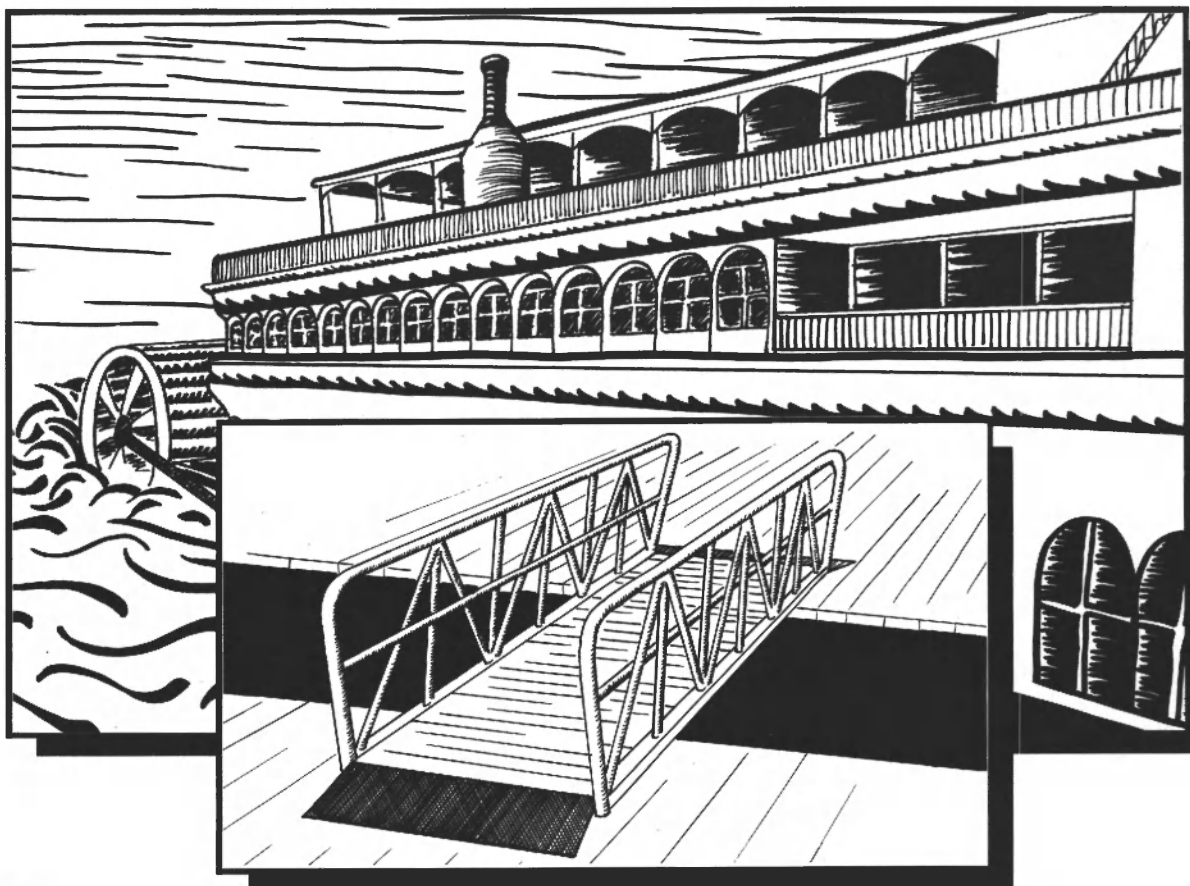
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Service Marine: Getting A Jump On Demand

The riverboat casino market has been extremely important to Service Marine Industries, Inc. in both sales and the expansion of its facilities to meet the demand of the market.

Since starting in the casino riverboat market, Service Marine has been successful in contracting for the majority of the dockside casinos now in the state of Mississippi and for seven riverboat casino vessels for major customers in Louisiana, Missouri and Illinois. Since 1992, Service Marine's business has increased more than 400 percent in gross sales and manpower levels have increased from 125 to more than 700.

Service Marine has been successful in building the majority of the casino riverboats for Harrah's Casino, and is currently building for Boyd Gaming, Casino America, Imperial Palace, and The Grand Casino. Service Marine recently delivered the *Southern Star* to Harrah's in Joliet, Ill., and delivered the *Shreveport Rose* to Harrah's in Shreveport, La. on Feb. 10, 1994.

Service Marine Industries has expanded to two shipyards in the Morgan City, La. area with a major-

ity of the construction being done at the main yard and the outfitting of the casino riverboats being done at the new west yard facility. In addition, Service Marine has moved the majority of its administrative operations to a new administrative office building located on U.S. Highway 90 East in Morgan City, La. The facility was recently opened to accommodate the expanding administrative work force necessary for the overall growth requirements of Service Marine and its customer base. Service Marine is one of the major suppliers of casino riverboats in the U.S.

In addition, Service Marine has recently started another of its standard 254-foot (77.4-m) diesel electric, 30,000 sq.-ft. casino boats on speculation using its own resources, on the basis that with the current level of activity in the casino marketplace, this vessel will be purchased by one of Service's clients within the near future.

Please visit Service Marine at Booth 536.

For more information on Service Marine,

Circle 175 on Reader Service Card

SkipperLiner: Offering Many Designs From Which To Choose

The nostalgic paddlewheeler with its turn-of-the-century interior and exterior is ideally suited to the gaming/excursion business, blending the timeless splendor of brass, fine wood finishing and exquisite style into a fun and rewarding business opportunity. SkipperLiner has a series of designs to choose from, drawn from 22 years of continual research, development and refinement. SkipperLiner also makes excursion vessels of a more modern design, such as the 80-ft. (24.4-m) 1993 de-

livery, *Island Girl VI*. In addition to inherent engineered quality, SkipperLiner customers are given the opportunity to custom design the total vessel to their exact specifications.

A skilled and conscientious team of designers, welders, carpenters and service technicians will provide a vessel unmatched in terms of design, quality, performance and value. An example of SkipperLiner's building capabilities is exhibited in the *M/S Dixie*, and an example of the customer satisfaction common to SkipperLiner customers is the fact that SkipperLiner is now building the 140-ft. (42.7-m) *M/S Dixie II*.

Please visit SkipperLiner at Booth 1159.

For more information on SkipperLiner,

Circle 178 on Reader Service Card

DeJong & Lebet: A History Of Innovative, Money-Saving Designs

DeJong & Lebet, Inc. has served the marine industry since 1968. The company's versatility is well-demonstrated by the hundreds of tugs, fishing vessels, excursion/dinner cruise, ferries and gaming vessels that have been constructed from D & L, Inc. designs over the past 26 years. The 12-person company is fully computerized, using AutoCAD 12. Presently under construction and on the board are three dinner

cruise vessels, one theater/dinner vessel and seven gaming projects up to 610 ft. (186 m) in length. D & L, Inc. is known for innovative and money-saving designs, as well as for its excellence in marine HVAC, stability, tonnage and ability to keep its customers operating in the black. For more information on DeJong & Lebet,

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Fenco: Manufacturing Cash Drawers And More

Fenco produces more than 50 undercounter teller pedestals so that operators can create the teller counter most effective for a particular application. There are two depths, four widths, and two heights; 16 overall sizes to meet customer requirements. Whether your requirements call for cash-handling pedestals, coin-storage pedestals, legal drawer pedestals, or signature

card/bulk storage pedestals, Fenco produces it. Fenco pedestals are built to last for more than 20 years. The Accuride drawer slide is warranted for life by Fenco — if it ever fails, Fenco allows you to return it to them, freight prepaid, and Fenco will send a replacement at no charge, freight prepaid. All other hardware is warranted for replacement for

three years. From box drawers to waste baskets, from drop-in card inserts to cash trays, from adjustable kneespace shelving to adjustable follower blocks, Fenco accessories integrate well into new or existing systems. Many cash/coin trays constructed of steel or ultra-plastic, four different-sized note inserts, and a large assortment of options allow customers to create the system that

is right for them. The Fenco Quick-Counter/Disconnect Alarm (QCDA) offers you maximum protection in secured alarm efficiency. Simply insert or remove the specially designed QCDA cash tray into or out of the QCDA drawer, and the alarm connection or disconnection is made, the bill trap hot and ready.

Please visit Fenco at Booth 1057. For more information on Fenco,

Circle 177 on Reader Service Card

Johnston Brothers: Helps Shreveport Rose (And Other) Operators 'Breathe Easy'

The design of heating, ventilation and air conditioning (HVAC) system for the *Shreveport Rose* casino boat is based upon optimum Indoor Air Quality (IAQ).

Poor IAQ affects patrons and employees alike. IAQ is currently being recognized as one of the most serious environmental problems facing the country. In 1993, the EPA estimated that employees alone were suffering \$60 billion annually in lost productivity related to illness. To date, poor IAQ has cost American business an estimated \$15 billion in health-related care and employee sick days. Many factors influence IAQ. Air flow (exhaust and intake), odors, smoke, heat, cooling and personnel loads and humidity are among the many considerations. The HVAC system for the *Shreveport Rose* is the culmination of many hours of simulations and analyses using various real world scenarios. The following areas were considered in the HVAC system design:

- The interjection of outdoor air (not less than 30 cfm per person) for ventilation and smoke removal.
- The use of humidity controllers with reheat to control and reduce humidity.
- The use of statically charged filter banks with charcoal filter media for odor and smoke filtration.
- Maintaining a positive static pressure within the vessel by the use of modulating outside air dampers.
- The use of ozone generators to help clean and purify the air.
- Monitoring of the CO₂ and regulating the amount of outside air that enters the system to evacuate smoke and CO₂.
- Centrally located HVAC control panel to monitor and regulate temperatures and humidity of separate climatic zones on each deck level; control and regulate the chill water flow to maximize efficiency of each air handler unit.
- The incorporation of a Direct Digital Control (DDC) system to monitor and regulate each conditioned air zone via a computer terminal (IBM or compatible). For more information on Johnston Bros.,

Circle 174 on Reader Service Card

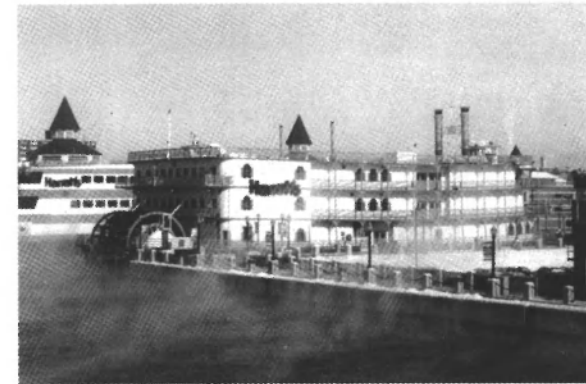
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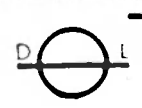
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\$20 Million *Par-A-Dice* Riverboat Accommodates 1,600 Passengers

Atlantic Marine in Jacksonville, Fla. launched an ultra-modern, \$20-million riverboat for Par-A-Dice Riverboat Casino, scheduled to open for operation in May 1994. The 1,600 passenger vessel, which measures in at 240 feet (73 m) by 66 feet (20 m)

with a seven-foot (2.1-m) operating draft and a 12.5-foot (4-m) maximum draft, will replace the 1,200 passenger paddlewheeler currently in operation. The recently launched vessel features four decks and a hold. The main, second and third decks

each feature the casino, while the hold houses the machinery spaces, offices and casino support services, and the hurricane deck offers an open deck with seating, and features the pilot house and emergency generator. In total, *Par-A-Dice* re-

quired 1,150 tons of steel, 4,200 square yards of carpet and 57 miles (92 km) of electrical wiring. Also, it required 5,105 gallons of paint to coat the interior and exterior. The vessel features a full complement of the latest marine equipment. Propulsion gear includes Caterpillar diesel engines; Twin Disc transmissions; Lo-Rez flexible couplings; a Schottel bow thruster and stainless steel, five-blade 58-inch-diameter (1.47 m) propellers. To ensure passenger comfort, the vessel features 51 exhaust fans and two Carrier model 30HR-225-F-6 refrigeration units, providing 196.7 tons of refrigerant. Chilled water in to the system is 51° F; chilled water out is 42° F; and the cooling water flow rate is 599 gpm with a 30 percent glycol

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Par-A-Dice Gaming Equipment

The *Par-A-Dice* features 791 slot machines, 32 blackjack tables, five craps tables, three roulette tables and one mini baccarat table. Of the 791 slot machines, 528 are Slot Plus Stand-Up Slots, 144 are Slot Plus Slant-Top Slots; 88 are Players Edge Plus Stand-Up Poker; eight are Players Edge Plus Slant-Top Poker; eight are Players Edge Plus Bar Tops; 12 are Double Screen Keno; and three are Sigma Video. The slot machine denominations are broken down as follows:

Slot Denomination	# of Each
.05¢	21
.25¢	475
\$1	277
\$5	15
\$25	2
\$100	1

Maritime Reporter/Engineering News

solution. Electrical power is provided by a pair of Caterpillar 3508-TA, 715 kW diesel-driven ship service generators, providing 480 volt a/c. Par-A-Dice Riverboat Casino began operations November 20, 1991 with a \$13-million paddlewheeler, also built by Atlantic Marine. The riverboat is owned by 22 private investors which comprise the Par-A-Dice Gaming Corp, based in East Peoria, Ill. Par-A-Dice was the second riverboat to operate in Illinois,

and is one of nine current operations. Since her maiden voyage two years and three months ago, Par-A-Dice Riverboat Casino has served 2.6 million guests and generated nearly \$30 million in new tax revenues for the state and local governments. The Illinois riverboat industry has invested more than \$285 million in private developments, and pumped more than \$250 million new tax dollars into state and local governments.

Par-A-Dice Specifics

Owner: Par-A-Dice Riverboat Casino
 Builder: Atlantic Marine
 Length: 240 feet (73.1 m)
 Width: 66 feet (20.1 m)
 Operating draft: 7 feet (2.1 m)
 Casino space: 33,000 sq. ft.
 Passenger capacity: 1,600
 Fuel capacity: 9,657 gallons
 Sewage capacity: 15,147 gallons
 Ballast capacity: 33,747 gallons
 Fresh water capacity: 25,465 gallons
 Oil capacity: 772 gallons

Par-A-Dice Equipment List

Engines Caterpillar
 Gears Twin Disc
 Flexible coupling Lo-Rez
 Generators Caterpillar
 Emergency generator Caterpillar
 Bilge Pumps MP Flomax
 Fire Pumps Gould
 Thruster engine Caterpillar
 Bow thruster Schottel
 Keel coolers Fernstrum
 Elevators Montgomery
 Air conditioners Carrier

Atlantic Marine In-house quality; On-time deliveries

Atlantic Marine, Inc. is a full-service shipyard located in Jacksonville, Fla. The facility is situated on 46 acres at the intersection of St. John's River and the Intracoastal Waterway only two miles (3 km) from the Atlantic Ocean. A river water depth of 38 ft. (11.6 m) provides customers good access to Atlantic's facilities. Atlantic built some of the first casino vessels for Iowa, where modern riverboat gaming had its birth in 1991. Since that time, they have built six casino vessels and presently have two more under construction. "Atlantic's ability to build quality casino vessels on schedule has earned it a reputation as a leader in this new industry," said Edward Doherty, president of Atlantic's new construction division. "Atlantic is able to work with interior designers and create shipboard casinos that compare with those in the famous gambling centers of Las Vegas and Atlantic City."

Founded in 1964, Atlantic Marine, Inc. has built more than 225 vessels in a variety of styles and sizes in both steel and aluminum for the domestic and international markets. Atlantic's vessels are built using modular construction techniques. The hulls are built in modules that permit early and efficient installation of machinery, equipment and their support piping and electrical systems.

Atlantic Marine has several piers and two launchways capable of handling vessels up to 400 ft. (122 m). The shops have state-of-the-art equipment which includes computerized lofting and generation of hull parts, a numerically controlled machine cutting hull parts and automatic and semi-automatic welding equipment for joining them together. Perfect alignment of shafting is obtained through the use of optical alignment equipment. Prime location, excellent craftsmanship and state-of-the-art equipment enables Atlantic Marine to build a superior product and deliver it on schedule. Every vessel that departs is a proud example of the attention to top quality and detail that marks the boats built by Atlantic.

Please visit Atlantic Marine at Booth 436.

For additional information on Atlantic Marine,

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Maritime Reporter/Engineering News

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ALTON BELLE CASINO II - 222' x 66' Catamaran-style gaming vessel delivered to Alton River Boat Gambling Partnership of Alton, Illinois. The three casino decks have a total of 23,000 sq. ft. with 1200 gaming positions which includes 900 slot machines.



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IGBE Special Supplement

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Shreveport Rose Delivered To Harrah's In Louisiana

The Service Marine Industries (SMI)-built *Shreveport Rose*, the paddlewheel casino vessel built for Harrah's Casino Shreveport, recently made its way via the Atchafalaya River and the Red River to Harrah's Casino in Shreveport, La. SMI, a full service new construction and repair shipyard located in Amelia Island, La., built the 210-foot (64-m) by 68-foot (21-m) *Shreveport Rose*, the second ship of its 210-foot class and the shipyard's third casino gaming ship.

The DeJong & Lebet-designed vessel, which cost in excess of \$11 million, features a full array of the latest in marine equipment, including a Caterpillar generator engine and generators; Lips bow and stern thrusters; International coatings; Furuno radar; and a Carrier Transicold air conditioning system.

The vessel, which will offer 1,200 passengers more than 700 gaming positions, was constructed, outfitted and delivered in less than 10 months.

"Our craftsmen can build and deliver the 210-foot class ship in nine months and we can provide the 254-class ship to the owner's interior finish specifications in less than 13 months," said Terry Frickey, president, SMI.

Escorted by the *Karen Fredeman*, provided by Baton Rouge Harbor

Service, the *Shreveport Rose* accomplished several "firsts" on its delivery voyage. Among these firsts: it is the first SMI-built casino vessel to be delivered to the Shreveport market; the first vessel of her size to transit the Red River to Shreveport in over half of a century; the first vessel of any kind requiring the opening of the Southern Pacific and Kansas City Railroad bridges in more than 50 years; and the first authentic paddlewheel vessel of any size to navigate the Red River in Shreveport since 1911.

"It took significant coordination and very close liaison with our customer, the U.S. Coast Guard, the railroads and the delivery crew to organize and execute this delivery," said Larry Hairston, SMI vice president and marketing manager.

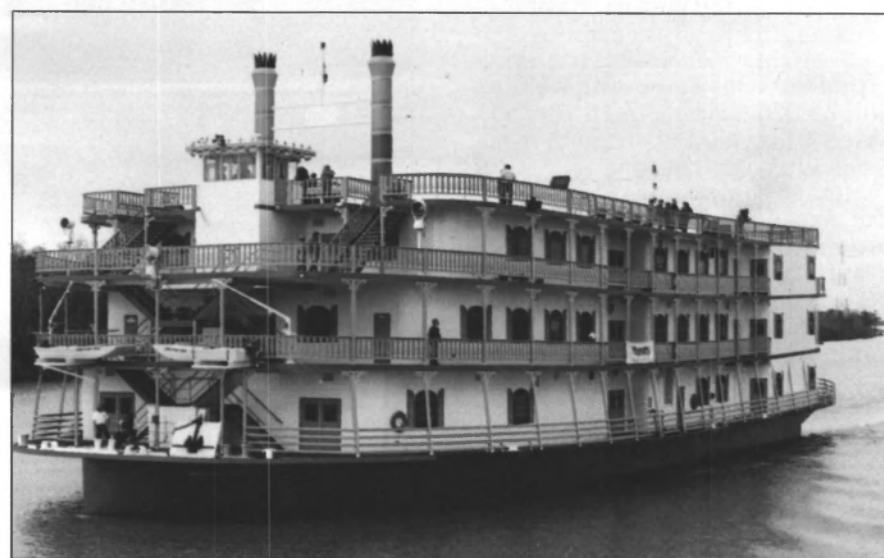
"We are very pleased to have been able to provide Harrah's with the first casino vessel in the Shreveport market and could not be more pleased at how well the construction, outfitting and delivery of the ship has proceeded." In addition to a full book of dry dockings and repairs, SMI has six new construction vessels in progress at its facilities, including: four 254-foot (77-m) by 78-foot (24-m) paddlewheel ships; a 95-foot (29-m) megayacht-style dinner cruise boat and a 124-foot (38-m) all-aluminum dive cruise boat.

Shreveport Rose Specifications

Builder: Service Marine Industries
 Designer: DeJong & Lebet
 Owner: Harrah's
 Price: \$11 million+
 Length: 210 feet (64 m)
 Width: 68 feet (21 m)

Shreveport Rose Equipment List

Thrusters: SMI/Lips (300 hp, bow & stern)
 Generator engine Caterpillar (model 3508)
 Generators: Caterpillar (3508 DITA/4 x 715kW)
 Emergency generators: Caterpillar (3306 DITA/250kW)
 Motor starters: Square D by Power Panels, Inc.
 Couplings: Ship's Machinery
 Reduction gear: Brevini by Proulsion Systems
 Engine controls: Power Panels Inc. & Engine Monitor Inc. (EMI)
 Steering controls: Skipper Hydraulics
 Coatings: International Paints
 VHF radio: Frank L. Beier Radio, Inc.
 Radar: Furuno
 Air conditioning/AVAC System: Carrier Transicold
 Lifeboats/life rafts: Donovan Marine
 Fire fighting system: SOTEC (detection), Grinnell (sprinkler)



Bender Shipbuilding—Building For Diversity Of Casino Operators

Bender Shipbuilding & Repair Co., Inc., of Mobile, Ala., was one of the first Gulf Coast shipyards to convert and build vessels to supply the booming riverboat casino market that swept the U.S. in the early 1990s. In July 1991, Bender completed the conversion of the 156-foot (48-m) *Alton Belle Casino*, the first riverboat casino to operate in Illinois. Following this success, Bender has converted or built casino projects for Illinois, Mississippi, and Louisiana. By 1993, Bender became the nation's top builder of riverboat casinos, and Bender's engineering department created an extensive library of casino designs.

Partly in response to this fast-growing casino market, Bender expanded its capabilities by opening a shipyard in Braithwaite, La. in January 1993. Bender Shipyard, near New Orleans, allows the company a competitive edge in the delivery and pricing of casino riverboats. The new yard was quickly filled with casino projects for Louisiana and other gaming areas. Less than eight months after it opened, Bender Shipyard delivered the 260-foot (79-m) *Star Casino*, the first riverboat casino to operate in Louisiana.

Bender has built a reputation for rapid delivery of casino vessels. The *Alton Belle* conversion was completed in only 90 days. The *Silver Eagle*, currently operating in Galena, Ill., was converted in less than 45 days. *Splash*, a 400-foot (122-m) casino-restaurant barge operating in Tunica, Miss., was converted in

less than 120 days.

Bender's extensive experience in conversions also allows it a competitive edge in delivery. In the past 20 years, Bender has converted more vessels to new uses than any other U.S. shipyard. In addition to the *Alton Belle* and *Silver Eagle*, Bender converted the *Cotton Club*, a Mississippi casino vessel converted from

an automobile ferry; and *Harrah's Vicksburg*, a dockside casino converted from a deck barge.

Bender has the following casino vessels under construction: *Treasure Chest*, Kenner, La.; *Horseshoe*, Bossier City, La.; *Casino Rouge*, Baton Rouge, La.; *Lady Luck Casino*, New Orleans, La.; *Elgin Lady*, Elgin, Ill.; *Harrah's*, North Kansas

City, Mo.; *Lucky Seven*, Kimmswick, Mo.; *Crescent City Queen*, New Orleans, La.; and the *Grand Palais*, New Orleans, La.

Please visit Bender Shipbuilding at Booth 131.

For more information on Bender Shipbuilding,

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From its rudimentary beginnings as producers of quality seating for the hospitality industry, Shelby Williams has cultivated an extensive line of casino seating for virtually every segment of gaming operations. From Black Jack, to Slot Machine, to Keno Chairs, each piece is designed to meet the specific requirements of that particular game.

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An extensive choice of design, wood finish, upholstery, metal and vinyl edge colors enables the buyer to create a chair that is uniquely his/her own, to meet his/her aesthetic requirements.

Please visit Shelby Williams at Booth 1043.

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See us at Booth #1043

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Trinity's recent delivery, the Queen of New Orleans.

Hilton's Queen Of New Orleans

234 Days From Contract To Delivery

Trinity Industries, Inc.'s subsidiary Halter Marine (Lockport, La.) recently delivered the *Queen of New Orleans* riverboat casino to her owners, Hilton New Orleans Corp. and New Orleans Paddlewheels, Inc. (as reported in the March 1994 issue of *Maritime Reporter/Engineering News*).

John Dane III, president of the Trinity Marine Group, said, "Total time for this new boat was 234 days from contract signing, through construction, to Coast Guard approval and delivery." The new genuine sternwheeler is 245 feet (74.7 m) long, with a 62-foot (18.9 m) beam and 12-foot (3.6-m) depth.

Maximum draft is six feet (1.8 m). The *Queen of New Orleans* can carry 1,500 passengers, 300 crew

members and has 20,000-sq.-ft. of gaming space, which includes 700 slot machines, video poker and specialty games, and 32 table games.

It is powered by two Cummins KTA-38M diesel engines developing a total of 1,600 hp for the propellers. Electrical power for the ship's hundreds of gaming devices, as well as air conditioning and heating, is provided by three Onan generators driven by Cummins diesel engines developing a total of 2,040 kW.

The paddlewheel is driven by two 200-hp electrical motors, for a total of 400 hp. Maneuverability is enhanced by a 400-hp Schottel bowthruster.

In accordance with Louisiana gaming laws, the *Queen of New Orleans* is designed and built to resemble a 19th Century paddle-

wheeler. It is actually an interim vessel, as it will be replaced in November by the larger, 322-ft. (98.1 m), 2,400-passenger, permanent *Queen of New Orleans*, under construction at Trinity's Equitable Shipyards, Inc. in New Orleans.

It will have 30,000 sq.-ft. of gaming space, or one-third more revenue-producing space.

When the larger vessel is completed, the current *Queen* will be moved to another Hilton location. Another, nearly identical sistership to the interim *Queen* is under construction at Halter Marine-Lockport for the Hilton in Kansas City, Mo. Delivery of this boat, the *Kansas City Queen*, is scheduled for May 1994.

The two Trinity 245-ft. gaming boats were designed by Rodney E.

Lay & Associates, and the larger 322-ft. vessel was designed by Trinity's in-house Engineering Department.

Mr. Dane said Trinity's rapid delivery is made possible by the advanced construction techniques and the company's 14 shipyards, most of which can supply pre-fabricated components to the main assembly yard.

The Trinity Marine Group, Gulfport, Miss., is owned by Trinity Industries, Inc. of Dallas, Texas. The group includes 14 shipyards in Texas, Louisiana, Mississippi, Missouri and Pennsylvania.

For more information on the gaming vessel building capabilities of Trinity,

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DID YOU KNOW?

- The riverboat casino market will grow to be twice as big as originally anticipated. Riverboat revenues, which exceeded \$1 billion in 1992, could quadruple by 2002. By that year, as many as 19 states are expected to have legalized riverboat casinos.
- U.S. casino revenues will double by the next decade.
- Following Louisiana's lead in New Orleans, additional states will legalize land based casinos, as many as six by 1997, and 13 states by 2002.

The previous projections are contained in a recent "Survey of U.S. Casino Entertainment" conducted by Harrah's. The above predictions are Harrah's "conservative" projections based on the current pace of casino legalization in the U.S.

In its survey of gaming habits, Harrah's also found:

- The percent of U.S. households that gambled in a casino within the last year was 27%, or 28 million households in 1993 (up from 22% and 23 million households in 1991).
- The 10 states generating the most household visits to U.S. casinos in 1993 were: California, New York, Pennsylvania, New Jersey, Minnesota, Wisconsin, Illinois, Florida, Colorado and Nevada.
- There are differences between casino players who visit new casino destinations—riverboats, Indian Reservation casinos and low-stakes casinos—and those who visit traditional casino destinations—Atlantic City, Lake Tahoe, Las Vegas, Laughlin and Reno, Nev. New casino destination players are more likely to be female, are younger, and have slightly lower household incomes and are less likely to be white collar workers. However, both traditional casino and new casino players are more affluent than the U.S. population average.

The majority of the findings in the Harrah's survey are based on a survey questionnaire developed by the Home Testing Institute and mailed to a panel of 100,000 U.S. households in 1993. A nationally representative sample of 18,600 casino players from a total of 69,250 respondents was identified from those mailings. The error margin for the survey was +/- 1%.

Cummins Mid-South: They've Got The Power

Cummins Mid-South Inc. is the Cummins Diesel engine and Onan generator distributor for Louisiana, Arkansas, Mississippi and West Tennessee. Its corporate headquarters is in Memphis, Tenn., while its marine division is located in New Orleans, La. Marine sales were at an all-time high for Cummins Mid-South in 1993. They were reportedly the number one marine distributor for Cummins Engine Co. Inc. in North America. A major contributor to the upturn in marine sales over the past year has been the riverboat gaming market. Cummins Mid-South has sold and delivered five riverboat gaming packages to date:

- *Players Riverboat Casino II* in Lake Charles, La. built by Leevac Shipyard Inc. and operated by Players Inc.
- *Columbia Sussex*, Mo., built by Leevac Shipyard.
- A vessel for Becker Gaming, Missouri, built by Leevac Shipyard.
- *Queen of New Orleans* in New Orleans, La. built by Trinity Marine, operated by Hilton Hotels/New

Orleans Paddlewheels.

- *Queen of Kansas City* in Kansas City, Mo., built by Trinity Marine Inc., and operated by Hilton Hotels/New Orleans Paddlewheels.

All of the above vessels were designed by Rodney E. Lay & Associates of Jacksonville, Fla. Cummins Mid-South Inc. prides itself on its on-time deliveries and its professional sales and installation support. Their packages are customer-tailored, CAD/CAM-designed to offer minimum installation problems with a full USCG-approved package. Cummins Marine Engines have been purchased on 14 riverboat gaming vessels, as well as thousands of other commercial vessels. Cummins Engine Co. is a \$4 billion company and is the world's largest distributor of diesel engines above 200 hp.

Visit Cummins Mid-South at Booth 1024.

Cummins Mid-South Inc. is ready to discuss your casino power requirements. For more information on Cummins Mid-South,

Circle 183 on Reader Service Card

Directions In Design: Providing Creative Designs To Maximize Profits

Specializing in turnkey interior design and procurement, Directions In Design, Inc. (DID), founded in 1975, has years of diverse experience in hospitality and marine projects. Its base is built on extensive repeat business and a strong client referral network. VP **Jeanine Bequette** says client communication and rapport is all-important.

As DID has grown, it has consistently earned awards for excellence. DID has accepted challenges ranging from extensive renovations to complex new construction. Its experience extends from hospitality facilities of all types to casino gaming facilities. DID believes entertainment environments should offer a touch of fantasy and "the unusual."

Creative interior architecture, theme and custom design elements that set the tone for fun and enjoyment are the elements the designers at DID incorporate in every assignment. DID President **Jane Ganz** enjoys the design of custom focal points to enforce and create theme and the design of highly vis-

ible custom signage that plays such a part in exciting visitors. Large and small projects require interaction with architects, engineers, contractors, shipyards and joiner contractors in a team capacity. Just recently, Ms. **Bequette's** request to a manufacturer served as the impetus for the discovery of a new technique to apply color and patterns to metal panels, with exciting possibilities for wall and bulkhead systems in casino vessels. **Sharon May-Zinser**, VP of sales and marketing, reports information requests from prospective clients around the world have increased sharply. DID plans to continue "listening to clients describe their market," and is equipped to translate this information into three-dimensional casinos, marine and hospitality interiors. Ms. **May-Zinser** adds, "Seeing each assignment through the eyes of the client is indeed the goal when working on any design assignment." Stop and see DID at booth 530. For more information on DID,

Circle 184 on Reader Service Card

IGBE SEMINAR PROGRAM

Tuesday, April 26

7:45 a.m.
Keynote Address

9:15 - 10:15 a.m.

- 101: Managing For Marketing Profitability
- 102: Investment Opportunities In Gaming
- 103: Indian Gaming: Where The Revenues Go
- 104: Creating An Outstanding Customer Service Team
- 105: Political Threats To The Gaming Industry
- 106: The Role Of Gaming Properties In The Regulation Of Gaming: Yesterday, Today And Tomorrow
- 107: An Approach To Security System Design

10:30 - 11:30 a.m.

- 201: New Casino Operations: Strategies For A Successful Venture
- 202: Starting Up Your Direct Mail Marketing Program: The Right Way
- 203: Slot Information Systems
- 204: Marketing The Indian Casino And Staying Competitive
- 205: Recent Legal Developments In The Gaming Industry
- 206: Reducing Your Gaming Taxes
- 207: The Key To Riverboat/Dockside Start-Ups

Wednesday, April 27

8:00 - 9:00 a.m.

- 301: Trends & Challenges In The Casino Market Place

- 302: Marketing: If It Ain't Broke—Break It!
- 303: Cruise Ship Gaming: Building On A Successful Market
- 304: Training And Education In Indian Gaming
- 305: Economic Implications Of The Proliferation Of Casino Gaming In America
- 306: Problem Gambling: Your Employees' Best Kept Secret
- 307: Expanding Your Gaming Operations Into New Jurisdictions

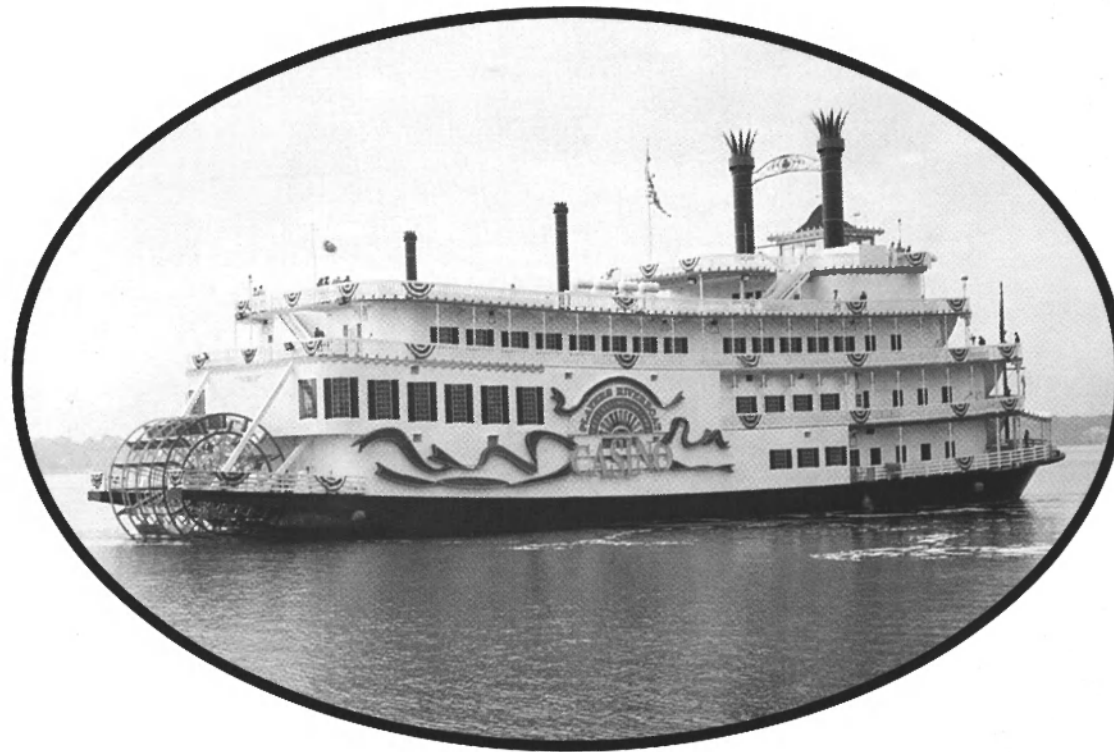
9:15 - 10:15 a.m.

- 401: Emerging Gaming Jurisdictions: After The Dust Settles
- 402: Learn How Touch Screen Games Can Provide More Revenue For Your Casino
- 403: Event Marketing For Casino Properties
- 404: The Mirage: High-Tech, High-Touch
- 405: Is The IRS Knocking On Your Door?
- 406: The Magic Of Coin In/Coin Out
- 407: Attracting The Non-Traditional Gambler

10:30 - 11:30 a.m.

- 501: Dealing With The Media: How To Make It Work For You
- 502: Scams, Swindlers And Cheats: How To Spot Them Before They Hurt Your Bottom Line
- 503: Marketing Casinos...Beyond Comps, Families & Theme Parks
- 504: Licensing Made Easy
- 505: New Games And Wagers In Casinos
- 506: Power Techniques For Casinos Who Want To Grow Their Customer Base
- 507: Casino Data Systems: Real Time Monitoring

WELCOME TO THE WHEEL OF POWER



Delivered by Leevac Shipyard, Inc. - 2 Months early.

"We Make It Happen"

Cummins Mid-South Inc. is proud to have supplied the engine package to Leevac Shipyards, Inc. for the Players Riverboat Casino II, successfully operating in Lake Charles, Louisiana.

Congratulations to Leevac Shipyard Inc. and to Naval Architects, Rodney Lay & Associates Inc. for a job well done, and a professional, on-time delivery.

This is one of 14 Riverboat Gaming Vessels that have joined the Cummins Marine Wheel of Power as well as hundreds of other riverboats in the past.

The Engine Package Consist of:

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Shipservice Generator:	2-Cummins/Onan Model KTA38G1 rated 680 KW @ 1800 RPM
Standby Generator:	Cummins/Onan Model 6CTA8.3G rated 175 KW @ 1800 RPM
Bow Thruster:	Cummins NTAB55M rated 400 HP @ 2100 RPM

Join the **Wheel of Power** and discuss your casino requirements with
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Al Heisler
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Kenner, LA 70062

Charles E. Burrell
Fred Stokes
LEEVAAC SHIPYARDS, INC.
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P.O. Box 1190
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Harrah's, Vicksburg, Mississippi



Star Casino, Lake Pontchartrain, Louisiana



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When Illinois river waters opened to gaming, Bender's swift 90-day conversion raced the *Alton Belle Casino* to this market far ahead of its competition.

Since this record-breaking beginning, Bender has set the industry standard for rapid delivery in a business where time means everything.

With the addition of its new yard in Braithwaite, Louisiana, Bender is now even more competitive on delivery and pricing. Bender delivered the *Star Casino*, Louisiana's first riverboat casino, less than eight months after its new facility opened, and it continues to race new casino boats into the market with record speed.

Bender has casinos under construction for Louisiana, Illinois, Mississippi, Missouri and Iowa, and is developing markets in other states.

With this impressive track record, Bender offers you turn-key entry into the river casino business. Our experienced staff is knowledgeable in gaming regulations in most states and can serve as your guide through the technical red tape. From initial design and concept, we can assist you with site development, looking for outside financing, interior design, food and beverage

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Every Bender vessel is backed by a 75-year history of quality and reliability. In 1994, Bender is celebrating its 75th year as one of America's leading shipbuilding and repair companies.

Bender's full-service facilities in Mobile, Alabama and Braithwaite, Louisiana provide for maximum flexibility in delivery.

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See us at Booth #131
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Mexican Officials Detail Government's Plan To Privatize Its Ports

On March 14 in Dallas, eight officials and experts in Mexico's Port Privatization Program participated in the Second Annual Privatization Summit: Opportunities in Mexico's Ports Sector. Sponsored by The Mexican Investment Board and the National Council for Public-Private Partnerships, the day-long conference attracted more than 200 top business leaders from the U.S. and abroad, providing a platform for the Mexican government to describe in detail its new initiative to privatize the country's ports.

The conference provided a broad overview of Mexico's Port Privatization Program, followed by a detailed description of specific contracts - all delivered by the Mexican government officials directly responsible for the projects. The three primary goals of the conference were to help the Mexican government remove any obstacles to an open and efficient privatization of the country's ports; to provide detailed information on the specific opportunities available to foreign investors in this area; and to create a dialogue between key U.S. executives and the appropriate Mexican officials and business leaders from the ports sector.

During the last six years, the Salinas Administration has modernized 18 principal ports, through which 80 percent of the country's imports and exports pass. The Mexican government intends to completely restructure the country's ports system, decentralize The Mexican Port Authority and privatize all of its ports. The Mexican government recently enacted new legislation, The Law of Ports, which redefines the State's role in the running of the country's ports. The legislation also creates private authority corporations, known as "Integrated Ports Administrations" (APIs), which will be charged with the administration functions including planning, promotion and the construction of infrastructure.

Mexico's port terminals and installations will be leased on a long term basis to the highest bidder through international public tenders. Foreign capital will be limited to 49 percent in the APIs, but may reach 100 percent in all other port investments.

Japan's Export Orders Dominated By Handymax Bulk Carriers

Japan received 10 export orders of 190,000-gt in January 1994, according to figures released by the Japan Ship Exporters Association. January's orders are dominated by orders for handymax bulk carriers and other small-size ships. The market for export ships at the start of the year continues to be poor.

In January 1994, Japan received

orders for one product carrier, one container ship, two general cargo carriers, and six handymax bulk carriers.

To date, Japan has received orders for 153 ships of 5.5 million gt. Four percent of those ships on order were scheduled for completion in FY '93; about 60 percent are scheduled for completion in FY '94; about 30 percent for FY '95; and about six percent are scheduled for completion in FY '96.

MarAd Awards \$9 Million Contract To Eastern Technical

The Maritime Administration has awarded a \$9,469,069 contract to Eastern Technical Enterprises, Inc., Norfolk, Va., for repairing and converting the Naval survey ship USNS *Harkness* to a training ship for the Maine Maritime Academy. It is to replace the Maine Maritime Academy's *State of Maine*.

The conversion work on the vessel will include the addition of a new deckhouse to accommodate 72 cadets and new machinery space for a new distiller and two marine sanitation devices. Modifications will also be made to the air conditioning system and additional structural fire protection added for U.S. Coast Guard certification. The work will be performed at the Brooklyn Navy Yard and is expected to be completed within 11 months.

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A model 300 BFM mobile hoist at Fairhaven Shipyard, Fairhaven, MA.

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Marine Travelift's Model 300 BFM Has Been Rerated To Handle 660,000 lbs. (300 mT).

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MARINE TRAVELIFT, INC.

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Swedish Pelmatic Involved In A Number Of Projects

The Swedish design and consultancy company Pelmatic is involved in a number of projects involving clients on four continents. Pelmatic is involved in the classification design work for a 312-foot (95 m) aluminum car ferry monohull for Mjellern & Karlisen Verft in Nor-

way (as reported in detail in the March issue of *MR/EN*, pg. 76). Due to be delivered in Spring 1995, the vessel will be introduced on the 50 mile Grenaa-Hundested route between Jylland and Sjaelland. The monohull will have a capacity of 600 passengers/160 cars, a maximum speed of about 35 knots and a service speed of about 30 knots. Pelmatic has also been assigned to carry out hull design in GRP sandwich for the new Swedish Mine

Hunter Class YSB. The craft will feature Stealth characteristics and apart from hull design, Pelmatic will also carry out engineering work for piping installation, interior design and outfitting design. Pelmatic is also working with Jos. L. Meyer GmbH in Papenburg, Germany. Jos. L. Meyer is building the cruise vessel *Oriana* for P&O as well as three Century Class cruise vessels for Celebrity Cruise Lines. Pelmatic is involved primarily in

structural detail design and piping design. Presently Pelmatic is involved in a conversion project of a Ro/Ro vessel for a Swedish owner. The project includes modernization as well as lengthening of the vessel and Pelmatic is producing all technical documentation for the conversion. For more information on Pelmatic,

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IMSSCO Maverick Foam Vest System Wins UL Listing

International Marine Supply & Service Company's (IMSSCO) Maverick Foam Vest System (MFVS) has been awarded the Underwriter's Laboratory (UL) listing. The Marine Model MFVS, which uses the self-educating Maverick Nozzle which was awarded the "Innovative Products Awards 1993," was used for testing, evaluation and subsequent listing by UL. Both the U.S. Coast Guard and the Navy are evaluating the MFVS onboard their ships along with Sea-Land, which expressed interest in the MFVS after a demonstration of the vest's Haz-Mat capabilities aboard the *M/V Sea-Land Hawaii*. For more information on IMSSCO,


Circle 4 on Reader Service Card

Greater New Orleans Barge Fleeting Assoc. Seminar To Be Held In London

After 12 consecutive years of being held in New Orleans, The Greater New Orleans Barge Fleeting Association has decided to host the event in London. Together with co-host Sedgwick, a world leader in the marine and energy insurance broking sector, a two-day practical seminar called "The USA River, Marine and Oil Industry" will take place at The Conference Forum, The Sedgwick Centre, on April 21-22. The aim of the seminar is to provide the insurance and associated industries with up-to-the-minute news of recent developments in marine and energy legislation, and to improve their knowledge of the London marketplace. An impressive panel of speakers has been assembled including senior members of the legal, medical and judicial professions as well as a representative from the U.S. Coast Guard, senior London underwriters and many more. The seminar is targeted at representatives of the river, marine and oil industries, professionals within the insurance industry who have an interest in the American marine and energy sectors, insurance buyers and members of the legal profession. For more information, contact **Nick Hales**, Sedgwick, The Sedgwick Centre, London E1 8DX, tel: +44 071 377 3175, or **Debbie Hilton**, Public Relations Officer, Sedgwick, Victoria House, Queens Road, Norwich, NR1 300, tel: +44 0603 207418.

ZODIAC Hurricane rigid inflatable boats are tender and tough in all the right places. The wraparound inflatable collar is both a stabilizer that assures smoother handling in even the roughest seas, and a fender that cushions against hull damage during boarding operations.

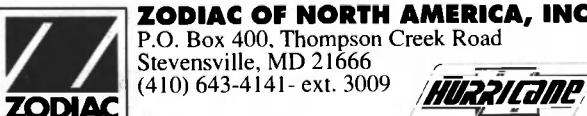
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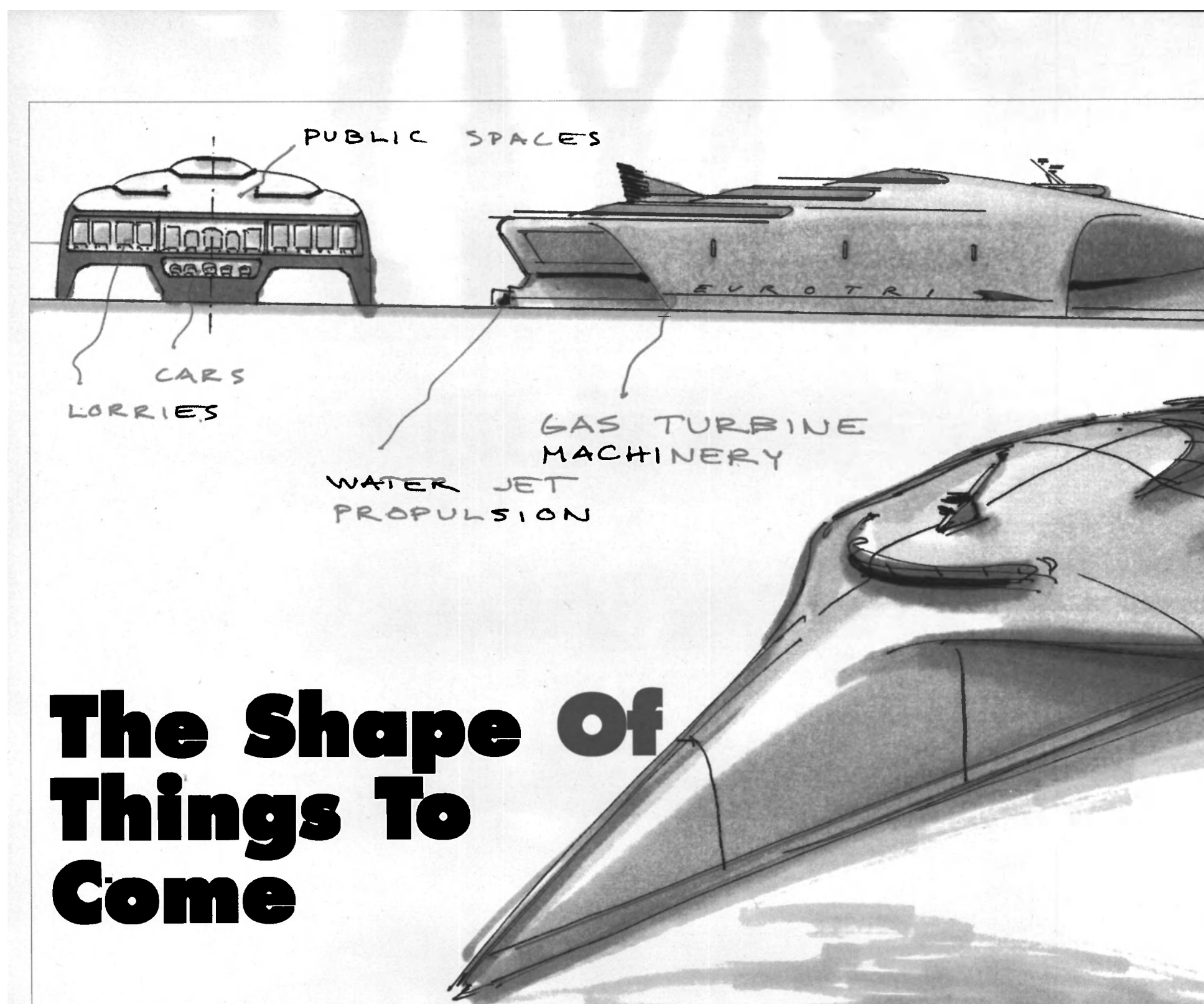
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The Shape Of Things To Come

Kvaerner Launches Major Ship Development Program Utilizing Norwegian, International Research Institutes

With the assistance of Norwegian and International research institutes, Kvaerner a.s. has launched a ship development program, under which \$35 million in projects are already outlined. The three-year plan, according to a Kvaerner official, is aimed at extending Kvaerner's existing technology for a number of existing ship varieties, including liquefied natural gas (LNG) and liquefied petroleum gas (LPG) carriers. Other designs include container carriers, reefers, product tankers and large, high-speed passenger ferries. According to the company, Kvaerner is committed to supplying its top technical minds to the projects, but it will also tap the expertise of outside sources, with subcontractors playing a key role.

VAST RESOURCES TO TAP

Aside from its resources from Kvaerner yards

in Britain, Finland, Germany and Norway, the new research program will tap a number of other companies, including Kvaerner Eureka, Kvaerner Energy, Kvaerner Moss Technology, Kvaerner Engineering and Kvaerner Shipping. Companies and organizations outside of the lead company include: Det Norske Veritas, the Sintef research foundation and Germany's Fraunhofer Gesellschaft research institute.

The development will range over a broad technological spectrum, including hulls, propulsion machinery, ship's gear and materials technology.

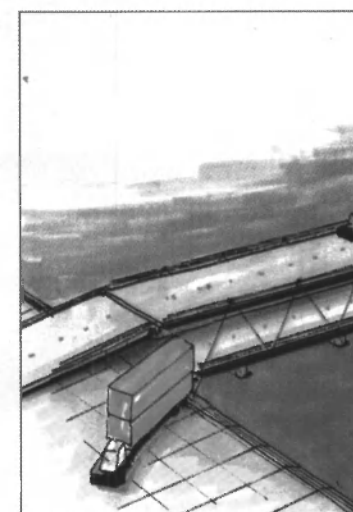
FOOTING THE BILL

The research program has reportedly aroused interest in Germany, where the authorities have, according to Kvaerner, expressed their willingness to provide considerable financial support to research on freight logistics and short-sea shipping.

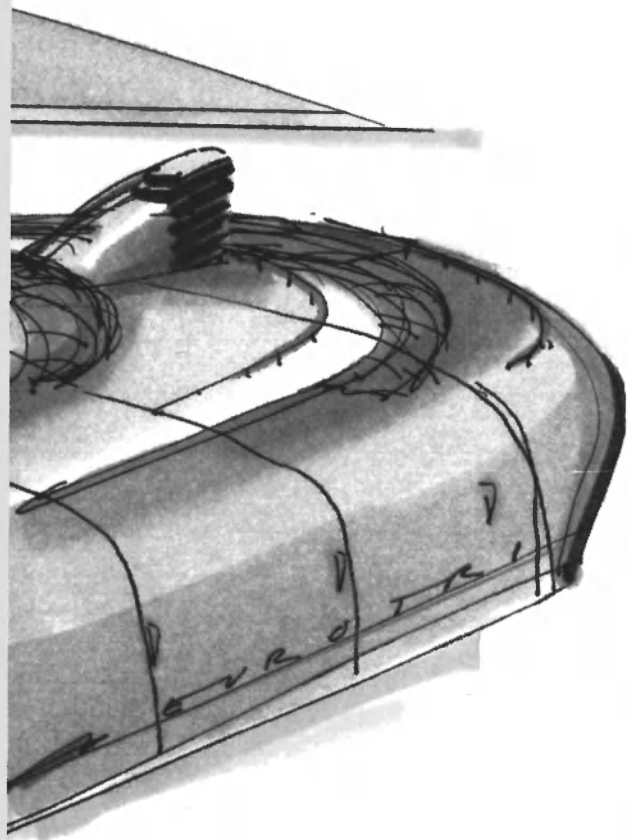
Additionally, the company is looking to the governments of Britain and Scandinavia for research funding. The project also embodies the establishment and use of a high-tech "electronic highway." The system will first be established between the Kvaerner offices, and similar links are expected to be developed among project participants around Europe.

For additional information on the vessel research projects at Kvaerner,

Circle 6 on Reader Service Card

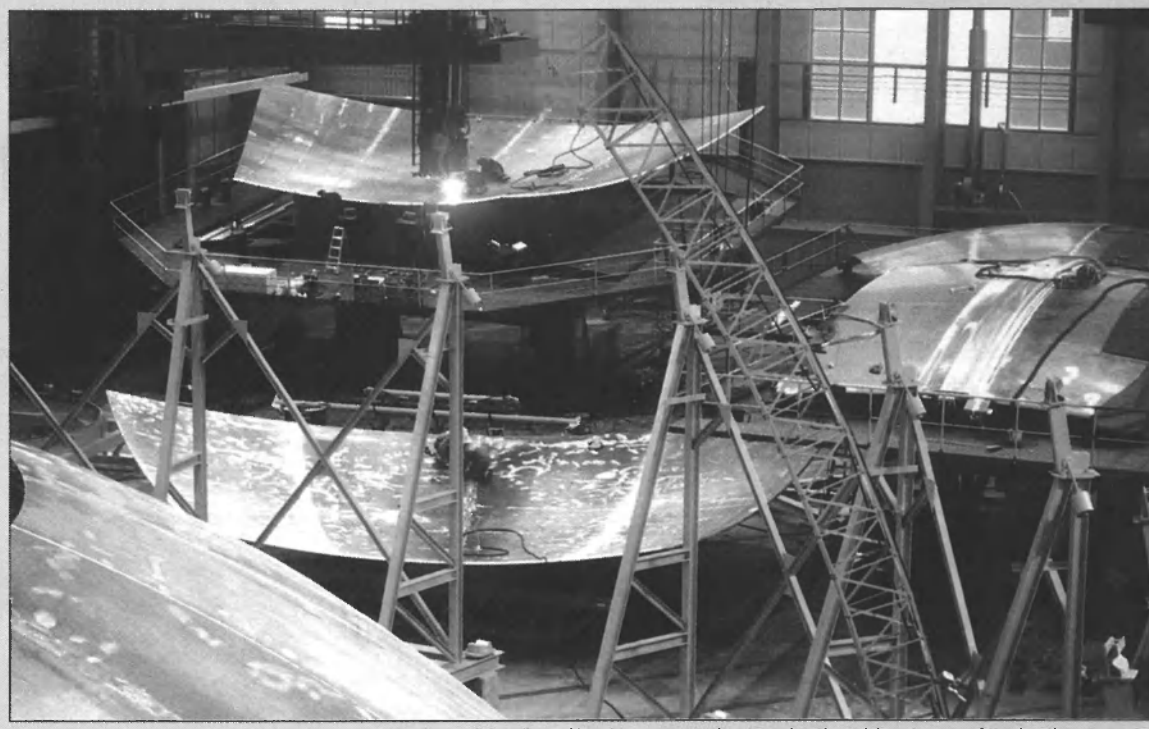
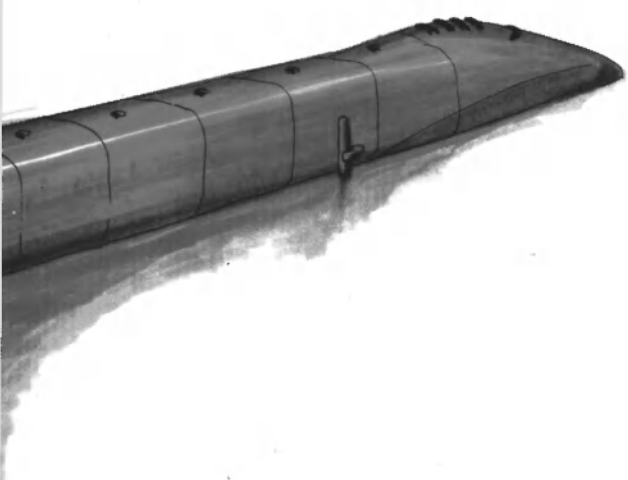


Maritime Reporter/Engineering News



ABOVE: Kvaerner Masa-Yards Technology's future fast ferry is a triple-keel vessel.

BELOW: The ultra-slim one-keel ferry (Slender Monohull) is another future Kvaerner product.



Large spherical panels are welded together in three tilting jigs. The jigs are synchronized with welding towers fitted with automatic high-energy welding equipment.

Kvaerner Masa-Yards Debuts LNG Tank Production Plant

A production plant for the manufacturing of spherical liquefied natural gas (LNG) tanks was established, and recently unveiled, at Kvaerner's Turku New Shipyard. The three new workshops include production equipment and a personnel training program, requiring an investment of approximately \$46.9 million. The new LNG tank production facility, which started in December of 1989, will allow 400 trained staff to carry out the construction of the spherical 40-meter diameter aluminum tanks. After successful testing in 1992, Kvaerner was able to quote prices on several LNG vessel inquiries using the new technology. The first task of the new production plant will be to manufacture the cargo tanks for the four 135,000-sq.-m. LNG carriers under construction for Abu Dhabi National Oil Co. (ADNOC), of the United Arab Emirates. The deliveries of the vessels are scheduled for 1996 and 1997, and the four vessel order will encompass 16 LNG tanks.

LNG TANK PRODUCTION

The LNG tanks are made of heat-die formed aluminum panels with material thicknesses ranging from 30 mm up to 60 mm. The spherical tank is supported by a 169-mm thick equatorial ring. The gas tanks for the four vessels ordered require approximately 12,000 tons of aluminum.

The new tank production plant consists of three workshops: the Manufacturing Workshop; the Assembly Workshop no. 1; and the Assembly Workshop no. 2—encompassing a total area of about 20,000-sq.-m.

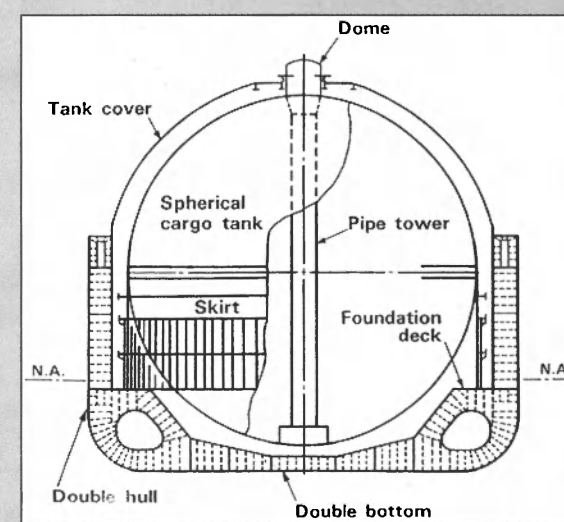
In the Manufacturing Workshop flat aluminum plates are welded together to a panel of nearly 100-sq.-m. The welded panels are heat-die formed to spherical curvature at +440° C, and cooled under controlled conditions in the adjacent cooling chamber, after which the edges are machined via a seven-axis bevelling machine. In the Assembly Workshop no. 1, the spherical panels are welded together in pairs using tilting jigs. The jigs are synchronized with welding towers fitted with auto-

matic High Energy MIG welding equipment. In both Assembly Workshops, the multipanels are assembled into ring segments using seven assembly jigs. All welding is mechanized and automated.

The workshop roofs are sliding and the tank parts are moved using the yard's gantry crane. The finished lower, mid and upper tank segments are transferred directly onboard the vessel for final joining including the assembly of the pump tower.

The spherical LNG tanks are produced under Kvaerner Moss Technology license, but the manufacturing method developed at Kvaerner Masa-Yards' Turku New Shipyard is new. By making multipanels flat panels before heat-die forming, the more difficult and expensive welding of curved parts can reportedly be reduced. Also, welding methods and equipment have been under development at the yard's Welding Laboratory. The four year development work has resulted in a number of international patents pending. For more information on Kvaerner's new LNG tank production facilities and capabilities,

Circle 7 on Reader Service Card



Moss Type LNG Carrier Hull Structure.



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Circle 327 on Reader Service Card

ACL Asks MarAd's Permission To Sell 18 Barges

MarAd has received a request from American Commercial Lines, Inc. (ACL), Jeffersonville, Ind. for permission to sell 18 barges. The proposed purchaser is Garven, C.A., Venezuela.

Nine barges were built in Pine Bluff, Ark. in 1981, and the other nine Jeffersonville, Ind. in the same year.

If approved, the barges would be transferred to Venezuelan registry and used in the bauxite trade on the Orinoco River in Venezuela.

Barge	GT	Year Built	Where Built
VL 8136	945	1981	Pine Bluff, Ark.
VL 8155	945	1981	Pine Bluff, Ark.
VL 8157	945	1981	Pine Bluff, Ark.
VL 8165	945	1981	Pine Bluff, Ark.
VL 8167	945	1981	Pine Bluff, Ark.
VL 8173	945	1981	Pine Bluff, Ark.
VL 8174	945	1981	Pine Bluff, Ark.
VL 8175	945	1981	Pine Bluff, Ark.
VL 8185	945	1981	Pine Bluff, Ark.
VLB 8109	1,124	1981	Jeffersonville, Ind.
VLB 8114	1,124	1981	Jeffersonville, Ind.
VLB 8117	1,124	1981	Jeffersonville, Ind.
VLB 8128	1,124	1981	Jeffersonville, Ind.
VLB 8132	1,124	1981	Jeffersonville, Ind.
ACBL 400	1,081	1981	Jeffersonville, Ind.
ACBL 416	1,102	1981	Jeffersonville, Ind.
ACBL 421	1,102	1981	Jeffersonville, Ind.
ACBL 430	1,048	1981	Jeffersonville, Ind.

New Steamship Service To Connect Baltimore Port With South America

Governor William Donald Schaefer announced that a new South American joint service by Nippon Yusen Kaisha (NYK Line) and Norwegian Specialized Autocarriers (NOSAC) has begun calling the Port of Baltimore.

The two pure car/truck carriers, NOSAC and NYK, have linked up for this "NYK-NOS" service, which will be managed by a jointly staffed office in NOSAC's North American headquarters in Baltimore.

The two pure car/truck carriers, NOSAC and NYK, have linked up for this "NYK-NOS" service, which will be managed by a jointly staffed office in NOSAC's North American headquarters in Baltimore. Begun late last month, the "NYK-NOS" service will call the port twice a month with its three pure car/truck carrying vessels. One call will connect Baltimore with ports in Brazil, Argentina and Uruguay along South America's East Coast. The other will provide service between Baltimore and West Coast South American ports in Venezuela, Colombia, Ecuador, Peru and Chile, as well as Panama and the Dominican Republic.

Wilhelmsen Lines (USA) Inc. will serve as the general agent for the "NYK-NOS" service throughout the U.S. and Canada, except for the northern Florida market, which will be handled by Stevens Shipping and Terminal Co. NOSAC currently calls the Port of Baltimore with service to and from the Middle East and the Far East. NYK, which operates reportedly the world's largest car carrier fleet, provides service from the Far East.

April, 1994

SMI Wins Contract For Dinner/Cruise Vessel

Larry N. Hairston, senior vice president of marketing of Service Marine Industries, Inc., located in Morgan City, La. and builder of both riverboat and dockside casinos, announced the award of a contract by Winner Boat Tours of Wilmington, N.C. to construct a new 103-foot (31.4-m), 400 passenger dinner/cruise vessel. The twin screw

vessel will be powered by 350-hp Cummins Diesel engines and will include a 100-hp electro-hydraulic with bow thruster unit and will be certified in accordance with U.S. Coast Guard regulations. The vessel will also be equipped with complete onboard dining and food preparation facilities, two dance floors and a disco sound system. Winner

Boat Tours will be operating the dinner/cruise vessel in Wilmington during the summer months and in Florida during the winter months. Service Marine Industries will deliver the vessel to Winner Boat Tours in July 1994. Total value of the construction contract is in excess of \$1.5 million. For more information on Service Marine,

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The MK4217R is a genuine river radar. It was developed and proven on major, heavily traveled European rivers and is now approved and available in the U.S. Features include:

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Captains say this is the best radar for river operations ever.

Sperry Marine Inc.
1070 Seminole Trail
Charlottesville, VA 22901
Phone: (804) 974-2000



Cleveland, Ohio
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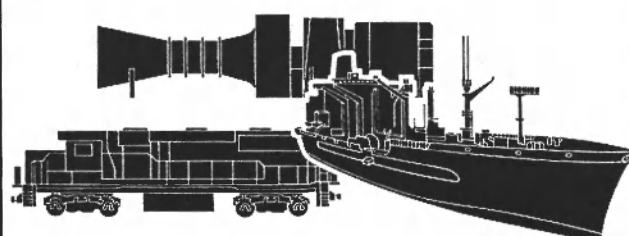
Cranford, New Jersey
Phone: (800) 843-5679

New Orleans, Louisiana
Phone: (504) 366-9171

Seattle, Washington
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Fl. Lauderdale, Florida
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Circle 265 on Reader Service Card

Crowley Receives USCG Contract For Ongoing Spill Cleanup In Puerto Rico

Charlie Nalen, vice president of Environmental Affairs for Crowley Marine Services, announced that the U.S. Coast Guard (USCG) has awarded Crowley a new open-ended contract for ongoing oil spill cleanup activities, resulting

from the January 7 grounding of the barge *Morris J. Berman*, less than 300 yards from San Juan, Puerto Rico beaches.

The contract calls for Crowley mobile teams to respond to various locations along a 70 to 80 mile (113 to 129 km) stretch of beach encompassing the entire west end of the island nation, where sea currents and tidal action lodged spilled oil within coastal reefs. Since there is no way to determine exactly how much oil remains

in the reefs, USCG officials cannot specify where the oil will reappear, how long the cleanup will take or how much the final cost will be. According to Mr. Nalen, Crowley will receive daily assignments from the federal on-scene coordinator, specifying the size and scope of the "strike team" response. Crowley will provide the equipment, communications and crews for complete removal and disposal of the tar balls that are washed ashore.

Crowley was selected to handle the ongoing beach cleanup due in part to the major role the company played in the emergency response to the original spill. Crowley representatives were on the scene within hours of the grounding. Within a day, the company had begun to deploy approximately \$50 million in marine equipment and oil spill supply assets that were used in the initial cleanup assignment.



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shipboard fluid control products in the industry. These include Control Valves, Temperature Regulators, Pressure Reducing Valves, Butterfly Valves, Ball Valves, Pump Pressure Regulators, Steam Water Heaters, Duplex Strainers, "Y" Strainers, Relief Valves, Magazine Sprinkler Valves, Air & Electric Whistles, and Electric and Pneumatic Instruments.

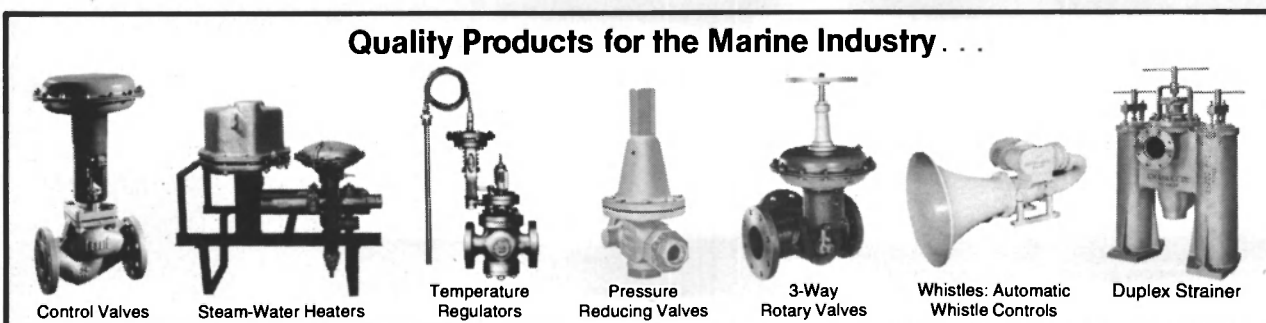
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Circle 307 on Reader Service Card

Intercargo Analyzes Dry Bulker Losses

The International Association of Dry Bulk Shipowners (Intercargo) announced the results of its recent analysis of Dry Bulker and OBO losses in the period 1991-1993. Intercargo held two seminars on bulk carrier safety in 1992 and subsequently published its recommendations to the various parties involved in maritime ventures. Chairman Dr. Frank Chao stressed the importance of analysis and accurate statistics in a rapidly changing scene. Other findings:

- One sixth of all losses were in fact OBOs which were nearly four times more prone to casualties than bulkers.
- 43 percent of casualties were navigation-related.
- 34 percent of all bulker losses in the last three years were sinkings, of which only three disappeared without trace in unknown circumstances.
- The average size of the bulkers lost was 21,000-grt; only six exceeded 40,000-grt.
- Intercargo member's ships were twice as safe as the fleet average.

The analysis and other details are available on request from Intercargo's office by contacting Bruce Farthing or Captain Kenneth A. Long, tel: +44 71 638 3989.

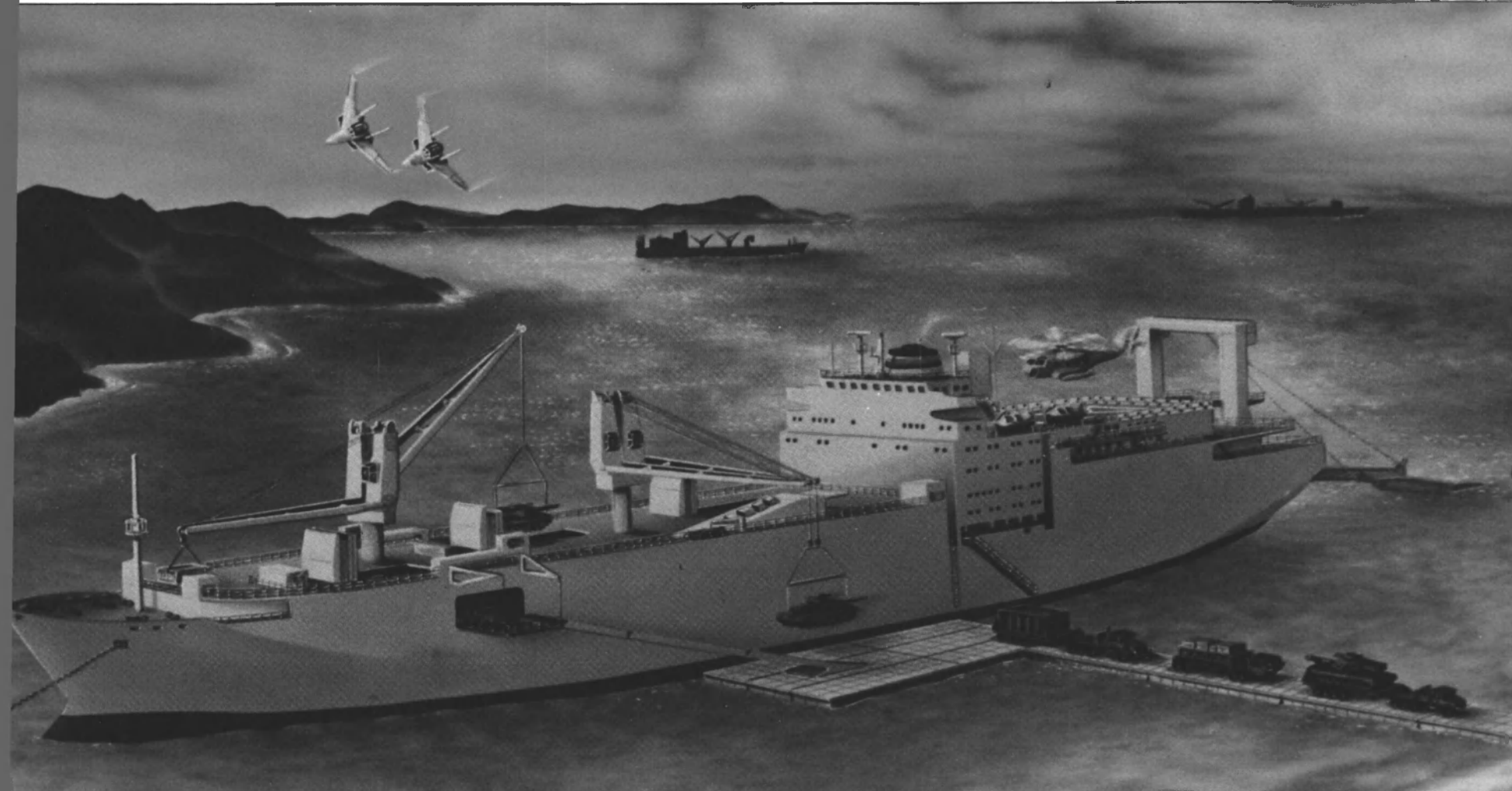
Kvaerner Brug In Agreement With Turbo Technik

Kvaerner Brug (Deutschland) GmbH has entered into a cooperation agreement with Turbo-Technik Reparatur-Werft Dassler KG, continuing Kvaerner Eureka's world-wide expansion of its spare parts, service and maintenance stations.

Under this cooperation agreement, Turbo-Technik will act as a partner with Kvaerner Brug on the servicing of all Kvaerner-designed cargo access equipment (hatch covers, side ports, Ro/Ro access equipment, internal ramps, cargo lifts, etc.) on ships calling at German ports, as well as providing riding squads for work undertaken on vessels at sea worldwide. Turbo-Technik will complement Kvaerner Brug's existing service stations in Bremen and Hamburg, enabling Kvaerner to provide the highest possible level of service to all ship operators.

For more information on Kvaerner Brug,

Circle 28 on Reader Service Card



Concept drawing of GE-powered sealift ship.

ASNE Day '94

Stealth Ship Technical Details To Be Released For First Time At ASNE Conference

ASNE Day will be held at the Sheraton Washington Hotel in Washington, D.C. on April 27-29, 1994. The theme for this year's ASNE Day is "Naval Engineering — The Technical Challenge Continues," and much of what the show has to offer will reflect that theme — dealing with today's cutting edge developments and tomorrow's challenges in the marine engineering field.

According to Margaret New of ASNE, attendees with an interest in high-tech are in for something

special. "They'll find out the most current technical information out there today — for instance, one paper is going to be on the Stealth ship. This is the first time the inside technical information on the project is going to be released from security restrictions."

The show has also grown since last year; Ms. New expects even more than last year's estimated 3,000 attendees.

The technical theme will be present from the start, beginning with the keynote address by ASNE

President George P. Nanos. Then the theme will be broadened as the show moves on to the paper presentations. There will be 23 papers over two of the three show days, covering a wide variety of technical subjects dedicated to the present and future of marine engineering. Rooted in the present are such presentations as *Live Fire Test and Evaluation for Ships*; *The PCF: A Patrol Craft Standard*; *An Assessment of Current Warship Damaged Stability Criteria*; *The Maintenance Requirements System: Risk-Based Resource Programming at Work*; and *Quality Management and Shipboard Maintenance*.

Most of the sessions deal with naval engineering's future. Among them are *Use of Virtual Environments in the Design of Ships*; *Navy Force Planning for the 21st Century*; *FF-21: A Fast Frigate for the*

21st Century; *Naval Special Warfare Future Concepts - The Case for Operational Mobility*; and *Achievements with Advanced Craft*. In addition, there will be a session on an airborne passive/active electro-optic sensor system for theater ballistic missile defense, and another on a conceptual design for a Convertible Heavy Lift (CHL) ship.

The sessions also take time to remember the past: Session 2A, moderated by the USCG's Capt. Paul Hagstrom, includes a paper called *A Truly Allied Undertaking: The Progeny of Britain's Empire Liberty, 1931 - 1943*.

Other features of ASNE Day deal with the future of marine engineering in terms of who will become the marine engineering professionals of the future. Session 3C promises to be an extremely useful experience for young marine professionals, de-

ASNE DAY Exhibitor List (Partial)

A.W. Chesterton Co.	Crestline	Hi-Test Laboratories, Inc.	Lokring Corp.	NKF Engineering	The Smith Group
AEIS	Cummins Engine Company, Inc.	Hydrosearch Co., Inc.	Lonsel Inc.	NMP Corp.	Thomas A. Short Companies
Aeronav Laboratories, Inc.	Cummins Marine	IMO Industries, Inc.	LTC Americas	Olympus Corp. IFD	Thomas Enterprises, Inc.
Air-Dry Corporation of America	Darchem Engineering Ltd.	Indal Technologies, Inc.	M. Rosenblatt & Son	Paul Monroe Engineering	Thordon Bearings
Allison Gas Turbine	Dayton T. Brown	Ingalls Shipbuilding, Inc.	M.S. Supply	Paxman Diesels Ltd. (England)	Tidewater Section ASNE
American Bureau of Shipping	Defense Technical Information	Ingersoll-Dresser Pump	Magnetek Defense Systems	PDI Corp.	Tranter, Inc.
Appleton Marine, Inc.	Designers & Planners, Inc.	Integrated Systems Analysts	Marine Machinery Association	Philadelphia Gear	Tri-Tec Co., Inc.
Aquadrive Systems, Inc.	Dex-O-Tex Div. - Crossfield Pro	Intergraph Corporation	Maritime Reporter	Portland Ship Repair Yard	Trinity Marine Group
ASNE Environmental Committee	Diagnetics	Intermarine U.S.A.	Mario Coli	PRC, Inc.	TRW Space & Electronics
ASTM Committee F25	Dynatec	International Marine Software	Marotta Scientific Controls	Retif Testing Laboratories	U.S. Naval Academy
ATIS, Inc.	Eaton/P & D Consolidated Control	ITW Philadelphia Resins	Martin Marietta	Rix Industries	U.S. Naval Institute
Atlantic Research Corporation	Edwards Aerospace	Jered Brown Brothers, Inc.	Measurement Science Dir., NWAC	Rolls-Royce, Inc.	U.S. Coast Guard
Bath Iron Works Corporation	Electric Boat Division (Gen. Dynamics)	Jo-Kell, Inc.	Metritape, Inc.	Seacoast Electric	User Technology Associates, Inc.
B.W. Elliott Mfg. Co., Inc.	Electric Motor & Contracting	John J. McMullen, Assoc.	Military Sealift Command	Seacor	Vickers Welco
CAE-Link & CAE Electronics	Envirovac, Inc.	Kamatics Corp.	MTU North America	Seaward International	Village Marine Tec
Carderock Division, NSWC	Fibregrate Corporation	KB Electronics Limited	National Standards Association	SIFCO Selective Plating	Vite Motivator Co., Inc.
CASDE Corporation	3.E.	Keystone Valve U.S.A., Inc.	Naval Research Laboratory	SPD Technologies	VSE Corp.
Caterpillar, Inc.	Gardy McGrath	Kvaerner-Masa Marine, Inc.	NAVCOMTELSTA JAX	Sperry Marine, Inc.	Wartsila Diesel
Cincinnati Gear Co.	George G. Sharp	L.C. Doane Co.	Navsea ATC	SSS Clutch Co.	Westech Gear Corporation
Cleveland Gear	Gibbs & Cox, Inc.	Labarge Electronics	Navy Primary Standards Lab	Stanley G. Flagg & Co.	Westinghouse
Coltec Industries, Inc.	Hemisphere Dev. Svcs., Inc.	Lindgren Associates, Inc.	Navy Vendor Motivation Program	Surface Navy Association	
CPV	Hev-Duty Nelson	Liquid Development Co.	Newport News Shipbuilding	Technical Products & Precision	

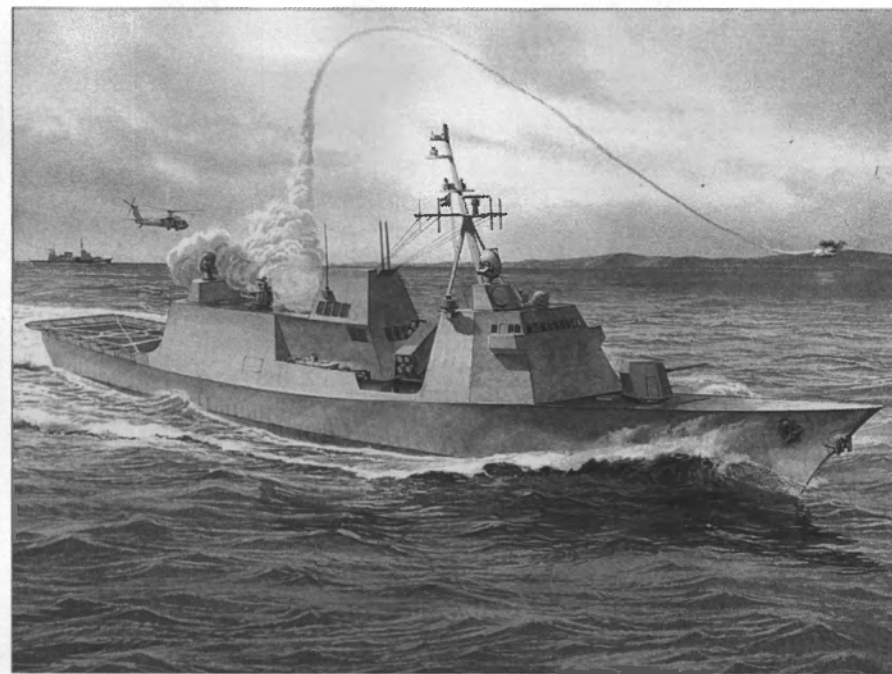
voted exclusively career development and including a panel of four maritime professionals discussing personal qualifications, transferable skills, degrees and career paths. "There is a lot of concern for people getting out of the Navy about jobs—especially with all the recent Navy downsizing," said Ms. New. "We want to help in any way we can the people who are entering the commercial marine field." Also geared toward the future are the ASNE Day luncheon and awards on Friday, April 19, which will recognize the winners of several awards, including young scholarship winners and winners of ASNE's Science Fair.

And of course, the ASNE Day show always presents one of the greatest arrays of exhibitors from the marine industry. At press time the exhibitor count was over 130 companies from the technological, manufacturing, shipbuilding, engineering design and service ends of the marine industry, and more were registering. Expectations are that the exhibitor count will exceed last year's.

Also different in this year's show is the addition of a spouse program: spouses will be entertained with a tour beginning with brunch, and including visits to Washington D.C.'s botanical sights: the Botanical Garden, the National Arboretum, and the National Herb and Rose Garden. Another change is that the ASNE Banquet, usually held at the end of the technical sessions, this year will be held on the evening of Thursday, April 28 so more attendees wanting to get home for the weekend can still participate.

"The whole industry is in a critical time," said Ms. New on the importance of ASNE to the maritime industry. "Forty years from now the Navy could be virtually nonexistent if we don't show the world there's a need for it." Ms. New said that even beyond the Navy's defense function, "we need to keep ourselves alive by showing that the Navy plays a meaningful role."

For more information on ASNE Day '94, contact **Margaret New** at ASNE at tel: (703) 836-6727; fax: (703) 836-7491.



Artist's conception of Ingalls Shipbuilding-designed frigate, based on the Spruance-class destroyer.

Maritime Reporter's

1994 Military Suppliers Guide

ASNE Technical Sessions

Session 1A — Machinery

Medium Speed Diesel Reduction Gearing
A Steam-augmented Gas Turbine With Reheat Combustor for Surface Ships
Main Propulsion Power Take-Off Gear Configuration of a ETC Gun 10 MW
Fuel Cell Power Plant For Surface Fleet Applications

Session 1B — Ship Designs

Integrated Power System for Marine Applications
LCdr. Norbert H. Doerry and LCdr. James C. Davis
Use of Virtual Environments in the Design of Ships
Otto P. Jans, J. Christopher Ryan, and Gary Jones
The PCF: A Patrol Craft Standard
Salvadore J. Guarino
An Assessment of Current Warship Damaged Stability Criteria
LCdr. S. Surko

Session 1C — "Best of '93"

Navy Force Planning for the 21st Century
Dr. Scott Truver
Quality Management in Shipboard Maintenance
Eugene D. Story
Technical Issues and Design Challenges of Composite Marine Structures
Lowell E. Smith, Jr.
Progress in Fire Protection of Composite Marine Structures
Charles M. Rollhauser

Session 2A — Ships

Juniper — The New U.S. Coast Guard Buoy Tender
B.F. Bentgen, J.A. LaCasse, T.J. Danhieux, and R.E. Williams
FF-21: A Fast Frigate for the 21st Century
Leonid Afanasieff and John P. Mabry
Design and Hydrodynamic Aspects of the Amphibious Transport Vessel for the Royal

Netherlands Navy

J.J. Hopman, E.M. Krikke and G.K. Kapensberg
A Truly Allied Undertaking: The Progeny of Britain's Empire Liberty, 1931-1943
Gary E. Weir

Session 2B — Combat Systems

A Conceptual Design of a Convertible Heavy Lift (CHL) Ship
Frank van Hoorn
Achievements with Advanced Craft
Donald L. Blount
The Effects of Air System Operation and Integrity on the Performance and Reliability of High Pressure Air Compressors
J. Jeffrey Craighead, P.E.
Active Magnetic Bearings for Today's Navy
James D. Hurley

Session 3A — Operations

Live Fire Test and Evaluation for Ships
Joel B. Bloom
The Propelled Variable Depth Sonar
Laurent LeTot and Bernard Vignand
Joint Logistics Over the Shore Operations
Theodore G. Vaughters

Session 3B — Maintenance

Ship Repair Standard Cost Model
Bertram D. Smith, Jr.
The Maintenance Requirements System: Risk-Based Resource Programming at Work
Kenneth S. Jacobs and Grant W. Soderstrom
Making Piping Systems Fire Safe
Vinod Bhasin

Session 3C — Career Development

Panel of four maritime professionals discussing personal qualifications, transferable skills, degrees, career paths.

Session 4

Sea Shadow Stealth Ship
Paul Chaddeton and Richard Paquette

ABS/Government Services Unit

Circle 45 on Reader Service Card

American Bureau of Shipping (ABS) provides ship classification and certification services for U.S. government-owned vessels in accordance with ABS rules and guides. ABS Americas' Washington, D.C. office provides preliminary technical plan approval and survey services of new and existing vessels for compliance with ABS rules and guides, as well as for compliance with U.S. Coast Guard (USCG) and international regulations. ABS Americas provided technical services to the U.S. Navy for the Strategic Sealift program during the preliminary design stages, and is presently providing classification and certification services to three shipyards through offices in Newport News, New Orleans and San Diego. ABS Americas provides preliminary design reviews, classification and certification services for the following government agencies: NAVSEA, NOAA, USCG, MarAd, NSF, MSC, Army and Army Corps of Engineers.

Advanced Marine Enterprises

Circle 46 on Reader Service Card

Advanced Marine Enterprises (AME) provides naval architecture and marine engineering services

for the government market, offering services for all phases of a ship's life cycle, including survivability analysis and planning. AME's full spectrum of support services includes program management, video production and computer graphic design.

Now, with top experts in the computer visual scene simulation and bridge simulator development and integration, AME is able to incorporate these state-of-the-art modes of ship design with fully-detailed virtual reality models. Additionally, AME's model fabrication shop allows the creation and testing of physical scale models of all ship types.

Aero Nav Laboratories, Inc.

Circle 47 on Reader Service Card

Aero Nav Laboratories, Inc. offers environmental testing services to the commercial and military markets. Among the services Aero Nav offers are: Environmental Stress Screening (ESS); sine, random and gunfire vibration testing; simulated environmental testing (including temperature, humidity, altitude, acceleration, saltspray, sand and dust, explosive atmosphere, rain, sunshine, accelerated life, icing, immersion and more); light, medium, and Navy high impact shock testing (MIL-S 901); electrical characteristics; gauge calibration; on-site resident DCAS reps; field testing; prod-

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uct safety testing; package testing; and engineering support. Aero Nav is DESC certified and tests to a wide range of military specifications.

Allison Engine Co.

Circle 48 on Reader Service Card
Allison has provided marine gas turbine propulsion and power generation engines since 1973 for commercial and military hydrofoils, destroyers and corvettes, and luxury yachts. The engines for these applications are the 501-KF and the 570/571-KF. The 501-KF is the two-shaft version of the well-known generator set driver, the 501-KB/KB5. The 570/571-KF is a newer, more powerful and efficient gas turbine. The 501-K34 (AG9130) genset provides electrical power for the new U.S. Navy DDG-51 class destroyers, packaged to meet exacting Navy shock and survivability standards. The 571-KF engine, which powers foreign navy corvettes and destroyers, now offers a newly designed annular combustor; improved turbine vane coatings; long-life hot gas path thermocouples; single crystal first turbine blades; strengthened compressor blades; and compressor variable vane schedule optimization.

Appleton Marine, Inc.

Circle 49 on Reader Service Card
Appleton Marine has supplied marine deck machinery including cranes, single point davits, mooring winches, anchor windlasses and capstans to the U.S. military for 25 years—most recently, vertical shaft anchor windlasses (3.5-inch chain) and mooring and warping capstans for the entire AOE-6 vessel program; the complete package of underway replenishment equipment for the AOE-10 program; dual constant tension, single point RHIB handling davits with manual launch capability as well as cross deck winches, anchor windlasses and capstans for the U.S. Coast Guard WLB buoy tender; and a buoy handling crane for the WLM coastal buoy tender. A complete deck machinery package including stores cranes, constant tension mooring winches, and combination mooring winch/anchor windlasses is being designed and manufactured for the Military Sealift Command's "Sealift Conversion" program at Newport News Shipbuilding.

A.W. Chesterton

Circle 50 on Reader Service Card
Chesterton has extensive experience in valve sealing system technology. Chesterton offers leak-free programs specifically designed for naval and shipping applications. These programs provide substantial energy savings, maintenance rework, valve replacement and pollution clean-up. Chesterton also has a complete line of marine hy-

draulic seals, centrifugal pumps and mechanical seals. See A.W. Chesterton personnel at ASNE booths 116 and 117.

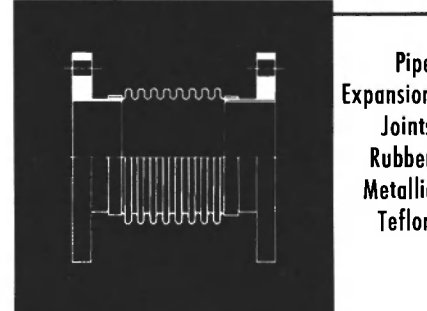
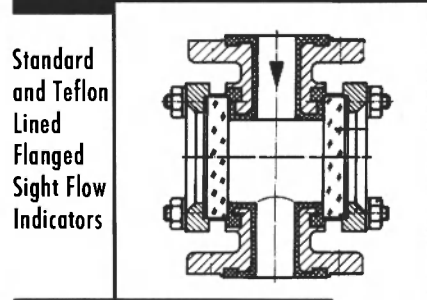
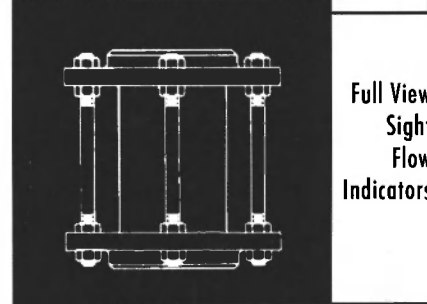
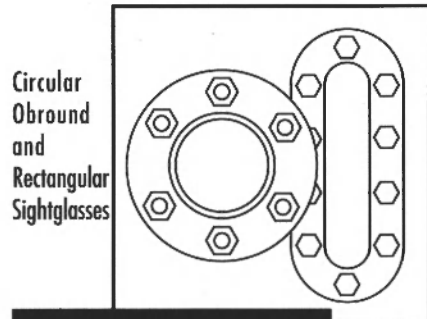
Bath Iron Works

Circle 51 on Reader Service Card
Bath Iron Works Corporation (BIW) is a shipbuilder and manufacturer providing products and ser-

vices to the U.S. and international navies, the commercial maritime community, and for industrial applications. The corporation's capabilities include design and engineering, construction, conversion, overhaul, repair, management and information systems, and international technology assistance and transfer programs. Employing approximately 8,500 people, BIW is

currently the lead builder of the DDG 51 Burke class Aegis destroyers. Since 1991, the lead ship and one follow ship have been delivered, with 13 more DDGs under contract. Activities which supplement the construction of surface combatants include a commercial shipbuilding development program and the expansion of industrial manufacturing projects.

Observation Equipment & Piping Accessories



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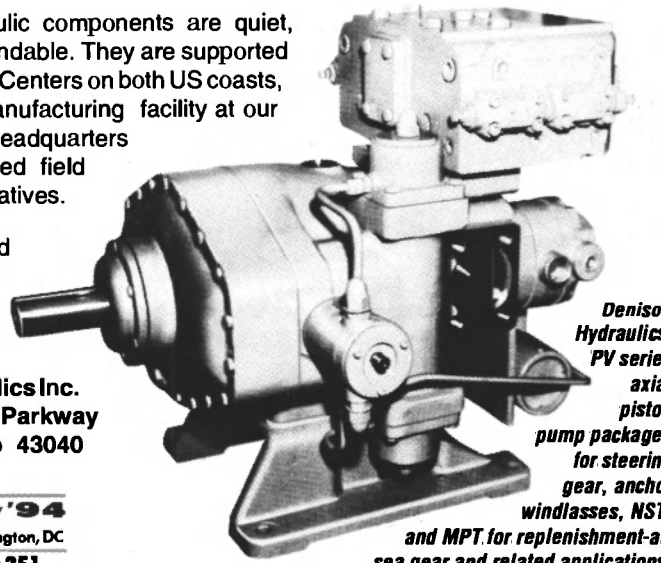
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The PV62 axial piston pumps and motors supplied by Denison Hydraulics have become a Navy standard. At 50 years of age, they're still the standard for high pressure fixed or variable shipboard applications. Together with the PV61 and PV63, and complemented by the P24 and P30 units from Denison's established Gold Cup line, our piston equipment meets the Navy's demanding requirements.

Denison's hydraulic components are quiet, rugged and dependable. They are supported by Marine Repair Centers on both US coasts, a dedicated remanufacturing facility at our Marysville, Ohio headquarters and factory-trained field service representatives.

For more detailed information contact us at (513) 644-3915 or write:
Denison Hydraulics Inc.
14249 Industrial Parkway
Marysville, Ohio 43040



ASNE Day '94
27-29 April @ Washington, DC
See us at booth 251

Innovative Solutions For Demanding Applications



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1994 Military Suppliers Guide

CAE-Link

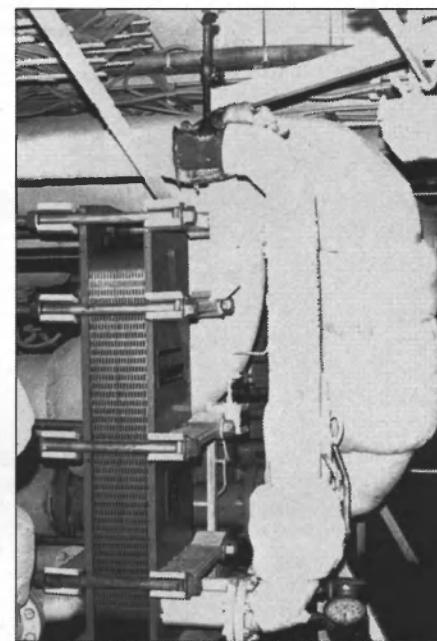
Circle 52 on Reader Service Card
CAE-Link's business focus is applying innovative technologies to satisfy the training and production needs of business, government, and military customers worldwide. CAE-Link is part of the Aerospace & Electronics Group of CAE Inc., one of the world's leading suppliers of

simulation and training systems with facilities throughout Canada, the U.S. and Europe. CAE-Link recently won a \$19.2 million contract from the U.S. Navy for design, fabrication and testing of a prototype Standard Monitoring and Control System (SMCS), which will perform real-time monitoring and control of shipboard Hull, Mechanical & Electrical (HM&E) functions, in-

cluding propulsion, auxiliary, electric plant, and damage control.

Caterpillar

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Caterpillar is a worldwide manufacturer of engines and earthmoving, construction and materials-handling equipment. Cat-



Tranter Superchanger® heat exchanger.

Caterpillar diesel and natural gas engines are used for vehicle, marine, and electric power generation from 50 to 8,000 hp, 50 to 5,720 kW.

Caterpillar engines and generators are used in mobile power applications, as standby generator sets for critical loads and prime power in remote installations. Marine engines are integrated propulsion systems, ship service and emergency generators, and auxiliary power units, many U.S. Navy certified and shock qualified. Caterpillar offers unique capabilities to concept, design, build and test specialized equipment.

Claremont MILITARY DRESS CODE.

CLARETEX LOW K 200

The Claremont Company's thermal and acoustical insulation products have been dressing the fleet for years and comply with a wide range of Federal, Coast Guard and military specifications.

Claremont Claretex™ products have applications in fireproofing and acoustically treating bulkheads, non-asbestos door gaskets (in missile blast areas), piping systems and for thermally and acoustically treating sensitive areas.

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▲ Pilgrim Nut on Rudder Stock on the M/V "Lopez"
▲ Pilgrim Nut locations on typical rudder assembly.

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Cincinnati Gear

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The Cincinnati Gear Company has a long history of designing and producing diesel and gas turbine powered gear transmission systems for naval applications, including main propulsion gears on the T-AO 187 and AOE 6 class ships, lift and propulsion gears for the LCAC hovercraft, torpedo ejection systems, and genset gearboxes for DDG-51 destroyers. Recently CINTI has developed the "MA" series of standard gas turbine powered turbine reduction gearboxes from 1,000 hp and higher, well-suited for patrol boat and fast craft applications. A standard line of diesel powered reduction gears (the "MD" series) from 4,000 to 40,000 hp has also been developed.

Cummins Marine

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Cummins Marine engines have been selected for use by the U.S. Navy for a wide range of craft, including: a 24-foot (7.3 m) Inflatable MK3; 26-foot (8 m), 33-foot (10 m) and 40-foot (12.2 m) personnel MK7s; a 35-foot (10.7 m) workboat; a 40-foot (12.2 m) plane, personnel and rescue vessel; a 184-foot (56 m) YTT; one 23-foot (7 m) rigid inflatable vessel and another same-sized harbor security vessel; 26-foot (8 m), 33-foot (10 m) and 40-foot (12 m) personnel vessels; 33-foot (10 m), 39-

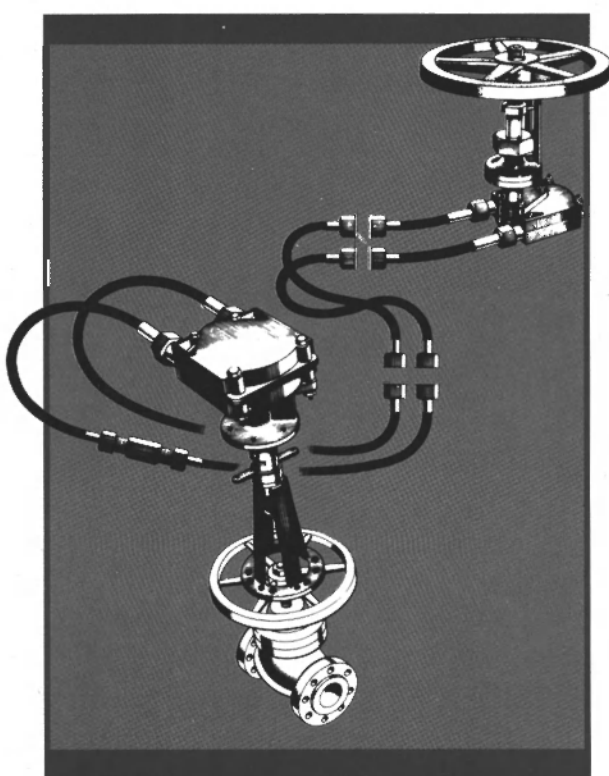
Maritime Reporter/Engineering News

For remote valve operation...

Nobody's Remotely Close To Teleflex

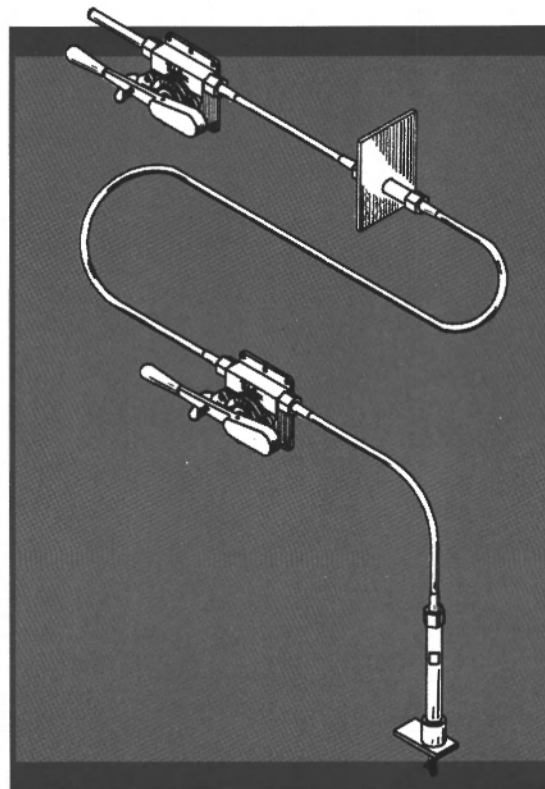
Simpler by design: Teleflex Remote Valve Operators — RMVA, RTVA, and RVVO — are clearly in a class by themselves. Each system employs the Teleflex Flexible Cable Technology to mechanically transfer rotary and linear motion through complex routings over long distances.

Proven Cost Effective: Whatever type of valves you need to operate, Teleflex can provide a system that is easy to install and maintenance free. Teleflex Remote Operator Systems are totally reliable in harsh environments. They are designed to exceed the shock, vibration, and corrosion resistance requirements for naval, commercial marine, and industrial applications. No other equipment comes remotely close.



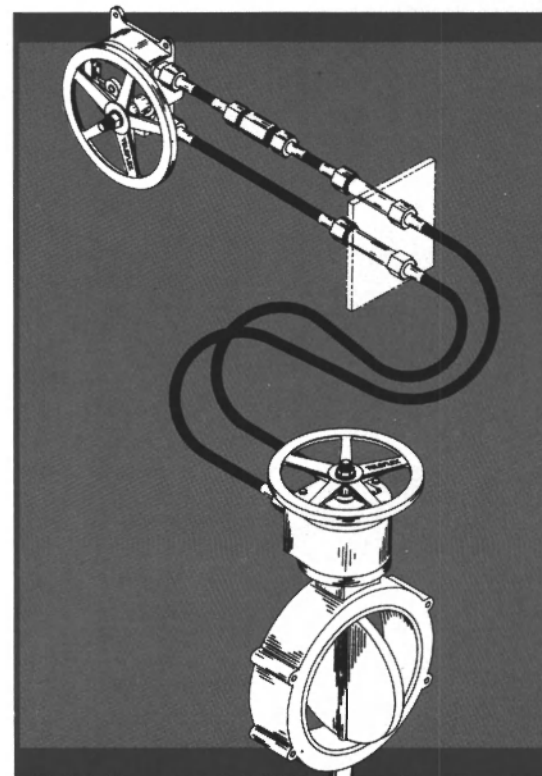
RMVA: Remote Mechanical Valve Actuator Systems for applications requiring delivery of multiple-turn rotary motion from remote locations.

■ 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.

■ Meets U.S. Navy MIL-A-24780 and Tech. Manual S6438-AA-DDT-010/ODME5



RVVO: Remote Vent Valve Operator Systems are lightweight, low-profile operators that bolt directly to flanges of 1/4-turn ventilation valves. Systems incorporate a patented override feature at the valve for local operation.

■ Meets U.S. Navy Tech. Manual S6435-QJ-MMC-010

Call or write for complete Design Manuals on each system.

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naval technologies division

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1994 Military Suppliers Guide

foot (12 m) and 49-foot (15 m) utility vessels; and a 49-foot (15 m) workboat. The U.S. Army also selected Cummins Marine power for the 175-foot (53.4 m) Landing Craft, Utility, as well as the Marine Corps for its 35-foot (10.7 m) Riverine Assault Craft.

Designers & Planners, Inc.

Circle 56 on Reader Service Card

Designers & Planners, Inc., offers maritime and technical services covering naval architecture and marine structural design. In recent years, as part of the BMT Group of Companies, D&P added maritime safety, health, environmental protection, software testing and development as corporate specialties. D&P is one of only two companies holding contracts to support the U.S. Navy in all surface ship and submarine structural design and fleet maintenance activities. The company has continued to work closely with the senior members of the Navy and the U.S. Coast Guard (USCG) to develop and implement its Environmental and Natural Resources Program policy. D&P has also expanded its engineering business to include a new line of Computer-Assisted Design (CAD) services. This service area will include animated displays and drawing conversion. Some recent projects in-



Portland Shipyard (PSY) has a long history of working on navy vessels (Pictured is the Vincennes).

clude: the development of structural concepts for the next generation of fast, double-hulled Sealift ships; development of flexible cargo handling systems for Sealift ships; engineering support for the USCG icebreaker acquisition program; shock response analyses for the MHC-51 minehunter; and naval architecture and ship design services to a major U.S. shipyard in support of the Navy Sealift Acquisition program.

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GE's LM aeroderivative marine gas turbines are compact, high-performance power plants,

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Recently introduced: the LM2500R gas turbine — a recuperated version of GE's popular LM2500 — that GE says is ideal for new vessels and retrofit in existing Navy ships.

George G. Sharp, Inc.

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Since 1920, George G. Sharp, Inc. has designed more than 1,500 vessels. Sharp has more than 800 employees throughout the U.S., of which 300 are in the technical and engineering divisions. Sharp is providing naval architectural and marine engineering services to NAVSEA, MarAd, MSC, NAVSSES, NAVSEACENPAC and Long Beach Naval Shipyard. Sharp has locations in New York City; Crystal City and Virginia Beach, Va.; Voorhees, N.J.; and San Diego, Calif. Sharp is an 8(a) Minority Business firm as established by the Small Business Administration.

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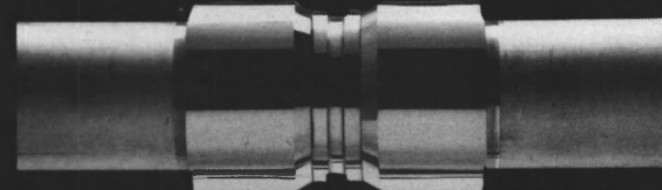
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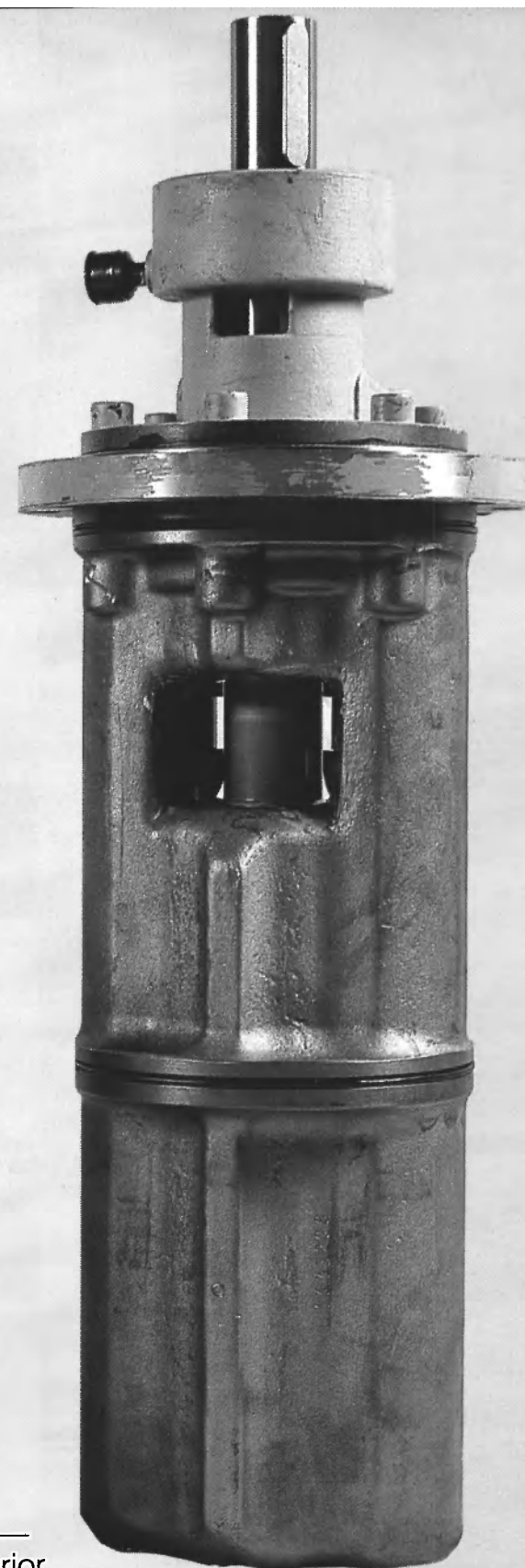
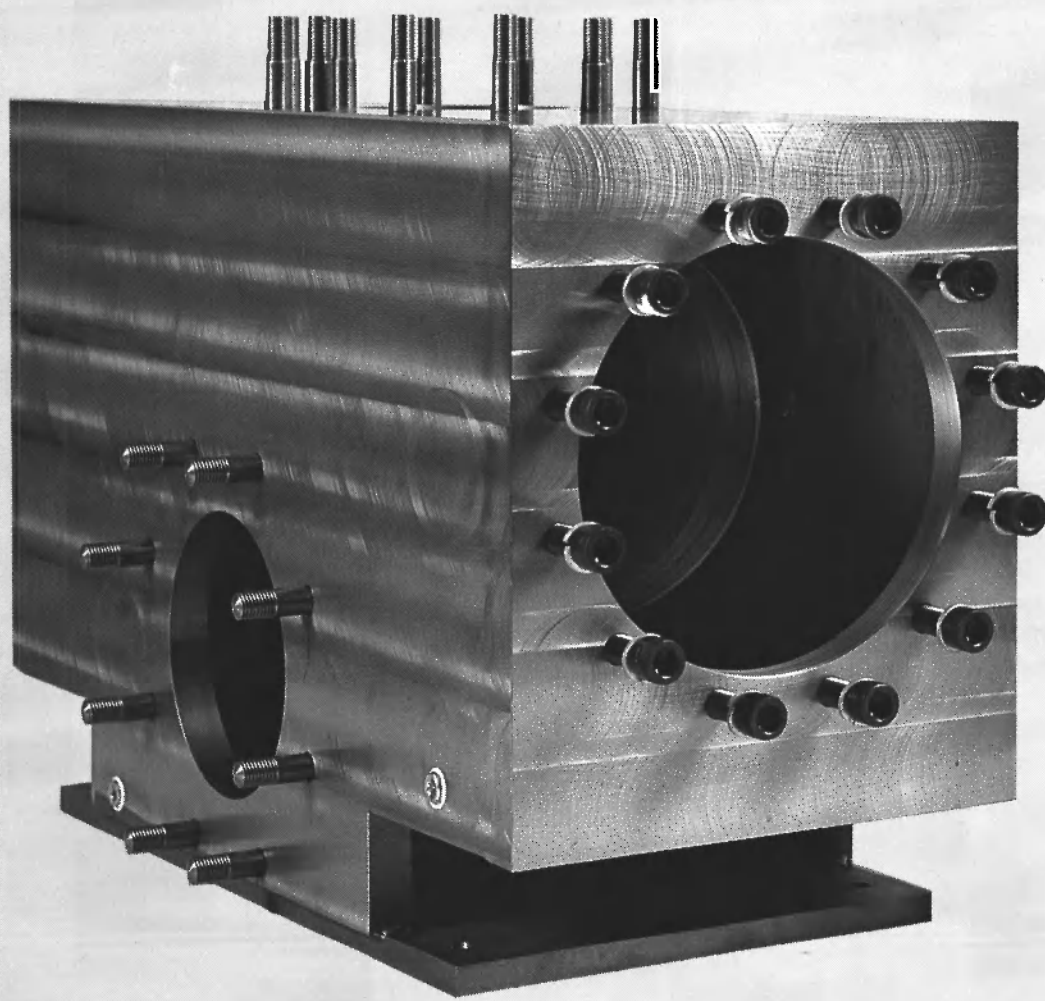
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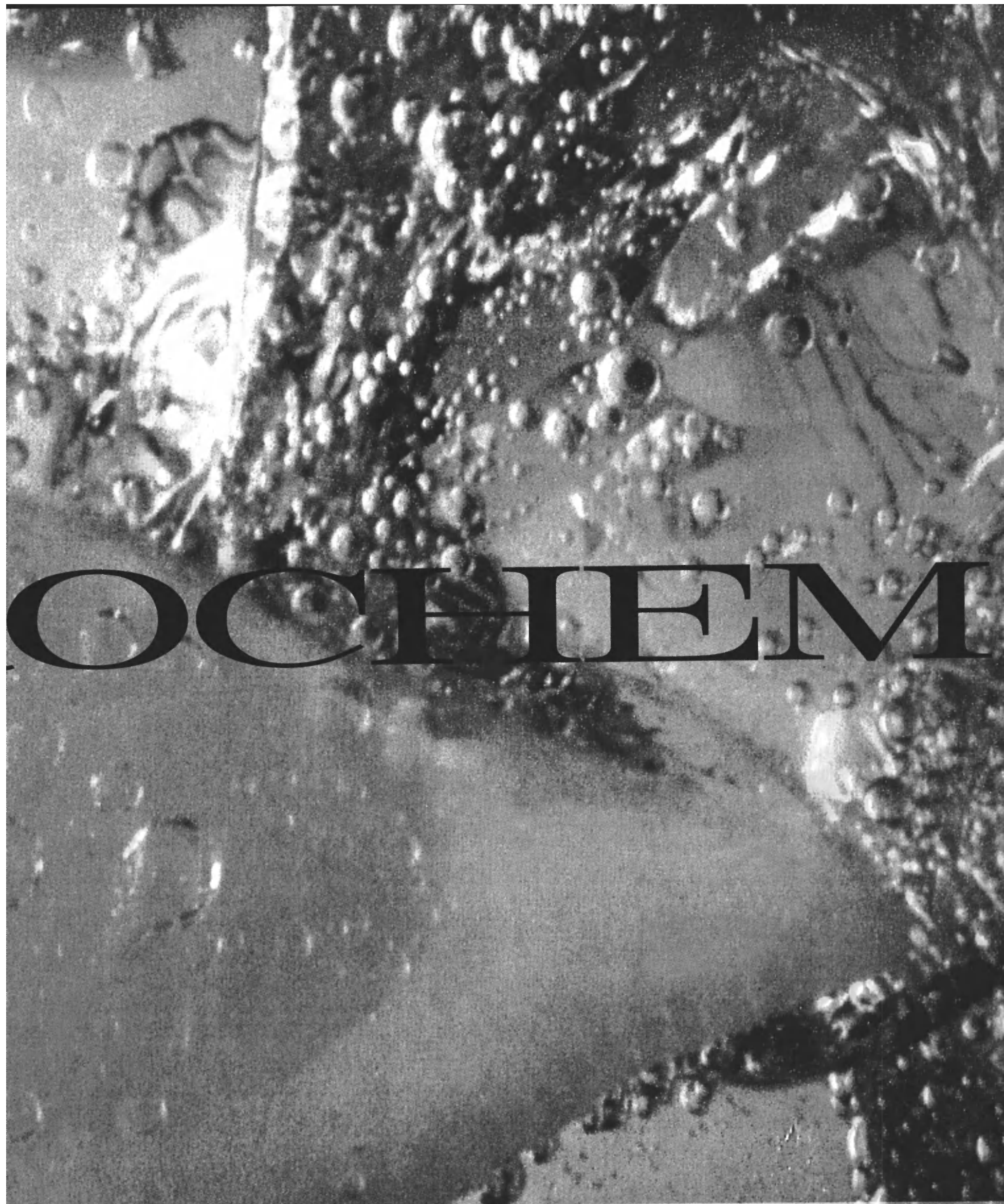


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Gibbs & Cox, Inc.

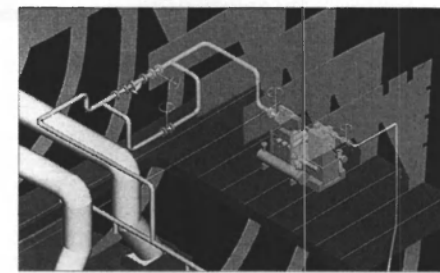
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Gibbs & Cox, Inc. is a multi-disciplinary engineering firm having as its primary focus naval architecture and marine engineering. It is recognized worldwide for its work in the design of naval surface combatants and commercial ships, and is currently engaged in the design of an advanced combat system frigate for

the Republic of China and sealift ships for the U.S. Gibbs & Cox, Inc. is headquartered in New York City with offices in Arlington, Va.; Brunswick, Maine; and Pascagoula, Miss.

HamiltonJet

Circle 60 on Reader Service Card
HamiltonJet's advanced waterjet

propulsion systems meet the standards of certifying authorities such as Lloyds and ABS, making them widely accepted by military and paramilitary organizations around the world. Applications include main propulsion for high speed patrol, riverine assault, RIB assault and rescue and other multi-mission craft, as well as wide use as a loiter/boost propulsor in conjunction with

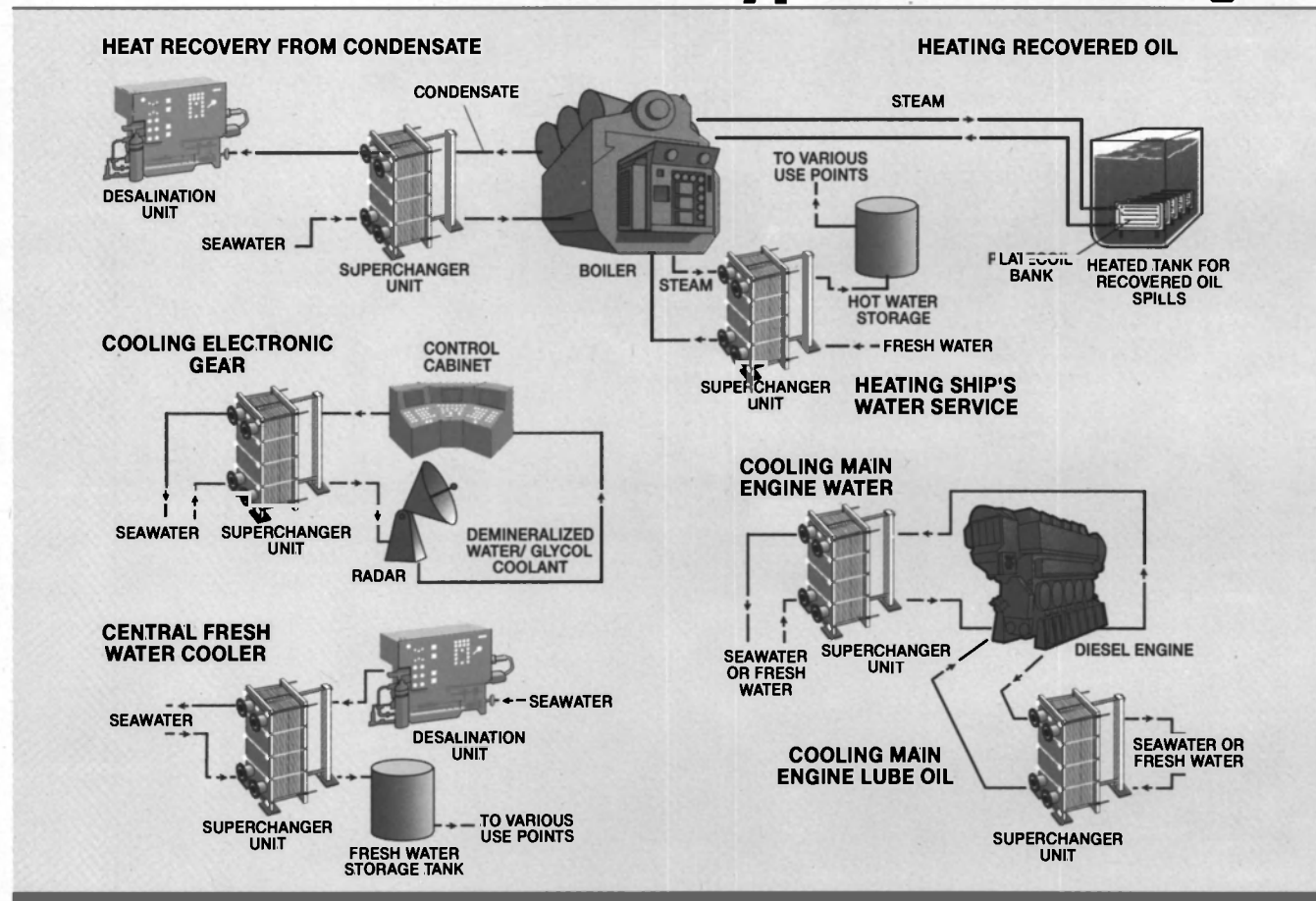


Intergraph CAD graphic.

other drives. With units for power inputs up to 3,000 kW, optimum propulsion options for vessels up to typically 197 feet (60 meters) long are available.

Logistic services, including documentation and training programs, are provided for all projects through an extensive global support network.

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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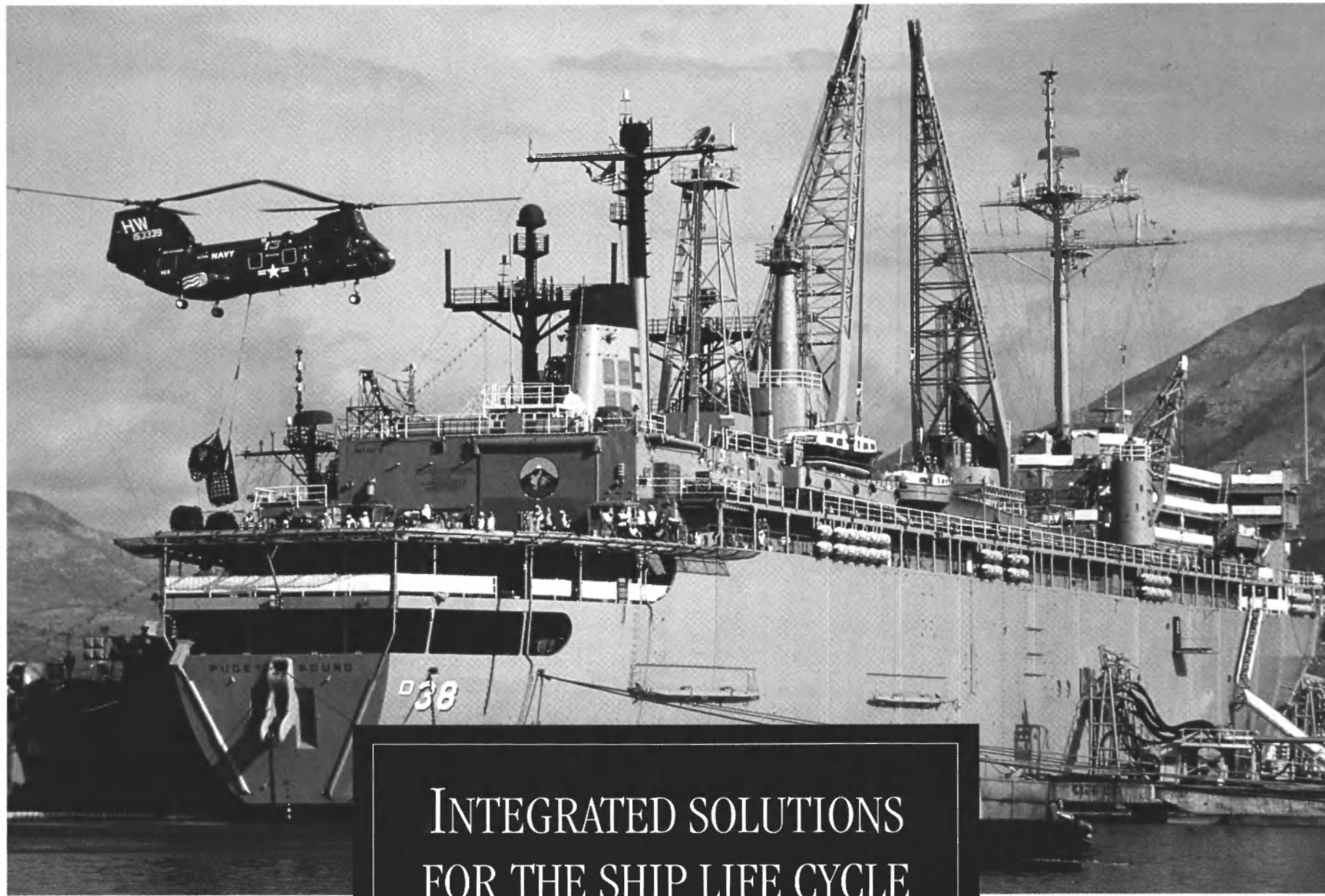
Hellan Fluid Strainers

Circle 61 on Reader Service Card
Hellan fluid strainers have been chosen by the Navy to replace duplex strainers on all CG-47 cruisers to protect radar, sonar, GTC, phalanx, LPAC, etc. Hellan says its fluid strainers need little or no maintenance; are self-contained, so sailors are not exposed to harmful debris or chemicals; weigh 60 to 70 percent what duplex strainers weigh; and can be cleaned in 30 seconds without disassembly. The company claims this translates into major cost savings. In the 18 months since Hellan strainers were installed on the CG-47s, there have reportedly been no complaints. Hellan fluid strainers are approved by ABS, U.S. Coast Guard and Navy.

The Navy is reportedly considering Hellan strainers in place of duplex strainers, starting with Flight IIA of DDG-51 destroyers. Both the Navy and private shipyards are also considering Hellan strainers for use on other Navy class ships.

Hi-Test Laboratories, Inc.

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Hi-Test Laboratories, Inc. provides test and evaluation services to commercial and military clients in the areas of shock, noise, vibration and ship survivability with special emphasis in underwater explosion technology (UNDEX). Tests are conducted in accordance with applicable military specifications, i.e., MIL-S-901/MIL-STD-167/MIL-STD-740, etc. The company offers state-of-the-art instrumentation, high-speed photography and video coverage, certified instrument calibration, procedure preparation, fixture design and fabrication. Qualified quality assurance and welding procedures are provided in all fabrication disciplines. Certified welding personnel are qualified to applicable ASTM, AWS, and Military Specifications for various materials including HTS, HSLA, HY-80, HY-100, etc. Hi-Test is a major manufacturer and distributor of MIL-spec shock and vibration test machines, as well as



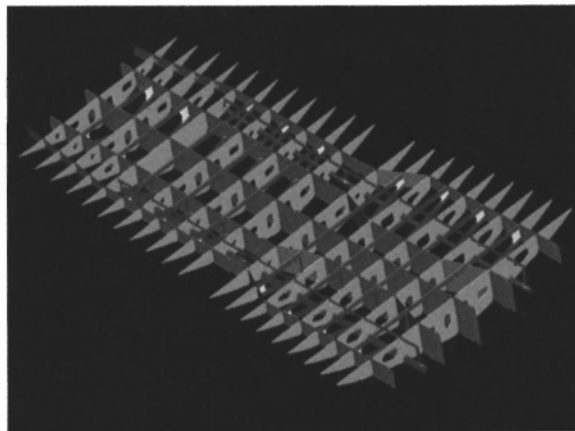
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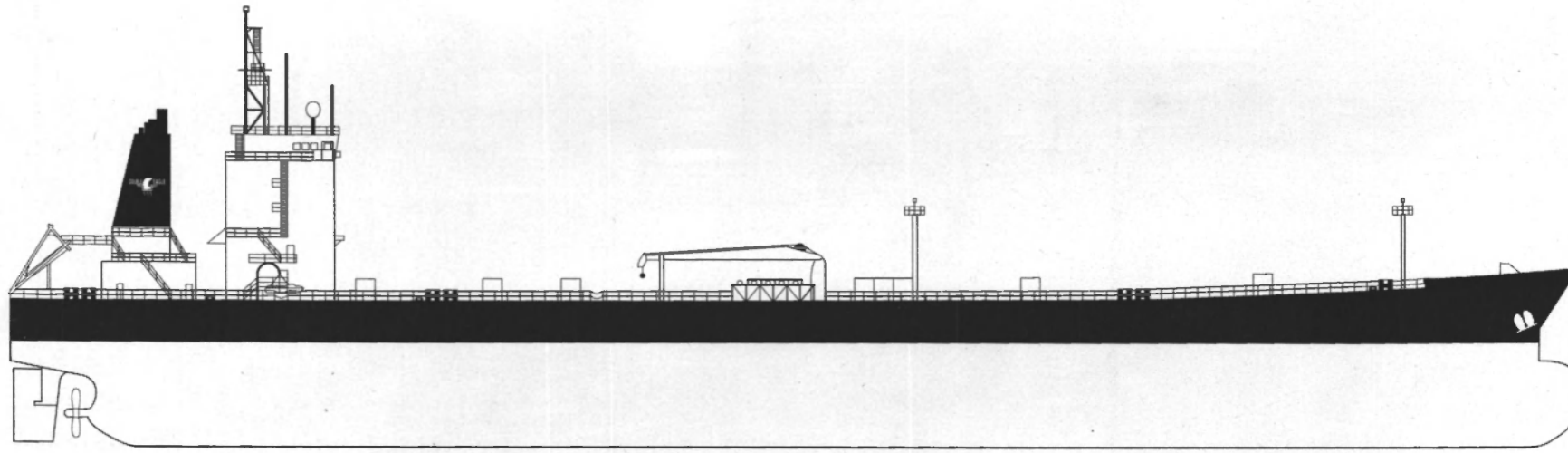
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NEW VESSEL DESIGN



Newport News recently revealed the details of its new product tanker design, the Double Eagle 333.

NEWPORT NEWS: Tackling The Commercial Market With New Product Tanker Design

Newport News Shipbuilding (NNS) is hoping the debut of its new product tanker design, dubbed the Double Eagle 333, will mark its return to the commercial shipbuilding market.

The shipbuilder unveiled its plans at the recent Shipping '94 show in Stamford, Conn.

The word "Double" in the name refers to its double hull design, a feature built in to comply with the future requirements for ships operating in U.S. waters. The "Eagle," a traditional symbol for the U.S., hammers home the fact that the product is American-made. The "333" stands for the ship's cargo capacity, which is 333,000 barrels of product.

"We believe that Double Eagle 333 will meet a significant worldwide market demand for affordable, double hull ships," said Greg Cridlin, vice president, commercial. "It's an excellent design, offering the owner top performance and a wide variety of options. And it will be a very producible ship. But, more importantly, it's being offered at a price that is very competitive. We understand that now, more than ever, cost will drive the purchasing decisions of ship owners and operators."

VESSEL SPECIFICS

The Double Eagle will be 649 feet (197.8 m) long and 102 feet (31 m) wide. It will have a deadweight of approximately 42,000 tons (design draft) and 45,435 tons (scantling draft). The design for the new ship was reviewed by an internationally renowned consultant and a num-

ber of key customers, according to NNS.

FOCUS ON AFFORDABILITY

Partly based on extensive market research, it was concluded that the time was right to enter the Double Eagle into the commercial market, said Ed Waryas, director of commercial marketing. "Forecasters are

projecting that U.S. clean air legislation will lead to more petroleum products being shipped to America instead of being produced here," he said. "That will mean more ships will be needed."

"The U.S. legislation requiring that ships be double hull construction...will also lead to more demand."

NNS, however, has not relied solely on forecasts, and has enlisted the aid of agents worldwide in making business contacts. The shipbuilder is also hoping for U.S. government support, specifically in the form of defense conversion funds. NNS is actively working to obtain some of those funds to enhance production processes to commercially-competitive standards.

STRONG HISTORY— PROMISING FUTURE

The last commercial vessel built at NNS was the U.S.T. *Pacific*, a 1,187-foot (361.8 m) very large crude carrier (VLCC) delivered in 1979. Over the history of the yard, NNS has actually built more commercial ships than warships. For the past dozen years, the company has been out of the commercial shipbuilding market.

In two years since the decision was made to reenter the commercial market place, management concluded that the best way to begin, considering the strong competition from shipbuilders in Europe and Asia, was an aggressive effort in the commercial ship repair business. NNS business has gone from no repair work to having completed 60 ships to date.

"Double Eagle has been an outstanding team effort," Mr. Waryas said. "We've had everyone from engineering to purchasing, contracts, cost engineering and production control working long hours, side-by-side."

For additional information on the Double Eagle 333,

Circle 115 on Reader Service Card



TOP: Edward A. Waryas, director of commercial marketing at Newport News Shipbuilding, addresses a luncheon crowd at the recent Shipping '94 to introduce the shipyard's new product tanker design.

BOTTOM: Pam Waryas prepares to 'christen' Newport News' Double Eagle 333 at the Shipping '94 luncheon.

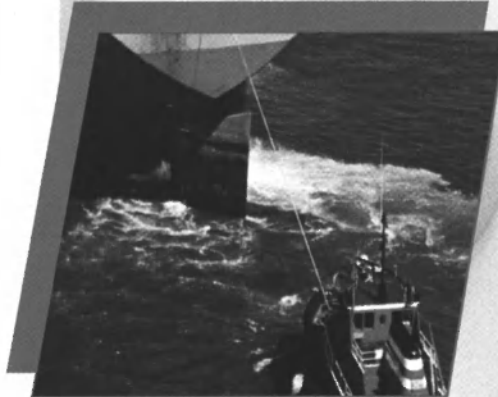
Double Eagle 333 Particulars

Length o.a.	198 m
Length between perpendiculars	189.4 m
Beam, molded	31.1 m
Depth to upper deck at side, molded	17.4 m
Draft, design, molded	10.6 m
Draft, scantling, molded	11.3 m
Brake hp, MCR	14,100
Brake hp, NCR	12,000
Trial speed at NCR, design draft	16 knots
Deadweight, design draft	41,675 M.T.
Deadweight, scantling draft	45,435 M.T.

A Commonly Asked Question From Our Readers



Q. Is there a difference between Dacron® and polyester fibers for ropes and cordage?



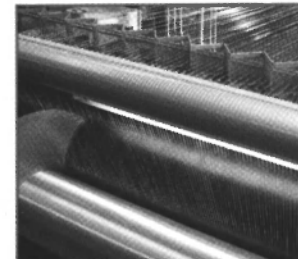
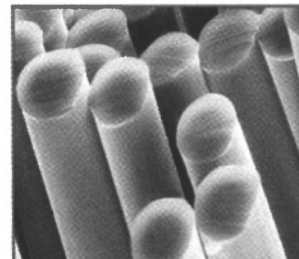
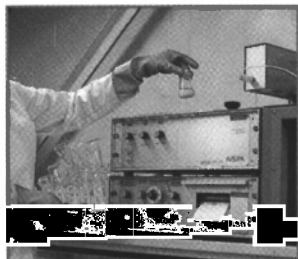
A. *Dacron is nothing more than a trademark indicating the source for that polyester material.*



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application. All polyester offers great flexibility in manufacturing. This is exemplified by AlliedSignal Fibers application-oriented line of polyester products. Polyester can have ultra-low elongation (for heavy lifting applications), high modulus (for tires), or low shrinkage (for broad woven fabrics).

When considering any type or brand of polyester, be aware of the engineered properties required for your application. The more important question is: which polyester is the best engineered product for the specific application?

For further information, contact AlliedSignal Fibers, 224 West 35th Street, Suite #1500, New York, NY 10001.

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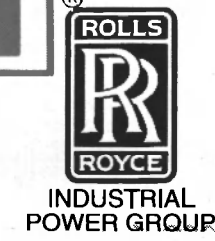
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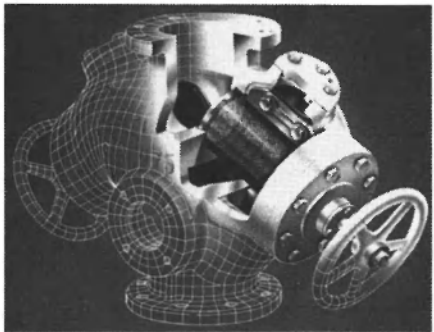
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Hellan fluid strainer diagram.

unique and standard fixturing. The company also provides test facility design and construction and machine installation at remote sites internationally.

Hydrasearch Company, Inc.

Circle 63 on Reader Service Card
Hydrasearch manufactures and sells Navy-approved hose and fittings in two- through eight-inch sizes to Military Specifications MIL-H-24135, MIL-H-24136, MIL-F-24787, MIL-C-24356, and MIL-H-22240. These products are interchangeable with Aeroquip 2580, 150901, 2652, 2560, and FC267 hose. Related fittings include straight and 90-degree elbow flanged ends, split clamp ends, and hose to hose dogleg fittings. Hydrasearch also manufactures a complete line of equipment for underway replenishment at sea including probes, probe receivers, pelican hooks, strongbacks, and trolleys for fuel, water, and solid cargo transfer-at-sea.

Hydrocomp

Circle 64 on Reader Service Card
NavCad is for the prediction and analysis of vessel speed and power performance for virtually every type of monohull, catamaran and river barge. It also provides for the selection of suitable propulsion system components — engine, gear and propeller. Not limited to a few basic routines, NavCad provides a complete platform for a steady-state equilibrium analysis of performance. HydroComp is a consultancy specializing in hydrodynamic performance and speed/power prediction. It also provides contract services to design agencies and shipyards, as well as to engine and propeller manufacturers.

Ingalls Shipbuilding

Circle 65 on Reader Service Card
Ingalls Shipbuilding, in addition to producing some of the world's finest surface combatant ships, is continually exploring new marketing opportunities in international military shipbuilding and in U.S. and international commercial shipbuilding.

Ingalls is currently involved in priority U.S. Navy shipbuilding programs — Aegis guided missile destroyers, LHD multipurpose amphibious assault ships, and overhauls of large combatant ships.

On the international front, Ingalls has designed a 1,250-ton Corvette and a 2,800-ton Ingalls Frigate. These potent, survivable platforms incorporate speed, stability and survivability in truly multimission-capable ships. Ingalls is reportedly the only shipbuilder in the U.S. building combatant ships for an international customer, with three ships in production for Israel. The shipyard is

also currently designing double-hull tankers in two different capacity configurations.

Integrated Systems Analysts, Inc.

Circle 66 on Reader Service Card
Integrated Systems Analysts, Inc. (ISA), offers a wide range of engi-

neering, scientific, technical and management support services. Principal areas of support include: systems engineering; corrosion engineering; acoustics engineering; information systems services; integrated system hardware/software design and testing; maintenance strategy initiatives and planning; electronics repair and maintenance; and integrated logistics support.

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On August 10, 1993 Diversified Technologies responded within two hours to a three vessel collision in Tampa Bay. D_t provided Engineering support for extinguishment, safeing, off loading, temporary repairs, and refloating services. The D_t quick response team mitigated the liabilities of their client.

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ISA has well over 500 current employees, and has established offices in Arlington, Alexandria, and Norfolk, Va.; New London, Conn.; Ft. Walton Beach, Fla.; San Diego and Camarillo, Calif.; and Dallas, Texas. The company has also established over 30 computer maintenance facilities and 60 maintenance service locations throughout the country. ISA says it has assembled

a cadre of highly qualified personnel with extensive military, civil service and industry experience in the market areas it pursues, to ensure quality performance on each contract it undertakes.

Intergraph Corp.

Circle 67 on Reader Service Card
Intergraph Integrated Ship Design and Production (ISDP) prod-

ucts and engineering services aim at increasing productivity throughout the ship life cycle. Products cover compartmentation; the design, detailing, and manufacturing of ship structure; schematics design; and the modeling of piping, HVAC, electrical and fiber optic systems. Parametric construction and fabrication of equipment, interference detection between disciplines,

and the generation of classification and production drawings are supported. They are built on Intergraph's object-oriented, NURBS-based solid modeling computer graphic systems, with full support for associativity and constraints.

Intergraph's Product Data Manager controls the access to a centralized model database utilizing user-defined workflows. New manufacturing features provide the automatic generation of shell plates and stiffeners, and jig and template design. An Intergraph/BMT joint effort provides solutions for hull form generation and fairing as well as stability and hydrodynamics analysis. Intergraph is participating in the implementation of several naval projects including NAVSEA CAD-2 and the European Future Frigate Project at Yarrow Shipbuilders in Glasgow.

John J. McMullen & Associates

Circle 68 on Reader Service Card
JJMA, naval architects and marine engineers, applies emerging technologies to meet clients' mission and operational requirements. Capabilities include all-hull, mechanical and electrical engineering disciplines as well as combat systems physical integration, program management, integrated logistics support, database development and acquisition planning.

Emergency de-ballasting systems, collective protective systems, low observable and noise signature design, fiber optic command and control systems, small waterplane area twin hull (SWATH) designs, and advanced pollution control systems are representative of the types of engineering and design that JJMA says define it as the company of choice for advanced and diverse combatant and auxiliary designs.

KaMeWa

Circle 69 on Reader Service Card
KaMeWa is considered to be one of the world's leading manufacturers of propellers and waterjet propulsion systems. The equipment meets the highest naval operational criteria for performance, efficiency, shock resistance and emissions signatures. It can be built to comply with any type or level of military design specifications (MIL, etc.) KaMeWa propulsion systems are chosen by many navies worldwide. They are installed and operating in vessels of all categories, from high-speed patrol craft with waterjets to the most powerful propeller-driven destroyers.

KaMeWa has recently received the order for delivery of Tunnel Thrusters for the Military Sealift Command's conversion of two ships.

Keystone Valve

Circle 70 on Reader Service Card
Keystone Valve U.S.A., Inc., Houston, Texas, is a world-wide supplier of commercial marine and Mil Spec butterfly valves, ventilation



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Circle 240 on Reader Service Card

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valves, check valves, and electric actuators. Its military product line includes the Figure 129/139 MIL-V-22133 (C) Resilient Seated Butterfly Valve, the Figure 360/362 MIL-V-24624 (SH) High Performance Butterfly Valve, the Figure 777 DOD-V-24657 (SH) Electric Actuator, as well as the Rev. B and Rev. C Ventilation Closures. Keystone also has a complete line of commercial quarter-turn butterfly, ball and plug valves, knife gates, electric, pneumatic and hydraulic actuators and accessories. Keystone products are used extensively by navies throughout the world. They can be found in many shipboard systems, including fresh water, sea water, sanitary, firemain, bilge and ballast, fuel, ventilation, cargo and lube oil, chilled water, compressed air, inert gas and emergency shutdown systems.

Kvaerner-Masa Marine

Circle 71 on Reader Service Card
Kvaerner-Masa Marine (KMM) offers professional naval architecture and marine consulting services, based on the advanced technology available through its membership in the Kvaerner Group. The company provides technical, management and procurement services to shipyards, shipowners, government agencies and similar clients. KMM's engineers and designers develop solutions to the design and construction of a wide range of specialized ships, ranging from air cushion craft to passenger ferries, and from patrol boats to polar icebreakers. Recent U.S. efforts center around shipyard technology trans-



"Cyclone" Navy ships fitted with Paxman engines.

fer, U.S. Coast Guard (USCG) polar icebreaker design support, USCG coastal patrol boat design, and NOAA research ship design. KMM offers these services through its Vancouver, B.C. Canada office and its new Annapolis, Md. location.

Lokring Corporation

Circle 72 on Reader Service Card
Lokring Corporation of Foster City, Calif., develops, manufactures and markets a complete line of Elastic Strain Preload (ESP) mechanically attached fittings (MAFs) in three materials: 90/10 copper nickel, 316L stainless steel and carbon steel. In late 1993, the 90/10 copper nickel fittings through 2 NPS, and 316L stainless steel fittings through 1 NPS, received full NAVSEA surface ship approval (including fire hazardous areas and systems approval). All three fitting lines have American Bureau of Shipping type approval and U.S. Coast Guard acceptance and meet the 1,700° F heat requirement. Reportedly the most widely used MAF for new construction and repair of U.S. Navy surface ships, the ESP pipe joining technology is reportedly a simple, reliable and low-cost solution for field join-

ing pipe through 2 NPS. The patented Lokring ESP design employs a metal-to-metal seal without the need for O-rings.

Lonseal

Circle 73 on Reader Service Card
Lonseal's complete line of all-vinyl, resilient sheet material includes LONMAT DIA., a slip-resistant, embossed diamond-plate pattern, and LONMAT UV, a smooth, high-gloss, no-wax decking. Both meet MIL-M-15562F (Navy) Mat specs; are fire-retardant; resist water, chemicals and oil; and offer high dielectric strength. Lonseal vinyl floorings are reportedly quiet and resilient underfoot. They can be welded into a single, seamless sheet for sanitary installations. Complete information and color samples are available.

MagneTek

Circle 74 on Reader Service Card
MagneTek develops solutions for all types of power-based systems in military and regulated governmental markets. Ships, aircraft carriers, submarines, aircraft, tanks,

power grids and large computer installations are all MagneTek environments. For military markets, MagneTek manufactures both "Crittenden-type" and "Jefferson-type" QPL transformers; high-energy and pulse power systems; advanced electric drive and motor control, power protection and control, power conversion, power conditioning and harmonic reduction solutions; and fully integrated aircraft ground support systems. MagneTek products are largely special-engineered to meet application-specific requirements.

Marotta Scientific Controls

Circle 75 on Reader Service Card
Marotta Scientific Controls, Inc. has been serving the U.S. Navy with specialty fluid controls products for more than 36 years on submarines, surface ships, aircraft and deep diving submersibles. Products cover a wide range of service: pressure reducing manifolds for ship's air service and gas turbine starting; quick closing valves for fuel oil and steam service; automatic shutoff, solenoid, pressure regulating and pressure relief valves cover a wide range of critical pneumatic or hydraulic applications. As the technical challenge continues, Marotta will keep pace with new technologies to deliver higher performing products.

Metritape, Inc.

Circle 76 on Reader Service Card
Metritape provides resistance-tape; what the company claims is a simple, reliable, affordable and accurate gauge for non-mechanical, continuous measurement of liquid

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level and temperature — as well as tough marine gauging problems. These include deep cargo tanks, ballast, draft, fuel, oil and water aboard tankers, barges, containerships, drilling rigs, military vessels and floating drydocks. Metritape's resistance tape offers no moving parts, stable output, and usefulness in three- to 100-foot tanks. Sensor is resistant to sticky, abrasive, viscous and corrosive liquids.

Milligan Marine Supply Inc.

Circle 77 on Reader Service Card
Milligan Marine Supply has been supplying the military, shipping, towing, offshore, drilling, shipbuilding and chemical port facilities industries for nine years with the following products: polyform buoys, floats, markers, fenders, stainless steel chains and fittings; galvanized long link dock fender chain; galvanized long link deck lashing chain; boat fenders MIL-F-23788; cargo nets MIL-S-18313-G; accommodation ladders NAVSEA 804-2255402, grading MIL-G-18015; gangways NAVSEA 805-1749049; lubricant MIL-C-16173D; marine fenders MIL-F-29248; buoy markers MIL-R-17343D; deck buoys meeting SOLAS 74/83 requirements; plus a large number of other Mil-Spec products. Milligan recently received a large purchase order for stainless steel vertical ladders NAVSEA #S1604-860091, aluminum ladders #S1604-860041, and ship fenders MIL-F-23788. Milligan is a stocking distributor for several leading manufacturing companies.

MTU North America

Circle 78 on Reader Service Card
MTU continues its active involvement in the military marine market and has achieved an important milestone by winning two of the three Mark V special operations craft (SOC) test vessels for the U.S. Special Operations Command (SOCOM), which should lead to the purchase of the new Mark V (SOC), the company said. The program requirements are based on specific performance rather than a specific boat design. One of the crafts is powered by two 3,000-hp MTU diesel engines (16V396TE94) with surface-piercing propellers and the other has two 12V396TE94 (2,285 hp each) and KaMeWa waterjets.

Other recent projects utilizing MTU power around the world include 10-foot by 40-foot patrol boats for Egypt, Coastal Mine Hunters for Egypt, Mine Hunters for Norway and SAAR V frigates for Israel.

Naval Engineering Works

Circle 79 on Reader Service Card
Naval Engineering Works, Inc. (NAVENG) is a diversified manufacturing company with capabilities covering most all U.S. Navy hull, mechanical and deck items, including a complete and up-to-date set of NAVSEA/BUSHIPS drawings and Mil-Spec documents. NAVENG also offers a logistics spares procurement service, and a QA system to Mil-I-45208A. NAVENG recently acquired the dedicated fabrication/machining facilities of Precision Engineering and Manufacturing Co. and Lossett's Inc.

Naval Research Laboratory

Circle 80 on Reader Service Card
Dedicated on July 2, 1923, the Naval Research Laboratory's (NRL's) main site is situated on the banks of the Potomac River in Southwest Washington, D.C. Other major NRL sites are located at Stennis Space Center, Miss.; Monterey, Calif.; and Orlando, Fla. The Navy's corporate laboratory, NRL is charged with the mission of conducting a broadly-based, multidisciplinary program of new and improved materials, techniques, equipment, systems, ocean, atmospheric and space sciences and related technologies. The Navy has established NRL as its "lead laboratory" in space technology, fire research and artificial intelligence.

Nelson Firestop Products

Circle 81 on Reader Service Card
Nelson Firestop products play an important role in fire containment. A comprehensive fire protection program includes prevention, protection, suppression and containment. Firestopping is a special activity under the fire containment category.

Preventing fire from passing through a barrier penetration may depend on a single component which offers a complex balance of thermal resistance, thermal conductivity, adequate sealing at high temperatures and controlled consumption, so Nelson Firestop Products urges customers to insist on properly installed and tested components. Nelson Firestop says its compo-

nents are always manufactured to exacting standards, thereby significantly reducing the chance of installation error and subsequent system failure, which could result in potentially life-threatening situations.

There are more than 1,000 vessels worldwide with internal fire containment products by Nelson.

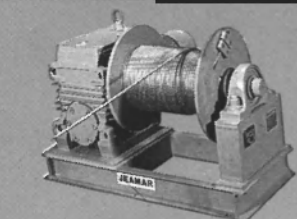
Newport News Shipbuilding

Circle 106 on Reader Service Card
Newport News Shipbuilding has extensive capabilities to design, construct and repair all types of commercial and military ships. Newport News is the only U.S. yard capable of building nuclear aircraft carriers, and currently has two under construction: CVN 74, the *John C. Stennis*, and CVN 75, the *United States*. Funding for CVN 76 has also reportedly been approved. In addition to various work on other naval vessels, Newport News is also a major participant in the Navy's Sealift Conversion Program, and is now converting two ships into the Sealift vessels T-AKR 296 and T-AKR 298. On the commercial side, Newport News is part of a consortium of international shipbuilders formed to produce tankers for Ishikawajima-Harima Heavy Industries' SPBLNG design for the Italian group Snam.

Paxman Diesels

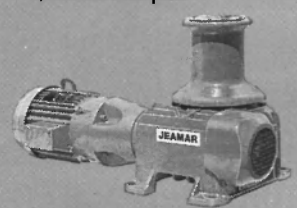
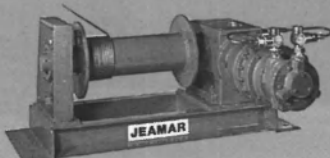
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Circle 237 on Reader Service Card

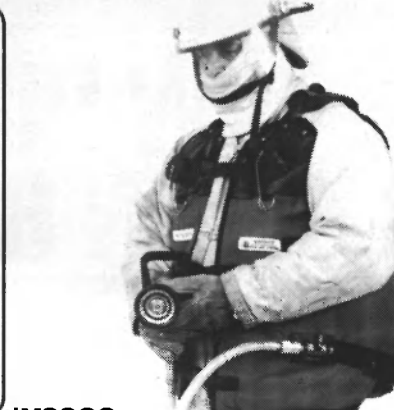
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the 560-3,655kW power range. Paxman says its engines, renowned for their ease of maintenance and long time between overhauls, are the ideal military solution for propulsion and on-board power generation duties. Paxman engines are specified by more than 50 of the world's navies. The U.S. has chosen the Valenta 16 CM engines, producing 2,500 kWb (3,350 hp) at 1,500 rpm as propulsion units for its Cyclone-class patrol vessels. The U.S. Coast Guard also uses the Valenta 16 CM to power 37 of its Island class cutters.

PDI Corp.

Circle 83 on Reader Service Card
PDI is a systems engineering and electronics hardware development/production company providing government and industry with analysis, simulation and design in the areas of: simulators, machinery, electronics and control systems — with software and electronics hardware businesses derived from these areas. PDI's engineering, electronics laboratory, design and production facilities are located in Annapolis, Md. These include state-of-the-art DEC and PC computer network with multi-user capability for simulation, software development (including Ada to Mil-2167), computer graphics, desktop publishing and CAD. PDI's facility for experimental evaluation, design, development and production of Mil-Spec electronics includes: general and special purpose test instruments, microprocessor applications development facilities, printed circuit board design and fabrication, systems assembly and field service.

Portland Shipyard

Circle 84 on Reader Service Card
Portland Ship Yard (PSY) serves the special needs of Cruisers, Destroyers, Frigates, Amphibious Transport Docks, Amphibious Assault Ships, Dock Landing Ships, Fleet Oilers and more. PSY is certified to drydock all Navy surface ships to 56,000 tons. PSY has large electronic and ordnance support facilities and 7,300 feet (2,225 m) of repair berths. There are in-place SupShip facilities and excellent quality assurance support.

Retlif Testing Laboratories

Circle 85 on Reader Service Card
Retlif Testing Laboratories is a fully independent testing laboratory providing a wide range of services in the areas of EMC, EMP, Acoustic Noise, telecommunications and environmental simulation. Retlif maintains facilities in Ronkonkoma, Long Island, N.Y. and Goffstown, N.H. Retlif is fully certified and accredited, maintaining listing and approvals with the FCC, NVLAP, DESC, Canadian DOC and the EC. Retlif's most recent ac-

creditation is U.S. Coast Guard approval. New services now being offered include HIRF and lightning simulation.

Seacoast

Circle 163 on Reader Service Card
Seacoast Electric Co., is a full-line marine electrical distributor specializing in shipboard wire and cable,

electrical equipment and cable hardware. Seacoast services the military market with U.S. Navy MIL-C-24643 low smoke cable, Navy shipboard fiber optic cable, circuit breakers, MIL-Spec electrical equipment, NMP rox system cable transits and other U.S. Navy-qualified cable hardware. Seacoast has offices in New York, New Jersey, Virginia, Mississippi and California.

Seacor

Circle 86 on Reader Service Card
Systems Engineering Associates Company (Seacor), as part of a team with CACI International Inc. and AMS, Inc., has been awarded a contract to support the Military Sealift Command Configuration Data Management Program and Configuration and Logistics Information Pro-

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gram (CLIP). The total contract, which includes a base year plus two option years, is estimated at \$30 million. The CACI/Seacor team will assist the MSC in maintaining readiness and logistics support of a growing fleet of ships during a period of unprecedented budget reduction. Seacor, a division of Day & Zimmermann, Inc., specializes in logistics support, training, design

engineering and related technical services.

Seaward International

Circle 105 on Reader Service Card
Seaward International is a world leader in the applied uses of elastomer technology. Founded in 1973, Seaward is both a production and a

research facility whose products include marine fenders and buoys, composite elastomer coatings, special anechoic coatings and their installation equipment, and extruded products made from recycled plastic.

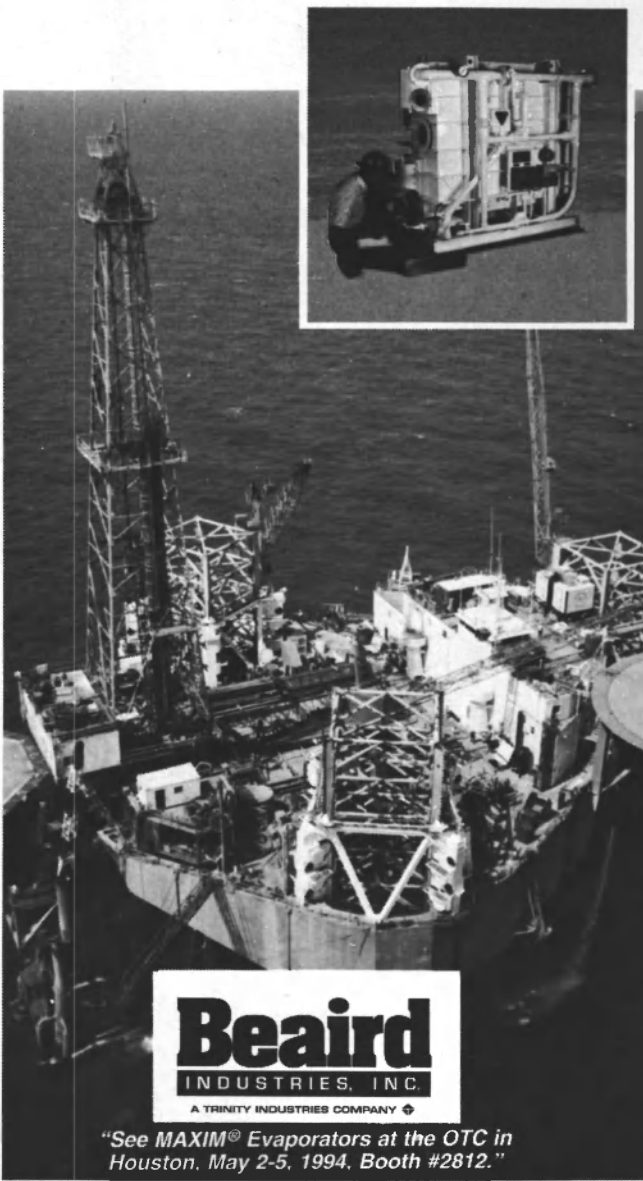
Since 1983, the company has performed research and development for the U.S. Navy, for prime contractors, and for the commercial

marine industry in the development and manufacture of specialized elastomers. Key efforts include the development of unique hull coatings for marine vessels and weapons; applications of spray (or cast) coatings for ship structures, propellers, and other components; the manufacture of special anechoic materials for underwater research facilities; and the manufacture of specialized processing machines for these materials.

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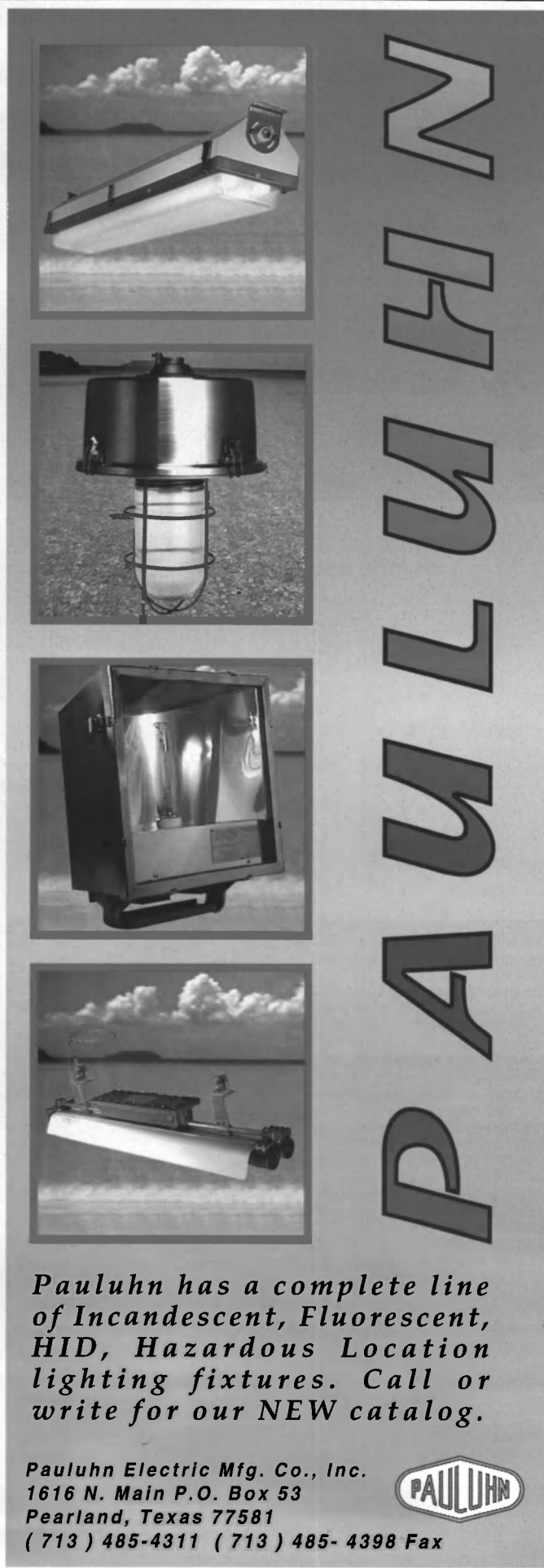
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SPD Technologies

Circle 87 on Reader Service Card
SPD Technologies designs, engineers, manufactures and services state-of-the-art circuit breakers, switchgear, machinery control systems and interior communication equipment. The company will be displaying a host of its equipment, including its new circuit breakers, machinery control systems, announcing system and other products being used on the Sealift Program at ASNE.

SSS Clutch

Circle 88 on Reader Service Card
SSS Clutches are used by 27 navies worldwide for marine main propulsion drives with gas turbines or gas turbine plant combined with diesel or diesel electric. Marine applications also include high-speed commercial and privately-owned yachts which use gas turbines for propulsion. Another SSS product, the SSS-Tosi Marine Reversing System, is now in service on Italian and U.S. Navy ships. This system uses a Reversible Converter Coupling (RCC) for reversing a fixed-pitch propeller and a clutch for efficient direct drive. The system is applicable for either high-powered gas turbine or diesel propulsion systems.

Technical Products & Precision Mfg. Co.

Circle 89 on Reader Service Card
Technical Products is known for its trademark of Tech-O-Seal valves and fittings. Tech-O-Seal valves and fittings utilize a softseated, low torque seal design that reportedly provides total leakproof dependability at pressure from vacuum to 6,000 psi. Additionally, Technical Products' full service engineering development program utilizes state-of-the-art computer aided drafting technologies to provide custom designed valves and fittings that meet the customer's specifications. Engineering development services available include testing, repair, overhaul, documentation and technical evaluation.

Thomas A. Short Co.

Circle 90 on Reader Service Card
Thomas A. Short Company manufactures valves of many varieties: gate valves of 10 inches and larger and 150 psi and up, from a variety of materials; globe valves of all sizes and pressures up to 2,500 psi, also in a variety of materials; tilt disc check

(Continued on page 70)

Krupp Fordertechnik/HDW Nobiskrug Consortium Delivers Hopper Suction Dredger M/S Seekies

The consortium HDW Nobiskrug and Krupp Fordertechnik delivered the 1,800-cu.-m. hopper suction dredger M/S *Seekies* to the part owners M.S. "Seekies", Rostock, at Lubeck. The dredger was built to the rules and under the supervision of the Germanic Lloyd for class +100 A5 KG gravel hopper dredger +MC AUT at the HDW Nobiskrug yard GmbH at Rendsburg, and fitted out by Krupp Fordertechnik GmbH at Lubeck.

M/S *Seekies* is intended to extract raw gravel from the Baltic, but also to ensure coastal protection by reclamation work. Another of her tasks will be to dredge out ports and waterways. The dredger will be run by SKM Seekies Mecklenburg GmbH at Rostock.

Features of the newbuilding are her economy and great adaptability to varying loading and unloading conditions. A side suction pipe designed for 66- and/or 98-foot (20 and/or 30 m) dredging depth will serve for loading the hopper. It is equipped with a pressure-water activated trailing suction head and an underwater dredge



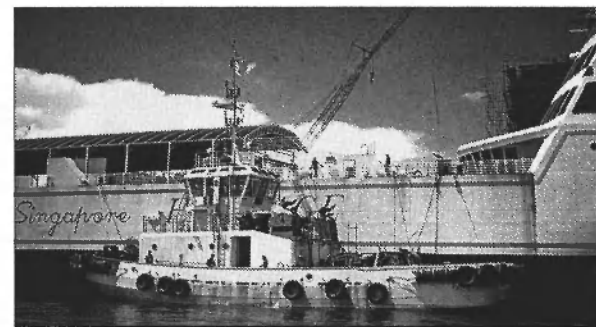
pump which ensure high mixture densities when discharging. The dredge pump is driven by the main diesel engine over a so-called electrical shaft.

When using the automatic unloading system, the load is fluidized, i.e. drawn off by the dredge pump, transported to the screening towers, drained in the screening towers, and conveyed to shore on a slewable belt conveyor. As an alternative, the fluidized load can be drawn off by the dredge pump and pumped to wet disposal sites on shore through pipelines. Sand and silt are either dumped or treated in the same way as gravel, i.e. sucked off and pumped through either a floating or a shore pipeline. These unloading facilities allow M/S *Seekies* to call at the most varying ports and sites.

For more information on Krupp Fordertechnik,

Circle 9 on Reader Service Card

Singapore Harbor Tugs Feature New Schottel Rudderpropellers



Schottel tug *Java Pearl* with 2 x Schottel Rudderpropeller type SRP 550 in Singapore.

Three new harbor tugs completed in Singapore at the beginning of 1994 were the first vessels to be equipped with the Schottel Rudderpropellers SRP 550.

The 91-foot (28 m) tugs have the propulsive power of 2 x 882 kW each, and meet the requirements of Lloyd's Register of Shipping Class + 100 A1 Harbor Tug for Coastwise Service Circle E + AMC.

Designed by Conan Wu & Associates in Singapore, the three sister ships named *Java Ruby*, *Java Pearl* and *Java Opal* were built by the Siong Huat Pte. Ltd. yard. The three vessels are to be operated by Java Marine Line Pte. Ltd. in the harbors, and the oil and gas terminals throughout Southeast Asia. Two SRP 550 Rudderpropellers were installed in each of the tugs from above as a stern propulsion system which gives them not only a high bollard pull, but also good maneuverability characteristics. In trials, the tugs reached a 12.5-knot speed and a bollard pull of 30.3-t ahead, and 28.5-t astern.

The SRP 550—with a maximum power input of 920 kW at input speeds between 900 and 1,800 rpm—is a smaller version of the SRP 1010 and the SRP 1212. The rudderpropellers are powered by Yanmar diesel engines through pneumatically operated Schottel clutches. The two bevel gear pairs of the rudderpropellers provide an overall speed reduction of 2.804:1. The SRP 550 units are equipped with 1,750 mm diameter fixed-pitch propellers, which run in Kort nozzles.

Shipboard voltage of 415 V/50 Hz is generated by a pair of General Motors 85 kW diesel gensets. For more information on the SRP 550 Rudderpropellers from Schottel,

Circle 145 on Reader Service Card

Melcher's AC/DC Converter Provides 93% Efficiency

Melcher's new universal input AC/DC converter provides 400W of regulated 54 Vdc in a fully enclosed four-by-five-by-seven-inch package with power factor correction, high efficiency and no inrush current. Like other Melcher supplies, the LT1700 features transient suppression, filtering, control, shock and vibration immunity. A negative temperature coefficient allows for safe battery charging without danger of thermal runaway by lowering trickle charging

voltage with rising ambient temperature, in accordance with battery manufacturers' specifications. For more information on Melcher's new universal AC/DC converter,

Circle 138 on Reader Service Card

Mac-Seal Unveils New Generation Of Shaft Seals

Mac-Seal Excalibur (patent-pending) is the company's newest advance in shaft seal design. It is designed without bellows and has a fail safe redundancy, reportedly reducing the chance of catastrophic failure to virtually zero. The Mac-Seal Excalibur can be installed as a thru-hull, flange, fiberglass tube or as a standard exhaust hose connection to the stern tube. Aimed primarily at the newbuild market, the Excalibur, with its multitude of connections, can be readily fit to most existing vessels. For more information of the Mac-Seal Excalibur,

Circle 137 on Reader Service Card

SpatialUtilities Inc. Releases Remote Imaging System

ImageHawk™ is a new PC-based Windows™ compatible portable remote imaging telecommunications system that permits users to acquire, process and transmit information—still video imagery, data, graphics and text—to any remote computer via cellular phone, telephone, radio or satellite. Offered by SpatialUtilities, Inc., the ImageHawk is complemented with state-of-the-art image enhancing technology for underwater environments which allows standard video to be grabbed and enhanced in digital formats. For more information on the ImageHawk and its applications,

Circle 136 on Reader Service Card

Kawasaki Receives Letter Of Intent For "Jet Piercer" Super Ferry

Kawasaki Heavy Industries, Ltd. (KHI) has obtained from Kyushi Ferry Boat Co., Ltd., a letter of intent to build the first Kawasaki "Jet Piercer" Super Ferry.

The vessel, a "Jet Piercer" AMD1500 Mark II will be the first aluminum car ferry in Japan and reportedly the largest aluminum ship in the world.

The design of the "Jet Piercer" Super Ferry series was introduced by Advanced Multi-Hull Designs Pty. Ltd. of Sydney in November 1990, and since then the company has been developing the designs to make them more suitable for operation in Japanese waters.

The large high speed catamaran can carry 460 passengers and 94 cars (heavy trucks and large buses can be carried as well) at a maximum speed of 35 knots. The catamaran, reputed to have good seakeeping capabilities, is equipped with a ride control system to improve these capabilities.

The vessel will be built at Kawasaki's

The AMD1500 Mark II super ferry designed by Advanced Multi-Hull Designs.

Kobe Shipyard and will be delivered in January 1995 to the Kyushi Ferry Boat Co. and Maritime Credit Corp. who will be joint owners of the vessel. Kyushi Ferry Boat will operate the car ferry between Yawatahama and Usuki/Saeki.

The Jet Piercer AMD1500 Mark II is 2,200-gt and is 328 feet (100 m) long with a breadth of 66 feet (20 m) and a depth of 23 feet (7 m).

For more information on Advanced Multi-Hull Designs,

Circle 13 on Reader Service Card



YVC Bolnes Dockyard, Rotterdam, Gets Two Conversion Orders

YVC Bolnes Dockyard, Rotterdam, Holland recently completed one conversion contract and signed another. The dockyard landed a contract for the lengthening of the fish factory trawler *Johanna Maria* (SCH 33), operated by Jaczon - Scheveningen, Holland. Also, much of the work has been completed for a contract the yard signed in June 1993 with Tideway Marine & Offshore, Breda in Holland, a subsidiary of Dredging International in Zwijndrecht, Belgium, for the conversion of the 456-foot long (139 m) heavy transport vessel *Super Servant 1* into a D.P. Fall Pipe Stonedumping Vessel. The heavy load carrier was purchased from Wijsmuller - Ijmuiden, Holland.

The *Johanna Maria* has to be lengthened 49 feet (15 m), and then will be modified for palletized cargo.

Under supervision of Bolnes Dockyard's engineering manager, detailed fabrication drawings were made for the conversion of the *Super Servant 1* by IHC Gusto Engineering for the structural part, and by Verolme Heusden for the mechanical part. The *Super Servant 1* has a loading capacity of approximately 13,000 tons for rock dumping operations, has a 105-foot (32 m) breadth and a 28-foot (8.5 m) draft.

In total, 800 tons of new steel has been prefabricated and installed on the heavy load carrier. As subcontractor of Bolnes Dockyard, the shiprepair yard Scheldepoort in Flushing, Holland carried out the drydocking and all underwater work. A moonpool was installed in way of the dumping tower, as well as two thruster spaces for the Lips steerable retractable azimuth thrusters, which were installed later at the Bolnes Dockyard. The vessel's complete hull was gritblasted and painted. For compensation of the longitudinal strength of the vessel flatbars were welded on the bottom and deckplating.

For the lengthening of the *Johanna Maria*, engineering and work preparation will be carried out by YVC Ysselwerf in Capelle a/d IJssel; steel supply and plasma-cutting will be carried out in the most modern prefab facility, YVC Groot-Ammers in Groot-Ammers. Work at the YVC Bolnes Dockyard will include: Prefab section, including complete outfitting; insulation of section; cutting of vessel and fitting of 49 foot section; steel reinforcements on deck; additional generator set; additional freezers installation; additional fish processing equipment installation; lengthening anchor chains; widening of bilge keels; expansion tanks for brine; electrical work; piping work; painting work; inclining experiment.

The *Johanna Maria* is due to arrive at the yard in mid April and the lengthening of the vessel is expected to be completed in early June 1994.

In Bolnes Dockyard's large fabrication hall a new accommodation unit in two layers has been fabricated and installed on board the vessel by sheerlegs. The new accommodation unit aft of the existing one consists of cabins, gymnasium, offices and a changing room.

Underneath the new accommodation unit are the stores and an additional generator room. In the generator room two Caterpillar generator sets are installed (1800 kVa each) together with the new switchboard, supplied by GTI Marine & Offshore. In total, approximately 25 km of new electrical cables have been supplied and installed. Silencers for the generator sets were delivered by Mercurex.

Deck

Two new stone bunkers and water barriers were constructed and installed on the deck of the vessel. Both stone bunkers have a width of 69 feet (21 m) and a height of 17 feet (5.2 m). For unloading of the stones two Liebherr excavators mounted on a pedestal have been installed.

Two longitudinal conveyor belt systems bring the stones to a buffer hopper located at midship on the starboard side. Underneath this hopper a transverse conveyor belt system continuously supplies the stones to the entrance of the fall pipe inside the stone dumping unit. This stone dump-



Before: The heavy transport vessel *Super Servant 1*, before its conversion.



After: The newly-converted D.P. Fall Pipe Stonedumping Vessel *Tideway Rollingstone*.

ing tower, fabricated by Huisman/Itrec, has been installed by sheerlegs. All conservation work was carried out by Muhlhan.

A redundant DP System, made by Simrad, has been installed on the bridge, which has been enlarged to be able to install all new equipment, including a survey system.

For more information on YVC Bolnes Dockyard,

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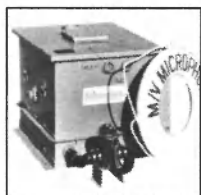
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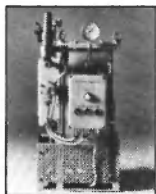
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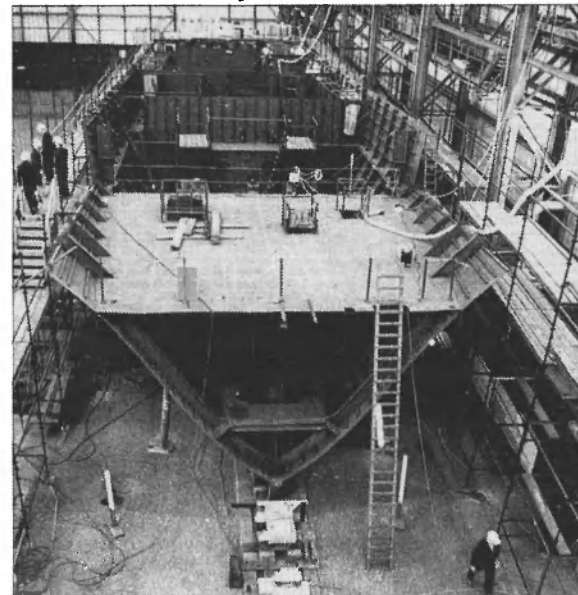


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Circle 33 on Reader Service Card

Vosper Thornycroft Finds Success In Steel Warships



A steel corvette for a Middle East navy under construction at the Vosper Thornycroft shipyard in southern England.

Vosper Thornycroft (U.K.) Ltd. has, over a 25-year period, supplied 180 steel warships to 30 naval forces around the world, including those of Brazil, Brunei, Egypt, Ghana, Indonesia, Iran, Kenya, Libya, Malaysia, Nigeria, Oman and Peru. Ranked 87th in the list of U.K.'s top 100 exporters, the company's most important market is the Middle East, although it exports to Europe, the Americas and the Far East. For more information on Vosper Thornycroft,

Circle 20 on Reader Service Card

Paxman Wins \$3 Million Contract For Mexico Spares



Paxman Ventura diesel engines power the Mexican fleet of Azteca class patrol craft.

GEC Alsthom Paxman Diesels, based in Colchester, U.K., has won an approximately \$3 million order to supply the Mexican Navy with spares and support services for the Paxman Ventura diesel engines that power the fleet of Azteca class patrol craft.

Originally supplied to the Mexican Navy in the 1970s, each vessel is powered by two 12-cylinder Ventura engines displacing 130 tons and is capable of 24 knots with a crew complement of up to 24.

The contract has taken Paxman several months to negotiate, with the help of its representative in Mexico, Grupo TM.

The Mexican Navy has opted to buy new and genuine quality parts at competitive prices from the original engine manufacturer.

For more information on Paxman Diesels,

Circle 42 on Reader Service Card



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Circle 225 on Reader Service Card

(continued from page 66)

valves and butterfly valves in a number of pressures and from a number of materials. Thomas A. Short manufactures three way ball line from .25 inch to two inches up to 1,000 psi in various materials, and bronze flow control lint also from .25 inch to two inches in 150 psi and 300 psi varieties. Recent contracts include a contract for providing main sea valves for LHD-5.

Times Microwave Systems

Circle 91 on Reader Service Card
Times Microwave Systems (TMS), Inc., a division of Smiths Industries Aerospace and Defense Systems Inc., was founded in 1945 under the name Times Wire and Cable Company. TMS has over 150 QPL Listings for Mil-C-17 coaxial cable and has been

combining electrical expertise, exclusive compound development and fully swept VSWR and attenuation capabilities to address customized needs.

TMS is fully approved to the new Low-Smoke, Zero Halogen, flame retardant coaxial cables as specified in the latest revision of Mil-C-17, revision "G." TMS has also supplied a series of Low-Smoke RF cables

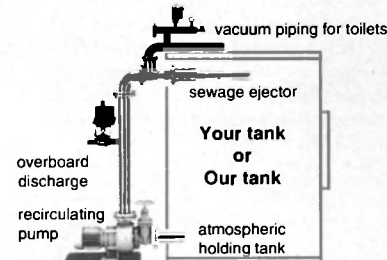
which are specified on the Aegis class ships of the U.S. Navy.

In addition to RF cable, TMS manufactures a wide variety of microwave cable assemblies per Mil-T-81490. Many of these assemblies have been procured for use on the shipboard SLQ-32 anti-missile defense system, as well as other critical applications where sealed microwave assemblies are required.

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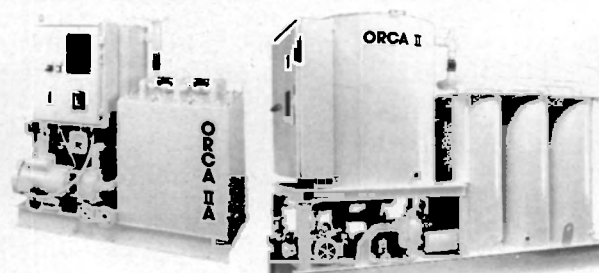
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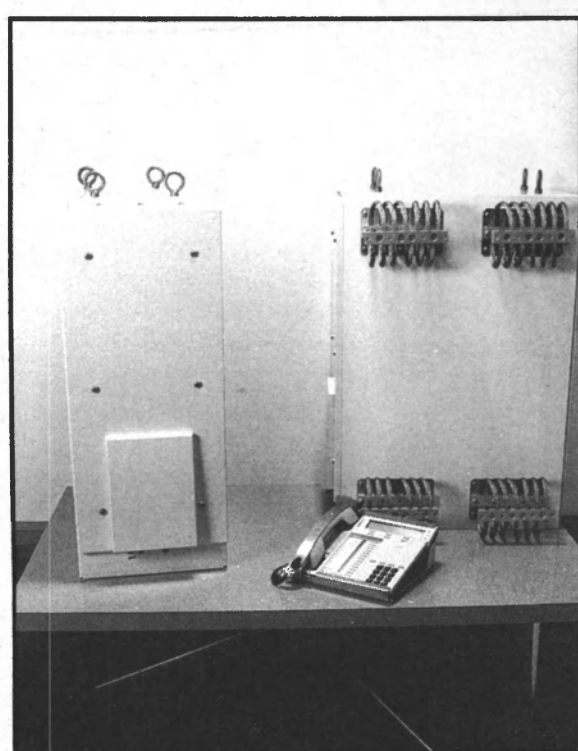
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Circle 323 on Reader Service Card

Tranter

Circle 92 on Reader Service Card

Tranter Superchanger plate and frame heat exchangers with designated marine features are on 16 classes of U.S. Navy ships — particularly for electronic cooling — and are used in other applications on commercial containerships, tankers, barges and dredgers. Recent applications include engine cooling on the M/V *Mississippi* towboat owned by the U.S. Army Corps of Engineers and built by Trinity Industries, and the 224-foot (68.3 m) wooden MCM-14 Countermeasure Ship, *Chief*. Aside from being erosion and corrosion resistant, these titanium-plated heat exchangers offer deck space and weight savings; resistance to fouling due to high turbulence; ease of maintenance and repair; and favorable price. Superchanger units have recorded excellent test results in the fleet, and comply with ABS and U.S. Coast Guard requirements.

Wartsila Diesel

Circle 93 on Reader Service Card

Wartsila Diesel North America, Inc. (WDNA) has been active domestically in service and sales of its diesel engines since 1978. Internationally, Wartsila Diesel says it has grown to be the leading medium speed diesel engine manufacturer in the world. Wartsila is now transferring its Vasa series of engines to its newest production facility in Mt. Vernon, Ind. The Vasa series can burn all types of marine fuel oil, as well as natural gas. The Vasa 46 engine has now been tested to MIL-E-23457 — reportedly with nearly twice the power of the next largest engine ever qualified to this rigorous Navy specification. WDNA provides extensive after market logistics support, in IGES, CALS, or any other format required. An example is the ELDOC system, which is a real-time, user-interactive multimedia system for maintenance, parts management, fault avoidance and training. See a demonstration of ELDOC and hear about WDNA's R&D activities at WDNA's booth at ASNE Day '94.

Westinghouse

Circle 8 on Reader Service Card

Westinghouse is one of the leading suppliers and manufacturers of marine diesel engines. The company provides low- and medium-speed diesel propulsion systems. Westinghouse diesels satisfy all sealift class standard equipment requirements. Westinghouse has been the Navy's marine gear sup-

plier for more than 80 years, and has delivered a full spectrum of reduction gears from cost-competitive commercial designs to the most advanced systems for U.S. Navy submarines. Westinghouse has support facilities around the world for training, service and parts. Westinghouse is currently the prime contractor in a program to develop an intercooled recuperated (ICR) engine for the U.S. Navy.

Westmont Industries

Circle 94 on Reader Service Card
Westmont Industries, Inc., a manufacturer of heavy material handling equipment, is nearing completion of a Navy contract for eight 100-ton barge cranes. The cranes, which rest on barges measuring 175 feet (53.3 m) by 80 feet (24.4 m), can lift loads of 100 long tons at an 80-foot (24.4 m) radius and have a boom length in excess of 200 feet (60.9 m).

Westmont, of Santa Fe Springs, Calif., has been designing, manufacturing and installing heavy material handling equipment since 1951. Westmont has completed projects up to \$50 million in size for both government and private concerns.

Westmont's other products include bridge crane and monorail systems, portal cranes, high capacity turntables, jet engines maintenance systems, moving walkways and specialized material handling systems. The current backlog includes 60-ton portal and 20-ton wing wall cranes for the Navy. In addition, Westmont is currently under contract to produce a 38-ton portal crane and other equipment for the Corps of Engineers.

Gibbs & Cox Receives Navy Aegis Excellence Award

In a recent ceremony in Bath, Maine, RAdm. **George A. Huchting** presented Gibbs & Cox Inc. with a coveted Aegis Excellence Award for outstanding performance in its computer aided design work on the DDG51 Class destroyer program. The company was cited for developing computer aided engineering tools which will lead to cost avoidance in the design efforts for the next flights of DDG51 class ships. The award went on to praise the company as a technology leader in the marine industry for its work in developing leading edge, state-of-the-art technology. For more information on the capabilities of Gibbs & Cox,

Circle 141 on Reader Service Card

Crowley Appoints Skillman Controller

Crowley American Transport, Inc., which provides liner services throughout the Americas, recently announced the promotion of **Scott Skillman** to controller.

Mr. Skillman is responsible for

the day-to-day supervision and direction of all financial functions for the organization, both domestic and international, including planning, tax, treasury, and accounting operations and systems. A wholly-owned subsidiary of Oakland-based Crowley Maritime Corporation, Crowley American Transport has operating headquarters in Jacksonville, Fla., and provides containerized and Ro/Ro services between the U.S. and Canada, Mexico, South

America and 24 nations in the Caribbean including Puerto Rico.

Shellenbarger Named N.Y. Marine Society's President

At a special meeting of the Marine Society of the City of New York, Captain **Frank Shellenbarger** of Point Pleasant, N.J., was elected the Society's 68th president. Captain Shellenbarger, an Ohio

native, entered the U.S. Navy in 1938 and was honorably discharged in 1941. He received the American Defense Medal with Fleet Clasp for his service on Neutrality Patrol.

He has since worked as a navigation instructor, for American Export Lines, and has owned his own company.

Captain **Shellenbarger** is presently vice president of the Trustees of Sailors' Snug Harbor and serves in the U.S. Coast Guard Auxiliary.



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Circle 30 on Reader Service Card

Zalot Named H.M.S. Marine Sales Director, Great Lakes Region

H.M.S. Marine Services, Inc. appointed **William Zalot** as its director of sales for the Great Lakes Region. The appointment coincides with the opening of the new Chicago office, which will serve the maritime industry on the Great Lakes and upper Inland Waterways. H.M.S. Marine Services, Inc. is a full service maritime consulting and services company. As U.S. representative for Newfoundland Dockyard Corporation (NDC) of St. John's, Newfoundland, this office will offer the shipyard maintenance and repair service to the many vessels departing the St. Lawrence Seaway. The new office can be contacted at P.O. Box 59496, Schaumburg, Ill. 60173-9998; tel: (708) 519-9804; fax: (708) 519-9825. For more information on H.M.S. Marine, Circle 114 on Reader Service Card

Sonsub Appoints Ropshaw Operations Manager

Sonsub has appointed **Paul Ropshaw** to the position of operations manager, responsible for overseeing Sonsub's remotely operated vehicle operational activities in North and South America. Mr. **Ropshaw**, who has extensive subsea and remote technology intervention experience, first joined Sonsub Services in 1988. Sonsub is a leader in the development and application of quality solutions for subsea and hazardous environments.

Monarch Purchases 345-Foot Muskegon Clipper For Indiana Site

Monarch Casino & Resort, Inc. has purchased the *Muskegon Clipper* for use at its planned

Gary, Ind. site and is reviewing bids on refit work necessary to convert the boat to gaming uses.

The vessel measures 345 ft. (105 m) by 65 ft (19.8 m), making it one of the largest riverboats in the country. Based on the company's current plans and specifications, the vessel will offer a minimum of 1,000 slot machines and 60 table games including blackjack, roulette and craps. The *Muskegon Clipper* is an oceangoing vessel that will allow for cruising on Lake Michigan, which most riverboats reportedly cannot do.

Monarch recently announced it is one of the six companies being reviewed by the Indiana Gaming Commission for the state's first gaming licenses. Monarch and President Riverboat are reportedly the only two applicants for the Gary site which have been endorsed by the city.

The company expects to be completed with site preparation and construction of temporary facilities necessary for gaming operations by October 1994, subject to licensing requirements and finalization of acceptable financing arrangements.

Vietnam Government Approves Keppel/BaSon Joint Venture Shipyard

The Vietnamese government has approved a joint venture between Keppel and BaSon Shipyard of Vietnam to provide general shiprepair, shipbuilding and steel fabrication services in the region. Keppel BaSon Shipyard & Engineering Ltd. (Keppel BaSon) is expected to commence operations in the first half of 1994.

The joint venture is incorporated in Vietnam with a paid-up capital of \$4.4 million. Keppel owns 60 percent of the shareholding, BaSon the remaining 40 percent.

The new company will repair and build ships for foreign and Vietnamese shipowners. It will also provide steel fabrication and engineering services to support the growing industrial development of Vietnam as well as the country's active gas and oil industry. Keppel BaSon will operate from a 9.9-acre site belonging to BaSon Shipyard, including a slipway and three docks comprising one drydock of 17,000-dwt capacity and two floating docks of 20,000-dwt and 5,000-dwt capacity. The new company also intends to develop its own facilities such as workshops, cranes, fabrication yards and building berths for vessels up to about 328 ft. (100 meters) long. BaSon Shipyard is one of the largest shiprepair enterprises in Vietnam. Operating a 64.2-acre yard in Ho Chi Minh City on the Saigon River, it has a workforce of about 2,500 workers and is equipped with three docks, a slipway, as well as a wharf and workshop facilities capable of repairing vessels up to 20,000 dwt. For more information on Keppel BaSon,

Circle 122 on Reader Service Card

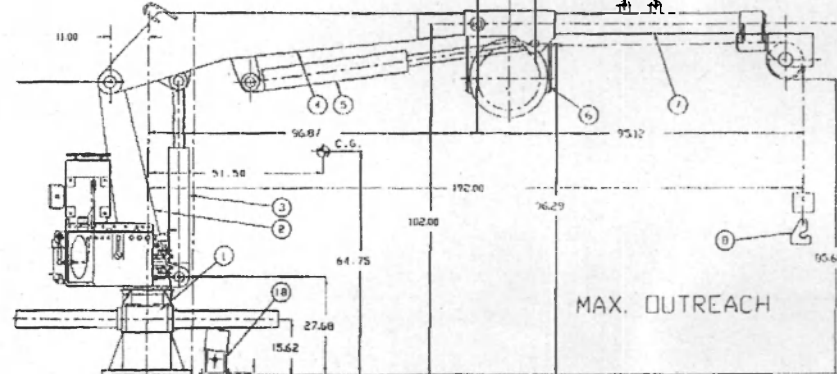
Lake Shore Wins Naval Supply Contracts From NASSCO, Ingalls

Lake Shore has received an order for approximately \$5 million for one shipset of seven 12,000/16,000 lb. capacity Cargo Weapons Elevators from National Steel and Shipbuilding Co. (NASSCO) of San Diego. These are the same elevator systems as supplied for the AOE-6, 7, and 8. This new contract is for the AOE 10, a U.S. Navy Fast Combat Support Ship. In addition, Lake Shore recently was awarded an approximately \$2 million order for one follow-on shipset of mooring and warping capstans, sideport cranes, a vehicle recovery winch and boat handling equipment from Litton's Ingalls Shipbuilding Division. This is a follow-on contract for LHD-6, a U.S. Navy Amphibious Assault Ship. Lake Shore also has an option agreement for this equipment on LHD-7 if the ship is funded by the government. For more information on Lake Shore,

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Maritime Reporter/Engineering News

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Alexander Manufacturing Wins Contract For Pilot Hoists

Alexander Manufacturing and Service Co. (AMS) announced the sale of six AMS M-80 powered pilot hoists. These proprietary air powered hoists are USCG-approved and reportedly facilitate the easy boarding of vessels with high freeboards. The president of AMS, **Charles Morris**, reports that the six units will be utilized by a domestic tanker fleet. Mr. **Morris** said the AMS units have been successfully utilized worldwide. For more information on Alexander Manufacturing,

Circle 121 on Reader Service Card

IMO Addresses Piracy In East Asia

Piracy against shipping reportedly became a glaring problem in an area between Hainan, Hong Kong and the Philippines, according to information received by the International Maritime Organization (IMO), the U.S. agency concerned with maritime safety and pollution prevention.

In an attempt to combat the problem, IMO reported that its Secretary General **William A. O'Neill** will send a senior official to east Asia on a fact-finding mission. The representative will talk with government officials, Coast Guards, ship-owners and others involved. He will prepare a report for consideration by the Maritime Safety Committee, IMO's senior technical body (which will hold its 63rd session at IMO's London headquarters May 16-25).

The greatest number of attacks by then was taking place in the Malacca/Singapore Strait area, and in 1993 an IMO working group went there to discuss the problem with representatives of the coastal States, Indonesia, Malaysia and Singapore. During the last two years, the problem in that area has reportedly been greatly reduced, thanks primarily to measures introduced by the three governments, including the use of joint naval patrols.

NASSCO Joins In Ceremony For Start Of Sealift Conversion Program

National Steel and Shipbuilding Co. (NASSCO) of San Diego recently joined the U.S. Army and U.S. Navy in a joint ceremony to mark the beginning of the Navy Sealift Conversion Program.

In July 1993, NASSCO received a \$635 million contract from the U.S. Navy to convert three containerhips purchased from the Maersk shipping line to Strategic Sealift Ships.

The three ships will be converted into combined RoRo and lift-on/lift-off (LoLo) ships that strategically pre-position U.S. Army equipment and vehicles near potential areas of conflict.

Speaking at the ceremony were Lt. Gen. **Johnnie E. Wilson**, Deputy Chief of Staff for Logistics, U.S. Army; **A.B. "Ted" Ruhly**, chairman of Maersk Lines Ltd.; and **Al Lutter, Jr.**, senior vice president of NASSCO. Gen. **Wilson** used a steel cutting torch to make the ceremonial "first cut" on the T-AKR 295 (formerly Laura Maersk), the first of three ships to be converted.

The conversion process entails building six new cargo decks, installing internal and external access ramps, furnishing new cargo hatches for each deck, creating two side ports, and adding two twin-boom cranes to allow the ships to lift their own cargo on and off.

NASSCO was also recently awarded a \$265 million contract to design and build another Sealift Ship, with options to build five more for a total possible contract value of \$1.3 billion.

For more information on NASSCO,

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April, 1994

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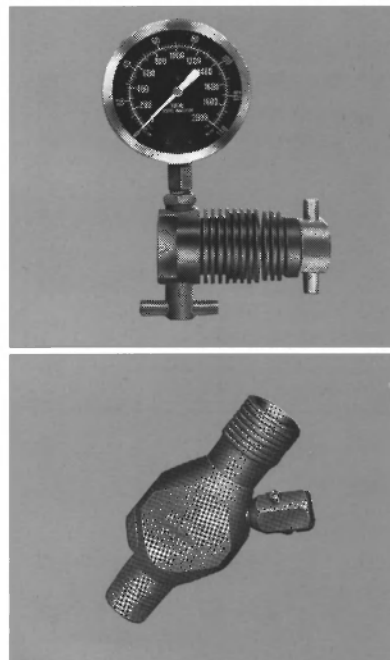
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Chantiers De L'Atlantique Wins Mediterranean Car-Ferry Order

Chantiers de l'Atlantique, a GEC Alsthom subsidiary, has signed a contract with Societe Nationale Maritime Corse-Mediterranee to supply a large passenger car-ferry to be delivered in the spring of 1996. The ferry, which will be designed to carry 2,400 passengers and 700 cars, will operate between the French Riviera and Corsica, replacing the existing *Napoleon*.

The new ferry will be the largest ship in the Societe Nationale Maritime Corse-Mediterranee fleet, which includes another Chantiers de l'Atlantique-built ferry, the *Danielle Casanova*. For more information on Chantiers de l'Atlantique,

Circle 165 on Reader Service Card

Evac Marine Supplies Liners Under Construction At Fincantieri

Evac Marine Systems of Finland, one of the world's leading supplier of vacuum toilet systems to the shipping industry, has secured contracts for the supply of its specialist products to four large passenger cruise liners being built at Italy's Fincantieri, including what is reportedly the world's largest passenger cruise liner, being built for Carnival Cruise Line. The vessels, whose owners also include P&O Cruises and Holland America Line, have been secured by Evac's Italian company, Evac Srl, on the outskirts of Genoa. For more information on Evac Marine Systems,

Circle 151 on Reader Service Card

\$10.2 Million Construction Contract Awarded For APL Terminal In L.A.

The first major contract for the nation's largest dedicated container terminal has been awarded by the Los Angeles Board of Harbor Commissioners to Roadway Construction Co.,

Inc., of Newport Beach, Calif.

The board awarded the \$10.2 million contract for Phase I of the backland development of the American President Lines (APL) container terminal, a major component of the Port of Los Angeles' Pier 300 Implementation Program.

Construction is scheduled to begin in May with the completion of Phase I of the backland development expected in early 1995. Work under this contract is expected create 285 direct and indirect jobs in the five-county region.

When the entire project is completed in early 1997, the facility will cover approximately 226 acres at berths 302-305 on Pier 300.

Tidewater Transports 270-Ton Relic Locomotive

Tidewater Barge Lines of Vancouver, Wash. moved a steam locomotive and tender on a barge from Maryhill, Wash. to the Tri-Cities en route for careful restoration to running order. The 70-year-old Great Northern Railway relic, one of only two of the Great Northern P-2 class to survive, had been in residence at Maryhill Park since 1966.

Tidewater teamed with Neil F. Lampson Inc. of Kennewick, Wash. and Bats Towing of Biggs

Junction to shift the 270-ton hunk of steel and iron from its siding to the river landing where a special bridge was constructed to enable it to roll onto Barge 33.

Once on the barge, the mountain-type locomotive was moved to Tidewater's Biggs fleeting area, where it was placed in a Columbia/Snake River eastbound tow, pushed by the 3,000-hp tug *Defiance*. Once off-loaded at the Port of Pasco, 2507 will undergo about three years of volunteer work in order to get it back in running order.

The preservation group ramrodding the nearly \$1 million restoration effort expect to see 2507 as a tourist attraction and hopefully even run it for short excursions.

For more information on Tidewater Marine,

Circle 118 on Reader Service Card

Trinity Acquires Plotzer Yard In Houston



Trinity's new Houston yard, formerly Plotzer Shipyard, Inc.

Trinity Industries, Inc. has acquired Plotzer Shipyard, Inc. of Houston, Texas. Terms of the transaction were not disclosed. The announcement was made by **John Dane III**, president of the Trinity Marine Group. **Neal S. Platzer** was and will remain president of the shipyard.

Plotzer, established in 1949, is a U.S. leader in tank barge cleaning and gasfreeing. The shipyard is now the 14th yard in the Trinity Marine Group, a wholly-owned subsidiary of Trinity Industries, Inc.

The shipyard's 40-acre facility on Green's Bayou, just off the Houston Ship Channel, employs about 200 people and has capabilities for cleaning up to six barges at a time. The plant uses water, hot water, chemicals and steam in the cleaning process. A modern LPG flaring facility provides the capability to quickly and safely flare or burn off a wide variety of pressurized flammable products. The shipyard meets or exceeds all state and federally mandated environmental, safety and waste management requirements.

The new Trinity shipyard also offers design and construction of new barges as well as barge repair, maintenance and sandblasting and painting. It can repair up to 17 barges simultaneously, and is equipped with two marine railways with 1,000 tons capacity each, which can simultaneously dock up to six barges.

Tank barges up to 320 ft. (97.5 m) long with a 65 foot (19.8) beam with up to 1,000 short tons hull weight can be built at the facility. Indoor, modular construction capabilities include double skin or double hull oceangoing barges, hazardous cargo barges, pressure barges and barges with stainless steel cargo tanks for specialized cargoes.

For more information on Trinity,

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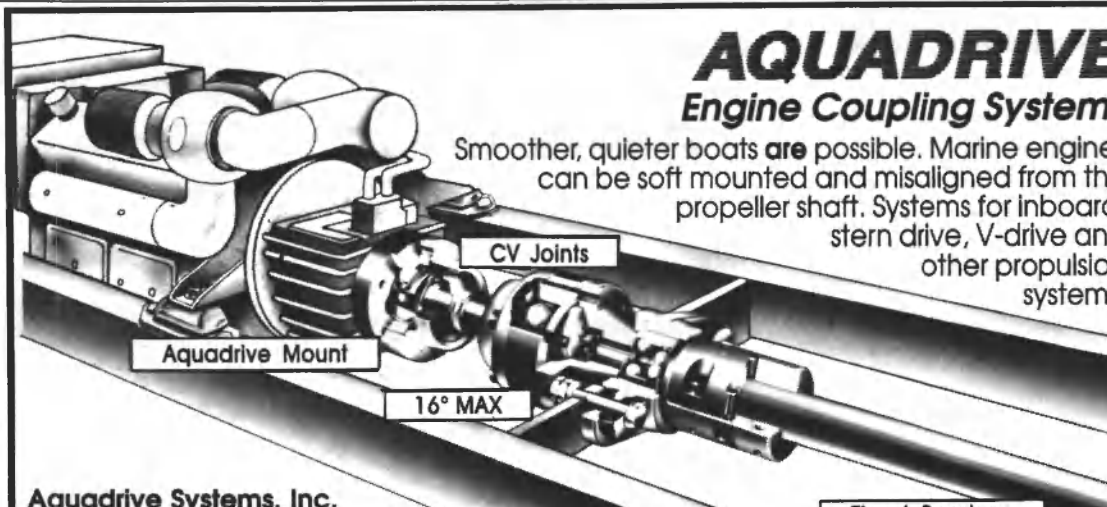
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Maritime Reporter/Engineering News

World Petroleum Congress

May 29 - June 1, Stavanger, Norway

The 14th World Petroleum Congress, touted by organizers as the largest international forum for the exchange of technical and managerial information about the petroleum industry, is scheduled to be held in Stavanger, Norway from May 29-June 1, 1994.

More than 2,000 people from approximately 70 countries are expected to attend the Congress, which was founded in 1933 and now convenes once every three years.

Most major multinational oil companies, many leading national oil and gas companies and a wide variety of independent companies have contributed speakers and chairmen to the program, which features 90 full papers, 50 poster sessions and 80 plenary sessions.

Papers include "Industry Initiatives to Improve Environmental Performance" by **Charles J. Di Bona**, president of the American Petroleum Institute; "World Petroleum Assessment and Analysis" by **C.D. Masters**, U.S. Geological Survey; "Oil Supply and Demand Through the 90s" by **Peter Davies**, BP; and "Long-Term Energy Supply and Demand" by **P. Kassler**, Shell International Petroleum.

The Norwegian Prime Minister will head the list of plenary speakers. The other plenary speakers

will be **Constantine S. Nicandros**, president and CEO, Conoco Inc. and deputy chairman of Dupont; **Alexander E. Putilov**, president of Rosneft (Russia); Dr. **Subroto**, secretary-general of OPEC; **Helmut Werner**, president and CEO of Mercedes Benz AG; **Serge Tchuruk**, chairman and CEO of Total SA; and **Masamoto Yashiro**, executive vice-president, CCP Japan Citycorp/Citybank NA.

The 14th Congress theme is *Petroleum in a World of Sustainable Growth - Challenges and Opportunities*.

The focus will be on the nature, cost and impact of new technology in the oil and gas industries. Special emphasis will be placed on new investment in Russia and other part of the former Soviet Union.

In addition to the sessions, a large number of technical tours to offshore platforms and other oil and gas installations have been arranged, together with a wide range of geologist and non-technical tours (including Spitzbergen and the North Cape).

For more information, contact **Jostein Mykletun**, WPC-94 Secretariat, 14th WPC, c/o Statoil, P.O. Box 300, 4001 Stavanger, Norway, tel: +47 51 80 61 41; fax: +47 51 80 60 20.

World Petroleum Congress Forums and Review & Forecast Papers

Transportation

Developments as regards transportation of crude oil by ships are reviewed as a first part. Present situation as regards fleet size, age distribution, economics, etc. Future view on quality shipping and by whom. Developments in the institutional legal and economic framework for gas pipeline networks in Western Europe and North America are reviewed as a second part.

Production

This forum focuses on horizontal drilling in Russia and mega-reach extended wells in the North Sea. Rock mechanics developments have improved operational efficiency. New concepts in well design, construction and production projects, and new partnering concepts are a possible way to unlock more profits. Finally, new downhole telecommunication systems have increased efficiency and operational safety. Sessions are:

- New Drilling Technology
- Increased Primary Recovery through Integration of Exploration and Production
- Marginal Offshore Oil Fields - Technology to Develop Offshore and Arctic Fields
- Improved Recovery and Heavy Oil
- New Evaluation Tools and Methodologies

Environmental

The impact of environmental factors on the global oil and gas industries is reviewed against the principles enunciated by the WPC, the industries own initiatives and specific case-studies with an international comparison of legislation on the environment and the response of the petroleum industry. Sessions are:

- Environmental
- Safety

April, 1994

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75

Hyundai To Provide Weekly Transpacific Container Service To Port Of Portland

The Port of Portland will receive a new weekly transpacific container service from Hyundai Merchant Marine, one of Korea's major container carriers, starting in early April.

To accommodate this service, the Port of Portland Commission approved a two-year terminal use agreement with Hyundai.

Hyundai will rotate five vessels

in the service: the *Portland, Seattle, Vancouver, Tacoma* and *Longview*. The vessels have an average 2,000-teu capacity. To accommodate this and future growth, the Port of Portland has a \$16 million crane expansion project underway at Terminal 6, is about to start a major rail expansion program, and is acquiring 750 acres of West Hayden Island, adjacent to Terminal 6 on Columbia

River navigation channel, for marine development. In recent years, Portland has reportedly led West Coast ports in its rate of container growth. In 1993, Portland registered a 10.1 percent rate of growth over 1992, when the West Coast growth rate was about 2-3 percent. In 1992, Portland recorded a growth of 24 percent when the West Coast average was about 6 percent.

Aquastrada II To Be MTU-Powered

Last year, the 331-foot (101-m) *Aquastrada* caught international attention as the world's reported fastest ferry. The Italian operator, Tirrenia, ordered a second ferry of the same construction which is presently being completed by the Rodriguez yard in Messina — as before, with an MTU propulsion plant.

The hull was completed at the end of February, with final completion scheduled for the end of May. The new *Aquastrada II* is to provide service between La Spezia and Olbia on the island of Sardinia at a cruising speed of 43 knots.

She will carry up to 450 passengers and 120 cars. The propulsion plant is identical to the one on the *Aquastrada*.

It consists of two 16-cylinder MTU Series 595 engines, one located laterally on each side of a centrally located gas-turbine module comprising a General Electric LM2500 gas turbine, a subframe and an acoustic enclosure, the assembly of which was completed by MTU before Christmas.

The total power of the diesels and gas turbine is roughly 28,000 kW (38,000 hp), which is transmitted through Renk-Tacke planetary gearboxes to KaMeWa waterjets.

For more information on MTU,

MarAd News

• The Maritime Administration approved an application by Triton Industries, a British Virgin Islands corporation, to transfer ownership of the Liberian drilling unit Sedco 703 to Sedco Forex International Drilling, Inc., a Panamanian corporation, without change in Liberian registry. The ship was built in 1974 in Avondale, La.

• Freela, Inc., of Miami, Fla., has filed an application with MarAd to sell two deck barges — M 571 and M 572. The proposed purchaser is Irvin Nadan Dewdath, Paramaribo, Suriname. The 3,300-dwt barges were both built in 1969 in Harvey, La.

• MarAd has issued its 1993 survey of U.S. shipbuilding and repair facilities. The survey was required by law primarily for use in determining whether an adequate mobilization base exists for national de-

fense and for use in a national emergency. The survey provides a database that is used to evaluate the feasibility of proposed shipbuilding programs. Determinations are made as to which existing shipyards might construct proposed ships consistent with ship size and delivery date requirements. The Report on Survey of U.S. Shipbuilding and Repair Facilities for 1993 may be obtained from MarAd's Office of External Affairs, room 7219; tel: (202) 366-5807.

Foss Maritime Delivers Sub To Portland

Foss Maritime Company transported U.S.S. Blueback, a 219-foot (66.75-m) submarine, from Bremerton, Wash. to Portland, Ore., for permanent duty in the Willamette River. The Blueback was released by the U.S. Navy in mid-February to be used by the Oregon Museum of Science and Industry (OMSI), which

is located on the waterfront in downtown Portland. The Blueback will be permanently docked adjacent to OMSI and will serve as the centerpiece of exhibits regarding undersea exploration. Foss' oceangoing tug, the Howard Olsen, transported the Blueback from Puget Sound Naval Shipyard in Bremerton to Portland in approximately 48 hours.

The Blueback (SS 581), a diesel-electric powered submarine of the Barbel class, is one of the last non-nuclear subs built by the Navy. Commissioned in Oct. 1959, the sub was active from 1961 through 1990. It set a record for traveling 5,340 miles from Yokosuka, Japan to San Diego. Vessel modifications will be completed to provide easier access for visitors. The Blueback will be moved to its permanent dock beside OMSI in April, and open to the public May 15, 1994.

For more information on Foss,

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Circle 157 on Reader Service Card

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CONSTRUCTION

Two steel channels transfer stresses from the arms and the seat frame directly into the seat mechanism and the base, thereby replacing conventional frame loading structure. The seat rotates utilizing a conventional 1" diameter solid steel threaded spindle shaft.

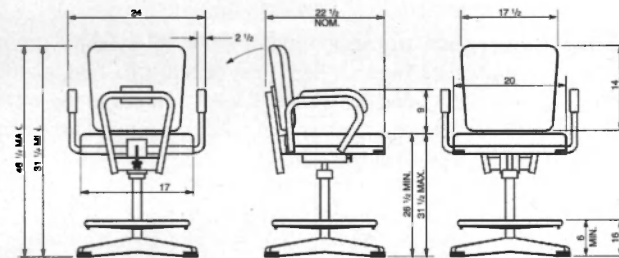
The chair base is a one piece aluminum die casting with plated steel caster sockets installed within the legs. Stainless steel formed scuff plates mount on the leading surfaces of the legs and each leg is provided with protective plastic bumpers. The spread of the base is 25" measured diagonally. The base rests upon four plated hardened steel/rubber glides. Frame finish: All parts are chemically cleaned and coated with electrostatically applied powder coating. Upholstery covers are double stitched with multi-filament nylon thread, and the seat cover has multi-strand cord welt stitched within the seams. The standard upholstery material is artificial leather available in many standard colors.

ADJUSTMENTS

17" adjustable footrest made of chrome plated steel tubing with a die cast aluminum hub is standard equipment (21" footrest also available). The hub contains a Rev-Lock adjustment pin that permits adjustment (6"-16") off of the deck.

The control under the rear of the seat adjusts both the tilt of the back and the seat to the weight of the user. The back and the seat can also be locked in a fixed position.

The Ortho-tilt mechanism under the front tilts the seat and the back of the chair automatically.



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RoRo '94

Svenska Massan Gothenburg, April 26-28

RoRo '94 returns to Gothenburg, Sweden as the major meeting for all those involved in the business of marine transport using roll-on/roll-off methods. Since 1976 the RoRo series of conferences and exhibitions have evolved and grown to become a leading international meeting, covering every aspect of marine transport using roll-on/roll-off methods. A special feature of every RoRo exhibition is the high profile participation of leading ports and shipping lines, and RoRo '94 will be no exception.

Stena Rederi, Tor Line, Wallenius and the ports of Cuxhaven, Gothenburg, Hamburg, and London will be present, among many other shipowners, operators and port authorities, and there will be displays by companies providing the whole range of techniques and equipment for RoRo cargo handling operations.

Many RoRo shipowners are planning and pursuing substantial newbuilding programs which will take them into the next century, according to show management. There are currently 27 RoRo ships on order with the prospect of up to 10 further new orders within the next three months.

There is also a great potential for the high speed freight ferry, now regarded by major operators as a serious alternative to the traditional ferry, with a demonstration of future conviction in the concept shown by the 40-knot, 1,500-passenger, 375-car Stena HSS capable of car-



RoRo 94 Conference Program (Partial)

rying freight vehicles as well as cars.

The accelerating demand for ships and the expected boost in traffic is also encouraging more port investment in new terminal and linkspan construction leading to renewed purchasing of cargo handling equipment.

The RoRo '94 Exhibition is a way for companies to develop future business in one of the strongest growth periods ever experienced in the RoRo industry. For more information contact: RoRo Conference Secretariat, BML Business Meetings Ltd., 2 Station Road, Rickmansworth, Hertfordshire, WD3 1GP, England; tel: +44 923 776 363; fax: +44 923 777 206

- "The Inevitable Move Towards Very Fast RoRos"
- "The Reality Of Just-In-Time"
- "The Birth Of The HSS"
- "Customer Service Through Reliability And Speed"

Session 3: EU Competition Law And Its Effect On EFTA Shipowners/Shipbuilders/Ports

- "Control Of State Aids And Subsidies Under The EU And EEA Competition Rates: Recent Developments Affecting RoRo And Shortsea"

(Continued on page 79)

RoRo 94 Exhibitor List (partial)

- ABP Hull
- ABP Swansea
- Astilleros Espanoles
- Brattvaag Skipsverft
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- IMO
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- SSPA Maritime Consulting
- Stena Rederi
- Svenska Orient Linien
- Tor Line
- Volvo Penta
- Wallenius Lines
- Westmann

Tuesday, April 26

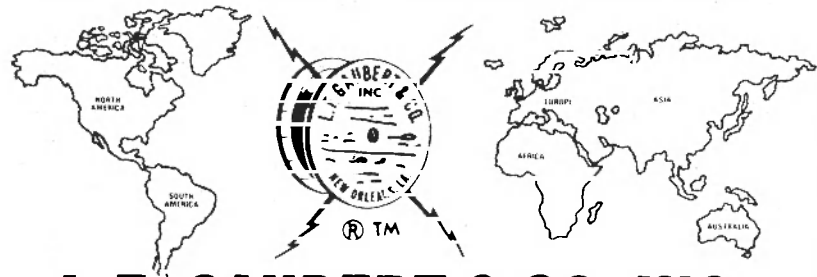
Session 1: Where is the RoRo Mode Going?

- "EU Combined Transport - Will RoRo Shipping Be Able To Take Full Advantage Of EC Policy?"
- "Coastal Potential"
- "Are RoRos/Ferries Subsidizing Lo/Los?"
- "A Restructured Automotive Industry - And Its Impact On Vehicle Transportation?"

Session 2: J-i-T or Faster?

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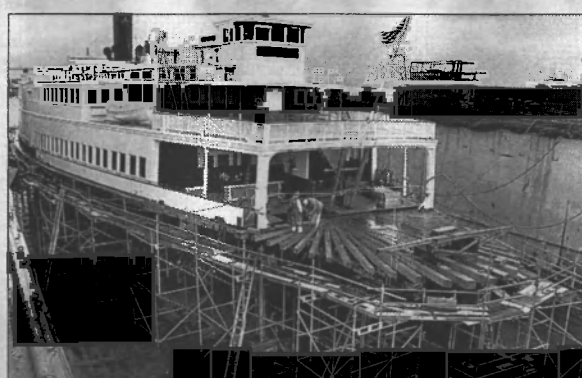
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National Park Service Ferry Gets \$2.7 Million Restoration At San Francisco Drydock

The giant hull of the 300-foot (91.4-m) steam ferryboat has been restored with 12,000-sq.-ft. of new copper plate at San Francisco Drydock.

The vessel is the 1890 San Francisco ferry *Eureka*, and the copper sheathing on her wooden hull is the culmination of a \$2.7 million National Park Service restoration project at San Francisco Drydock. The steamship has been in the shipyard since October 1993, employing a specially-gathered crew of 45 skilled craftsmen. The vessel's last major shipyard repair was completed on May 19, 1954. The *Eureka*, now officially designated a National Historic Landmark, is part of the fleet of historic vessels maintained afloat at San Francisco Maritime National Historical Park. She is berthed at the park's Hyde Street Pier, located at Fisherman's Wharf.

San Francisco Maritime National Historical Park shipwrights will put on the final touches—to the decks and the above-water superstructure—over the next 18 months after the vessel has returned to her regular berth at Hyde Street Pier. The restoration was funded by a Congressional appropriation sponsored by San Francisco Congresswoman **Nancy Pelosi**, who rechristened the *Eureka* on its 100th anniversary celebration four years ago. *Eureka* is 299.5 feet (91 m) long and 78 feet (24 m) wide. Her walking beam engine is the only one afloat (its design can be traced back to 1780) and her two 27-foot paddle wheels are driven by a single steam cylinder, which is 65 inches (1,651 mm) in diameter and 12 feet (3.65 m) tall. Her engines were built at San Francisco's Fulton Iron Works.



The steam ferryboat *Eureka* being outfitted with 12,000-sq.-ft. of new copper plate at San Francisco Drydock.

sional appropriation sponsored by San Francisco Congresswoman **Nancy Pelosi**, who rechristened the *Eureka* on its 100th anniversary celebration four years ago. *Eureka* is 299.5 feet (91 m) long and 78 feet (24 m) wide. Her walking beam engine is the only one afloat (its design can be traced back to 1780) and her two 27-foot paddle wheels are driven by a single steam cylinder, which is 65 inches (1,651 mm) in diameter and 12 feet (3.65 m) tall. Her engines were built at San Francisco's Fulton Iron Works.

ASRY Improves Performance In 1993

Arab Shipbuilding & Repair Yard Co. (ASRY) was able to increase ship repair revenue by five percent in 1993. Aided by the greater flexibility of two additional floating docks, the yard also raised vessel numbers by 25 percent overall, to 113. Owners of smaller vessels also took advantage of the large increase in dock space available to vessels up to 120,000-dwt and the number of small vessels docked rose by 30 percent to 75.

Although expenditure per vessel fell, ASRY increased the volume of steel renewal by 50 percent and good increases were also seen in engine work, pump and valve work, overhaul of turbo-chargers, boiler repairs, electrical work and cable renewal.

Hans Frisk, ASRY's general manager and CEO, said he was pleased with the first full year's operation of ASRY's two additional floating docks and the flexibility which they have added to dock operations and encouragement to owners of product carriers, bulk carriers, gas carriers, general cargo vessels and other smaller craft to take advantage of the extended repair facilities now available at Bahrain.

ASRY believes that the downturn in overall repair demand, which has caused such problems for many ship repair yards west of Suez and in the Far East, is now coming to an end and that owners would be well advised to bring forward repairs now in order to take advantage of the highly competitive repair prices on offer since these cannot be maintained indefinitely.

For more information on ASRY,

Circle 5 on Reader Service Card



Vessels in ASRY's floating docks, which can accommodate ships up to 120,000-dwt.

SeaArk Delivers Water Ambulance To Ft. Meyers

Ft. Meyers Beach Fire and Rescue District took delivery of a one-of-a-kind fire/ambulance boat from SeaArk Marine of Monticello, Ark.

Designed for speed and durability, the 32-foot (9.75-m) Advanced Life Support Ambulance is constructed of all-welded aluminum and features a deep-vee hull. Powered by twin 250-hp outboard engines, the new water ambulance can travel at speeds up to 45 mph.

According to customer specifications, SeaArk added a Stokes Litter rack to the aft deck, a port-side dive door, and a 500 gpm fire system with monitor on the forward deck.

The new SeaArk also features a full array of electronic equipment, including a siren/P.A. system, emergency response lights, radar, GPS, VHF radio and local Fire Department radios.

According to Fire Chief **John McCarthy**, this boat is the first certified Advanced Life Support marine ambulance in the Continental U.S. Chief **McCarthy** speculated that having this new craft will enable the district to respond to crises in areas unreachable before.

"SeaArk worked closely with us on concept, design and construction, to deliver an emergency response vessel that exactly fits our needs," said Chief **McCarthy**. According to Chief **McCarthy**, the boat also proved its seaworthiness recently when it performed without problems in eight-foot seas.

For more information on SeaArk Marine,

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32-Foot Advanced Life Support Ambulance Equipment List

Main engines	Evinrude
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Steering control	Teleflex Seastar
VHF radio	Raytheon
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Compass	Ritchie

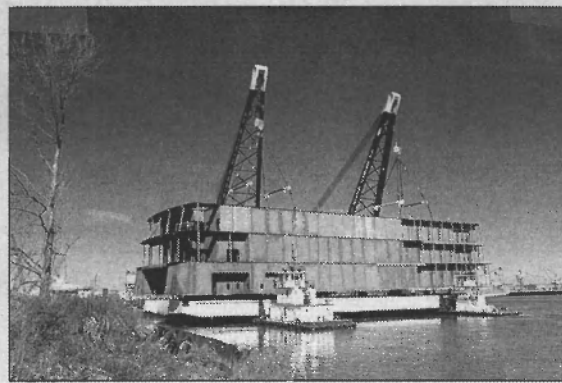
Bisso Marine Launches Bender-Built Gaming Vessel North Kansas City

Bisso Marine Co. launched the gaming vessel *North Kansas City* at Bender Shipbuilding & Repair Co., Inc. in Mobile, Ala.

The 295-foot (90-m), 700-ton hull was launched with Bisso Marine's heavy lift derrick barges *Cappy Bisso* and *Lili Bisso*. Later that day, the three-story super structure weighing 800 tons was lifted into position by the two Bisso Marine derricks. Versabar, Inc. of Harvey, La. provided the spreader bars and rigging.

For more information on Bisso Marine,

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Boston Whaler Delivers New Fire Boat To Milwaukee Fire Department



Boston Whaler Inc. delivered a customized 32-foot (9.75 m) *Vigilant* to the Milwaukee, Wis. fire department. The boat was then subjected to two and a half days of testing in the Milwaukee environment. The boat features a 130-hp fire pump with a bow monitor capable of discharging 1,000 gpm at 100 psi. Water is drawn via a six-inch through-hull intake. During its trials, the *Vigilant* reached a top speed of 32 knots carrying a crew of four and 140 gallons of fuel. It is powered by twin 7.4 L Mercruiser inboard/outboard engines. Its 12-foot (3.7 m) beam allows ample access around the large center cabin for personnel carrying equipment. For more information on Boston Whaler,

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Maritime Reporter/Engineering News

Operators"

- "The Extension Of EU Competition Law Related To Maritime Transport And RoRo To EFTA Countries"

Wednesday, April 27

- Session 4: Deepsea RoRo - A Commercial/Military Commitment**
- "The U.S. Navy's Strategic Sealift Ships - Using Simulation To Evaluate Design Alternatives"
 - "RoRo - The Key To Rapid Military Deployment - Aspects Of The Sealift Program"
 - "A Cargo Handling Evaluation Of Larger RoRo Ship Designs For Commercial Or Military Use"

- Session 5: Advanced Design - Shortsea RoRos**
- "The 22-Knot Super Freights Norway And Norbank"
 - "A Revolution In RoRo Shipping"

- Session 6: RoRo Cassettes - Intermodal And Forest Products**
- "Functional And System Requirements For RoRo Cassettes In Multimodal Transport"
 - "New Design Of RoRo Cassette, With Integral Container-Locking And Cargo-Securing/Lashing Features"
 - "The Trolley-Winch System Is Updated For Cassette Operations"

- Session 7: RoRo Port Developments**
- "Port Developments At Dublin"
 - "New 'Fast-RoRo' Facilities"
 - "Shorter Turnaround Time In Port, A Key Element In Fast Transport Systems"

- Session 8: Stowage And Lashing**
- "Advanced Cargo Stowage System For Vehicle Carriers"
 - "Safe Securing Of Trailers And Deck Cargo"
 - "Cargo Secure - A New Solution To An Old Problem"

- Session 9: RoRo Movements**
- "Overcoming The Balkan Problem - What Truckers Are Looking For In New RoRo Services"
 - "Finland - The Logistics Center Between East And West"
 - "Scandinavian Overseas Trade Via Continental Ports"

- Session 10: New Ship And Stowage Concepts**
- "The Euro Combi Carrier"
 - "A New Generation Of 'Standard' Diesel-Electric RoRo Ferry"
 - "Design And Logistics Of A Fast Selfloading Unitload Ship-Terminal System For Shortsea Shipping"

Thursday, April 28

- Session 11: Terminals**
- "Three Innovative State-Of-The-Art Terminals For Very Different RoRo Handling"
 - "Automatic Video Inspection Introduced At Terminal Gate"

- Session 12: Forest Product Facilities**
- "Door-To-Door Distribution Of Forest Products"
 - "Storage Minimization And Planned Delivery Of Paper By Ship, Rail And Road"

- Session 13: RoRo Ship Stability**

- "The Practical Implication Of SOLAS 90 On Existing RoRo Vessels"
- "The Impact Of SOLAS 90 On The Design And Safety Of RoRo Vessels"
- "RoRo Passenger Ferry Damage Stability Studies - Continuation Of Model Tests Of A Typical Ferry"
- "Application Of The Safety Case Approach To RoRo Ships"
- "A New Concept Of RoRo Ships Subdivision For Enhanced Safety In The Damaged Condition"

Douglas Equipment To Display Tugmaster Tractors At RoRo '94

Douglas Equipment reportedly produced its first elevating fifth wheel Tugmaster tractor in 1955, and the manufacturer claims this established and has kept Douglas Tugmaster on the leading edge of RoRo since it began.

Over the years Douglas has been involved in many developments, such as the ultra heavy duty chassis frames and solid fifth wheel lifting frames, fail safe braking at all wheel stations, rear pneumatic suspension, group component technology, tilt cabs, and much more.

On display at RoRo '94 will be the latest Douglas Tugmaster Type NSS-220-LFW (Low Fifth Wheel Height) RoRo/Terminal Tractor, designed for handling the new generations of Super Cube and Mega Cube trailers. The Tugmaster on

display will be fitted with a Volvo TD71A diesel engine driving through a multi-speed forward, multi-speed reverse Clark 32000 Series powership transmission. For more information on the products and services of Douglas Equipment,

Circle 146 on Reader Service Card

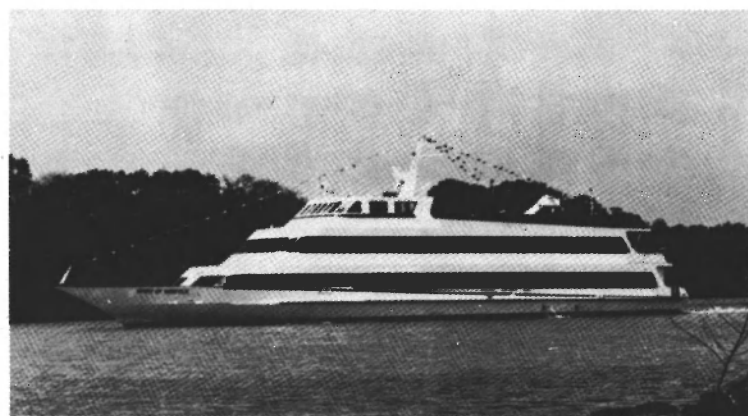
U.K. Ports Prove Attractive To RoRo Business

The ports of Weymouth and Portland in the U.K. offer good opportunities for the development of high-speed and traditional cross-channel ferry services for passenger and freight traffic. Weymouth's RoRo terminal currently serves the Condor high-speed catamaran services to the Channel Islands. The Condor 10 has a capacity of 570 passengers and 85 cars on a service which boasts a quick turnaround and speeds up to 40 knots. Weymouth and Portland Borough Council, who manage the Port, are looking to develop other high-speed services. Portland harbor, reportedly Europe's largest man-made harbor, will be available in 1995/96 for use as a commercial port when the naval base closes. The port provides a deep water harbor with a minimum of 28.54 feet (8.7 m) available at all states of the tide. For additional information on the services of the ports of Weymouth and Portland,

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Liebherr's LHM 1200 HD

Glamox Fills A Range Of Marine, Offshore Lighting Needs

Glamox, one of the world's largest makers of marine and offshore light fixtures, is known for its high quality products and service, offering more than 50 years of experience.

The company offers a range of products suitable to the market, including downlight, spotlights and decorative lights; marine and industrial floodlights; as well as a host of fluorescent fixtures. For information on the entire Glamox line of marine lighting fixtures,

Circle 149 on Reader Service Card

Marotta Scientific Control Valve Helps Eliminate Problems

The solenoid operated MV286A series valves provide reliable flow control for chilled water in shipboard air conditioning systems. A one-piece, water-resistant, polypropylene poppet is featured in this two-way valve series. This virtually eliminates problems associated with corrosion, leaching, deposition and the accumulation of deposits which can be found in chilled water systems. A controlled orifice prevents "water-hammer effect" during opening or closing of the valve. All valves in the series meet MIL-R-16743 requirements and are supplied with MIL-F-1183 sil brazed union ends. An added benefit is the inclusion of a manual override in case of an electrical power failure. Units may also be used with hydraulic fluids or light oils operating up to 150 psig. For more information on the valve line from Marotta Scientific Controls,

Circle 140 on Reader Service Card

MacGregor Exec To Address RoRo '94 Conference

"RoRo - The Key to Rapid Military Deployment - Aspects of the Sealift Program," is the title of the paper which Edward Alexander, program manager for the MacGregor Group at the Standard Equipment Office for the U.S. Navy's Sealift Program, will present at the upcoming RoRo '94 conference. MacGregor has already supplied numerous items of RoRo equipment to navies around the world, on vessels of various

sizes and types. However, most of the company's RoRo equipment is in operation on numerous commercial ships ranging from small ferries to the largest oceangoing RoRo freighters. MacGregor equipment is specifically included in several newbuilding contracts, including equipment for two passenger/RoRo ferries building at Schichau Seebeckwerft, and two RoRo car ferries, one on order and the other an option, from the Fosen yard in Norway. For more information on the RoRo equipment from MacGregor,

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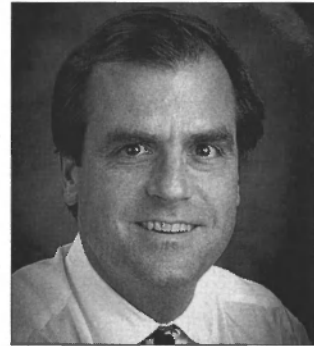
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Lokring Promotes Post To VP, Marine Operations

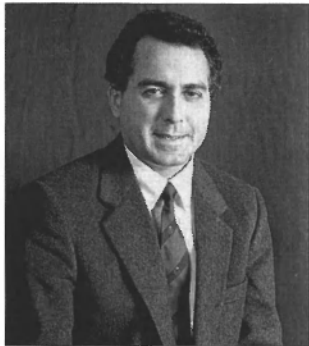


Brian Post

Lokring Corporation, Foster City, Calif., recently promoted **Brian Post** to the position of vice president, Marine Operations. Mr. Post, who was promoted from the position of director marketing with a focus on the marine market, will continue to direct the sales, marketing and new product creation areas for the worldwide marine market. He joined Lokring in 1990 and has been instrumental in defining and developing the corporate strategy, market plan, and development of new products for the marine market.

Lokring Corporation is a manufacturer of fluid connectors which incorporate patented Lokring technology. The Lokring line of copper nickel and stainless steel pipe fittings is approved by the U.S. Navy, ABS, and the U.S. Coast Guard.

MAN B&W Names Gingell Director



Les Gingell

Les Gingell has joined MAN B&W Diesel, Inc. as its new director of business development, reporting directly to MAN B&W Diesel President **Claus Windelev**.

Mr. **Gingell** comes to MAN B&W with an extensive background in high technology marine propulsion, having been the manager of marine applications for Textron Lycoming's marine turbine engines for all market segments.

He has also been heavily involved in many esoteric marine programs serving in the program management and product support disciplines.

MAN B&W is a recognized leader in advanced engine technology sponsors substantial research in minimizing emissions in anticipation of more stringent regulations.

Atlantic Marine Names Johnson Head Of Mobile Repair Yard

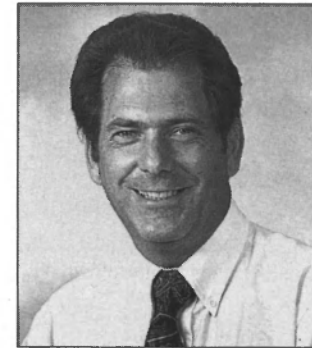
Steven R. Johnson has been named president of Atlantic Marine's ship repair facility in Mobile, Ala. Mr. **Johnson** was previously vice president of production at Atlantic Marine and also served as production manager when he joined the company in 1990.

In his new position, he will report directly to **Daniel C. Sellers, Jr.**, president of Atlantic Marine Holding Company. Mr. **Johnson** will be responsible for the day-to-day operations of Atlantic Marine. He has 25 years of varied marine industry experience, which includes international vessel operations, vessel management as well as repair and new construction shipyard management. He served as president of the shipping subsidiary of Bethlehem Steel, director of corporate strategic planning, and senior manager of the Sparrows Point yard in Maryland.

Fort Lauderdale, Fla. to oversee the expanding cruise ship and gaming market in the Caribbean. The Chicago office will be headed by General Manager **Rus Strahan**, who will oversee all sales and service for the midwestern region; the Fort Lauderdale office will be headed by General Manager **Ron Staley**.



Rus Strahan

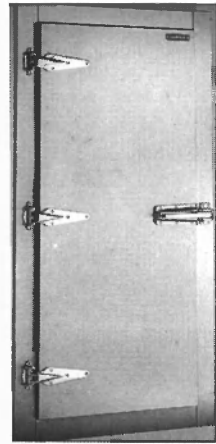


Ron Staley

Bally Appoints New Heads For Florida, Midwest

Bally Gaming, Inc. announced the opening of a new sales and service office in suburban Chicago to oversee gaming accounts in the midwestern U.S., and another in

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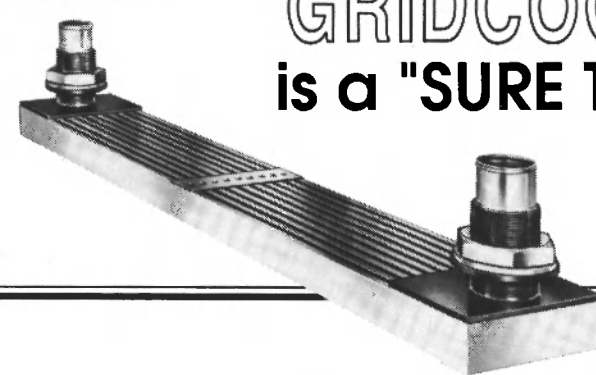
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American Commercial Barge Lines Makes New Appointments

American Commercial Barge Lines has made several recent appointments.

Lou Edmonson has been named manager, training and development. Mrs. Edmonson was formerly a performance technologist

at simulation training at Fort Knox. **Glenn Hotz** has been named assistant vice president of safety. Mr. Hotz was formerly manager of safety for CSX Transportation in Jacksonville, Fla.

Rebecca A. Miller has been named director of corporate communications. Ms. Miller was formerly an active partner with Business Visions, a marketing and communications group.



Lou Edmonson



Glenn Hotz



Rebecca A. Miller



John G. Smith

John G. Smith has been promoted to vice president and general manager of Watercom, a division of American Commercial Lines. Mr. Smith was formerly vice president of Watercom.

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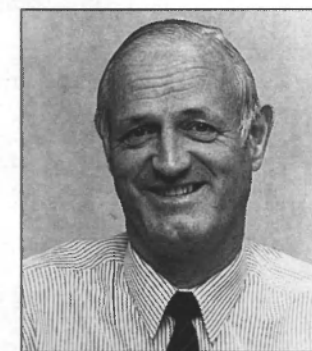
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Circle 22* on Reader Service Card

Walenkamp Named Smit's Maritime Contracting Group Director



Capt. Hans Walenkamp

Captain **Hans Walenkamp** has been appointed Smit International's group director, Maritime Contracting. He will have special responsibility for the coordination of salvage activities worldwide.

Capt. **Walenkamp** has held a number of senior posts at Rotterdam-based Smit since joining the group in 1972. Prior to his new appointment, he was managing director of Smit Fleet Services — responsible for the operational management of some 80 vessels.

Vecom Wins "Clean Seas Award" For Oil Spill Kit

Dutch marine chemicals, safety and maintenance group, Vecom, was presented with the bronze medal for its contribution to "the preservation of a clean marine environment," by Dr. **Cenus Tabone**, president of Malta, at the inaugural Clean Seas International Awards event commissioned by the government of Malta.

The Vecom award acknowledged the company's contribution through its Veclean Oil Spill Response Kit to comply with the shipboard demands of OPA 90. The kit consists of a package of chemicals, equipment and materials specially selected to comply with the OPA 90 and IMC regulations.

The kit is recommended by the U.S.-based Warren Springs Laboratory and also complies with the standards set by the U.S. Coast Guard for meeting OPA 90 requirements.

Maritime Reporter/Engineering News

WeatherLink 2020

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Circle 315 on Reader Service Card

MARITIME PRODUCTS

Anschutz Gyrocompass: No Recommended Maintenance For 3 Years



The new Digital Gyro Standard 20 gyrocompass from Anschutz & Co. is embedded in a system structure which offers a high degree of modularity and integration capability. Part of the NAUTO CONTROL family, the unit offers even more special features like self-adjusting head transmission system, GMDSS qualification, and connection to radar equipment with radio/ECDIS overlay. For more information,

Circle 98 on Reader Service Card

Drew Ameroid Brochure Details Uses Of Corrosion Control Products

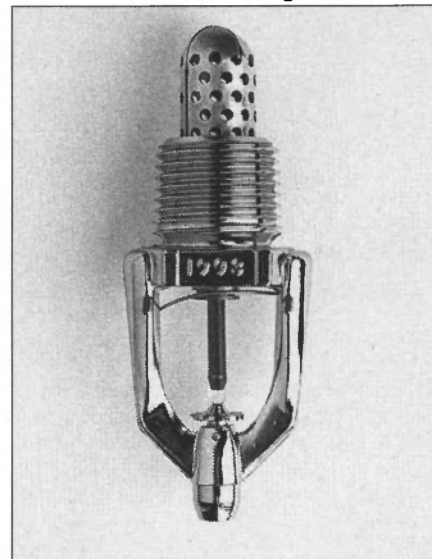


A new brochure from Drew Ameroid Marine discusses optimizing the cost and protection benefits of Drew's Magnakote products. Magnakote[®] Plus rust preventative reportedly provides five full years of protection for ships' ballast tanks and void spaces, while the original Magnakote treatment is warranted for two years.

For more information on the new brochure,

Circle 99 on Reader Service Card

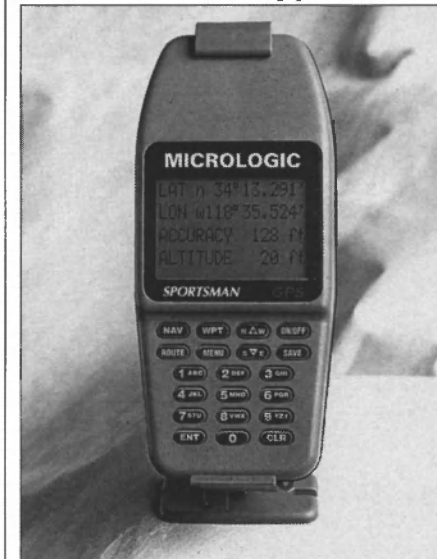
Grinnell's AquaMist Fire Protector: Minimal Water, Maximum Coverage



Grinnell Fire Protection's AquaMist Marine System, a low pressure fire-suppression system, utilizes automatic, fast response AquaMist Marine Nozzles which use a small amount of water (minimum operating flow is three gpm per nozzle) for a blanketing mist which the company claims quickly controls developing fires. The system can be retrofitted at sea or in port. For more information,

Circle 100 on Reader Service Card

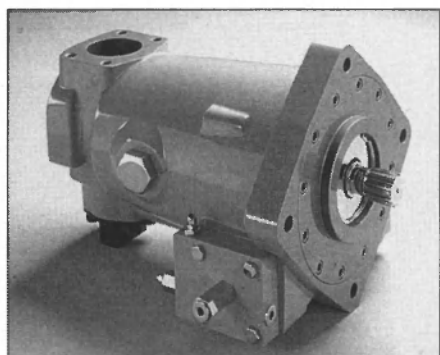
Micrologic's Full-Featured GPS Handheld Offers 1,000 Waypoints



Micrologic has added a full-featured GPS to its line. The Sportsman hand-held receiver has a 1,000-waypoint capacity, 500 of which can be entered as lat/lon, present position, range/bearing, MGRS, UTM, TDs, data log and PC download. The other 500 are available with the automatic data log feature, which records position, day, date, time and estimated accuracy once per minute. For more information,

Circle 101 on Reader Service Card

Denison's P16 Open Loop Pump Runs At 1,850 RPM



Denison Hydraulics' P16 Open Loop Pump offers high rated pressure, a precision barrel bearing, and fabricated pistons which reduce trapped oil volume, reportedly increasing efficiency and reducing piston weight for a maximum speed of 2,500 rpm. The pump also offers through drive capability, which allows two pumps to be run in tandem at full rated pressure and flow, simultaneously. The pump's large suction port (3.5 inch SAE) reduces inlet flow velocity and angled barrel ports reduce piston circle diameter, so oil enters the barrel at reduced velocity.

These features allow the pump to run as fast as 1,850 rpm at atmospheric inlet pressure.

For more information on the P16 Pump,

Circle 102 on Reader Service Card

"Soft Touch" Dash Panel: Custom Configured



DMP America's "soft touch" dash panel, designed to minimize damage in the event of accidental spillage on the console, reportedly simplifies the operation of various functions. DMP says the panels are designed to virtually eliminate the conglomerate of raised handles, toggles, and buttons that normally affect the cosmetic qualities of the console, and are constructed to take up about half the space associated with regular consoles.

The mechanics used to run and maneuver the vessel can reportedly be set up in any fashion desired, to fit the needs of the owner or operator — with micro-switches that ease access to controls normally sticking out above the console.

For more information on DMP America's soft touch dash panel,

Circle 103 on Reader Service Card

Pocket DS Meter Measures Mineral Content Electrically



The Sea Recovery Pocket DS Meter checks the product water quality of a desalinator (watermaker), and at only 5.75 inches in length, it can easily be stored or used immediately. Two probe sensors determine water mineral content by measuring electrical current through the water: the greater the minerals, the greater the electrical current. The meter operates between 50° and 104° F. The scale readings are in equivalent sodium chloride strength PPM (parts per million) between 10 and 1,000 PPM — typical variances for drinking water.

The meter can be used for checking potable R.O. water and home tapwater.

For more information on Sea Recovery's Pocket DS Meter,

Circle 104 on Reader Service Card

ABB Nera Offers New Inmarsat M Terminal



ABB Nera has developed an Inmarsat M terminal, Saturn Mm, aiming at vessels for which costs are prohibitive and space at a premium. Reportedly small enough to fit in any craft, the new Mm terminal provides global telephone, fax and data access — and the company claims it has still brought traffic, equipment and installation costs down. The Saturn Mm consists of a 26.7-inch (68 cm), 42.5 lb. (22 kg) antenna and a 8.8 lb. (4 kg) control unit linked by coaxial cable, running on 10- to 34-volt DC current with AC options available. Up to 99 short numbers can be displayed by name from the handset. Digitalized 4.8 kbps transmission reportedly assures high voice quality. For more information on ABB Nera's Inmarsat M terminal,

Circle 97 on Reader Service Card

April, 1994

83

marine technology to install GMDSS On Eight British Steel Vessels

Marine Technology International installation of GMDSS Console sta-



Launched! BT Inmarsat's Biggest Ever Price Cuts!

Call charges slashed again as massive cuts campaign takes off

From March 1st this year, we're launching a major new price reduction package for BT Inmarsat users.

Firstly, call charges for our Inmarsat services are being cut dramatically. We're also extending the off-peak period by four hours – with the earlier start time of 1931 GMT. And we're increasing the Inmarsat-A capacity of BT's Goonhilly station (ID 02) by 20%, so call connection is even easier.

OFF! **Inmarsat-A** phone calls to the US from non-UK registered ships: standard rate cut by 8%, off-peak by 16%.

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OFF! **Inmarsat-A** discount scheme entry point is now cut by half.

OFF! **Inmarsat-A** telex charges to

OFF! **C-Sat** messaging cut by up to 15%, for *all* vessels.

OFF! **M-Sat and B-Sat** services – new lower prices (from April 1st).

OFF! **C-Club** subscription halved and call charges cut by 15%.

BT Inmarsat. Now the best is even better value. For full details of all the new reductions call us toll free, at our office in the UK, for our special information

CALENDAR

APRIL

AWS International Welding

Contact: Maritime Health Services, 5343 Tallman Ave. N.W., Suite 104, Seattle, Wash. 98107, tel: (206) 781-8770; fax: (206) 781-8771.

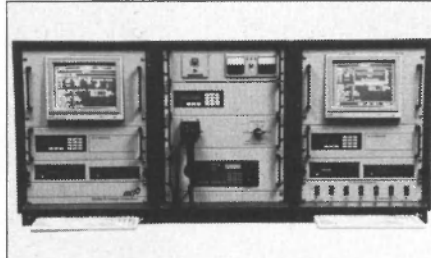
Design and Operation of Marine Systems - Present and Future Applications: April 28, London. Contact: The Institute of Ma-

Equipment Exhibition: May 8-11, Shenzhen Special Economic Zone, China. Contact: **Hazel Stokes**, tel: (852) 861-3331, fax:

Marine Technology To Install GMDSS On Eight British Steel Vessels

Marine Technology International Limited (MTIL) of Chessington, Surrey in the U.K. was awarded a contract by British Steel to refit eight of its vessels with GMDSS equipment.

MTIL will provide Furness Withy, managers of three of British Steel's eight ships, with the complete in-



The MTI3150S GMDSS Console Station for Area A3 and utilizing dual Inmarsat-CTM satellite & 150 Watt Radio Telephone Communications.

stallation of GMDSS Console stations for the M/V *British Steel*, *Abey* and *Ironbridge*.

Installation aboard the other five ships will be carried out by their managing agents, Ropner Shipping Services Ltd.

Each ship will be equipped with a full GMDSS station for operating in Area A3, using an MTI3150S console with Inmarsat-CTM satellite duplication and 150W MF/HF Radio Telephone.

MTIL has developed a clear strategy over the past two years to offer its customers a complete GMDSS solution: up-to-date equipment and systems, surveying and planning, preparation and project management, installation and staff training, shore-based maintenance and worldwide technical support.

Marine Technology International



The *Ironbridge* is one of eight British Steel ships to be fitted with MTI GMDSS Console Stations.

Ltd. is a British company, the marine specialist arm of the MTI global group of companies. Its international parentage is Mobile Telesystems Inc. in the U.S. and

Microelectronics Technology Inc. in the Pacific Rim. For more information on the MTI group of companies,

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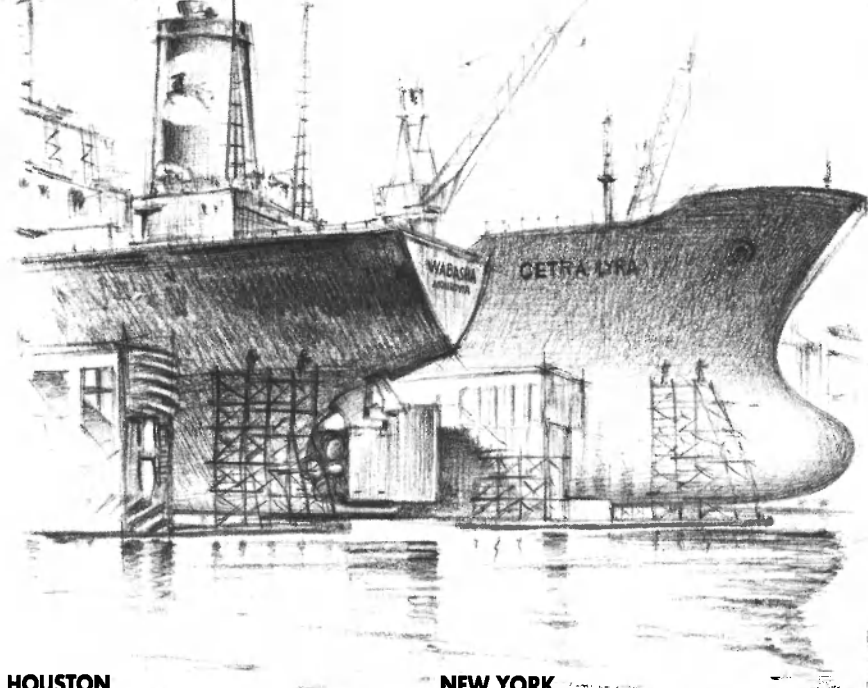
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CALENDAR

APRIL

AWS International Welding Exposition and Convention: April 12-18, Pennsylvania Convention Center, Philadelphia, Pa. Contact: Conventions and Expositions Dept., American Welding Society, 550 Lejeune Road, P.O. 351040, Miami, Fla. 33135, tel: (800) 443-9353 or tel: (305) 443-9353.

Differential Satellite Navigation Systems (DSNS) Conference and Exhibition: April 18-22, Canary Wharf, London. Contact: Royal Institute of Navigation, 1 Kensington Gore, London SW7 2AT, tel: +44 071 589 5021; fax: +44 071 823 8671 or **Judith Patten**, Public Relations, Neville House, 55 Eden Street, Kingston upon Thames, Surrey KT1 1BW.

Save a Life at Sea (SALTS) Training Course: April 20-22

Contact: Maritime Health Services, 5343 Tallman Ave. N.W., Suite 104, Seattle, Wash. 98107, tel: (206) 781-8770; fax: (206) 781-8771.

Greater New Orleans Barge Fleeting Association/Sedgwick Marine & Cargo Limited River and Marine Industry Seminar: April 21-22, Sedgwick Conference Forum, London, England. Contact: **Robert A. Jupp**, Sedgwick Marine-Norwich, England, tel: +44 0603 660202; fax: +44 071 481 5999; or **Cherrie Felder**, tel: (504) 348-7700; fax: (504) 348-0763.

Inland Rivers, Ports & Terminals, Inc. Annual Meeting: April 27-30, The Benson Hotel, Portland, Oregon. Contact: **Cynthia Rehagen** or **Kathy Pabst**, 204 E. High St., Jefferson City, Mo. 65101, tel: (314) 634-2028.

Simulation Techniques for the

Design and Operation of Marine Systems - Present and Future Applications: April 28, London. Contact: The Institute of Marine Engineers, The Memorial Building, 76 Mark Lane, London, EC3R 7JN, tel: +44 71 481 8493; fax: +44 71 488 1854.

ASNE Naval Engineering - The Technical Challenge Continues: April 28-29, Sheraton Washington Hotel, Washington D.C. Contact: **Brian Kozlowski**, tel: (703) 415-4589, ext. 5599.

MAY

1994 Offshore Technology Conference (OTC): May 2-5, Houston Astrodome, Texas. Contact: OTC, P.O. Box 833868, Richardson, Texas 75083-3868, tel: (214) 952-9494; fax: (214) 952-9435. **Fishery China '94: The International Fishery Technology and**

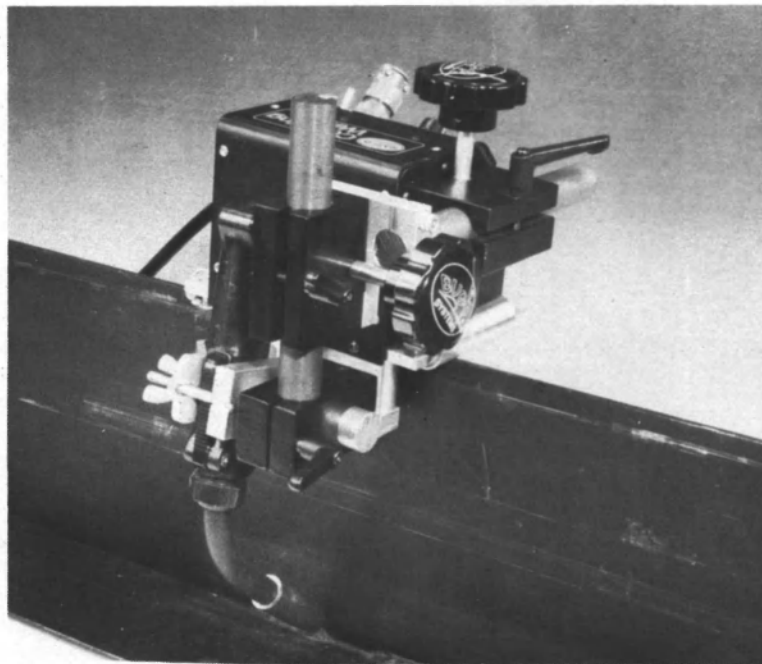
Equipment Exhibition: May 8-11, Shenzhen Special Economic Zone, China. Contact: **Hazel Stokes**, tel: (852) 861-3331; fax: (852) 861-3228.

"Fundamentals of Corrosion and its Control" Course: May 10-12. Contact: **Sherree Darden**, LaQue Center for Corrosion Technology, P.O. Box 656, Wrightsville, Beach, N.C. 28480, tel: (910) 256-2271; fax: (910) 256-9816.

United States Marine Safety Association (USMSA) Sixth Annual Safety Seminar: May 17-19, Sandy Hook, N.J. Contact: **Kristina Hagman Goldfield**, tel: (215) 564-3484; fax: (215) 564-2175.

Portuaria '94 International Ports Exhibition: May 23-28, Seville, Spain. Contact: **Ana Soto**, tel: +34-93-419-6041.

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Terminal Operations Conference: May 25-27, Amsterdam
 Contact: Julian Graves, CS Publications Ltd., 2nd Floor, Market Towers, 1 Nine Elms Lane, London SW8 5NQ, U.K., tel: +44 71 344 3800; fax: +44 71 344 3855.

IMAS 94-Fire Safety on Ships: May 26-27, London
 Contact: IMarE Conference Department, The Institute of Marine Engineers, The Memorial Building, 76 Mark Lane, London EC3R 7JN, tel: +44 071 481 8493.

2nd Annual NAVSEA/NAVSUP International Logistics Symposium - "Logistics: Key to Interoperability and Cooperation with Allied Armed Services": May 31-June 3, Hyatt Regency Hotel, Crystal City, Va.
 Contact: Margaret New, tel: (703) 836-6727; fax: (703) 836-7491.

JUNE

Intelligent Ships Symposium: "Intelligent Ship Technologies in the 21st Century": June 1-2, Wyndham Franklin Plaza Hotel, Philadelphia, Pa.
 Contact: Donald J. Collins, tel: (215) 897-7321; fax: (215) 897-1675.

Commercial Fishing, Sport Fishing and Seafood Exhibition, International Aquaculture Exhibition & Conference: June 8-12, EXPOVER, Veracruz, Mexico
 Contact: EXPOAVANCE (USA), Inc., One Liberty Square, Boston, Mass. 02109, tel: (617) 426-6440; fax: (617) 426-6441.

Vision Eureka: New Technology For Concrete Structures Offshore: June 13-17, Lillehammer, Norway
 Contact: Dr. Frank Henning Holm & Co., coordinator, P.O. Box 3242 Elisenberg, N-0208 Oslo, Norway, Madsrud Alle 27, N-0268 Oslo, tel: +47 22 56 09 09; fax: +47 22 56 16 88.

AUGUST

49th Sea Horse Institute Meeting On Corrosion Control: August 8-11, Wrightsville Beach, N.C.
 Contact: LaQue Center for Corrosion Technology, P.O. Box 656, Wrightsville Beach, N.C. 28480, tel: (910) 256-2271; fax: (910) 256-9816.

SEPTEMBER

International Ship and Offshore Structures Congress (ISSC), 1994: September 12-16, St. John's, Newfoundland, Canada
 Contact: Institute of Marine Dynamics, P.O. Box 12093, Station A, St. John's, Newfoundland A1B 3T5, Canada; tel: (709) 772-2469; fax: (709) 772-2462.

Propellers/Shafting '94 Symposium: September 20-21, Cavalier Hotel, Virginia Beach, Va.
 Contact: J.E. Ancarrow, Jr., tel: (804) 688-1070.

April, 1994

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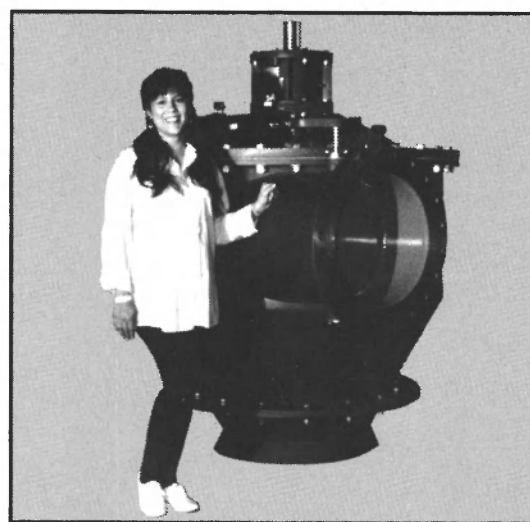
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be driven by diesel, hydraulic or electric power sources. The HCT Omnithruster is available in sizes ranging from 7 to 450 kw (10 to 600 HP) and can be rated for continuous duty service.



This 600 HP HCT Omnithruster, with propulsion, is now installed on a 492' barge.

- Highly effective thrust, exceeds other jet thrusters.
- Can thrust effectively in currents or at vessel speeds up to 8 knots, or more.
- Optional slow speed 360° propulsion provides "take-home" capability, station keeping and augmented steering.
- Very small side hull opening compared to conventional thrusters, about one-tenth the area, which reduces drag; saves fuel.
- Vertical configuration can provide thrust with nozzles out of the water with intake submerged; works when pitching or in light draft.
- Competitively priced, less costly to install, easy retrofits.
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Circle 337 on Reader Service Card

Nelson Firestop's Mutli-Cable Transit System: Approved By USCG, Navy

Nelson Firestop Products provides a wide range of products designed to arrest the spread of fire aboard vessels.

Nelson Firestop's "Multi-Cable Transit"™ system provides an alternative to the age-old method of supplying individual stuffing tubes for each cable that transited through an integrity bulkhead or deck. The system, which was first introduced in 1966, was subjected to a test program by the U.S. Navy and the U.S. Coast Guard (USCG), after which the system was awarded approval. The testing on MCT included:

- A one-hour ASTM E-119 fire test on a bare (no insulation) six-foot by eight-foot by 1/4-inch thick steel bulkhead — no flaming on the cold side occurred.



Nelson Firestop supplies a variety of firestopping products.

- Another test was performed on a bare (non-insulated) deck plate six feet in diameter and the same 1/4-inch thickness. The results were equally successful.
- Shock testing to Mil-S-901C and vibration testing to Mil-STD-167 reportedly did not cause loss of 25 psi of air pressure out of the "MCT" test chamber.
- Confinement of 25 psi of air hydrostatic water pressure for a sustained period; reportedly, no dislodgement or movement of parts occurred.
- A Mil-P-16685C thermocycling test was performed in which repeated heated 212° F and ambient water temperatures were applied to transits, reportedly resulting in minimal leaking by the transit system.

Nelson reports that a 53 percent savings in space, pulling and backing time gained immediate acceptance of the system by waterfront personnel. Nelson Multi-Cable Transit systems have reportedly been installed on several hundred vessels for the U.S. Navy, USCG, USCG-certified vessels and offshore platforms. These include steel vessels, steel hulls with aluminum superstructures, aluminum vessels, wood minesweepers, fiberglass minesweepers, various auxiliaries, ferries and pleasure craft. For more information on Nelson Firestop Products,

Circle 81 on Reader Service Card

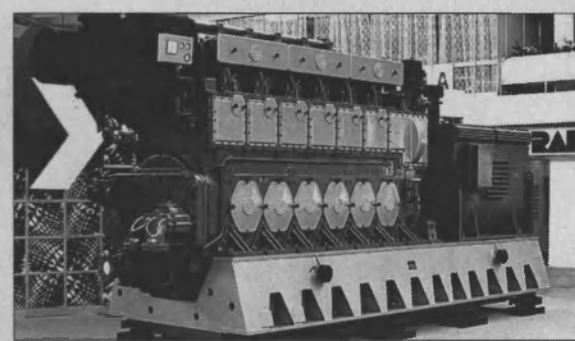
Tripes Materials Chosen To Market Czech Engines

Tripes Materials of El Cajon, Calif. is the U.S. Agency for CKD Hradec Kralove, a producer of medium-heavy and heavy diesel engines from the Czech Republic.

The U.S. and Latin American markets are to be serviced by the father and son team of **George and Marty Tripes**. **George Tripes** has many years of experience in international sales and speaks fluent Czech and Spanish. Diesel engines and generating sets have been manufactured under the CKD trademark since 1973. Several series of the diesel generating sets are manufactured, with individual unit output ranges from

405 to 3,250 kVA, and are exported to more than 40 countries around the world. Engines in marine executions cover the output range from 340 to 2,600 kW. For full technical details on the entire CKD line of propulsion and generating engines from Tripes Materials,

Circle 123 on Reader Service Card



Tripes Materials was chosen as the U.S. agency for CKD Hradec Kralov of the Czech Republic.

Chevron Christens New Double-Hull Tanker

Breaking with its long-standing tradition of naming its ships after geographical regions or members of the company's board of directors, Chevron recently christened its newest oil tanker the *Chevron Employee Pride*, to honor 43,000 employees.

The double-hulled, 900-foot ship (274.2 m) is the 11th double-hulled ship in the 39 vessel Chevron shipping fleet. The 149,000-ton ship will carry up to 1.1 million barrels of oil per trip to points between the U.S. and West Africa, Indonesia and the Middle East.



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Shipyards In Shanghai Region Form Association

A group of major shipyards in the Shanghai region of China, including Jiang Nan, Hu Dong, Shanghai and others, have formed a trade association with Shanghai Machinery Equipment Import & Export Corp (SMEC) and Shanghai Double Hope Development Corp., Ltd. (DH) to promote the marketing and sales of their products and services worldwide. SMEC-DH have engaged All Alpha International, Inc., Ohio, and Sun IntL Supply Group, Calif., as their exclusive agent for North America. All Alpha IntL is solely responsible for the development of shipbuilding and repair businesses, and also for the marketing and sales of quality ship machineries, engineering and manning services. Contact Dr. Jim Wei at tel: (513) 683-6589; fax: (513) 683-5359.

Duramax Marine Offers New Sleeve Bearing Sizes

Duramax Marine, known for its quality bearings on ships worldwide, now offers six new standard rubber sleeve bearings to the commercial marine market. Five new Naval Brass bearing, plus one new Non-Metallic bearings, are in stock and available for same-day shipment. Headquartered in Middlefield, Ohio, Duramax produces bearings, fendering tow-knees, stuffing boxes, keel coolers and gaskets for the worldwide commercial marine market. For full technical details,

Circle 134 on Reader Service Card

OSI Gets Second Contract From USCG

Offshore Systems International, Inc. received a second contract from Marinette Marine Corp. to supply Electronic Chart Precise Integrated Navigation System (ECPINS) for a new class of U.S. Coast Guard (USCG) buoy tenders. The contract calls for the purchase of one ECPINS, with the option to purchase additional systems. For additional information on the ECPINS system from Offshore Systems International,

Circle 133 on Reader Service Card

DBF Helps Fiberglass Boat Builders Cut Weight With New Putty

A new marine putty from DBF, Inc. reportedly weighs as much as 65 percent less than conventional products, an achievement accomplished through the use of Dualite polymeric microspheres from Pierce & Stevens Corp. At present, DBF offers marine putties formulated with polymeric microspheres in two densities, five and eight pounds per gallon. For more information on the new putty from DBF,

Circle 132 on Reader Service Card
April, 1994

BMI Offers Passenger Vessels With Music Services

BMI is a nationwide network of licensing experts which secures and licenses the performing rights of music on behalf of close to 100,000 affiliated composers, writers and publishers. BMI, which is looking to fill the entertainment needs of the vast passenger vessel market, makes it easier for owner/operators

to play music within the guidelines of U.S. Copyright Law through its "music performance agreements," essentially allowing owner/operators to play as many of the 1.5 million songs as are desired. Through agreements with 40 licensing organizations worldwide, BMI offers the works of creators across all continents. For more information,

Circle 139 on Reader Service Card

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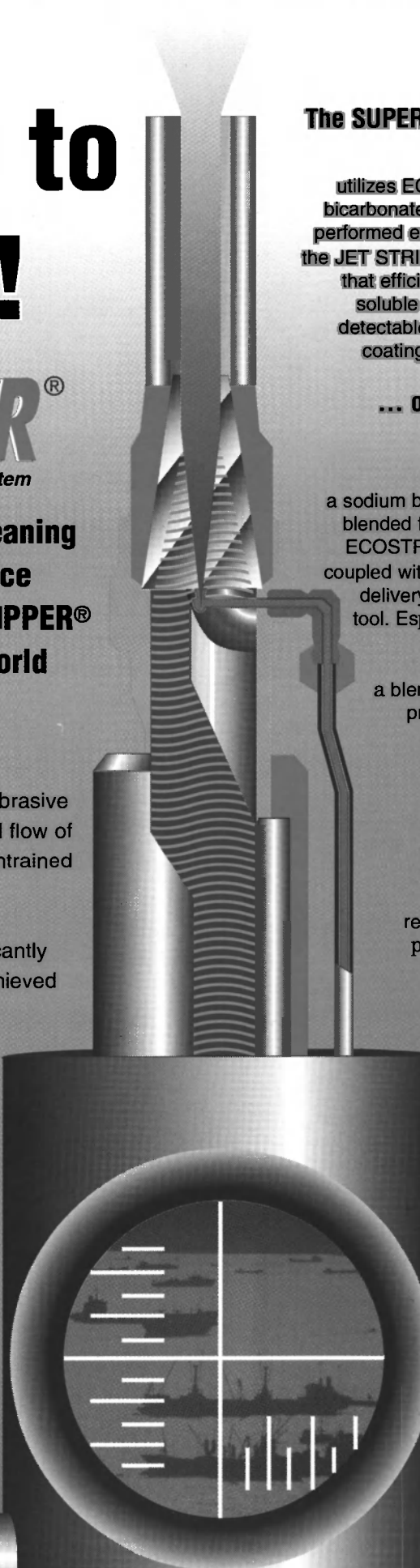
The JET STRIPPER® is a patented abrasive blasting system that uses a controlled flow of water to accelerate virtually any air-entrained abrasive through a blast nozzle.

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... or select the ECOSYSTEM™ abrasives best for your need

ECOSTRIP a sodium bicarbonate-based soft grit abrasive specifically blended for maintenance cleaning and paint removal. ECOSTRIP'S™ hardness and unique particle shape coupled with the impact/velocity of the JET STRIPPER® delivery system, make a very efficient maintenance tool. Especially effective on oil and grease residues.

ECOTOX a blend of a water soluble soft grit abrasive and proprietary admixture, specially formulated for removing lead paint. Renders lead paint non-hazardous as it is being removed. The small volume of non-hazardous waste generated can be disposed in an ordinary landfill (in most states).

ENVIROTOX a hard grit custom blended abrasive for removing lead bearing coatings. Renders lead paint non-hazardous and, in most states, can be disposed of in an ordinary landfill. Formulated for use in applications where surface profile and deblasting productivity are more important criteria than the volume of waste generated.

HOLDTIGHT inhibitor - a proprietary rust inhibitor that makes it possible to wet abrasive blast or to water blast with no greater risk of flash rusting than dry blasting. HOLDTIGHT® leaves no film residue to interfere with coating adhesion and performance.



The JET STRIPPER® system, the use of soluble abrasives in it and in other blasting systems are covered by one or more of the following U.S. Patents: 4,992,854; 4,815,241; 4,817,342; 4,821,467; 4,878,320; 5,123,206 and International Patents and other U.S. Patents pending.

Circle 344 on Reader Service Card

**Hull Electronics Introduces
New Voice-Synthesized
Mayday Technology**

Marine radios equipped with voice-synthesized mayday capabilities have helped to revolutionize distress signalling. The Hull Electronics Synthesized Voice Mayday (SAVEN) unit reportedly improves upon mayday-signalling micro-

phones. SAVEM attaches easily to HF and VHF radios through the microphone and speaker jacks. In optional hardwired configurations, SAVEM can turn the radio on, set it to high power, disengage any message scramblers and select Channel 16 or 2182 kHz, depending on the radio's capabilities. For more information on SAVEM from Hull Electronics,

Circle 128 on Reader Service Card

**Del Gavio Authorized As
Denison Hydraulics
Marine Service Center**

Del Gavio Marine of Carlstadt, N.J. is now officially authorized as a Denison Hydraulics Marine Service Center. The distributorship enables Del Gavio to more effectively service its customers with faster response time on parts and overhaul

quotations, as well as its ability to offer parts at a more competitive price and time. The new status gives Del Gavio access to technical information and material specifications for most of the older Denison equipment still in service, enabling quicker parts identification and complete overhaul ability on vintage equipment. Del Gavio will stock many popular items for steering systems and anchor windlasses. For additional information,

Circle 125 on Reader Service Card

**A New Departure From The
RIB Industry By Boston Whaler.**

A departure into a world where the new Impact 21' soft-sided workboat is the only acceptable platform for operations which demand soft-sides but cannot afford the downtime associated with traditional inflatable collars.

A world where Boston Whaler's new soft-sided workboat is clearly the best choice for hard work and hard use with a fendering system that sustains incredible abuse but never deflates.



Impact 21' combines the unsinkable, virtually indestructible Boston Whaler foam cored hull with a fully fitted foam collar. This unique fendering system provides full time protection against punctures and abuse of all kinds, and will not deflate. Step into the new world of soft-sided boats. Impact 21' by Boston Whaler.

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Circle 290 on Reader Service Card

**VideoMed: Beaming Aboard
Medical Assistance**

A new high-tech maritime medical network that beams emergency physicians aboard cruise ships by video to work side-by-side with ships' doctors in emergencies was introduced by VideoMed Corp. and Maritime telecommunications Network (MTN) at a recent industry show.

Dubbed SaveNet™ (Shipboard Access to Video in Emergencies Network), the system was demonstrated in action from Carnival Cruise Lines' M/S *Ecstasy* underway in the Caribbean using Eclipse teleconferencing units supplied by Compression Labs, Inc. Marking the first time that such transmissions have been done from a passenger ship at sea, VideoMed's chairman Arthur H. Bleich said that more than 25 hours of live two-way video were transmitted over a 64 kbps full-duplex dedicated satellite circuit that does not interrupt routine shipboard communications. With the system, ship doctors can have instant, live, two-way, color-with-sound, full-motion video consultations with emergency specialists on shore. The system can also be used for administrative, engineering, sales and marketing purposes when not in use for emergencies. For more information,

Circle 124 on Reader Service Card

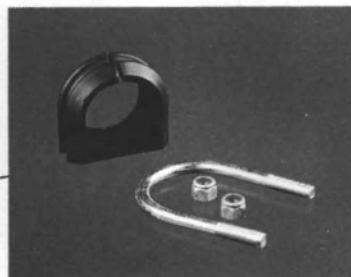
**Orion Corp. Receives
ISO 9001 Certification**

The Quality Management Systems at Orion Corp. have been certified to ISO 9001 standards by Lloyd's Register Quality Assurance, Ltd. Orion Corp. of Grafton, Wis. is a designer and manufacturer of hydrodynamic sleeve bearings, pivoted shoe journal bearings, equalizing and non-equalizing tilting-shoe thrust bearings and flat- and tapered-land thrust plates for use in large electric motors, steam and gas turbines, generators, pumps, compressors, expanders, ships, locomotives and drive systems. Major customers of Orion Corp. include General Electric, Westinghouse, General Motors Electro-Motive Division, Dresser-Rand, Ingersoll-Rand and The Trane Co. Orion has supplied many bearings for marine applications. For full technical details on the products and services of Orion Corp.,

Circle 126 on Reader Service Card

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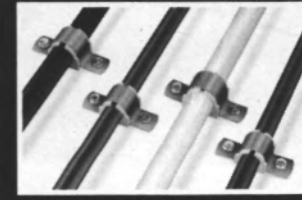
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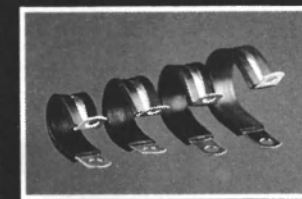
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At last... a pipe clamping system that eliminates the use of troublesome pipe wraps, while combating the effects of vibration, noise and metal-to-metal contact.



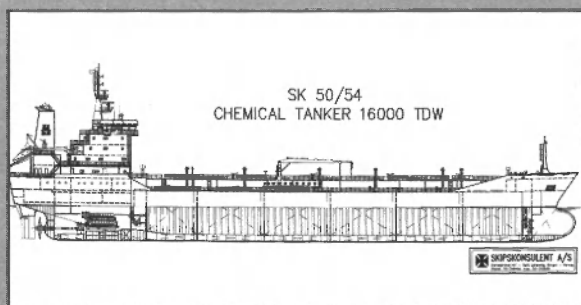
Ask for the U-Bolt Series, available in pipe sizes from 1/2" thru 12".

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Circle 295 on Reader Service Card

Omnithruster Chosen For 16,000-dwt Chemical Tanker

Omnithruster, Inc. won a contract by United Tankers AB of Gothenburg, Sweden to install its Gamma III 950WP Jet Thruster system with "take-home" auxiliary propulsion on a SK 50/54, 16,000-dwt chemical tanker. The Gamma III features an exclusive "propulsor" jet nozzle positioned flush with the bottom of the ship, which when added to the system's inherent ability to side-thrust underway or in a current, reportedly provides basic "get-home" capability in case of main propulsion failure. The Gamma series offers a high-efficiency waterjet system for side-thrusting, fore and aft propulsion and 360-degree steering. Available in sizes from 300 to 3,000 hp per thruster, the Gamma Series is designed to



Drawing of a United Tankers' chemical tanker to feature Omnithruster Gamma III 950WP Jet Thruster system.

operate with any DPS or automatic pilot system, in combination with any power rating. For more information on Omnithruster,

Circle 95 on Reader Service Card

Tracor Awarded \$13.2 Million Navy Contract

Tracor Applied Sciences, Inc., a subsidiary of Tracor, Inc. was awarded a contract with a total potential value of \$13.2 million from the Naval Undersea Warfare Center to provide engineering development support for anti-submarine warfare systems for surface ships and analysis and life-cycle support of sonar transmitter and receiver subsystems. "We will provide expertise in the fields of acoustics, naval architecture, and mechanical and electrical engineering to design, plan, fabricate, install, test and support anti-submarine warfare systems throughout their lifecycles," said **K. Bruce Hamilton**, president, Tracor Applied Sciences. Employees in Groton, Conn. will perform the five-year contract which continues more than 15 years of providing similar work to the U.S. Navy. Tracor, with 1993 sales of \$407.5 million, provides a broad range of electronic hardware and software products and systems, as well as related management, engineering, and technical support.

New Inmarsat Chairman Elected

Artur Schechtman of Brazil has been elected chairman of the Inmarsat Council for the coming year. He succeeds **Jean Paul Brillaud** of France, whose term ended with the conclusion of Council's 48th meeting in London. Inmarsat, a 73-member-country cooperative, operates a global system of satellites to provide mobile communications for maritime, aeronautical and land mobile users worldwide. The Inmarsat Council, which normally meets three times a year, comprises delegates from those organizations appointed by major Inmarsat member countries to represent their interests in Inmarsat.

Tidewater Launches Barge At Zidell

Tidewater Barge Lines launched its new state-of-the-art double hull tank barge at Zidell Marine Corp. in Portland, Ore., where the vessel was built. *The Pioneer*, built at a cost of \$4.5 million, is, at 274 ft. (83.5 m) by 84 ft. (25.6 m) by 18 ft. (5.5 m) with a 65,000 barrel capacity, reportedly the largest inland tank barge in the U.S. Even though OPA 90 compliance does not require a conversion to double hulls until 2015, Tidewater elected to build the vessel as a commitment to the environment and a loyal customer base.

"We haul over one million gallons of petroleum products a day on the river," relates Tidewater CEO and owner **Ray Hickey**, "and we intend to honor our obligations to our neighbors and customers in providing the very best industrial equipment available."

Twelve tanks compose the 65,000 barrel liquid cargo capacity for Grade "A" and lower products. It features several spill prevention mechanisms including an ecology house, deck containment, vapor recovery connections, high level overflow alarm system and an automatic tank gauge. A sophisticated vapor recovery system engineered by Elliott Bay Design Group, Seattle, Wash., designed to keep vapor out of the atmosphere, is one of the main components of this vessel. Tidewater operates on the Columbia/Snake River system and delivers liquid products to five interior tank terminals for major petroleum and fertilizer accounts. The 60 year old company operates 16 tugs and 125 barges on the system in addition to the terminal operations.

Germanischer Lloyd Awarded IACS Quality Certificate

International classification society Germanischer Lloyd (GL) has been awarded the Quality System Certificate of Conformity by the International Association of Classification Societies (IACS), proving that GL's internal quality system meets the high standards of IACS, whose 12 members have approximately 90 percent of world shipping tonnage under their supervision.

The award of the certificate is a condition of full membership of IACS. The Quality System Certification Scheme (QSCS) on which IACS recognition is based harmonizes the work of the individual IACS societies. It offers members a means of further improving the quality of their services and contributing to raising safety standards at sea.

Germanischer Lloyd itself carries out certification of quality assurance systems to the ISO 9000 series of European standards for manufacturers and service organizations as an independent and impartial agency through its specialist subsidiary company, GLQZ.

Morgan Marine Wins Awards From Two Trinity Divisions For Marine Cranes

Douglas Weidner, sales director for Morgan Marine, announced the awards to Morgan for marine cranes from two Trinity Marine Group divisions.

Morgan Marine received an order from Aluminum Boats, Inc. Division of Trinity Marine Group for two hydraulic knuckleboom marine cranes.

Morgan also received an order from Halter Marine for the knuckleboom cranes to be installed on AGOR 24.

Morgan Marine is reportedly the largest distributor/manufacturer of knuckleboom marine cranes in the U.S.

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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 Northport Blvd., Baltimore, MD 21219
Erwin Industries, Inc., 3893 Research Park Drive, Ann Arbor, MI 48106-1668
Star-Best Abrasives, 3300 River Rd., P.O. Box 968, Harvey, LA 70059
- ABSORBENT PRODUCTS**
Haz-Maz Response Technologies, 5841 Box Canyon Rd., La Jolla, CA 92037
Sorbent Products, 645 Howard Ave., Somerset, NJ 08873
- ACOUSTICAL INSULATION**
The Claremont Co., Inc., 174 State St., Meriden, CT 06450
- ADHESIVES**
Life Industries, Corp., 205 Sweet Hollow Rd., Old Bethpage, NY 11804
- AIR CONDITIONING AND REFRIGERATION—Repair & Installation**
Adrick Marine, 1410 Central Ave., Farmingdale, NY 11735
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001
Carrier Transcold, P.O. Box 4805, Syracuse, NY 13221
Johnston Brothers, 180 Enterprises Avenue, Paterson, LA 70392
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031
- ANODES/CATHODIC PROTECTION**
American Corrosion Services, 218 Rue Beaugrand, Ste. B., Lafayette, LA 70508
- ANTENNAS—Rate of Turn Indicator**
Rivertronics, 2624 East Broadway, Alton, IL 62002
- AUCTIONEER**
Forte Bros., 3901 Faulkner Drive, Lincoln, NE 68516
- BALLAST**
Chesapeake Specialty Products, 5055 Northport Blvd., Baltimore, MD 21219
Genstar Stone Products, Executive Plaza II, Hunt Valley, MD 21031
Mineral Research & Recovery Inc., 4565 S. Palo Verde, Ste. 203 Tucson, AZ 85714
- BARGE BUILDING**
Conrad Industries, P.O. Box 790, Morgan City LA 70381
Zedel Marine Corp., 3121 S.W. Moody Ave., Portland OR 97201
- BARGE—Leasing**
Zedel Marine Corp., 3121 S.W. 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
Blom & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
U.S.A. Repe Simplex-Turner 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
Orion Engineering, 2538 Prairie Road, Unit D, Eugene, OR 97402
Temtal Inc., 511 Interchange Blvd., Newark, DE 19711
Thornton Bearings Inc., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6
- BERYLLIUM SAFETY TOOLS**
NGK Metals Corporation, P.O. Box 13367, Reading, PA 19612
- BILGE OIL/FUEL ABSORBER**
The Ship Repair Co., Box 4244, Fort Walton, FL 32549
- BOILER CONTROL SYSTEMS**
G.R. Bowler Co., 2701 Culver Rd., Ste. 200, Rochester, NY 14622
Aalborg Ciser (Miami) Inc., 2449 Northeast 13th Avenue, Ft. Lauderdale, FL 33305
- BROKERS**
151 Maritime Services, 34062 El Encanto/B, Dana Pt. CA 92629
Bayou Rentals, 3356 Highway 1, Lockport, LA 70374
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 Candy Lane, P.O. Box 371, Flossmoor, IL 60422
Mowbray's Tug & Barge Sales Corp., 35 De Hart St., Morrisstown NJ 07960
- BULKHEAD SEALS**
Blom & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
U.S.A. Repe Simplex-Turner 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
Zedel Marine Corp., 3121 S.W. Moody Ave., Portland OR 97201
- CABINETS**
Fanco, 1901 Route 130, Burlington, NJ 08016
- CELLULAR TELEPHONE SERVICES**
Colnet Corp., 401 Main St., Ste. 800, Stamford, CT 06901-3004
- CHAINS**
Crandall Dry Dock Engineers Inc., Main Chain, 21 Pottery Lane, Dedham MA 02026
Washington Chain & Supply Inc., Box 3645, Seattle, WA 98124
Waterman Supply Co., P.O. Box 596, Wilmington, CA 90748
- CHAIRS**
Casser Chair Co., 4136 Loganway, Youngstown, OH 44505
Infanti Chair Mfg. Corp., 3075 Richmond Terrace, Staten Island, NY 10303
Shelby Williams Industries, Inc., 150 Shelby Williams Dr., Morrisstown, TN 37813
Turnbull, Inc., 3818 134th St. N.E., Marysville, WA 98271
- CHEMICALS**
Drew Ameroid Marine, One Drew Plaza, Bonton, NJ 07005
Vecom USA, Inc., 236 St. George Avenue, Jefferson, LA 70121
- CHIPPING/SCALING**
Robert C. Collins & Co., 6772 N.E. 4th Ave., Miami, FL 33138
- CLAMPING—Pipe, Tubes, Hoses**
ZSI, 12749 Richfield Cl., Livonia, MI 48150
- CLASSIFICATION SOCIETY**
American Bureau of Shipping, 2 World Trade Center, 106th Fl. New York, NY 10048
- COMPACTORS**
A/S Vesta, Skudshavsvvej 27, DK-2100 Copenhagen, DENMARK
Sales Agents: American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
International Compactor, 1088 Lighthouse Ln., Hilton Head Island, SC 29928
- COMPOUNDS**
T.W. Philadelphia Resins, 130 Commerce Dr., Montgomeryville, PA 18936
- COMPUTER LOFTING**
Barataria Lofting Co., Inc., 1616 Barataria Blvd., Ste. 4, Marrero, LA 70072
- COMPUTERIZED INFORMATION SYSTEMS**
Autoshop Systems Corp., #403, 611 Alexander St., Vancouver, BC, Canada V6A1E
Creative Systems, Inc., P.O. Box 1910, Port Townsend, WA 98368
Intergraph Corporation, 2051 Moncrief Drive, Reston, VA 22091-3413
Kocum Computer Systems AB, PO Box 50555, s-202 15 Malmo, SWEDEN
TIMSCO, P.O. Box 91360, Mobile AL 36691
- CONDENSERSEPARATORS**
Beard Industries Inc., P.O. Box 31115, Shreveport LA 71130
- CONTROL SYSTEM—Monitoring**
Autonica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
Electronic Design Inc., 3020 20th St., Metairie, LA 70002
IMO Industries, Gems Sensors Division, One Cowles Rd., Plainville CT 06062
Kobelt Manufacturing Co., Ltd., 11720 Horseshoe Way, Richmond, BC, Canada
IMC International, 60 Inp 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
Teleflex Naval technologies, 293 Church Rd., North Wales, PA 19454
- CONTROL SYSTEM—Steering**
KWG Schwenner, Wismarsche Strasse 80, 19055 Schwahn, GERMANY
Kobelt Manufacturing, 11720 Horseshoe Way, Richmond, BC, CANADA, V74 4V5
- CONVERSIONS & REPAIRS**
Gulf Coast Fabrication, Inc., P.O. Box 539, Lakeshore, MS 39558
- Vancouver Shipyards, 50 Pemberton Ave., N. Vancouver, B.C. CANADA V7P 2R2
- CONVEYOR BELT REPAIR**
Klema Rubber Engineering, GERMANY
Scuto Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168
- CORROSION CONSULTANTS**
S.G. Pinyey & Assoc., P.O. Box 9220, Port St. Lucie, FL 34985
- COUPLINGS**
American Vulkan, P.O. Drawer 673, Winter Haven, FL 33882
Aquadrive Systems, Inc., 55 Old St., Ocean Grove, NJ 07756
Lo-Haz Vibration Control Ltd., 156 West 8th Avenue, Vancouver, BC CANADA V5Y1N2
- CRANE—HOIST—DERRICK—WIRHLEYS**
Bisco Marine Co., P.O. Box 4112, 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., Monroeville, NJ 07645
Liebherr-Werk Nenzing GES.mbh, P.O. Box 10, A-6710 Nenzing, AUSTRIA
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54225
J.D. Neuhaus Hebezeug GmbH, D-5810 Witten, GERMANY
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2G2
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Petibone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883
Smalto Industries, P.O. Box 4036, Houma, LA 70361
Zedel Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201
- CRANES**
Morgan Marine, 1300 Nonamdy Place, Santa Ana, CA 92705
Pattigo, Inc., 8040 Dorchester, St. Niagara Falls, Ontario, CANADA L2E 6V6
Tech Crane Int'l, Inc., 61130 Timberland Dr., Laconia, NH 70445
- DECK CAULKING/REPAIR**
Life Industries, Corp., 205 Sweet Hollow Rd., Old Bethpage, NY 11804
- DECK MACHINERY—Cargo Handling Equipment**
MacGregor-Navire Group, 34 Bedford Rd., Clapham North, London SW4 7HH
Merkey Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Skookum/Rope Master, P.O. Box 290, Hubbard, OH 97032
Smalto Industries, P.O. Box 4036, Houma, LA 70361
Smith Berger Marine Inc., 516 South Chicago Street, Seattle, WA 98108
Witem Pot v., P.O. Box 29102, 3001 GC Rotterdam, The Netherlands
- DECK MACHINERY**
Loeffler Corp., US #1 & Robbins Ave., Pennell, PA 10947
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2G2
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Puesnes, PO Box 102, N-4818, Faerøy, NORWAY
Skookum/Rope Master, P.O. Box 290, Hubbard, OH 97032
Smalto Industries, P.O. Box 4036, Houma, LA 70361
Smith Berger Marine Inc., 516 South Chicago St., Seattle, WA 98108
Waterman Supply Co., P.O. Box 596, Wilmington, CA 90748
- DESALINATION—REVERSE OSMOSIS**
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2G2
Rochon Separation Systems, Inc., 3904 Del Amo Blvd., Ste. 801, Torrance, CA 90503
Switzerland, P.O. Box 156, 54 Rue Agasse, 1211 Geneva 17, SWITZERLAND
- DEPTH SOUNDING EQUIPMENT**
Innerspace Technology, Inc., 36 Industrial Dr., Waldwick, NJ 07463
- DIESEL—ACCESSORIES**
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Puesnes, PO Box 102, N-4818, Faerøy, NORWAY
Skookum/Rope Master, P.O. Box 290, Hubbard, OH 97032
Smalto Industries, P.O. Box 4036, Houma, LA 70361
Smith Berger Marine Inc., 516 South Chicago St., Seattle, WA 98108
Waterman Supply Co., P.O. Box 596, Wilmington, CA 90748
- SWITZERLAND**
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2G2
Rochon Separation Systems, Inc., 3904 Del Amo Blvd., Ste. 801, Torrance, CA 90503
Switzerland, P.O. Box 156, 54 Rue Agasse, 1211 Geneva 17, SWITZERLAND
- DIESEL ENGINE—Spare Parts & Repair**
Aalborg Ciser (Miami) Inc., 2449 Northeast 13th Avenue, Ft. Lauderdale, 33305
Alaska Diesel 4420, 149 Ave. NW, Seattle, WA 98107
Atlantic Yacht Sales, P.O. Box 4010, Middletown, NJ 07748
Caterpillar, Inc., Engine Div., P.O. Box 610, Mossville, IL 61552-0610
Collec Industries, Parts & Service Div., 701 Lavon Ave., Beloit, WI 53511
Cummins Engine Co., 4500 Leeds Ave., Ste. 301, Charleston, SC 29405-8521
Cummins Mid-South, Inc., 110 E. Airline Highway, Kenner, LA 70062
John Deere, John Deere Rd., Moline, IL 61205
Diesel Engine & Parts Co., 8123 Hillboro Ave., Houston, TX 77029
Geiger Truck Parts, P.O. Box 365, Watsela, IL 60970
Giro Engineering Ltd., Talsman, Durcan Road, Park Gate, South Hampton, SO3 7BX ENGLAND
Golden Marine Company Inc., 160 Van Brunt St., Brooklyn, NY 11231
Hall-Toledo Inc., 525 West Sophia St., Maumee, OH 43403
In-Place Machining, 1929 N. Buffum Street, Milwaukee, WI 53212
Klatterberg Marine, 17 Grandview Ave., W. Orange, NJ 07052
MAN B&W Diesel AG, Stadthausstrasse 1, D-48153 Augsburg
MAN B&W Diesel A/S, Center Syd, Starnholmen 161, DK-2650 Hvidovre, DENMARK
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
Motor-Service AB, Box 2115, S-144 04 Roninge, SWEDEN
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 77064
Pos-Clean Corp., 3301 Chapline St., Wheeling, WV 26003
Tecton Lymington, 150 Main St., Stratford, CT 06457
Ustin Bergsen AS, PO Box 924, N-5002 Bergen, NORWAY
Wartsila Diesel, 201 Defense Highway, Annapolis, MD 21401
- DIVING & SALVAGE**
Bisco Marine Co., P.O. Box 4112, New Orleans, LA 70178
H.J. Merihue, P.O. Box 23123, New Orleans LA 70183
In-Place Machining, 1929 N. Buffum St., Milwaukee, WI 53212
Makdon Marine Services, Inc., P.O. Box 3221, Terminal Island, CA 90731
- DOORS—MARINE & INDUSTRIAL**
Mapeco Wall & Krenzer, Inc., 90 Forest Ave., Locust Valley, NY 11560
Trenomat GmbH & KG, 5600 Wuppertal 11, Dornap, GERMANY
- DRILLING & BLASTING**
Marine Drilling & Blasting, PO Box 10455, Jacksonville, FL 32247-0455
- DRY DOCKS—Design**
Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Curacao Drydock (USA), PO Box 3012, Curacao, Netherlands Antilles
North Florida Shipyards, P.O. Box 2555, Jacksonville, FL 32206
- ELECTRICAL EQUIPMENT**
Bender, Inc., 400 Gordon Dr., Bldg. 501, Exton, PA 19341
L. Gaudet & Co., Inc., P.O. Box 50500, New Orleans LA 70150
MMC International, 60 Inp Dr., Inwood NY 11696
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116
- ELECTRONIC CONTROLS**
MCR Engineering, 206 Dedham St., Norfolk, MA 02056
- ELECTRONIC DISPLAY**
High Seas Technology, Inc., 2965 West State Rd., Fort Lauderdale, FL 33312
Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY
- ELECTRONIC INFORMATION SUPPORT**
Inventory Locator Service, 3965 Mendenhall Rd. S., Suite 10, Memphis, TN 38115
Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY
- ELECTRONIC RACKS**
A & J Manufacturing Co., 14131 Franklin Ave., Tustin, CA 92680
- ELECTRONIC SALES & SERVICE**
Fisherman's Wholesale Marine Supply Co., Inc., 4540 B. Downman Road, New Orleans, LA 70128
GMT Electronics, Inc., 171 Main St., South River, NJ 08882
- EMERGENCY MEDICAL ASSISTANCE**
International SOS Assistance, 8 Neshaminy Interplex, Ste. 207, Trevose, PA 193
- EMISSION CONTROLS**
MCR Engineering Co., Inc., 206 Dedham St., Norfolk, MA 02056
- ENGINE ROOM LIGHTING**
Pauluhn Electric Mfg. Co., Inc., 1616 N. Main, P.O. Box 53, Pearlant, TX 77581
- ENGINE TEST EQUIPMENT**
General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Rd., Plymouth, MA 02360
Instruments, Computers & Controls, Inc., 6942 Haven Creek Dr., Katy, TX 77449
- ENVIRONMENTAL SYSTEMS**
NWR, Inc., Environmental Systems Division, Box 58626, Salt Lake City, UT 84114
- EPIRBs**
MCR Electronics, Inc., 5757 Ravenwood Rd., P.O. Box 5247, Ft. Lauderdale FL 33310-5247
Alcon Electronics, 40 Washington St., Westborough, MA 01581
Liton Special Devices, 750 W. Sprout Road, Springfield, PA 19064
- EQUIPMENT—Marine**
Bonner & Associates, 1150 Rue Rochelle, Sidiel, VA 70458
Byrne, Box & Turner, Inc., 1172 Camp St., New Orleans, LA 70130
Fisherman's Wholesale Marine Supply Co., 4540 B Downman Rd., New Orleans, LA 70128
Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302
Ocean Technical Services, Inc., 634 Peters Road, Harvey, LA 70058
- EVAPORATORS**
Archon Industries, Inc., 955 Meams Rd., Warrminster, PA 18974
Beard Industries Inc., P.O. Box 31115, Shreveport, LA 71130
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2G2
- EXPANSION JOINTS (RUBBER/METALLIC)**
Archon Industries, 200 Williams Street, Portchester, NY 10573
- FAINS—VENTILATORS—SLOWERS**
Jon M. Liss Associates, Inc., 411 Borel Ave., San Mateo, CA 94402
- FASTENERS**
American United Fastener Co., 1470 St. Charles Ave., Lakewood, Ohio 44107
Hardware Specialties, 48-75 36th St., L.I.C., NY 11101
Jamestown Distributors, 28 Naragansett Ave., P.O. Box 348, Jamestown, RI 0286
Chase Co., Inc., 645 Forest Edge Drive, Vernon Hills IL 60061
- FENDERING**
B.F. Goodrich, 150 Division Drive, Wilmington, N.C. 28401
FENDERING SYSTEMS/BLOYS—Dock & Vessel
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Schuyler Mfg. Co., Inc., 16901 Woodville-Redmond Rd., Woodville, WA 98077
Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624
Ultra Poly Inc., 2928 South Steele, Tacoma, WA 98409
Viking Fender Co., 50 Church Street, Sea Bright, NJ 07760
- FIBERGLASS PIPES & FITTINGS**
Ameron Fiberglass & Pipe, 61 Executive Ave., Edison, NJ 08817
- FIBER OPTIC SYSTEMS**
Fiber Optics Systems/Fiber Optic Div., 111 Madison Ave., Morristown, NJ 0796
- FIN STABILIZERS**
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Repe Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168
- FIRE DETECTION SYSTEMS**
Autonica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
- FIRE STOP PRODUCTS**
NMP, 12437 E. 60th St., Tulsa, OK 74153
- FLAME CUTTING MACHINE**
Fiber-O-Systems, 903 West Carson St., Pittsburg, PA 15204
- GALLEY EQUIPMENT**
Cospoich Refrigerator Co., 949 Industry Rd., Kenner, LA 70062
Lang Manufacturing, P.O. Box 905, Redmond, WA 98073
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031
- GANGWAYS, LADDERS**
Wester Products Inc., 1000 Spruce St., P.O. Box 696, Wooster, OH 44691
- GENERATORS**
Belyea Co., 45 Howell St., Jersey City, NJ 07306
GMSO COMMUNICATION
Ross Engineering, 12505 E. Starkey Rd., Largo, FL 34543
- GROUND FAULT PROTECTION & LOCATION EQUIPMENT**
Bender, Inc., 400 Gordon Drive, Bldg. 501, Exton, PA 19341
- HATCH COVER SEAL RENOVATION**
KIBI Corporation, U.S. Repe. Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168
- HATCHES**
L.S. Bailer, 7527 NE 33rd Dr., Portland, OR 97211
- HEAT EXCHANGERS**
Alfa-Laval Separation Inc., 955 Meams Rd., Warrminster, 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 Houston, Inc., P.O. Box 906, Angleton, TX 77515
Beard Industries Inc., P.O. Box 31115, Shreveport LA 71130
Truster Inc., Old Burk Road, Wichita Falls, TX 76307
- HORN/SWHISTLES**
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 B4C 3M1
- HYDRAULICS**
American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
Bailey Sales Corp., 6431 Baum Dr., P.O. Box 19805, Knoxville, TN 37939
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072
Hagglunds Denison, 14249 Industrial Parkway, Marysville, OH 43040
Hamilton Jet, P.O. Box 709, Christchurch, New Zealand
Hydro Jettling Pump Unit
Harber, Inc., PO Box 2250, Cumming, GA 30130
- INCINERATORS**
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 Houston, Inc., P.O. Box 906, Angleton, TX 77515
- INSULATION**
The Claremont Co., Inc., 174 State St., Meriden, CT 06450

Branton Industries, Inc., 1101 Edwards Ave., Hanhan, LA 70123
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031
INTERIOR DESIGN
Directors in Design, 633 Emerson Suite 100, St. Louis, MO 63141
Interior Design Intl., 701 Dexter Ave. N., Ste. 307, Seattle, WA 98109
INTERIORS
Hopeman Brothers, 435 Essex Ave., Waynesboro, VA 22980
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031
JOINER-Waterlight Door-Paneling-Ceiling Systems-Decking
Branton Industries, Inc., 1101 Edwards Ave., Hanhan, LA 70123
Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Installations, Inc., 1101 Edwards Ave., Hanhan, LA 70123
Jamestown Metal Marine Sales, Inc., 4710 NW Second Ave., Boca Raton, FL 33431
Marine Accommodations Inc., 8535-3 Baymeadows Rd., Se 140, Jacksonville, FL 32256
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031
Waz & Kretzer, Inc., 90 Forest Ave., Locust Valley N.Y., 11560
KEEL COOLERS
R.W. Fernstun & Co., 1716 Eleventh Ave., Menominee, MI 49858
Kahlenberg Bros. Co., P.O. Box 958, Two Rivers, WI 54241
The Water Machine Co., Inc., 84-99 Cambridge Avenue, Jersey City, NJ 07307
LIFEBOATS/RIFTS
American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
Boston Whaler, Inc. Commercial Products Div., 1149 Hingham St., Rockland, MA 02370
Caley Ocean Systems, Mayor Avenue, East Kilbride, Scotland, G74 4PU
Fr. Fassmer GMBH & Co., D-2676 Berne 2, Wese, GERMANY
Norfolk AS, P.O. Box 115, N-4818 Faerik, Norway
Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806
Zodiac of North America, P.O. Box 400, Stevensville, MD 21666
LIFESAVING EQUIPMENT
Sveams Manufacturing, P.O. Box 1498, St. Cloud, MN 56302
LIGHTING EQUIPMENT-Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale, FL 33310-5247
Fishermans Wholesale Marine Supply Co., Inc. 4540 B Downman Road
New Orleans, LA 70128
Gottler Marine, 190 Van Brunt St., Brooklyn, NY 11231
The L.C. Doane Co., P.O. Box 975, Essex, CT 06426
Julian A. McDermott, 159 North St., Ridgewood, NY 11385
Pauluhn Electric Mfg. Co., Inc., 1616 N. Main, P.O. Box 53, Pearlman, TX 77581
Phoenix Products, 6151 N 64th St., Milwaukee WI 53218
Francis Seacraft Supply Co., 4415 6th N.W., Seattle, WA 98107
LINE BLINDS
Stacey/Fetterhoff, P.O. Box 103, Skippack, PA 19474
LIQUID LEVEL INDICATORS
Setcor, 2 Dean St., Tenafly, NJ 07670
LIQUID OVERFILL PROTECTION SYSTEMS
E.L. Marine Products, P.O. Box 1028, New Albany, IN 47151-1028
Setcor, 2 Dean St., Tenafly, NJ 07670
LOGISTICS
Chand Corporation, 157 Hwy 654, Matthews, LA 70375
OED, 4646 N. Witchduck Road, Virginia Beach, VA 23455
In Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs, MS 39564
LUBRICANTS
Jel-Lube, Inc., 4849 Homestead Road, Houston, TX 77226
S.P. Marine America, 200 Westlake Park Blvd., Houston, TX 77079-2682
MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
Del Gavo, 819 Industrial Rd., Carlsbad, NJ 07024
Gottler 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 Fendall Pl., Fairway, NJ 07065
MACHINING-On Site Repair
In-Pace Machining, 1525 N. Buffum Street, Milwaukee, WI 53212
MARINE ACCOMMODATIONS
Directions in Design, 633 Emerson, Suite 100, St. Louis, MO 63141
Hopeman Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22980
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
MARINE BATTERIES
Rax Storage Battery Mfg. Co., Inc., 51 Deming Rd., Berlin, CT 06037
MARINE BOILERS
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 4Z2
MARINE CEILING
The Cape Corp., 803 S. Black River St., Sparks, NV 54566
Hydro-Aluminum, VA York, N-5880 VIK I 502GN, Norway
MARINE COATINGS
CORROSEAL, Inc., 1045 12th Ave. NW, FSA, Issaquah, WA 98027
Vernum USA, 236 St. George Avenue, Jefferson, LA 70121
MARINE ELECTRONICS
High Seas Technology, Inc., 2965 West State Rd., Fort Lauderdale, FL 33312
Saab Marine Electronics AB, Box 13045, 402 51 Goleborg, SWEDEN
MARINE FIRE PROTECTION
Miller Systems, 3710 Lantido Court, Mobile, AL 36693
MARINE FURNITURE
Directions in Design, 633 Emerson, Ste. 100, St. Louis MO 63141
Engineered Data Products, P.O. Box 565, Woodbury, NJ 08096-7565
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
MARINE GEARS
Ginnant Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
MARINE HARDWARE
HMS Hardware, 333 W. Merrick Rd., Valley Stream, NY 11580
MARINE RADAR COMPONENTS
EEV, Inc., 4 Westchester Plaza, Elmsford, NY 10523
MARINE SHIP MANAGEMENT
Barbakhtron, 1910 Chapel Ave. West, Cherry Hill, NJ 08002
MARINE SURPLUS SALES
Defense Reutilization & Marketing Service, 2163 Airways Blvd., Memphis, TN 38114
MARITIME EDUCATION
Seamans Church Institute, 741 Water St., New York City, NY 10038
METAL PRODUCTS
Engineered Data Products, P.O. Box 565, Woodbury, NJ 08096-7565
Jamestown Metal Marine Sales, Inc., 4710 N.W. Second Ave., Boca Raton, FL 33431
MONITOR CONTROL ALARM
Tracor Marcon, 800 Fendall Pl., Rahway, NJ 07065
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
CBI Marine Co., 400 Woodcock Dr., Suite 200, Jacksonville, FL 32207
Childs Engineering Corp., Box 333, Medfield, MA 02052
Crandall Dry Dock Engrs., Inc., 21 Pottery Ln., Dedham, MA 02026
Crane Consultants, 13301 First Ave. S., Seattle WA 98148
C.R. Cushing, 18 Vesey St., New York, NY 10007
Arthur D. Dardon, 3200 Ridgepike Dr., Suite 403, Metairie LA 70002
Doulog & Label, Inc., 1734 Emerson Street, Jacksonville, FL 32207
Design Associates Inc., 14360 Chief Menteur Highway, New Orleans, LA 70129
Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320
Encon Mgmt & Engineering Consultant Services, P.O. Box 7780, Beaumont, TX 77706
GHM Inc. (Ind. Measurement Consultants), P.O. Box 1936, Newport News, VA 23601
Gibbs & Cox, Inc., 50 West 23rd St., New York, NY 10010
John W. Gilbert & Assoc., Inc., 66 Long Wharf, Boston, MA 02110
The Glosten Assoc. Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104
Guido Peris & Assoc., 4039 21st Ave., Ste. 300, Seattle, WA 98199
Morris Guarantick Associates, Inc., 130 Sutter St., Ste. 400, San Francisco, CA 94104
C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110
Hydrocom, Inc., 45 James Farm Lane, P.O. Box 865, Durham, NH 03824
JLI Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08004
J.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
James S. Kroger, 1515 NW 7th St., Ste. 124, Miami FL 33125
Rodney E. Lay & Associates, 13691 Atlantic Blvd., Jacksonville, FL 32225
David P. Levy Enterprises, 527 Legendre Dr., Skidell, LA 70469
MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626

Alan C. McClure Associates, Inc., 2800 South Gessner, Houston, TX 77063
John W. McCollum, Inc., 1139 Long Point Road, Mt. Pleasant, SC 29464
McCrory Machine & Mfg Co., Inc., P.O. Box 4454, Blox, MS 38535-4454
John J. McKelvie Associates, Inc., 1 World Trade Ctr., Ste 3000, N.Y. 10048
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401
Marine Design & Operations, Inc., 226 Chestnut St., Rosale 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, Seaford, Bay Road, Newmarket, NH 03857
Maritime Design, Inc., 3020 Harley 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
OED Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455
M. Rosenblatt & Sons, 350 Broadway, New York, NY 10013 and 620 Fulson St., Ste. 301, San Francisco, CA 94107
Sargent & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112
Sea School, 10912 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 Leeburn Pike, Suite 700, Falls Church, VA 22041
50 Vashell Way, Orlinda, CA 94963
George G. Sharp, Inc., 100 Church St., New York, NY 10007
R.A. Spear, Inc., 255 N. 1st Ave., Sheboygan, WI 54285
TIMSCO, P.O. Box 81360, Mobile AL 36691
NAVIGATIONAL COMMUNICATIONS EQUIPMENT
AT&T, High Seas Tower, 412 Kemble Ave., Room C380, Morristown, NJ 07960
Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
CASTI, Inc., 5450 Katella Ave., Los Alamitos, CA 90720
Collinet Corp., 401 Main St., Hartford, CT 06101-3008
Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024
C. Plath, 222 Severn Ave., Annapolis, MD 21403
Gruescheone, 2100 Park Central, Pompano Beach, FL 33064
Electronic Marine Systems, 800 Fendall Pl., Rahway, NJ 07065
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Hoe-Moller, 1241 W. Newport Center Dr., Deerfield Beach, FL 33442
DB Mobile Communications, 1828 L Street NW, Suite 660, Washington, D.C. 20036
Mackay Communications, 360 Columbus Circle, Edison, NJ 08837
Marine Electric RPO, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135
Megapulse, Inc., 8 Preston Court, Bedford MA 01730-2380
Norwegian Telecom, P.O. Box 6701, Oslo 1, NORWAY
Norwegian Systems Intl., 19015 39th Ave., W., Ste. BC, Bldg. F, Lynnwood, WA 98036
Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearlman, TX 77581
Portland Marine Yard, 5555 N. Channel Ave., Box 168, Portland, OR 97217
RD Instruments, 9855 Businesspark Ave., San Diego, CA 92131
Raytheon Marine Co., 46 River Road, Hudson, NH 03051
Roberson Marine Systems, 3000 Krogman Street, Suite 207, Metairie, LA 70006
SPD Technologies, 15500 Roosevelt Blvd., Philadelphia, PA 19118
Scandinavian Micro Systems P.O. Box 155, N-1411, Kolbotn, NORWAY
Simrad, 19210 33rd St., West, Seattle, WA 98198
Sound Propeller, 1608 Fairview Ave., E. Seattle, WA 98102
Spray Marine Inc., 1070 Seminary 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
Tirma Navigation, 585 North Mary Avenue, P.O. Box 2642, Sunnyvale, CA 94086
Waterway Communications Systems, Inc. 453 E. Park Pl., Jeffersonville, IN 47130
OL-Marine-Additives
American Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001
Shell Oil, P.O. Box 2463, Houston, TX 77282
Texaco International, 2000 Westchester Avenue, White Plains NY 10650
OL-WATER SEPARATORS
Alfa-Laval Separation, Inc., 955 Meams Rd., Warrimont, PA 18974-0556
Bohm & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Repe-Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168
Centrico, Inc. (Weestala Separators), 100 Fairway Court, Northvale NJ 07647
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
Hoe-Moller, 1241 W. Newport Center Dr., Deerfield Beach, FL 33442
National Fluid Separators, 827 Hanley Industrial Ct., St. Louis, MO 63144
Nelson Industries, Highway 51, West, Stoughton, WI 53589
PAINT-COATING-CORROSION CONTROL
Allied Signal, Inc., A-C Performance Additives, P.O. Box 1039, Morristown, NJ 07962
Amcoat Coatings, 2696 N. 1st Ave., P.O. Box 168, Little Neck, NY 11363-0168
Aronson Corp., Corrosion Dynamics Div., 1100 Walnut St., Rosell, NJ 07203
Eggleston, P.O. Box 219, St. Louis, MO 63103
Jamestown Distrib., 28 Narraugansett Ave., P.O. Box 348, Jamestown, RI 02835
Hempel Coatings, Foot of Curlew Avenue, Wallington, NJ 07057
International Paint, 1000 Park Avenue, Houston, TX 77229
Microphor, Inc., Marine Div., 452 E. Hill Rd., P.O. Box 1460, Willis, CA 95490
Royal Chemical, 2705 Concord Road, Belle Chasse, LA 70007
Sipray Coatings, 9715 Midway, Houston, TX 77063
Harvey, LA 70059, 1100 Adams St., Hoboken, NJ 07030
LIT Technologies Ltd., Box 3114, Robie St. RPO, Halifax Nova Scotia Canada B3K7E9
PAINT REMOVAL
Robert C. Collins & Co., 6772 N.E. 4th Ave., Miami, FL 33138
LTC Americas, 101 G. Executive Dr., Sterling, VA 22170
PIPE FITTING/CONNECTING SYSTEMS
Stanley G. Flagg Co., 1020 W. High St., Slove, PA 19464
POLLUTION PACKER COMPACTORS
TFC Corporation, 77415 Canal Rd., Minneapolis, MN 55439
PORT SERVICES
Port of Portland, 5555 N. Channel Ave., Portland, OR 97217
PROJECT TRACKING, PLANNING & MANAGEMENT
Tracking Systems of America, 6789 San Jose Blvd., Jacksonville, FL 32217
PROPELLER POLISHING SYSTEMS
Robert C. Collins & Co., 6772 N.E. 4th Ave., Miami, FL 33138
PROPELLER EQUIPMENT-Boatwrights, 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
ABE Drives Inc., P.O. Box 372, Milwaukee, WI 53201-0372, USA
ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND
ABB TURBOCHARGER, Inc., 1460 Livingston Avenue, N. Brunswick, NJ 08902
Brunell A/S, P.O. Box 370, N-6401, Molde, Norway
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320
Coltec Industries (Farbanks Morse Engine Div.), 701 Lawton Ave., Beloit, WI 53511
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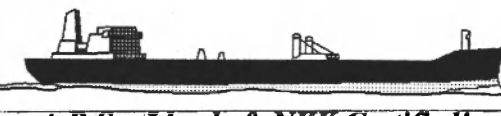
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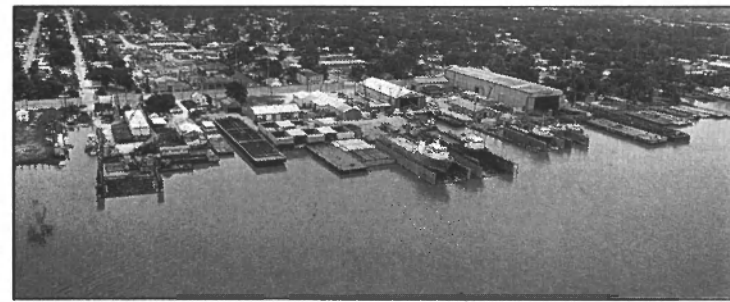
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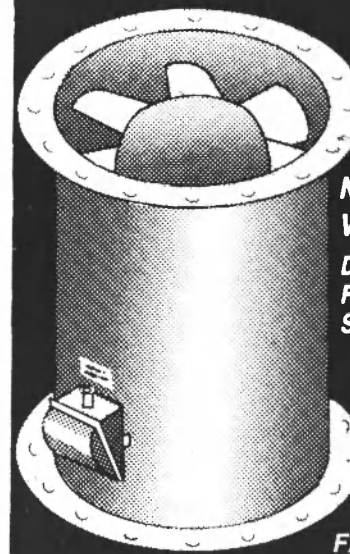
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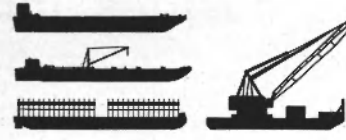
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For consideration, please submit your resume, salary requirements and photocopies of relevant licensing and documentation to: Doreen Vresland, Marine Personnel Coordinator, Woods Hole Oceanographic Institution, Woods Hole, MA 02543. WHOI is a smoke free workplace.



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This position is in the excepted service. Applications/nominations must be received by May 15, 1994. The successful applicant is expected to assume responsibilities late in July 1994. Send complete resume to:

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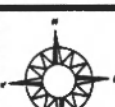
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EMPLOYMENT/RECRUITMENT

TECHNICAL ADVISOR

We are the world's largest marine fuel testing organization and are associated with a major classification society.

We are seeking to employ a Technical Advisor at our northern N.J. facility. The functions of this position will, among other duties, include the critical assessment of marine fuel oil laboratory test results and daily interaction with marine operators. Also involved will be technical marketing of our services.

The following qualifications would be advantageous for the successful candidate:

- Ocean-going experience, preferably in an engineering capacity.
- Basic computer knowledge and hands-on experience.
- Some knowledge in the marine fuels area, particularly on-board troubleshooting capabilities. In this regard significant in-house training will be available.

The ability to fit into a close-knit organization is essential. If interested, please send your resume and other details to:

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118 East 25th Street
New York, NY 10010

Salary and other benefits are very attractive to the qualified applicant.

GENERAL MANAGER/CONTRACTS MANAGER

Needed for marine heavy lift and rigging company located in the Central/Southern Atlantic Coastal area. Requires minimum of 10 years experience in the marine rigging industry. Must be familiar with contract management, including government contracts. The position will have P&L responsibility and some sales activity. Please send resume to:

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MARITIME EMPLOYMENT MANUAL

1994 EXPANDED NATIONWIDE SOURCE BOOK OF MARINE EMPLOYERS & SCHOOLS. Over 2000 Entries, Names, Addresses, Phone & Fax Numbers, Deep Sea, Coastwise, Casinos, US & Foreign Flag. Send \$29.95 to: AMERICAN AGENDA, PO Box 1408-R Port Aransas, TX 78373 UNCONDITIONAL MONEY BACK GUARANTEE COD SHIPMENT 512-749-4476. COD Chg. \$8.00 Total \$37.95 Current Resumes Needed For Job Placement Service

Davies Named VP/General Manager Of Gilkes, Inc.

Alan C. Davies has been named vice president/general manager of Gilkes Inc., U.S.A. Gilkes is a wholly-owned subsidiary of Gilbert Gilkes & Gordon, Ltd. of Kendal, England, an OEM manufacturer of marine industrial turbine pumps, hydro-electric turbines and associated equipment and lube oil modules for steam and gas turbines.

In his new position, Mr. Davies will direct Gilkes Inc.'s business development for North America. He will be responsible to the parent company's international sales and marketing director, Raymond J. Pengelly, who is also president of Gilkes Inc.

Mr. Davies, an employee of Gilbert Gilkes and Gordon Ltd. since 1971, was previously deputy chief engineer, responsible for supervising the factory's engineering department, which included new designs and provided technical backup for the company's sales and product groups.

For more information on Gilkes,

Circle 156 on Reader Service Card

Kvaerner Unit Wins \$10.5 Million Pre-Engineering Contract For Ekofisk Platform

Kvaerner Engineering has won a contract for approximately \$10.5 million by Phillips Petroleum Norway for engineering work on a new platform in the Ekofisk Field. Work on the contract is slated to begin this month. The contract value could reportedly grow to about \$79.2 million if the field development plan presented to the Norwegian authorities by the Ekofisk partners is approved.

Hagglunds Drives Boast More Power

A newly developed series of radial piston hydraulic motors was launched in March by Hagglunds Drives AB brings more power into less space than ever before, the Swedish company claims. At about half the size of other drives with the same displacement, the four "Compact" models' power-to-weight ratios range from 1.5 to 2 kW per kilogram.

The "Compact" motors' high power capacities make cargo handling faster and more economical, while a direct-mounted, full-capacity, failsafe brake stops the motor quickly in emergencies, according to Ingemar Borg, the company's marketing manager for the marine industry. Mr. Borg adds that the motors also make towing winches safer, because their extra power means they can cope with sudden surges in line pull often encountered in rough seas. The drives have a 4- to 4.7-inch (100 - 200 mm) hole through the center, which can reportedly be used to simplify the design of deck machinery — for example, it is possible to build capstans or mount the motor between two drums on a common shaft.

For more information on Hagglunds Drives AB,

Circle 158 on Reader Service Card

Florida Ports Propose \$200 Million Expansion Program

Florida's seaports have proposed a \$200 million statewide expansion program to meet the demands of increasing cargo and passenger growth, announced the Florida Ports Council, a non-profit organization of 13 member ports.

The proposal calls for seaports and the State of Florida to form an investment. The state would match the ports' contribution of \$100 million over five years to help build and refurbish facilities such as container and cruise terminals, warehouses and access roads.

Based on standard impact models, the investment should create over 22,000 new jobs and \$1.5 billion in annual economic impact and \$57 million in annual tax revenues, according to Florida Ports Council President John R. LaCapra. Florida's international trade is expected to double within the next five years as a matter of natural growth, without the added impact of NAFTA and the possible opening of Cuba. The cruise industry is developing at a similarly rapid pace, with two new megaships entering service and an increasing number of passengers embarking from Florida ports each year.

The Ports Council has identified over \$1.5 billion in improvements, including some in the road and rail systems. While the proposal would address only eight percent of those improvements, Mr. LaCapra said the "seed money" would help ports jump-start expansion projects and meet the competition.

ams PORT ENGINEERS

American Management Systems, Inc., has immediate openings for experienced Port Engineers to maintain selected U.S. Navy Ships under a phased maintenance program in the ports of Ingleside, TX, Mayport, FL, and Norfolk, VA.

Successful applicants will have a U.S. citizenship, a BS degree in Marine Engineering or Naval Architecture, USCG license, and prior commercial Port Engineer, shipyard, and/or shipboard experience.

We offer a competitive salary and benefits package.

For immediate consideration, send your resume to:
PERSONNEL DIRECTOR
AMERICAN MANAGEMENT SYSTEMS, INC.
825 Greenbrier Circle, Suite 201
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EOE

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Manufacturer of mechanical valve actuators seeks commissioned sales rep organizations to take the product to the commercial shipbuilding, petro-chemical, and processing industries. Experience with valve actuators or related systems required. Exclusive territories, distribution potential available. Send agency information to:

Maritime Reporter
Box #402
118 East 25th Street
New York, NY 10010

FIVE YEAR OUTLOOK FOR U.S. SHIPBUILDING

February 1994

A 225 page study completed by IMA in mid-February ■ profiles the existing inventory ■ identifies key owners and builders ■ examines underlying business trends ■ and forecasts construction in each of 18 business sectors over the next five years. More than 135 exhibits and 18 statistical tables document the findings and conclusions.

----- **OUTLINE OF REPORT** -----

GENERAL BUSINESS SETTING

- Analysts Views on Future Ship Construction
 - AWES, ASIS and World Bank forecasts
 - Accuracy of past forecasts
- The Competitive Situation
 - Key players in commercial ship construction
 - Trend in competitive position
- Future Market Role for U.S. Shipbuilding
 - A time to think global
 - Assistance from the government

INTERNATIONAL MARKET

- Product Tankers
 - Future petroleum product supply and demand
 - Import substitution for U.S. refinery products
 - Future product tanker orders
- Crude Carriers
 - Block obsolescence
 - Future crude carrier orders
- Liquefied Gas Carriers
 - Underlying demand for LNG and LPG
 - Future LNG and LPG ship orders
- Chemical Tankers
 - Underlying chemical transport demand
 - Future chemical tanker orders
- Cruise Ships
 - Underlying cruise trade demand
 - Future cruise ship orders
- Containerships
 - Underlying container transport demand
 - Future containership orders
- Floating Plants
 - Why floating plants?
 - Power, methanol and desalination barges

DOMESTIC MARKET

- Construction Requirements for Domestic Ships
 - Legal background
 - Impact on market access
- Coastal Tankers
 - Impact of OPA 90 on tanker retirements
 - Future coastal tanker requirements
 - Outlook for coastal tanker construction
- Domestic Containerships
 - Underlying containerized transport demand
 - Ship construction requirements
- Offshore Support Vessels
 - Underlying offshore vessel demand
 - Outlook for offshore vessel construction
- Ferries And Small Passenger Vessels
 - Major operators and locations
 - Outlook for vessel construction
- Tugboats
 - Demand for escort tugs
- Floating Prisons
 - Spending for prison construction
 - Outlook for prison barges

U.S. NAVY MARKET

- Overview of Navy Ship Construction
 - Decline of the last five years
 - Navy force plans
- Combatant Ships and Submarines
 - *Seawolf* and *Centurion* construction
 - Carrier and Aegis ship construction
- Amphibious Ships
 - Planned LPD 17 acquisition
- Sealift Ships and Support Ships
 - Outlook for new orders

* * * * *

Five Year Outlook for U.S. Shipbuilding (report number 7124) is available for \$610. To order, please contact **IMA Associates, Inc.** — 600 New Hampshire Ave., NW — Suite 140 Washington, DC 20037 USA — Telephone: 202-333-8501 — Fax: 202-333-8504

Hinckley Documentation Buys Vessel Documentation Services Company

H. Lee Judd, president of the Hinckley Insurance and Documentation Services of Southwest Harbor, Maine purchased Vessel Documentation Services of Portland, Maine from its founder, Norm Brunelle.

Hinckley Documentation Services, a division of the Hinckley Insurance Group, has a long-standing reputation for personal attention in the vessel documentation industry.

Vessel documentation is the procedure by which a vessel becomes federally registered.

The Hinckley Insurance Group provides full marine insurance services for all sized vessels, both power and sail, commercial or pleasure.

For more information on Hinckley Insurance and Documentation Services,

Circle 33 on Reader Service Card

Holsey Named Purchasing Manager For Tate Andale

Jennie M. Holsey has been named manager of purchasing by Tate Andale, Inc., a Maryland manufacturer of specialty pipeline equipment designed for marine, petrochemical, power, pulp and paper, and water treatment applications.

Ms. Holsey, who joined Tate Andale as a buyer in 1978, has handled a broad range of assignments in the purchasing department during her 15 years with the company. She is a member of the American Production and Inventory Control Society (APICS).

Tate Andale, headquartered in Baltimore, is a leading manufacturer and supplier of pipeline strainers, manifold valves and shipboard hull and drainage fittings marketed worldwide since 1924.

Nautronix Announces Two Executive Appointments

Nautronix, Inc., a manufacturer of hydroacoustic reference and dynamic vessel positioning systems, has appointed Steve Thompson general manager. Mr. Thompson brings more than 20 years of underwater engineering, design and manufacturing experience to the company. Prior to joining Nautronix, Mr. Thompson was involved in program and business development for Applied Remote Technologies.

Randy Jones is now director of business development, his focus to expand the market base. Mr. Jones has extensive background relative to marketing the Honeywell acoustic products.

Both Mr. Thompson and Mr. Jones will serve on the board of directors of Nautronix, Inc.

Art Anderson Becomes Consultant For Pacific Transit Management

Art Anderson Associates has been retained as a marine consultant to Pacific Transit Management of San Francisco for the procurement of a high speed passenger ferry for the

City of Alameda, Calif.

This turnkey procurement includes traffic and route analysis, specification and bid package preparation, the bid and proposal process, contractor selection and construction management services.

Art Anderson Associates developed the vessel specifications and established the selection criteria. Evaluation encompassed many aspects of vessel analysis and design.

Art Anderson Associates' naval architects assessed the proposals presented by various bidders and designers.

The bid was won by Nichols Brothers Boat Builders with a 95-foot (29-m) Incat design.

For more information on Nichols Brothers Boat Builders,

Circle 113 on Reader Service Card

SHORT SEA ROROS PORTS FERRIES MULTIMODAL DEEPSEA CAR CARRIERS FOREST PRODUCTS TERMINALS

GOthenBURG RORO 94 26-28 APRIL

EXHIBITION

- Stena Rederi
- Tor Line
- Aukra Industrier
- Port of Gothenburg
- Kvaerner Masa-Yards
- Braatvaag Skipsverft
- Wärtsilä Diesel
- Port of Hamburg
- Fiskerstrand Verft
- Svenska Orient Linien
- Soreholm Lines
- Th. Hellesey Skipsbyggeri
- Badische Waggonfabrik
- Wallenius Lines
- K.O. Stork
- Finnyards
- Kvaerner Kleven Ulsteinvik
- Bridon Svenska
- Bylock & Nordstjofrak
- Kaarboverkedstet
- Buiscar
- Finnload Group
- Scheuerle
- SISU
- Delamartin
- Langsten Slip & Båbyggert
- Port of London
- Insterling
- Myklebust Mek Verksked
- Cedervall & Soner
- Consent Equipment
- M.L. Douglas Equipment
- Cargo Safe
- CV5
- ABP Immingham
- Slipes Mek Verksked
- Reliance Mercury Vehicles
- Ports of Lower Saxony
- Services Verit
- Norwegian Shipbuilders
- Volvo Penta
- ABP Hull
- Schumann Wood
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- Cargo Control
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- Emden
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- Port of Weymouth
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- Brax Shipping
- Associated British Ports
- Clarke Chapman
- Rudling & Bengtsson
- Boss Trucks
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- Astilleros Espanoles
- EML Produkter
- Westamarin
- Norfright
- Kamag
- Tella Mobilier
- MAFI
- ABP Coole
- Nautic Center
- Planmarine
- ABP Grimsby
- Henri Gaussin
- BWR
- Turku Repair Yard

CONFERENCE

10.30 DAY 1 TUESDAY
SESSION 4: WHERE IS THE RORO MODE GOING?
EU combined transport - will Roro shipping be able to take full advantage of EC policy?
Mike Carratt, Partner, MDS Transmodal, UK
Coastal potential
Jon Boyer, Sea-Roll Ltd., London
Are Roro's Ferries subsidising Lolo's?
Erik Hesteng, Partner, Walk Hesteng & Partners AS, Norway
A restructured automotive industry - and its impact on vehicle transportation
Nils-Erik Korth, Executive Vice President Strategy & Business Development, Wallenius Lines AB, Stockholm

13.00 DELEGATE MEETS-DELEGATE BUFFET LUNCHEON HOSTED BY THE PORT OF ROTTERDAM/SEAPORT TERMINALS

14.15 SESSION 2: J-I-T OR FASTER?
The inevitable move towards very fast Roro's
Rune Svendsen, Managing Director, Volvo Transport Corporation, Gothenburg
The Reality of Just-in-Time
Göteborgs Fastness, Managing Director, Tor Line AB, Gothenburg
The Birth of the HSS
Stig Byström, Technical Director, Stena Rederi AB, Gothenburg
Customer service through reliability and speed
Geoffrey Phillips, Director, Thompson, Giles & Company Inc., Washington DC

SESSION 3: EU COMPETITION LAW AND ITS EFFECT ON EFTA SHIPOWNERS/SHIP BUILDERS/PORTS
Control of state aids and subsidies under the EU and EEA competition rules: recent developments affecting Roro and shortsea operators
Philip Warham, Head of European and Competition Law Practice, Holman, Fenwick & Wilton, London
The extension of EU competition law related to maritime transport and Roro to EFTA countries
Richard Thomas, Partner, Sinclair Roche & Temperley, London

18.30 OFFICIAL WELCOME RECEPTION FROM THE CITY OF GOthenBURG IN THE HISTORIC CITY HALL (BORSEN ON GUSTAV ADOLFS TORG)

09.00 DAY 2 WEDNESDAY
SESSION 4: DEEPSEA RORO - A COMMERCIAL/MILITARY COMMITMENT
Parallel with Session 6
The US Navy's Strategic Sealift Ships - using simulation to evaluate design alternatives
David Helgeson, Chief Naval Architect, Advanced Marine Enterprises Inc., USA
Brian Kozlowski, Cardrock Division, Naval Surface Warfare Center, Systems Engineer, Deputy Ship Design Manager, Strategic Sealift Program, Patrick Dougherty, Design Department Manager, AME, USA
Roro - the key to rapid military deployment - aspects of the Sealift Programme
Ted Alexander, Program Manager, CSE Program Office, MacGregor Group, USA
A cargo handling evaluation of larger Roro ship designs for commercial or military use
David Byrne, Managing Director, Transmarine Ltd, UK

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SESSION 5: ADVANCED DESIGN - SHORTSEA ROROS
Parallel with Session 7
The 22-knot super freighter Norway and Norbank
Jan A D M Kovars, Fleet Manager, North Sea Ferries and Wim Stout, Technical Director, van der Giessen-de Noord, Netherlands
A revolution in Roro Shipping
Markus Kaneris, Naval Architect, Delamarin Ltd, Finland
Jonny Joner, Technical Superintendent, TT Line, Germany
V. Anstadius, Vice President Sales, Finnyards, Finland

09.00 SESSION 6: RORO CASSETTES - INTERMODAL AND FOREST PRODUCTS
Parallel with Session 4
Functional and system requirements for Roro cassettes in multimodal transport
John Wozniak, Department of Transportation and Logistics, Chalmers University of Technology, Gothenburg
New design of Roro cassette, with integral container-locking and cargo-securing lashing features
Ulrich Cramer, Managing Director, CONTEC, Germany
The trolley-winch system is updated for cassette operations
Sven-Claf Rensson, Ancra ABT AB, Sweden

SESSION 7: RORO PORT DEVELOPMENTS
Parallel with Session 5
Port Developments at Dublin
Joe F Jones, Assistant Chief Executive, Dublin Port, Ireland
New "Fast-Roro" Facilities
Vincent de Saedler, General Manager, Sea-Ro Terminal NV, Zeebrugge
Reasons and Planning for a DM170m investment in the Port of Lübeck
Reiner Ebers, Port Planner, Port of Lübeck, Germany
(Paper to be confirmed)
Shorter turnaround time in port, a key element in fast transport systems
Thore Hansen, Department of Transportation and Logistics, Chalmers University of Technology, Gothenburg

13.00 LUNCH FOR REGISTERED DELEGATES

SESSION 8: STOWAGE & LASHING
Parallel with Session 10
Advanced cargo storage system for vehicle carriers
Lutz Haddroff, Senior Manager, Hiegh-Lügendahl, Aulhorn AS, Oslo
Arthur Söderström, Chief Engineer, Marine and Structural Technology, W.S. Atkins, UK
Safe securing of trailers and deck cargo
Reini Dullings, Project Manager, MARIN, Wageningen, Netherlands
Cargo secure - a new solution to an old problem
Bengt-Olaf Jansson, Vice President Marketing, SSPA, Gothenburg

SESSION 9: RORO MOVEMENTS
Parallel with Session 10
Overcoming the Balkan problem - what truckers are looking for in new Roro services
Anders Flinckberg, Ferry Department, Transcarion Schiffahrtsgesellschaft GmbH, Munich
Finland - the logistics centre between East and West
Lennart Andersson, President, Finland Group, members include Finnascare Oy Ab, Raikajärvi Oy Ab, Soreco Oy, Finastee Oy Ab, V.R. Cargo, The Finnish Truckers Association
Scandinavian overseas trade via continental ports
Hans Ludwig Bell, Chairman, Hafen Hamburg
V. Langgärtnerung und Werbung eV, Germany

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SESSION 10: NEW SHIP CONCEPTS AND DESIGNS
Parallel with Sessions 6 and 9
FG-Shipping's New Baltic Combi-Roro's
Esko Mustaniemi, Newbuildings Manager, FG-Shipping, Helsinki
The Euro Combi Carrier
M. Strömblad, Product Manager, Thyssen Nordseerwerke GmbH, Germany
A new generation of "standard" diesel-electric Roro ferry
Mikko Niemi, Marketing Manager, Kvaerner Masa-Yards Inc, Helsinki
Design and logistics of a fast self-loading unitload ship-terminal system for shortsea shipping
T.J. N. Schmitzer and Karine P. Tims, Department of Mechanical Engineering and Marine Technology, Delft University, Netherlands

OFFICIAL RORO 94 EVENING RECEPTION AND DINNER HOSTED BY STENA REDERI AB, TOR LINE AB AND GÖTEBORGS HAMN AB ABOARD THE STENA DANICA SAILING BETWEEN SWEDEN AND DENMARK. COACHES DEPART 17.45

09.00 DAY 3 THURSDAY
SESSION 11: TERMINALS
Parallel with Session 13
Three innovative state-of-the-art terminals for very different Roro handling
Peter Wright, Divisional Director, Postford Docks, UK
Shore-to-Ship Facilities
Tor Iversen, Managing Director, Norent AB, Gothenburg
Roro terminals on the West Coast of Scotland
John H. Watson, Partner, Crouch Hogg Waterman, Glasgow
Automatic video inspection introduced at terminal gate
Thomas Lamsden, General Manager, Tor Terminal, Port of Gothenburg, Sweden and Mark Cypriani, Managing Director, IMC, Belgium

SESSION 12: FOREST PRODUCT FACILITIES
Parallel with Session 13
Door-to-door Distribution of Forest Products
Theo Millius, Commercial Manager, Westerlund Corporation NV, Antwerp
Storage minimisation and planned delivery of paper by ship, rail and road
Nigel Nixon, Managing Director, Nigel Nixon & Partners, London

09.00 SESSION 13: RORO SHIP STABILITY
Parallel with Sessions 11 and 12
The practical implication of SOLAS 90 on existing Roro vessels
Tom Allan, Chief Surveyor (Ship Construction), Department of Transport, UK
The impact of SOLAS 90 on the design and safety of Roro vessels
Drazen Vessalos, Department of Ship & Marine Technology, University of Strathclyde, Scotland
Roro's passenger ferry damage stability studies - continuation of model tests of a typical ferry
Michael Schneider, & Soren Velichou, Head of Stability Department, Danish Maritime Institute, Denmark
Application of the Safety case approach to Roro ships
Chong Kao, Professor of Ship & Marine Technology, University of Strathclyde, Scotland
A new concept of Roro Ships Subdivision for enhanced safety in the damaged condition
Matsy Paulowski, Professor of Ocean Engineering & Shipbuilding, Technical University, Gdansk

13.00 CONFERENCE ENDS

FOR CONFERENCE REGISTRATION DETAILS PLEASE CONTACT THE RORO SECRETARIAT: Fax: +44 923 777206 Tel: +44 923 776363

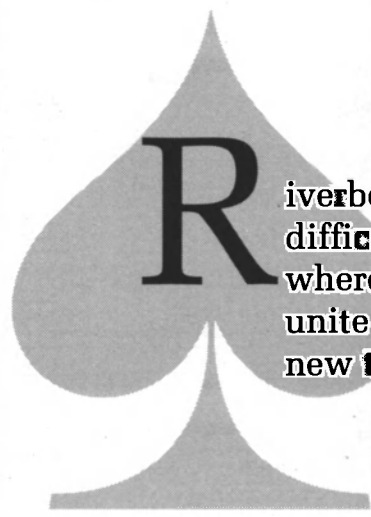
Registration also includes a visit to a Roro terminal and the Gala Dinner aboard the Stena Danica

■ The conference & exhibition on Roro ■ Svenska Mässan, Gothenburg ■ 26-28 April, 1994 ■

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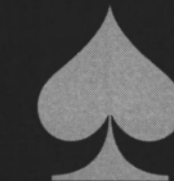
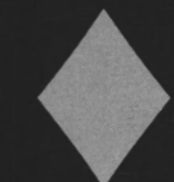
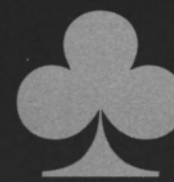
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