

# MARITIME REPORTER

AND  
ENGINEERING NEWS

# AMERICAN WATERWAYS ANNUAL



**REVIEW:  
Riverboat Casino  
Market**

**MARINE ELECTRONICS  
YEARBOOK**

**THE MARKET:  
U.S. Shipbuilding,  
A 5-Year Outlook**

**MARCH 1994**

# Every 5,000 hours this towboat makes a change for the future.

Changing oil every 5,000 hours instead of every 500 has made a world of difference to Crouse Corporation's single-screw towboat, the M/V *Sue Chappell*. Before the workboat switched to synthetic Mobilgard SHC 120 in its generator engine, it was changing oil every 500 hours and disposing of 112 gallons of waste oil each year.

For the environmentally concerned Crouse Corporation of Paducah, Kentucky, waste oil disposal was a problem that demanded a solution.

**The synthetic solution.** Crouse Corporation, Detroit Diesel Corporation and Mobil Oil Corporation conducted an 8,000 hour test of Mobilgard SHC 120 in the towboat's generator engine. The synthetic lubricant, with its chlorine level well below the most stringent regulations in effect today, yielded remarkable results.

**Mobilgard SHC 120 significantly extended the towboat's oil drain intervals and reduced its annual volume of waste oil 90%.** A single oil drain after 5,100 hours of continuous operation of the engine confirmed the oil effectively lubricated the Detroit Diesel 6-71 engine *10 times longer than mineral oil*. Annual waste oil was now just 11 gallons.

**Mobilgard SHC 120 cut the engine's oil consumption by nearly 75%.** The generator consistently used *only one quart* daily. Quite a difference from the one gallon of mineral oil it typically consumed.

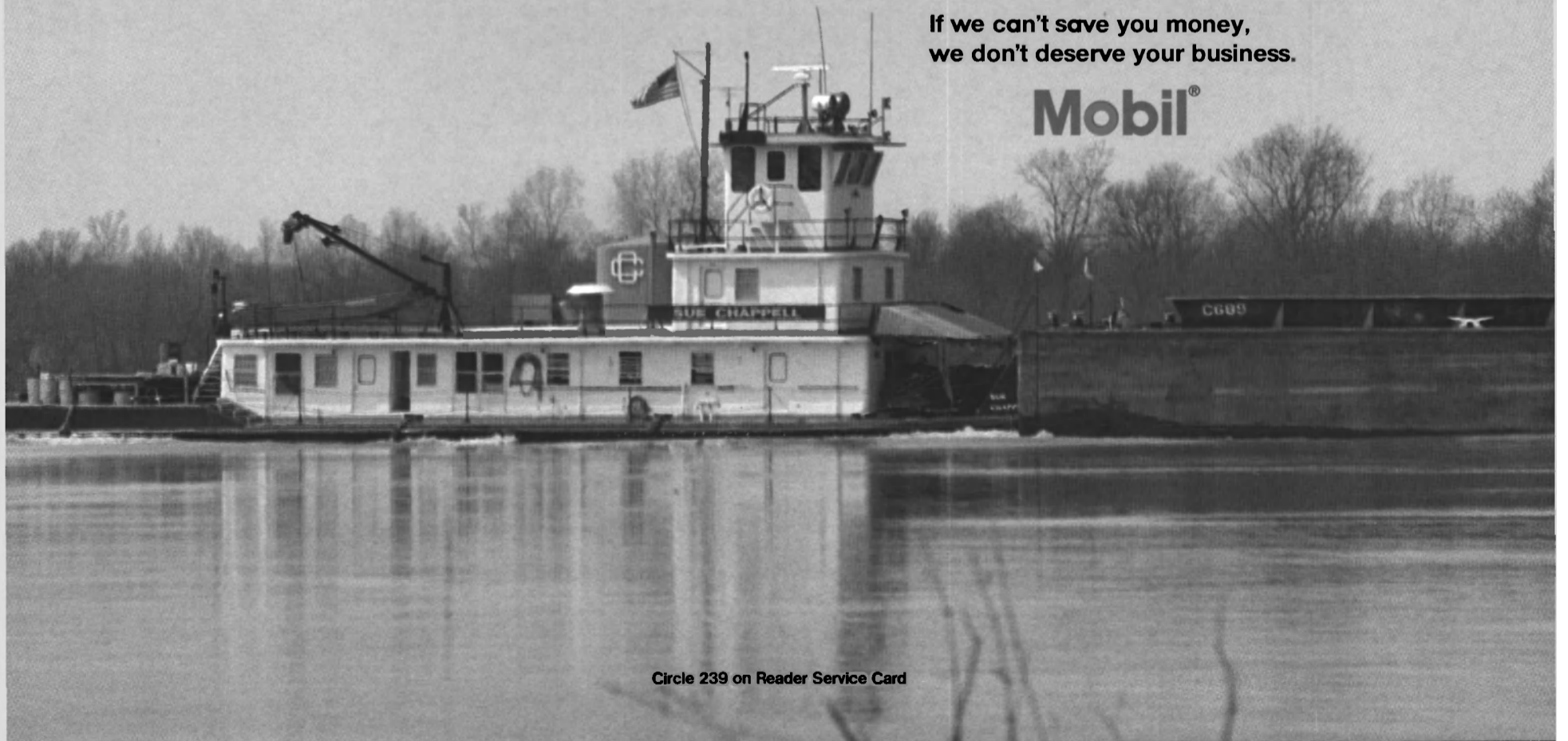
**Mobilgard SHC 120 reduced overall engine wear by almost 50%.** When the towboat was overhauled, engineers found that the engine's piston rings and cylinder liners had only about half the normal wear rates. Time between overhauls is now projected to extend from 40,000 hours to 60,000 hours.

So take a good look at the synthetic lubricant that helped this towboat make a difference in the world. And a change for the future.

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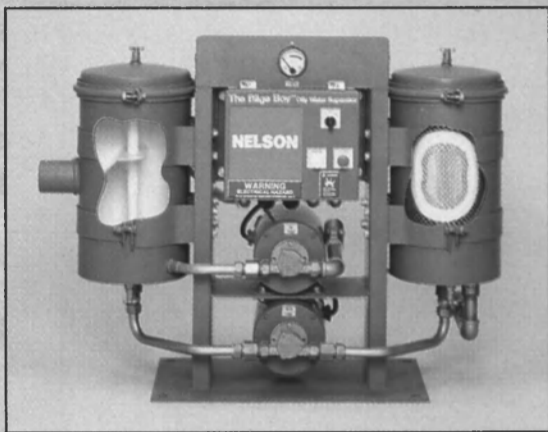
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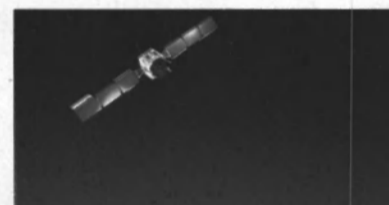
## ON THE COVER

The American Waterways Operators is celebrating its 50th anniversary at its annual Spring Convention, to be held in St. Louis in April. The AWO and its members currently face many challenges, including issues of safety, user fees and the environment. Turn to page 32, the start of our annual AWO coverage, for full details on current issues and how they affect you. (Cover photo credits: Zidell Marine Group; and the bridge of the Finnyard-built Fennica {inset picture}).

**32 AWO Annual**  
Safety and the environment top the AWO Spring meeting agenda. Discover how debates and outcomes on these issues will affect your bottom line.

**49 Casino Riverboat Supplement**  
The Riverboat Gaming sector maintains steady growth, as state legislators and owner/operators embrace this entertainment medium.

**78 Marine Electronics Yearbook**  
Read up on the latest innovations and projects from the makers of navigation and communication electronics.



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John E. O'Malley  
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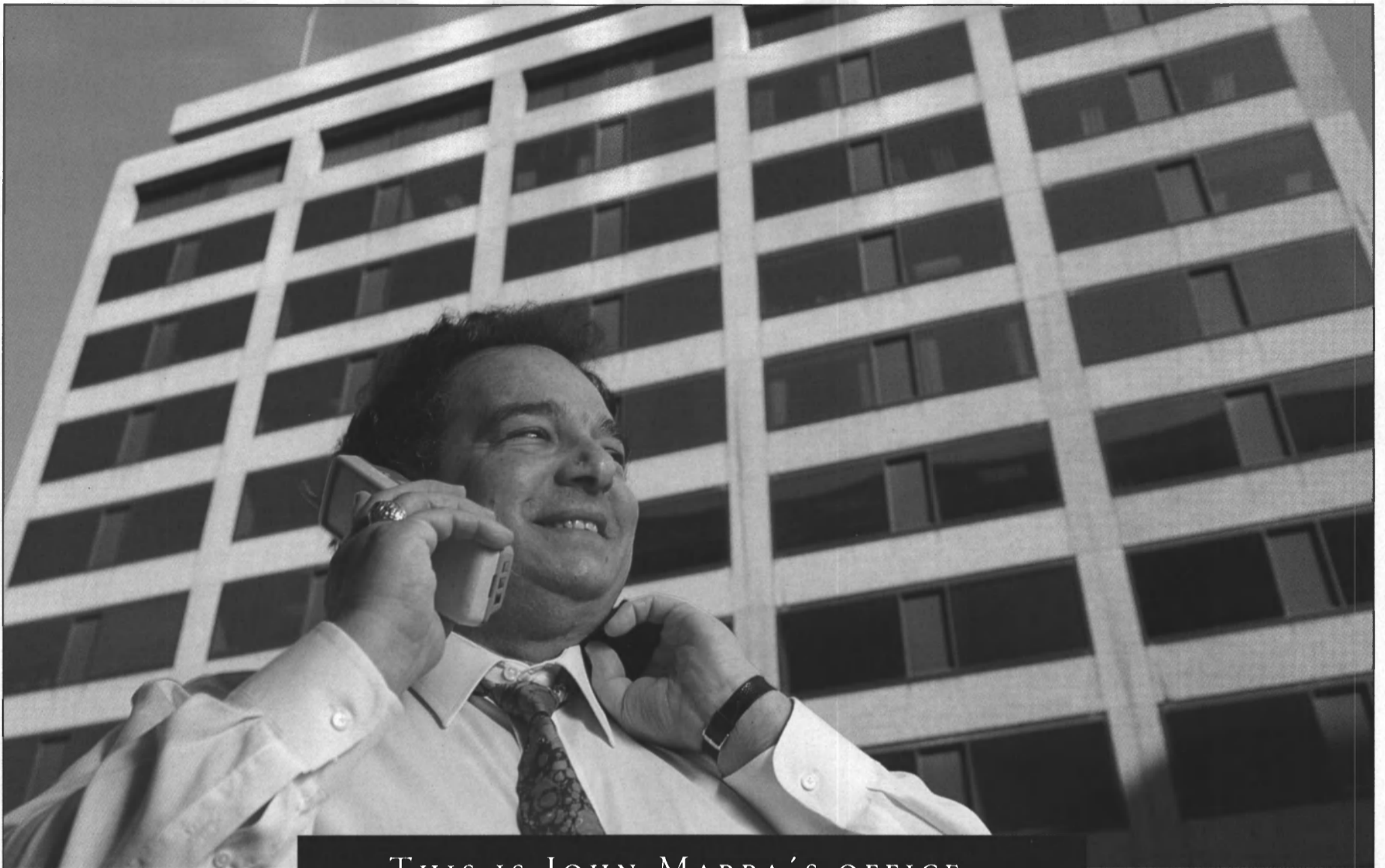
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## Fincantieri Wins \$680 Million Contract For Two Cruise Ships

Princess Cruises, the Los-Angeles-based cruise line, has chosen Italy's Fincantieri to build two new cruise ships. The first vessel, a 77,000-ton ship costing an estimated \$295 million, will carry 1,950 passengers and enter service in the spring of 1997. The second vessel will be a 2,500-passenger vessel purpose-built for the Caribbean. This second ship, costing an estimated \$385 million, will be approximately 90,000 tons and has foregone the flexibility of passing through the Panama Canal; instead it will be able to sport additional facilities and passengers. With the addition of these two ships, as well as the *Sun Princess* which is currently under construction, the total number of ships in the Princess fleet will rise to 12 and the line's capacity will increase by 70 percent.

Both new ships will feature a high percentage of outside cabins with balconies. They will also incorporate innovative new features to be debuted on the *Sun Princess*, such as an indoor/outdoor Lido dining facility and a spectacular health spa and children center.

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## Corps Of Engineers Invites Bids For Two Crane Vessels

The Army Corps of Engineers' Marine Design Center has issued an invitation for bids for the design, construction, testing and delivery of a crane barge. The vessels are essentially identical except that one is furnished with a fixed, pedestal type crane and the other is designed to accommodate a rubber-tired, rough terrain, mobile crane. Each vessel is approximately 150 feet (45.7

m) long, 50 feet (30.4 m) wide and 10 feet (3.05 m) deep. The vessels are of steel construction with special consideration given to operating zone limitations to permit operation of the cranes without exposing operating personnel to "Pinch Points." Both vessels have some hull machinery and minor generating capacity, with necessary support systems. Testing will

be required and must be performed in the Ohio River or somewhere with similar operating conditions. The bid package became available on Feb. 25, 1994 and bid opening is planned for May. Interested parties may contact: Commander and District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pa. 19107-3391. Attention: CENAP-CT (TOTH). Ref.: DACW61-94-B-0020.

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# FY '93 TRP Competition Complete: \$190 Million Awarded

The final 50 proposals selected under the FY '93 Technology Reinvestment Project (TRP), which involves 361 companies, universities and government organizations, were recently awarded \$190 million in TRP funding, the largest single amount yet announced. The selection of the 50 proposals, which is filled with projects and companies associated with the maritime industry, brings the competition totals to 212 proposals, involving 1,631 orga-

nizations and \$605 million in federal funding.

Being implemented by a collaboration of six federal agencies—including the Departments of Defense, Commerce, Energy, and Transportation, as well as NASA and the National Science Foundation—the plan is a key part of President Clinton's Defense Reinvestment and Conversion Initiative.

"This marks another major step in our effort to protect our national

security and promote our economic security in the post Cold War world," said President Clinton in a statement. "We are investing in projects that will create the jobs of the future by exploring ideas, developing technologies, creating products and strengthening skills that will keep America strong, militarily and economically."

The TRP selection process is entirely merit-based and all projects must contribute at least half of the

cost. A separate TRP competition for \$7.5 million in Small Business Innovation Research grants elicited 2,400 proposals, and those awards will be announced in late March. Also, formal plans for the 1994-95 TRP competition will be announced in late March.

To assist proposers from the FY '93 competition, and those who wish to propose in the future, the TRP is holding several workshops—March 23-24 in Los Angeles and March 30-31 in Boston—to review deployment, development and education lessons learned. The two day session will offer tips on how to form and strengthen consortia, and all six federal agencies will participate. For more information on the meetings or the TRP in general, call: (703) 697-5737.

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M. Reporter



### The following is a selection of the recently awarded TRP projects:

- CYBO Robots Inc. proposes a \$12.5 million project to develop a dual-use, portable robotic welding system to improve productivity in the U.S. shipbuilding industry. If successful, the robots would automate up to 75 percent of ship welding. Other notable team members: Navy/Naval Surface Warfare Center; Ingalls Shipbuilding; Trinity Marine Group; NASSCO; Bath Iron Works.

- IBM proposes a \$70.7 million consortium effort to develop open industry software standards that will integrate computing environments across the U.S. manufacturing base. Other notable team members: General Dynamics, Electric Boat Division.

- Raytheon Co. proposes an \$18.4 million program to develop multichannel digital multiplexers and demodulators for multimedia signal processing, with applications in the commercial and defense satellites, multimedia cable, digital electronic warfare receivers and more. Other notable team members include: TRW, Inc. and Honeywell.

- Westinghouse Electric Corp. proposes a \$4.9 million program to apply submersible electric drive cargo pump technology to commercial marine applications. The proposer estimates the current annual market is \$200 million and will approach \$3 billion in 15 years. Other notable team members: Avondale Industries; IMA Associates; Navy/David Taylor Research Ctr.

- Fairfield University, with other partners, will establish a center for Global Competitiveness to assist defense-dependent manufacturers with existing commercial products in entering foreign markets.

- The GreatLakes Composites Consortium will establish a Composites Technology Center at Cerritos College in Cerritos, Calif. to transfer and deploy state-of-the-market composites manufacturing technology to companies in the Los Angeles Basin. The Center, targeting 16,000 businesses within a 15-mile radius, will reduce the risk in deploying composite products, among other things.



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## Refrigerant Conversion Requires Advanced Training

Significant recent changes in the HVAC/R industry have all factions of the maritime industry concerned with complying with new codes and regulations to remain environmentally sound and avoid fines.

These changes—including the accelerated phase-out of CFC's; the development and introduction of numerous alternative refrigerants;

and the assessment of fines for the violation of environmental regulations; and more—are addressed via training seminars by the Environmental Training Group.

Workers employed in the maritime industry are not exempted from certain certification requirements. They must pass a certification test through an EPA-approved organization. Test subject areas for the exam include: the environmental impacts of halogenated refrigerants, regulatory compliance, the ap-

plication of the regulation to specific service procedures and replacement refrigerants. Environmental Training Group, Inc. employs a number of licensed marine engineers who are conducting training seminars geared to the marine industry. The organization is EPA-approved for testing, and will be conducting two national tours of major U.S. port cities, one in the spring and one in the fall. For more information, contact Environmental Training Group at tel: (410) 740-1551.

## MARINE WEATHER: Voluntary Observing Ship Program Seeks Members

The Voluntary Observing Ship (VOS) program is organized to obtain weather and oceanographic observations from moving ships. An international program under World Meteorological Organizations auspices, the VOS has 49 countries as participants.

The U.S. program is the world's largest, with over 1,600 vessels.

Observations are taken by deck officers, coded in a special format and transmitted to the National Weather Service.

They are then distributed on national and international circuits for use by meteorologists in weather forecasting.

The program operates at no cost to the vessel, with communication charges, observing equipment and reporting supplies furnished by the National Weather Service.

For more information, contact the National Program Office at tel: (301) 713-1724.

## Biscayne Bay Pilots Order Gladding-Hearn Boat

Gladding-Hearn Shipbuilding, The Duclos Corp., received an order for a new pilot boat from the Biscayne Bay Pilots Association.

The C. Raymond Hunt Associates-designed vessel, a 52-foot (15.9 m) all-aluminum boat, is scheduled for delivery in August and has been dubbed *Viscaya*.

Powered by a pair of Detroit Diesel engines, each rated at 364 bhp at 2,100 rpm via Twin Disc gears to a four-blade nickel-bronze propeller, the deep-V, hard-chine hull will have a top speed of 22 knots.

According to shipyard officials, noise levels in the pilothouse will be under 77 decibels.

Metal sheathed, acoustical insulation will be placed under the deck and against the engine room bulkheads.

Also, a sound-reducing air-intake system, heavy-duty sound-absorbing engine mounts and a hospital-grade muffler system will further help to dampen sound.

For more information on the vessel building capabilities of Gladding-Hearn,

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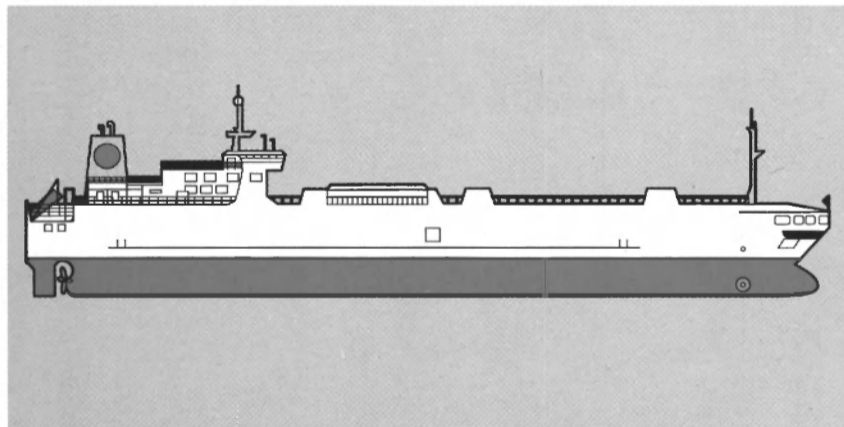
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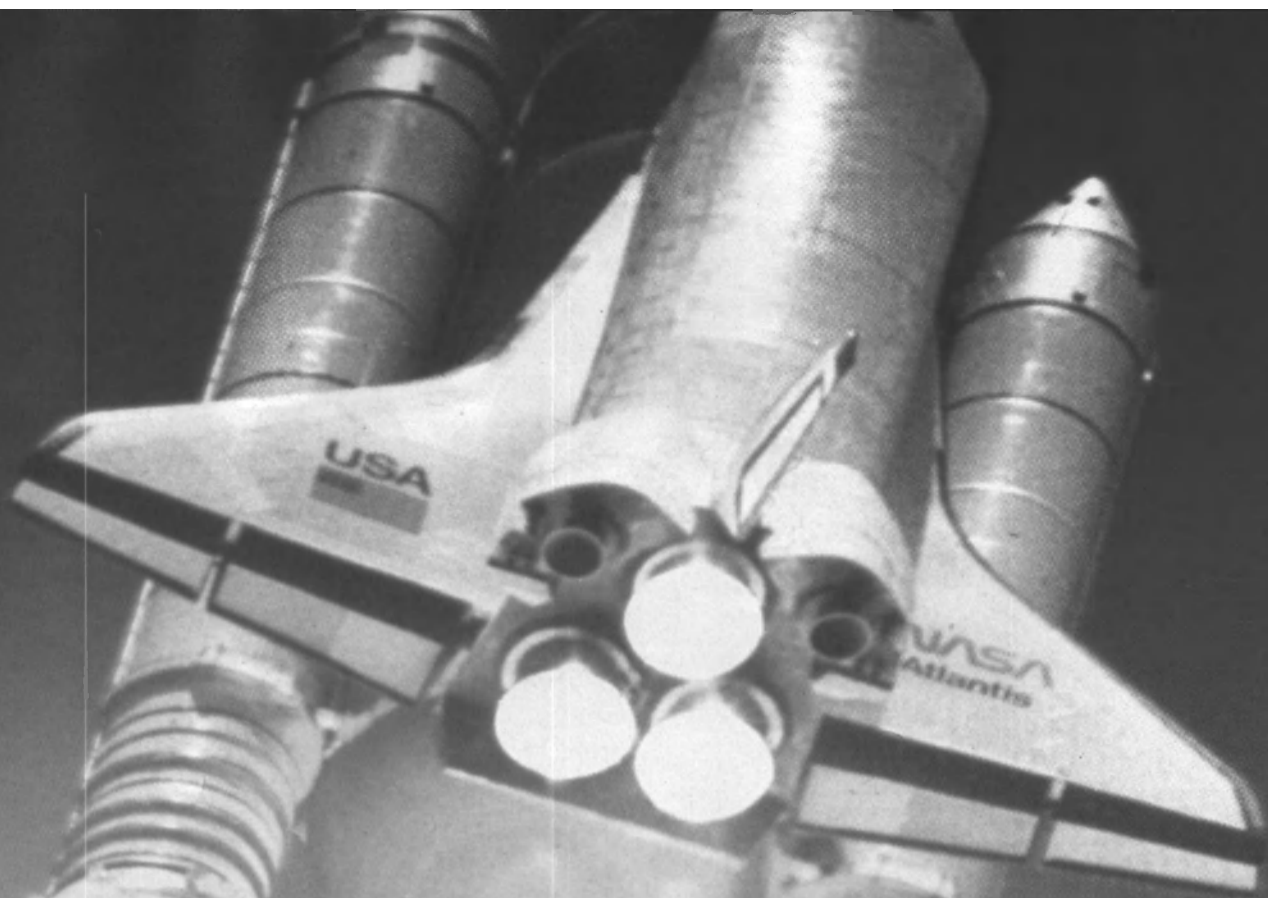
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BT Inmarsat. Now the best is even better value. For full details of all the new reductions call us toll free, at our office in the UK, for our special information pack, on **1-800-241-9467**.



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## Kvaerner Eureka Expands U.S. Parts, Service Network

Kvaerner Eureka's international network of spare parts, service and maintenance stations received major enhancement with the addition of New Jersey, San Francisco and Los Angeles operations to the existing one in New Orleans. Kvaerner Eureka's marine equipment range includes cargo pumping systems, hatch covers, Ro/Ro access ramps and doors, self-unloading systems for dry bulk cargoes, diesel engine spares, engine room pumps, incinerators, ejectors, gas detectors, integrated propulsion systems for high speed craft, integrated bridge systems, fire fighting systems and offshore pumping systems.

For more information on Kvaerner Eureka,

Circle 170 on Reader Service Card

## Saint John Shipbuilding Parent Acquires H-DIL

Formal agreements were signed recently for the purchase of Halifax-Dartmouth Industries Ltd. (H-DIL) by the Irving shipbuilding group, which includes Canada's largest shipbuilding company, Saint John Shipbuilding Company (SJSI).

H-DIL has shipbuilding, shiprepairing and engineering operations in Halifax and Dartmouth, Nova Scotia. "For the long-term future of the yard and its employees, this is the best thing that could happen to the shipyard," said H-DIL President **Andrew McArthur**. When the present owners of H-DIL took over the company in 1986, the company was virtually bankrupt and had no orders except the completion of one icebreaker.

## MKW Power Systems Opens New Training Center

MKW Power Systems, Inc. opened its new Training Center. Located in Rocky Mount, N.C. The Training Center is part of the 122,000-sq.-ft. complex that also includes the company's service and parts rebuild center, warehouse facilities, Equipment Qualification Testing Laboratory and parts dedication program. The new Training Center will be used for conducting courses, workshops and hands-on practical training on the General Motors Electro-Motive Division (EMD) line of diesel engines. MKW Power Systems represents EMD as an authorized distributor for marine, industrial and nuclear applications. For more information on MKW Power Systems' new center,

Circle 158 on Reader Service Card

## AMSC Appoints Smartboat

American Mobile Satellite Corp. (AMSC) has appointed Smartboat, Inc., a provider of fleet management services for the maritime industry, as agent to distribute

AMSC's Skycell Fleet Management satellite-based communications services. AMSC provides data and position reporting services with total coverage of the U.S. Smartboat will now provide AMSC's Fleet Management services to its coastal and inland customers. Smartboat will also offer advanced capabilities, including voice, fax and nationwide dispatch service, that will become available when AMSC launches its new commercial satellite for mobile communications, scheduled for this

year. For more information on AMSC,

Circle 165 on Reader Service Card

## Crowley Makes Appointments

Crowley American Transport, Inc. has appointed **Don Hoehn** to the position of vice president, West Coast South America Service. Mr. **Hoehn** has been transferred to the

Jacksonville operating headquarters. Mr. **Hoehn** has been with Crowley for 17 years.

Mr. **Hoehn's** appointment follows the retirement at the end of 1993 of **Nick Cedeno**, who was with Crowley for seven years.

**Alex Werdenberg**, service manager, West Coast South America Service, who was in the Miami office, has also transferred to Jacksonville. Mr. **Werdenberg** has held his current position since 1992. Before that he held operations man-

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agement positions.

Crowley has also announced the enhancement of its existing weekly service between Port Everglades and the Dominican Republic. Crowley will dedicate a vessel exclusively to direct service between Port Everglades and Rio Haina, and will inaugurate calls at Puerto Plata. Also, in a separate deployment, the existing Thursday service between Port Everglades and St. Thomas in the U.S. Virgin Islands will add a call at St. Croix.

### Meyer Werft Books Another Order From Indonesia

The Republic of Indonesia has ordered another passenger vessel from the Meyer Werft Shipyard of Papenberg/Germany, to be employed on the inter-insular service.

This newbuilding is a repeat ship of the 6,000-gt *Leuser*-type, three units of which were delivered this year. With a length of about 328 feet (100 m) and a breadth of 59 feet

(18 m), the newbuilding has a capacity for nearly 1,000 passengers in three classes. For more information on Meyer Werft,

Circle 167 on Reader Service Card

### USCG Proposes Shipboard Oil Pollution Rules

The U.S. Coast Guard proposed rules that would require certain U.S.-flag ships to carry approved

shipboard oil pollution emergency plans on-board to improve their response capabilities and minimize the environmental impact of oil spills. The notice of proposed rulemaking (NPRM) applies to U.S.-flag oil tankers weighing 150-gt or more, as well as all other U.S.-flag ships, not tankers, of 400-gt or more.

Foreign oil tankers of 150-gt or more and other foreign ships of 400-gt or more will also be required to carry evidence of compliance with the regulation when in the navigable waters of the U.S.

The proposal would implement international requirements which became effective for new U.S. ships on April 4, 1993, and will become effective for existing U.S. ships on April 4, 1995. The rules would have to cover contingencies from suspected spills to discharges of the complete cargo. The proposal requires owners or operators of all U.S. ships covered by the regulation to prepare and submit shipboard oil pollution emergency plans, prepared according to guidelines developed by the International Maritime Organization, to the USCG for review and approval. The NPRM provides a 60-day period for public comments, which must be received before April 18, 1994. Send comments to the Executive Secretary, Marine Safety Council (G-LRA-2/3406), U.S. Coast Guard Headquarters, 2100 Second St., S.W., Washington, D.C. 20593-0001.

### Hibernia Invites Canada Marine Industry Leaders To Aid Tanker Project

The Hibernia Project, the participants in which include Mobil and Chevron, is inviting Canadian marine equipment and service companies to participate in the construction and outfitting of two oil tankers. The tankers will transport crude oil produced from the Hibernia oil field. Since they are too large to be built with conventional techniques in Canadian shipyards, the Hibernia Project participants have issued a request for proposals to pre-qualified international shipyards for the design and construction of the tankers.

The 120,000 ton tankers will be double-hulled, ice-strengthened and highly maneuverable, and will comply with all Canadian and international safety standards for large oil tankers. A contract award is anticipated before year's end, with delivery of the first scheduled for 1997. The vessels will be registered in Canada and have Canadian crews.

The Hibernia participants are Mobil Oil Canada (33.125 percent), Chevron Canada Resources (26.875 percent), Petro-Canada Hibernia Partnership (25 percent), Canada Hibernia Holding Corp. (8.5 percent) and Murphy Atlantic Offshore Ltd. (6.5 percent).

### New Director For Alaska Marine Highway

Gregory A. Dronkert has been appointed to replace Jim Ayers as Maritime Reporter/Engineering News



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director of the Alaska Marine Highway System (AMHS). Mr. **Dronkert** has been working as the AMHS marine facilities superintendent since April, supervising the design, construction, maintenance and repair of the eight-vessel fleet. He has also been overseeing the design of a new mainline, ocean-class vessel for the system. The Alaska Marine Highway is a state-owned ferry system operating eight ships that provide year-round service to 31 ports.

### Trinity Wins \$67.3 Million Navy Contract

Trinity Industries' subsidiary Halter Marine, Moss Point, Miss., was awarded a \$67.3 million contract by the U.S. Navy to build two AGOR oceanographic ships. One of the ships will be used by the University National Ocean Laboratory System fleet and operate by the Woods Hole Oceanographic Institution, and the other will be operated by the National Oceanic and Atmospheric Administration (NOAA).

The new ships, AGOR 25 and an as-yet-undesignated ship, will be 273 feet (83.2 m) long with a loadline draft of 17 feet (5.2 m) at approximately 3,300 long ton full load displacement. Each will have 6,000 hp of diesel/electric propulsion and a diverse array of sophisticated scientific equipment and laboratories.

### STN Propulsion Technology For Two New Baltic Ferries

STN Systemtechnik Nord GmbH, Bremen, Germany, won an order from the Finnish shipbuilder, Finnyards, to help implement diesel-electric propulsion systems on the new combi-ferries of the Hamburg TT-Line. The Ro/Ro ferries will each be equipped with synchro-converter-type electrical propeller propulsion plants with two three-phase current motors from STN Systemtechnik Nord.

### Hornblower Owner Elected PVA President

**Terry MacRae**, chairman of Hornblower Dining Yachts, was elected president of the national Passenger Vessel Association (PVA) during the PVA's recent annual convention in Orlando, Fla.

Mr. **MacRae's** firm, headquartered in San Francisco, operates luxury dining, entertainment and sightseeing cruises in several California locations, including San Francisco, Berkeley, Marina del Rey, Newport Beach, San Diego and Coronado. Its flagship is the 1,000-passenger *California Hornblower*.

Mr. **MacRae** joined PVA, formerly known as the National Association of Passenger Vessel Operators, in 1984. He was elected to the board of directors in 1989, served as treasurer in 1992 and vice president in 1993. In addition to his leadership positions, Mr. **MacRae** chairs the Association's Maritime

Insurance Committee and serves on its active Legislative Issues Committee.

### North Pacific Expediting Wins \$14 Million MSC Fuel Delivery Contract

North Pacific Expediting has been awarded a \$14 million tug and barge fuel delivery contract by the Military Sealift Command.

North Pacific Expediting, a wholly-owned subsidiary of Klukwan, Inc., an Alaska Native Corporation formed under the Alaska Native Settlement Claims Act (ANSCA), is based in Juneau, Alaska. North Pacific Expediting is deploying the 3,000-hp tug *Chilkat Hunter* and the 34,000 bbl barge *Chilkat Warrior* to Japan and Korea for the delivery of fuel to U.S. military bases in these two countries.

The *Chilkat Hunter* and the *Chilkat Warrior* underwent modifications and upgrades at Duwamish Shipyard in Seattle to meet MSC's requirements for this four-year contract.

North Pacific Expediting was assisted in securing this contract by Seay Corporation, a Seattle-based marine marketing company.

For more information on North Pacific Expediting,

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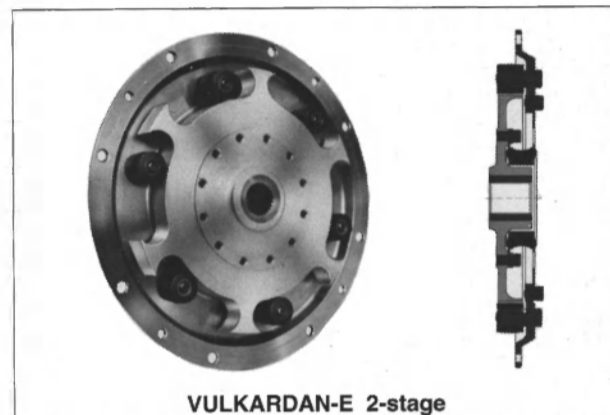
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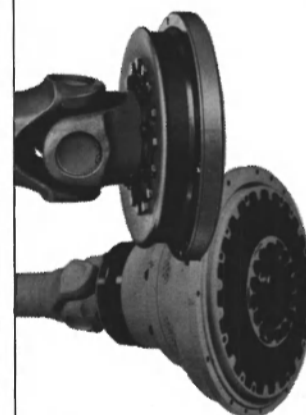
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## Cenac Repowers Pushboats With Lugger

On the inland waterways Alaska Diesel Electric—a fixture among the fishing fleets of the Pacific Northwest—has found a strong market in the repower, and newbuild, of pushboats, having been selected for the supply of a number of main propulsion and generator sets in the past year.

When it came time for Cenac Towing Co. of Houma, La. to repower older pushboats and build new ones, the choice was made to go with Lugger propulsion engines and Northern Lights generator sets.

Two of the early repowers included the *Dustin Cenac* and the *Christine Cenac*, and more recently the *Jackie Cenac*. Cenac's first Lugger was a 460 continuous hp L6140A

for the 40-foot (12 m) *Dustin Cenac*. The *Jackie Cenac* (as originally reported in *MR/EN* January, 1993) is powered by three 640-hp Lugger L6170As. The *Jackie* was totally rebuilt, lengthened six feet and widened six feet, and she received two 36-kW Northern Lights generator sets. When the *Jean Pierre Cenac* goes into service this year, it will mark the sixth Cenac vessel with Lugger power. The *Jean Pierre* is the largest Cenac/Lugger project to date, and the 100-foot (30.5 m) vessel will sport three Lugger L12V140As, rated at 950-hp apiece (continuous). Cenac has also been making use of several Northern Lights generator sets models, including many commercial C-series models and a 150-kW industrial model.

For additional information on the products and services offered by Alaska Diesel Electric,

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Alaska Diesel Electric, well established among the fishing fleets in the Pacific Northwest, has found a burgeoning market in the supply of engines and generator sets to the repowering and newbuilding of inland waterway boats. Pictured above is the *Albert Cenac*, a newbuild, and to the right, the *Christine Cenac*, a recent repower.



### Port Of Seattle's Managing Director Launches Cruise Marketing Initiative

As the Port of Seattle's new managing director for marine operations, **Don Fleming** is heightening the Northwest port's cruise ship marketing efforts.

"The Port of Seattle has work underway to modify one facility to better accommodate cruise vessels as well as to construct a brand new cruise ship terminal that will open in 1996," said Mr. **Fleming**. "This represents a significant dedication of capital and facilities to develop a Seattle-Alaska cruise ship market," continued Mr. **Fleming**. Pier 48 renovations started in 1993 to provide additional berth space and an upgraded passenger terminal area. Cruise lines calling Seattle in the 1994 repositioning season will use the enhanced facility. The Port's Central Waterfront Project includes a \$64 million pierside development which includes a cruise ship terminal along with an international conference center, maritime museum, retail and restaurant space, and short-stay recreational boat moorage. The Central Waterfront Project also will include hotel, office and residential components nearby. "The bottom line is we want more passenger traffic through the Seattle harbor and particularly we want to attract Alaska cruises," concluded Mr. **Fleming**.

### SWM Drydocks TSS Fair Princess

Princess Cruise Lines' TSS *Fair Princess* paid a visit to Southwest Marine Inc. (SWM) for drydocking and routine maintenance.

The work package consisted of maintenance to the main engines, shafting and generators. Underwater hull and topside painting was also included in the contract. The ship was delivered on January 20, two days ahead of schedule.

The *Fair Princess* departed SWM, cruised to Los Angeles and embarked passengers for a seven to 10 day cruise to the Mexican Riviera.

### C&M Technology Wins Woods Hole Contract

C&M Technology, Inc. announced the award of a contract from the Woods Hole Oceanographic Institution. The contract is valued at \$70,000 and is for the supply of 11 acoustic arrays. These arrays will be used for acoustic monitoring of global ocean temperature and represent the application of Department of Defense-developed technology to civilian uses. For more information on C&M Technology,

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A few simple truths from Trimble

1) We have no

intention of getting into the refrigerator business.

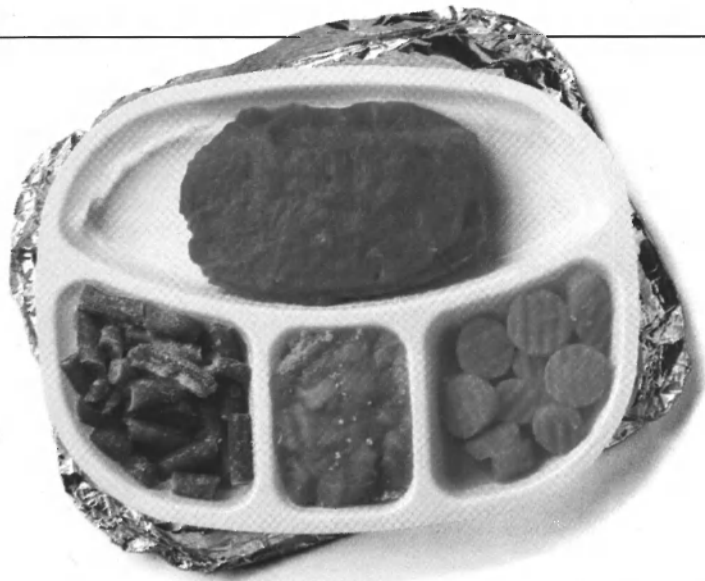
2) No, we don't

own the satellites.

3) And, yes,

we did just launch a few new products that are causing a bit of a ruckus.





**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.

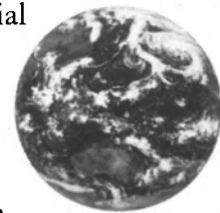
At Trimble, GPS is all we do. It's where we pour our R&D efforts—more than two million man-hours to date. We've focused our entire company on inventing cutting-edge GPS solutions.

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.

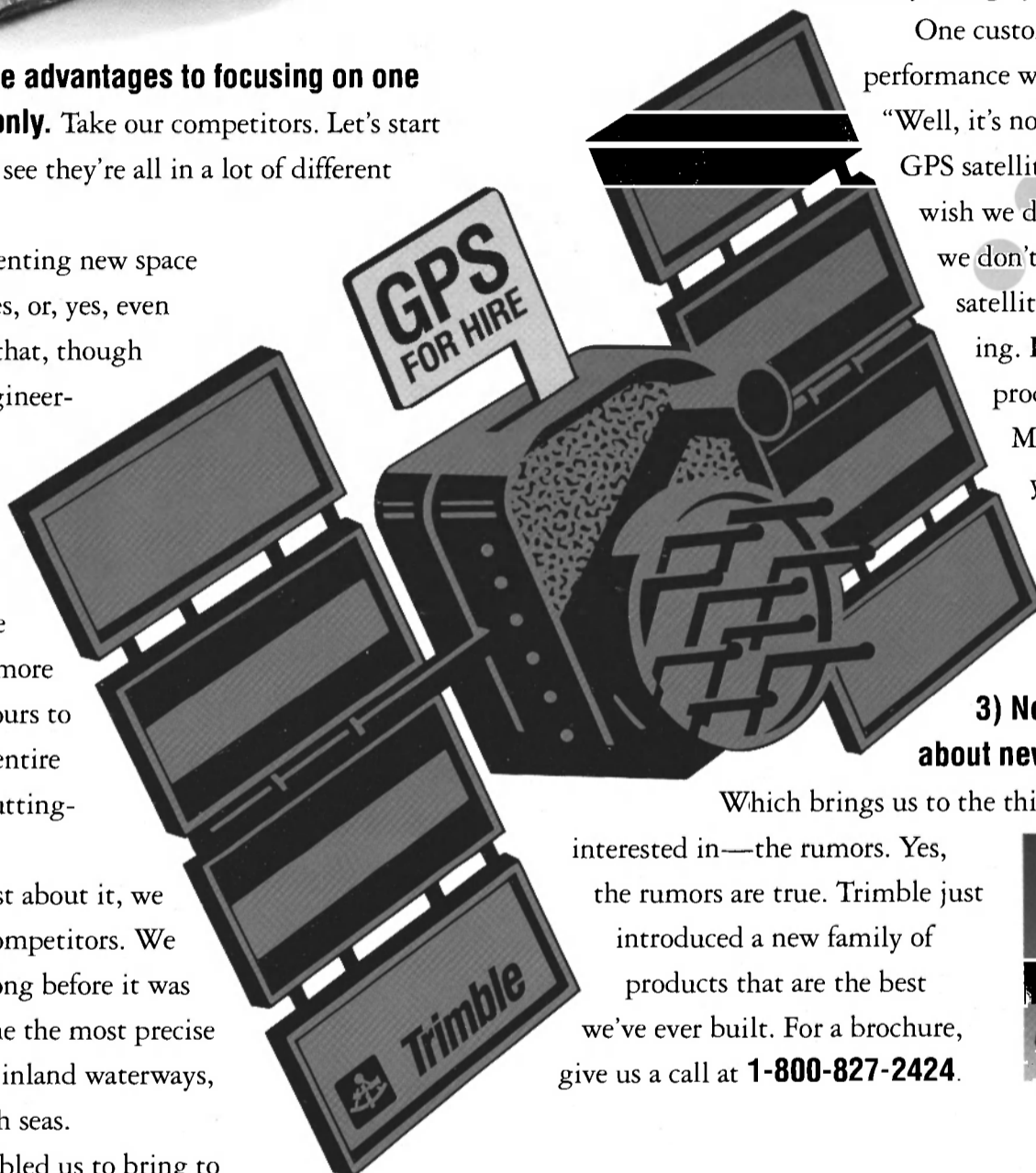
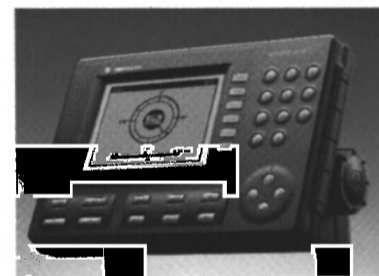
**2) With performance this good, you might think we owned the whole damn GPS satellite network.** Here's a true story: Last month, we were out testing some of our new differential products with customers. First, we used one of our differential receivers to prove we can pinpoint any buoy, dock, or isthmus 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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## NEW TONNAGE

# First Of The Capesize Bulkers From Harland & Wolff

by Alan Thorpe, international editor

In mid-January, the 162,000 dwt capesize bulk carrier *Erradale* was named at Belfast's Harland & Wolff (H&W). This is the first time for many years that shipowner China Naviga-

tion Co. (CNC), part of Hong Kong's John Swire Group, has built in the U.K., the original order being part of an expected series of six such vessels to be delivered to CNC and U.K.-



The M.V. *Erradale*, built by Harland & Wolff.

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And more water. You never know when it's going to turn on

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based shipowner Cenargo, each company taking three ships each. However, the Cenargo three and two of the CNC ships were eventually cancelled due to the lowering of freight rates in the bulk trades, leaving just one ship on order.

H&W's own shipowning arm, Trassey Shipping, will take delivery of the second vessel later this year, both this ship and the CNC vessel being chartered to Belgium operator CODAM, the CNC ship for one year with various options, and the Trassey ship for seven years. Meanwhile, H&W is busy with another of the suezmax double skin tankers, of which the yard has built a series for Norwegian shipowner Fred Olsen, who also has a majority shareholding in the shipyard. The latest tanker is for First Olsen Tanker (Bermuda) Ltd.

The *Erradale* is the prototype of H&W's new S162 series of capesize bulk carriers, the yard hoping for a pick-up in the bulk trades to enable further newbuildings to be sold. The ship is of a high standard; the quality, safety and potential second-hand price of the vessel attracting CNC to the design. The main features of the vessel are the 65 percent mild steel content for additional hull strengthening (an important factor when considering the number of bulkers being lost at sea over the past few years), increased scantlings in tanktop, hopper sides and transverse bulkheads, strain gauges, computerized maintenance management, and the advanced International Paint epoxy coating systems throughout the vessel.

The cargo system comprises nine cargo holds, each fitted with a sophisticated fixed cargo washing unit and a programmable deck washing system, additional electric generation capacity, and a one man bridge operation, specially-designed by the owner and containing an integrated navigation system.

The main propulsion system consists of a Hyundai-built B&W/MAN low speed diesel engine type 6S70MC, designed to burn low grade bunker fuel up to 700 Cst at a fuel consumption rate of 125g PS/h. This enables the vessel to operate at speeds up to 15.5 knots. For more information on the new S162 capesize bulk carrier series from Harland & Wolff,

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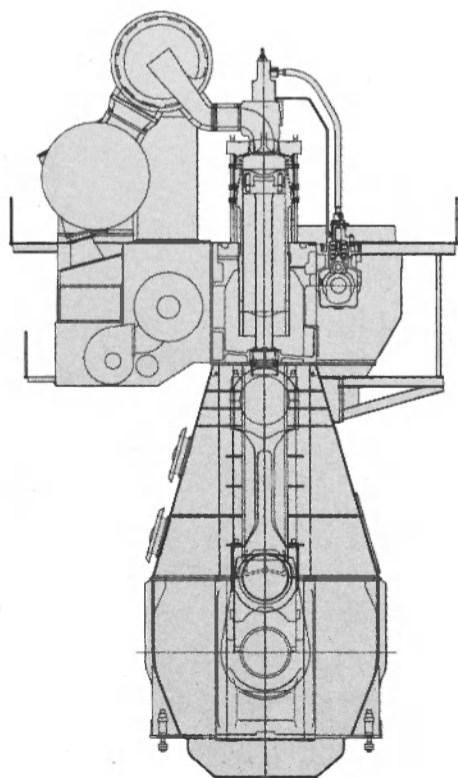
### Principal particulars

Length, o.a.	930 ft. (283.64m)
Breadth	145.6 ft. (44.40m)
Depth	79 ft. (24.10m)
Deadweight	150,000t
Design dft	54.8 ft. (16.70m)
Deadweight	162,000t
Scantling dft	58 ft. (17.75m)
Capacity (grain)	181,000 m3
Speed	15.50k

Maritime Reporter/Engineering News



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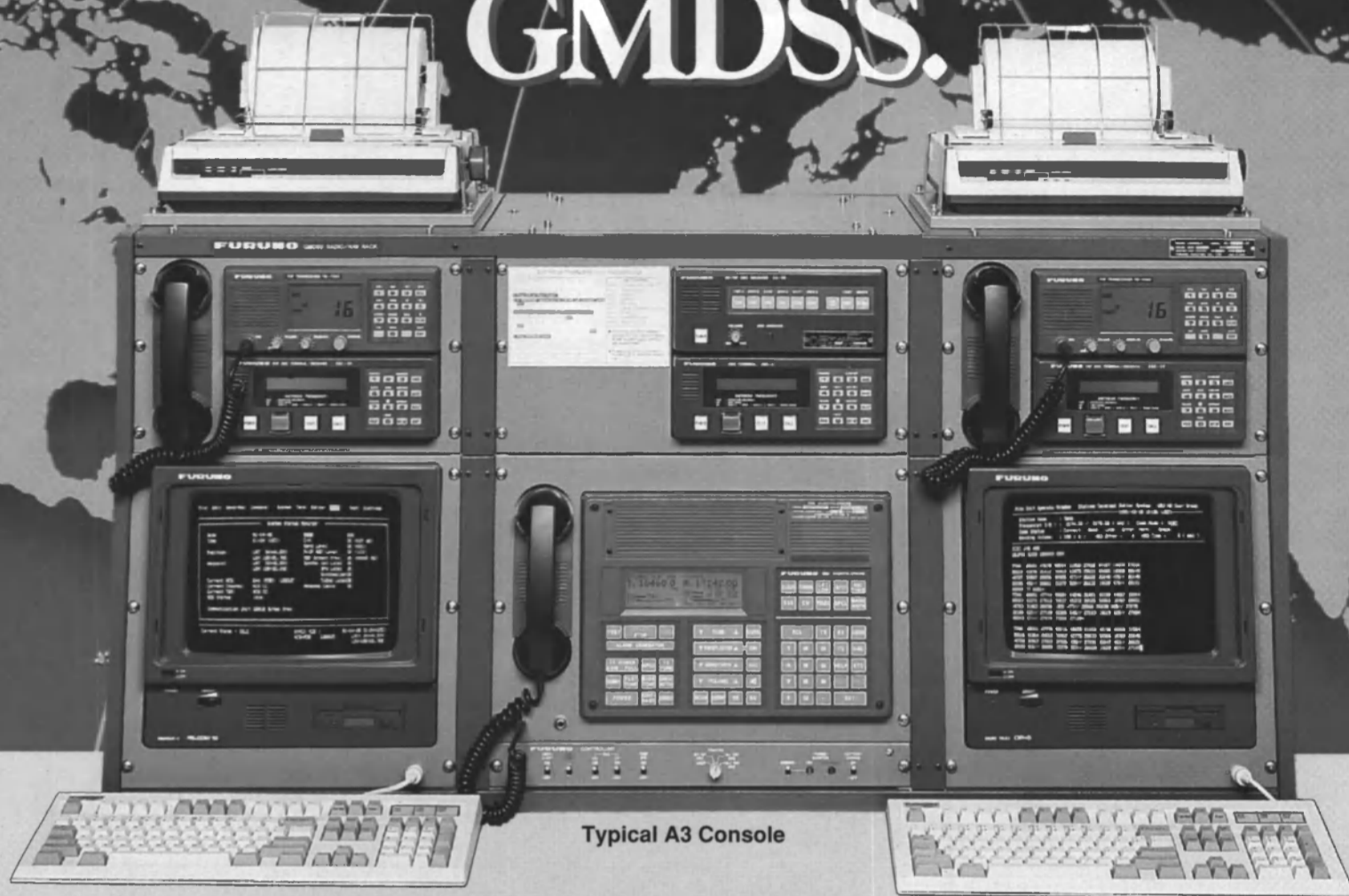
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# The St. Lawrence Seaway

## Toll Negotiations, Newbuilding Toll Incentive Program Top Agenda

by

Stanford E. Parris, administrator,  
Saint Lawrence Seaway Development Corporation

**S**ince opening to commercial navigation in 1959, the Great Lakes/St. Lawrence Seaway System has served North American industry with a major waterborne international trade route for shipping goods to overseas markets.

As Administrator of the U.S. Saint Lawrence Seaway Development Corp., it is my obligation to ensure that the Seaway remains a safe, reliable, and cost-efficient waterway. The most difficult of these goals to accomplish is the trimming of Seaway-related costs.

Seaway costs can be categorized two ways: costs which are a result of free-market trade and which fluctuate on individual economies, and costs which are government imposed. You can control the latter, and I have made it a top priority since my appointment to do everything possible to control the Seaway's government-imposed costs. It is the responsibility of the Seaway Corporation, as a federal agency, to reduce, and in some cases to eliminate, government-controlled costs while keeping the Seaway safe, efficient and competitive.

The largest of these government-imposed costs on the Seaway are tolls. In 1986, the 99<sup>th</sup> Congress, of which I was a member, passed the Water Resources Development Act, which essentially eliminated U.S. Seaway tolls. The Seaway Corporation became an appropriated agency and U.S. tolls are now fully rebated back to the Seaway users. This change in law improved the Seaway's competitiveness, while maintaining its efficient operation by the Seaway Corporation.

The Seaway Corporation, and its Canadian counterpart, The St. Lawrence Seaway Authority, were in toll negotiations during the final months of 1993 and into January. The negotiations involved developing a new Tariff of Tolls for the upcoming shipping season. The negotiations resulted in a freeze of Seaway tolls and expansion and revision of the Incentive Tolls Program for the 1994 season.

The toll freeze for the 1994 season, the first on the Seaway since 1985, is an important step in keeping a tight hold on costs. Also as important was the decision to expand the Seaway's Incentive Tolls Program. In the past, the program was made up of toll rebates that

qualified at the conclusion of the shipping season—the result of this was shippers would not know until after the shipment had taken place whether or not they qualified for toll reductions.

Under the revised program, billing discounts will replace rebates and decisions on qualifications will take place before the shipment transits our locks. This eliminates the requirement that shippers have their capital tied up for an entire shipping season before it again becomes available to them. In addition, the amount of the discounts have been dramatically increased under the new business and volume discount portion of the program.

The toll negotiations produced two major results. First, on a short-term level, tolls have been frozen and the Incentive Tolls Program has been revised for the 1994 navigation season. Secondly, and on a larger scale, the negotiations have opened the debate as to whether Canadian Seaway tolls should continue to exist at all as a burden on the System.

I am confident that during 1994, the two Seaway agencies will continue to discuss the possibility of total Seaway toll elimination. Some say the Canadian Seaway Authority must charge tolls to keep their portion of the waterway and locks operating safely and to generate enough revenue to carry on their business. Many said the same about the U.S. side back in the 1970s and early 1980s, but those critics were proved wrong and our operations are now being funded from general revenues.

Last month, we hosted three public meetings in Chicago, Ill., Cleveland, Ohio, and Duluth, Minn., to listen to what the maritime industry and general public had to say about current Seaway toll policies.

Those meetings gave us a clearer understanding of the public opinion on the adverse effects of Seaway tolls to the waterway's global competitiveness. The comments we received will go a long way to deter-



mining our stance in future toll negotiations.

My conclusion from the three meetings is that there is an overwhelming consensus by business and maritime officials on both sides of the border that the toll freeze is a great first step, but tolls should and can be eliminated to make the Seaway as effective and competitive as it can be. I agree with that premise.

We will continue our talks with the appropriate Canadian authorities and attempt to convince them that existing Canadian tolls might bring in revenue for their agency today, but the positive economic effects of the elimination of tolls to the nation of Canada would far outgain the current toll revenue.

No Seaway tolls would mean more ships, more tonnage, more activity for the ports which in turn means more jobs, more personal income, more personal spending, and more tax revenue for the government. In general, greater economic activity for the nation with all the economic benefits and the ripple effect of increased economic activity.

Another proposal that I am excited about is the change in the Seaway regulations to expand the maximum vessel beam allowed to transit Seaway locks from 76 feet to 78 feet.

Last year, we approved several vessels with 78-foot beams to transit the locks. The most noteworthy was the transit of the 78-foot beam, U.S.-flag vessel *American Mariner* carrying U.S. grain from Toledo to St. Petersburg, Russia.

This change in beam requirements would increase the Seaway's competitiveness and generate more tonnage because additional vessels of the world fleet will now be able to utilize our waterway.

The change would also now allow shipbuilders to depend on the increased beam to build larger vessels to carry more tonnage. The two Seaway agencies are currently working out the details on a "Newbuilding" Incentive Tolls Pro-

gram.

The new program would give owners and operators substantial tolls discounts for newly-built Seaway-size vessels. The programs would amount to discounts of 100 percent of Seaway vessel and cargo tolls incurred for its full year of Seaway operation, 80 percent of tolls for the second year, 60 percent for the third year, 40 percent for the fourth year, and 20 percent for the fifth year. Following the fifth full year, no reduction would be granted. The proposed incentive program would be effective for newbuildings delivered between Jan. 1, 1996 and Dec. 31, 2001.

I believe that a newbuilding incentive tolls program would certainly spur the Great Lakes maritime industry toward a new generation of more efficient, more reliable and safer Seaway ships. In my view, this initiative will serve the twin interests of preserving the physical and economic health of the Great Lakes region and the port communities it serves.

Shipbuilders appear to be very pleased by this proposal and we are told there are several who are considering proceeding with the design and construction of new ships with the larger beam.

I firmly believe it is critical that the two Seaway agencies continue to cooperate in the investigation and adoption of ways in making the Seaway more competitive for overseas shipments.

**David Gardiner**, president of the Great Lakes Bulk Carriers, in a thought-provoking talk to the Marine Conference in Montreal earlier this year, said, "What the players in the marine industry need to learn is that to pursue greater market share in a stagnant or diminishing market means to lower prices." He also said that some of the ill health of the industry is at least partly rooted in expanding efforts to hold on to traditional ways and methods of operation.

To both of his comments, I can only say Amen. I could not agree more. For the Seaway to be successful in the 21st century, we need a combined effort to promote the economic interests of our entire System, with government programs on both sides of the Seaway fostering efficient and competitive activities, all viewed with the intent to improve the System.

## PROPULSION UPDATE

# GE Gets \$60 Million Contract From NASSCO

Secures New Naval Vessel Application With LM2500 Gas Turbine

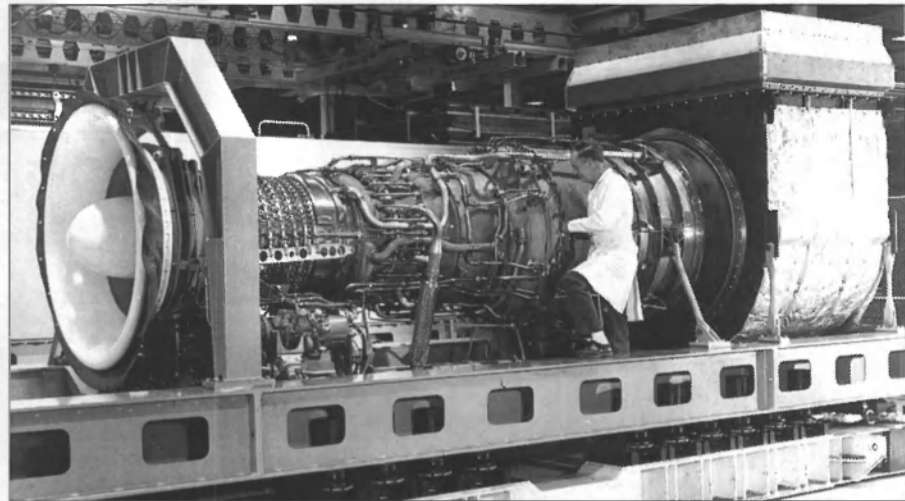
GE Aircraft Engines (GEAE) has secured a significant, new naval vessel application for its LM2500 gas turbine with a \$60 million order from National Steel & Shipbuilding Co. (NASSCO) to power six U.S. Navy Sealift vessels.

Each vessel, manufactured by NASSCO, will be powered by a pair of LM2500 gas turbines recently updated to 32,000 bhp. The vessels measure 950 feet (289.5 m) long by 105 feet (32 m) wide, and will cruise at 24 knots. The ships are used for the deployment of heavy armored divisions.

GE will deliver the engines beginning in late 1994. GE Industrial & Power Systems will provide the gears, as well as the drive and control system for the propulsion package. "The LM2500 will now power a class of ships previously propelled by diesel

engines or steam turbines," said **Patrick Byrnes**, director, U.S. Navy and North American Marine sales for GEAE's Marine and Industrial Engines Div.

According to the manufacturer, a key step in winning the propulsion contract was upgrading the LM2500 for naval applications, which was achieved by incorporating new advanced materials and an improved cooling design. In mid-1993, the U.S. Navy approved LM2500 ratings of 29,500 bhp for surface combatant ships and 32,000 bhp for Navy Sealift applications. Previously, the LM2500 was rated at 26,250 bhp. The new Naval ratings resulted from extensive testing by TBG Cogen Partners at Grumman Aviation in Hicksville, N.Y. and at Stewart & Stevenson Services in Houston.



A Kvaerner/GE LM2500 gas turbine module nearing completion. The LM2500 is part of the father-and-son propulsion system for Stena AB's HSS craft building in Finland. Additionally, GE recently announced a \$60 million contract with NASSCO, to provide LM2500s for U.S. Navy Sealift ships.

Mr. **Byrnes** said the Sealift propulsion contract better positions the LM2500 to compete for propulsion work on similar non-military vessels designed to move large commercial cargo.

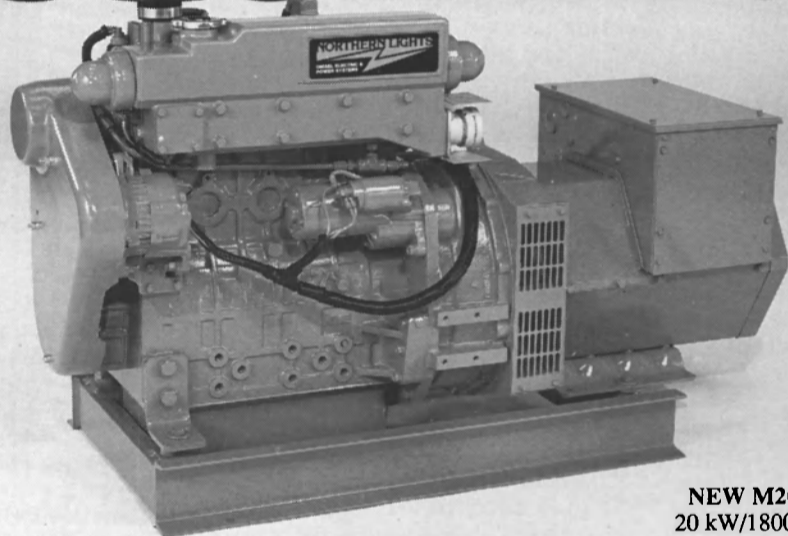
### LM2500s: Putting The "Fast" In Fast Ferry

The LM2500 has also received ac-

claim for its inclusion in the building of the Stena HSS ferry order at Finnyards Ltd. of Rauma, Finland. Norway's Kvaerner Energy a.s. will provide the Kvaerner-General Electric gas turbine propulsion package.

Of the four gas turbine modules, two will be GE-LM1600 gas turbines and two will be GE-LM2500 units.

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The LM1600 gas turbines will be used for speeds up to 22 knots, with the LM2500s taking over for speeds up to 32 knots. For maximum speed, 42 knots, both pairs of LM1600s and LM2500s will be used. Total power output will be around 60,000 kW.

Stena's HSS, which has received much fanfare around the world, will be capable of carrying 1,500 passengers and 375 cars, or 50 trucks and 100 cars.

Nearly 900 LM2500 engines power naval craft in the U.S. and 23 other nations. In addition, more than 400 LM2500 engines are used for industrial applications. For more information on GE's LM2500,

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## STN Systemtechnik Nord Acquires Lyngso Marine, Denmark

STN Systemtechnik Nord GmbH, Bremen, Germany, has acquired 100 percent of the shares in Lyngso Marine A/S of Horsholm, Denmark, including its Norwegian subsidiary Lyngso Valmet Marine Automation A/S.

Lyngso Marine A/S supplies ship automation systems. More than 5,000 ships worldwide have been equipped with Lyngso Marine products. By combining the Lyngso Marine and STN Systemtechnik Nord product ranges, the market for ships ranging from simple coastal freighters up to complex passenger vessels can be supplied with automation systems from one source.

The acquisition of Lyngso Marine is STN's second venture in Denmark. At the end of 1992, STN acquired 50 percent of the shares of Nav-Star A/S with its subsidiaries Skanti A/S and S.P. Radio A/S, which are manufacturers of maritime communications equipment.

## SSE Increases New Yard Investment

Singapore Shipbuilding & Engineering Limited (SSE), the marine arm of Singapore Technologies, will invest another \$20 million in its new shipyard in Tuas. This will bring SSE's total investment on the development of the shipyard to \$50 million.

This second phase of development will include the construction of a new 28,000-ton-lifting-capacity floating dock, new buildings and workshops, and the purchase of additional cranes and shipyard machineries. With this second floating dock, SSE will have the capability to dock and repair Panamax-sized vessels of up to 70,000-dwt. Shipbuilding will continue to be supported by two building berths capable of building ships of up to 30,000-dwt.

First phase development of the new shipyard is on schedule. It is expected to be operational in April 1994 with one floating dock of 17,000-tons-lifting capacity which can dock vessels of up to 40,000-dwt. Completion of the total development is expected by the middle of 1995.

March, 1994

## Marcon Intl. Sells Tug Supply Boat To Intership Ltd.

Marcon International, Inc. of Coupeville, Wash. sold the 184-foot (56 m) 5,200-bhp ice classed tug supply boat *Canmar Supplier VI* to Intership Ltd. of Kingstown, St. Vincent & the Grenadines. The vessel, renamed *Supplier VI*, was at press time in Vancouver, B.C. and preparing to tow the 315-foot (96m)

by 105-foot (32 m) ocean barge *Arctic Breaker* about 7,000 miles from Vancouver to Manila, Philippines before proceeding on to the Arabian Gulf to work.

Still available in Vancouver from the same owners are the sistership *Canmar Supplier VII*, the 130-foot (39.6 m) 2,250-bhp supply/survey vessel *Canmar Supplier V*, and the 352-foot (107.3 m) by 92-foot (28 m) ice classed ocean work barge *Peter Kamingsoak*.

Marcon has previously sold the 8,000-bhp tug *Canmar Tugger II*, the 7,200-bhp tug *Canmar Sea Eagle*, and the 21,544-dwt ocean tank barge *Canmar Shuttle*.

The 23,200-bhp 289-foot (88.1 m) ice-breaking tug supplier *Kalvik* belonging to Gulf Canada is also lying "winterized" in British Columbia and available for sale or charter through Marcon. The sister-vessel *Terry Fox* was sold to the Canadian Coast Guard by owners last year.

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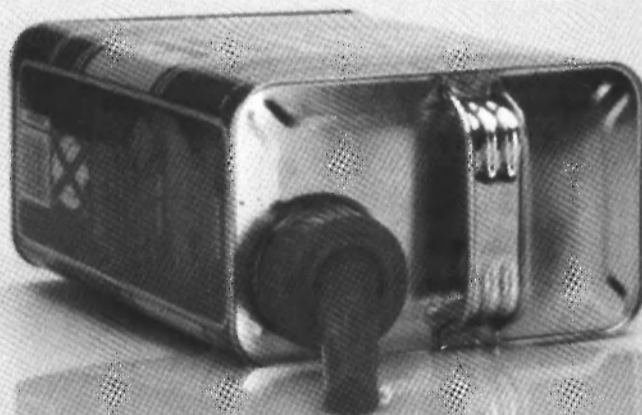
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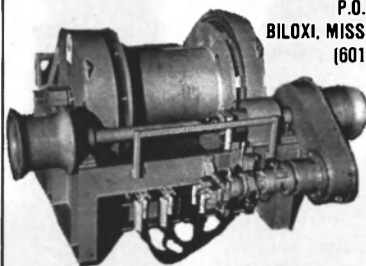
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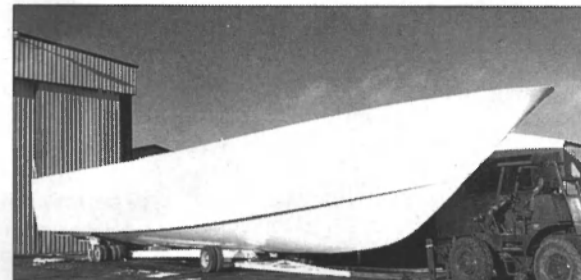


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## Westport Designs New 45-Knot Hull Form



The first hull for the pair of high-speed 100-foot (30 m) ferries being constructed for Catalina Express Lines sits outside one of Westport Shipyard's high-bay buildings in Westport, Wash. The hull was fabricated in a new expandable form in use at the Westport facility.

Westport Shipyard, Inc., which reportedly pioneered use of semi-automatic fiberglass equipment in expandable hull forms, has designed a mold that will produce an 85-foot (26 m) vessel capable of 45 knots. Westport's **Randy Rust** said that the hull form was originally designed for a yacht application but was adaptable to the 100-foot (30 m), 149-passenger ferries Westport is building for the Catalina Express Lines in Southern California. The hull form features propeller tunnels developed in conjunction with **Ed Hagemann's** Hage-Marine, Inc. of Seattle. **Jack Sarin** said that the tunnel design provides a structure with efficient dynamic lift, while improving the interaction of the hull and propellers.

For more information on the new hull form from Westport Shipyard, Inc.,

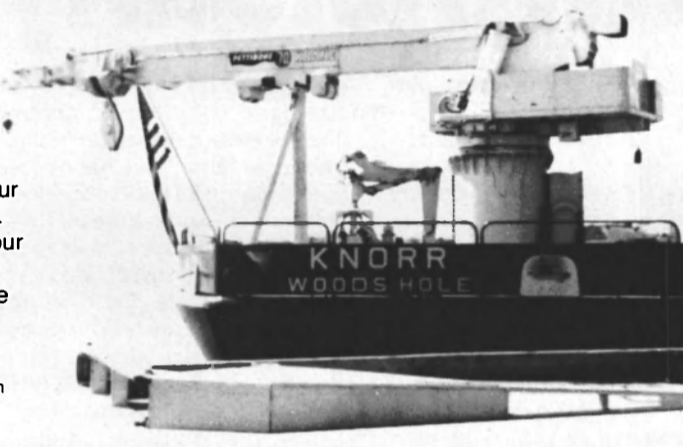
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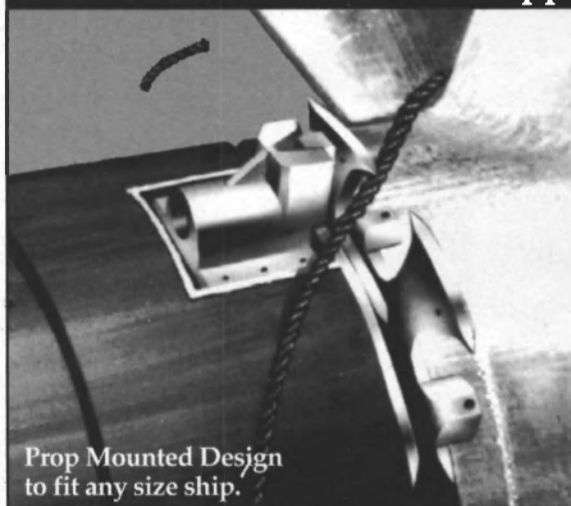
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## Hitachi Zosen Completes 3,800-TEU Containership Zhen He



The M.V. *Zhen He*, a containership capable of carrying 3,800-teu containers, was recently completed at Hitachi Zosen's Ariake Works and delivered to the owner, China Ocean Shipping Company (COSCO). Hitachi Zosen is now building two sister ships for the same owner, scheduled for delivery this month and in June. The *Zhen He* is the largest type of container ship ever delivered by Hitachi Zosen and is also reportedly one of the largest vessels that can enter Shanghai harbor and pass through the Panama Canal. The ship's load efficiency is enhanced by arranging the holds with 11 rows of spaces for containers, the first such design for Hitachi Zosen-built container ships. This hold arrangement makes it possible for the ship to carry 3,800-teu containers, the largest number that can be carried by ships of this type and size. The *Zhen He* can also load 240 refrigeration containers on the upper deck, and its holds No. 2 and No. 6 are equipped to carry dangerous cargoes. The main engine is a Hitachi Zosen-Sulzer 9RTA84C-type diesel engine. The *Zhen He* is 49,375-gt, 902 feet (275 m) long with a breadth of 106 feet (32 m) and depth of 70 feet (21 m). For more information on Hitachi Zosen,

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Maritime Reporter/Engineering News



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## Association To Celebrate D-Day Ships' Last Voyage

The Maritime Association of the Port of N.Y. and N.J. is planning a week-long celebration of the 50<sup>th</sup> anniversary of D-Day, the main event of which is Convoy '94: The Last Convoy. From May 1-5, 1994 there will be a public showing of two of the original Liberty ships that made the famous 1944 trip to

the beaches of Normandy, the *Lane Victory* and the SS *John Brown*, before they set sail for their last trip across the Atlantic and onto the shores of France. Included in the festivities are plans for an international flag ceremony in Battery Park and a World War II vintage plane air show. Also, the Annual Maritime Hall of Fame Recognition Dinner/Dance will be held on the Statue of Liberty Island. The dinner is open to the public and will include such hon-

orees as the president of the AFL-CIO, **Lane Kirkland**; the chairman of Norton Lilly Intl., **John Griffith**; and the president of Keystone Shipping, **Gerhard Kurz**. For more information on the event, contact **Art Tuttleman** or **Nick Cretan** at the Maritime Association, 17 Battery Place, Suite 1115, New York, N.Y., 10004; tel: (212) 425-5704; fax: (212) 635-9498.



Meyer Werft's passenger vessel *Leuser*, just delivered to Indonesia.

## Meyer Werft Delivers Passenger Ship *Leuser*

Meyer Werft of Papenburg, Germany delivered another 6,000-grt passenger ship to the Directorate General of Sea Communication, Jakarta/Indonesia. The new building, with a length of 327 feet (99.8 m) and a breadth of 59 feet (18 m) was named *Leuser* by **Mien Sugandhi**, Indonesian Minister of Women's Affairs. The vessel will carry a maximum of 970 passengers plus 87 officers and crew.

*Leuser* is third in a series of five vessels (two 14,000 grt and three 6,000 grt units) for the Republic of Indonesia. Delivery of the last two smaller ships of this series will also take place this year, making a total of 21 ships the yard has built for Indonesia.

Two main four-stroke MaK 6Mu 453C engines with an output of 1,600 kW each provide the ship with a service speed of 15 knots. The ship is built in accordance with the regulations of the Indonesian classification society BKI and under the survey of Germanischer Lloyd.

The ship's monitoring system from Siemens, type Simos IMA 51, consists of a central station and two self-sufficient substations in the engine room, monitoring exhaust gas temperatures as well as the contents of the fresh water, lubricating oil and fuel oil tanks.

The interiors are typically Indonesian, with most of the decorations having been chosen by Indonesian architects, and a mosque has been built on deck 6. *Leuser* will be employed on the inter-island route Pontianak - Tanung Priok - Muntok - Kijang - Pontianak. For more information on Meyer Werft,

Circle 81 on Reader Service Card

## Dorman Diesels Unit Wins Orders For Eight Engines

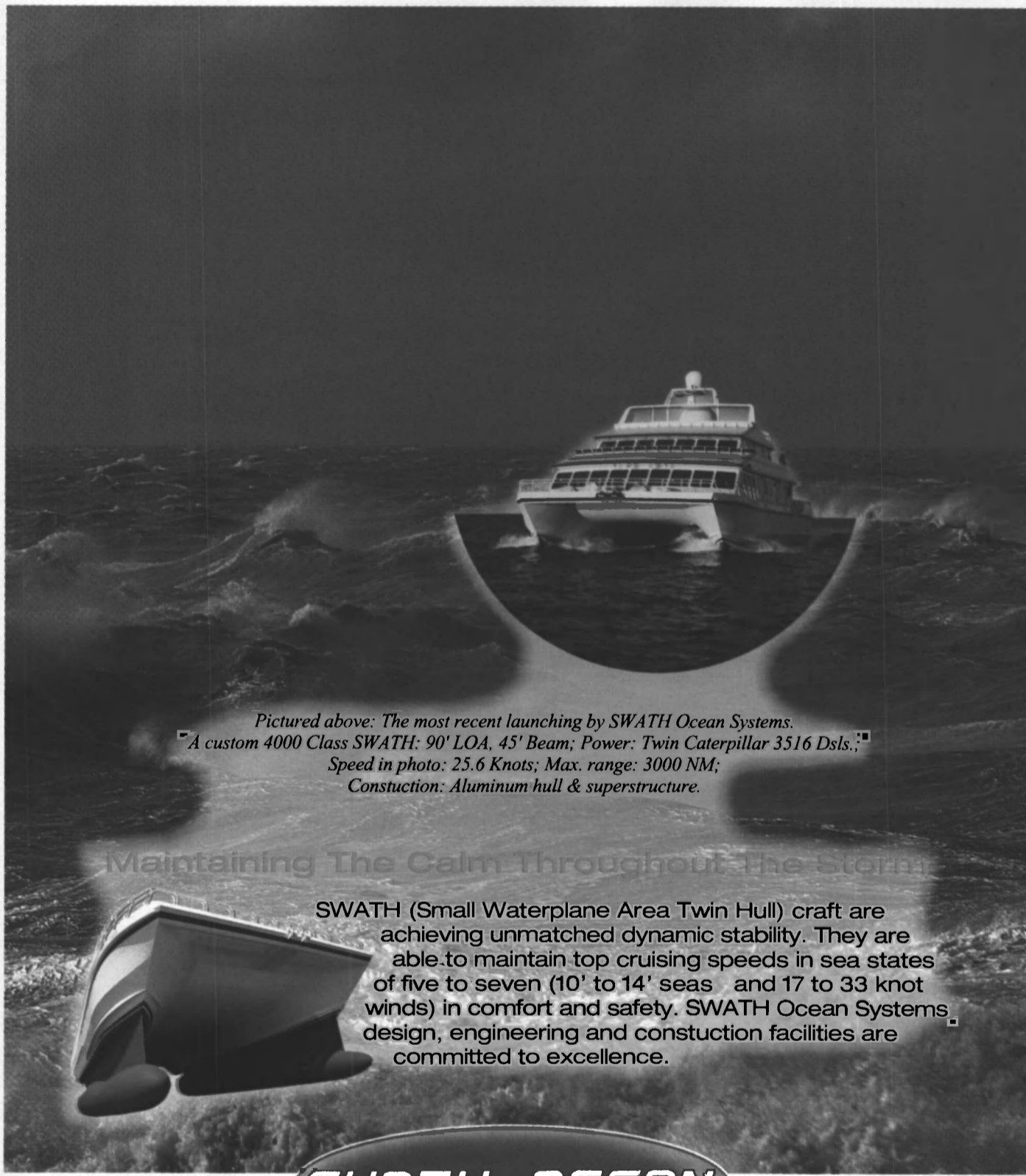
Dorman Diesels BV, The Netherlands, recently won contracts to supply a range of their Sea King 6 and Sea King 8 marine diesel engines to provide main propulsion power for four inland transport ships operating in European waters.

The engines, supplied to Zwart IJmuiden, were required on a short lead time, so that the operator could return to duty in as short a time as possible.

Dorman's Sea King range of six and eight cylinder in-line marine engines were joined in the early

Maritime Reporter/Engineering News

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1990s by the larger 12 and 16 cylinder "vee" form models. Providing main propulsion and auxiliary power and spanning the power band 90 bhp - 1,970 bhp, the series are reportedly noted for their reliability, quality, high levels of power output, low fuel consumption and low running costs. In 1993, Dorman launched its new Sea Prince 6L line of engines, designed for powering vessels within the specialized European inland waterways, inshore fishing and workboat markets, and the line has reportedly become a popular choice. For more information on Dorman Diesels,

Circle 83 on Reader Service Card

## PBS Turbo And ABC Engines Reach Supply Agreement

An agreement has been reached between ABC Gent and PBS Velka Bites AS for PBS to supply turbochargers for all engines of the DXC and DZC series after the successful testing of the turbochargers by ABC. ABC Gent manufactures supercharged oil engines of the DXC and DZC series, all of which have been fitted with VTR superchargers of the 0 and 1 series. The PBS turbochargers will be manufactured so that no modifications, including adjustment devices and exhaust pipes, will have to be made to the ABC engines. Testing was carried out at ABC's facilities and it was found that the turbochargers were capable of supplying the required amount of air into an engine of improved efficiency at lower exhaust gas temperatures.

## GER Corporation Previews Airborne Imaging System

Geophysical and Environmental Research (GER) Corp. previewed its new airborne imaging system, the EPS 2100-M, designed to detect oil spills, at the Second Thematic Conference — Remote Sensing for Marine and Coastal Environments. GER scientist Dr. **Tod Rubin** also presented a paper, "A State-of-Art Airborne Infrared/Ultra Violet Scanner for Oil Pollution Monitoring and Mapping," authored by **B.M. Sorenson** of Intradan, Dr. **Sheng-Huel Chang** of GER Corporation, and **T.F. Melhuish** of the Canadian Coast Guard. It describes the principles and capabilities of the new and upgraded scanner, known commercially as EPS-2100M, now ready for use by the Canadian Coast Guard. Dr. **Chang**, president and co-founder of GER Corporation, attended the opening day of the conference. Dr. **Chang** was instrumental in organizing the First International Airborne Imaging Spectrometer Calibration Workshop to establish industry standards for imaging spectrometry, at which a select group of internationally known experts from academia, industry and government participated. For more information on GER,

Circle 1 on Reader Service Card

## Raytheon Unit's Minehunter Imaging Tests Successful

Applied Remote Technology (ART), a subsidiary of Raytheon Company, has successfully completed a series of demonstrations using its XP-21 unmanned underwater vehicle (UUV) for mine-hunting in near-coastal waters.

Witnessing the demonstrations, conducted near the Naval Amphibi-

ous Base in Coronado, Calif. were representatives from the U.S. Navy's Mine Warfare and Explosive Ordnance Disposal program offices and the Naval Special Warfare Office. The XP-21 was outfitted with a fiber optic tether, forward-looking and side scan sonars, and an underwater television camera. According to **Mark Iwanowski**, ART's business development director, the company-funded development activity and demonstrations showed that the 21-

inch unmanned underwater vehicle could perform mine-hunting operation in waters as shallow as 10 feet, just beyond the surf zone. The XP-21 was recently equipped with ART's laser-scan imaging system, a gated laser imaging system, and a conventional low-light camera to evaluate how each of these sensors would perform in turbid near-coastal waters. For more information about Applied Remote Technology,

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## Gold Coast Yachts' Catamaran Completes First Month Of Operations



Gold Coast Yachts of St. Croix, Virgin Islands, announced its 59-foot (18 m) wave piercing displacement power catamaran *Edge* has successfully completed its first month of operations in the exposed channel conditions of St. Maarten.

The twin Luger 425-hp diesels and Hamilton 362 jets are providing a 26 knot full load cruise speed and 30 knot top speed for Pelican Watersports' daily ferry runs to Saba and St. Barth's. *Edge*, the largest wave piercer built by Gold Coast Yachts, is based on the success of earlier 39-foot (11.9 m) prototypes. A 43-foot (13.1 m) flybridge version will be built this spring.

For more information on Gold Coast Yachts,

Circle 53 on Reader Service Card

## Ingalls-Built *Stout* Completes At-Sea Testing

*Stout* (DDG 55), the second Arleigh Burke (DDG 51)-Class Aegis guided missile destroyer built by Ingalls Shipbuilding division of Litton in Pascagoula, Miss., completed her initial at-sea testing in the Gulf of Mexico in late January.

The 504-foot (154 m) long, 8,300-ton destroyer will undergo additional at-sea testing, including missile-firing exercises, before delivery later this year. For more information on Ingalls Shipbuilding,

Circle 57 on Reader Service Card



## Elliott Bay Design Group Designs New Fire Boat For City Of Oakland



Elliott Bay Design Group was awarded a contract from Sea-Fab to design a new-generation fire boat for the City of Oakland. Said Sea-Fab vice president **Mickey Cook**, "We thought of Elliott Bay because of their fire boat expertise." The design for Oakland calls for a 60-foot long (18 m) aluminum boat, with a beam of 20 feet (6 m) and a draft of four feet (1 m). The new vessel will have a speed of 16 knots, powered by a pair of Caterpillar 3408B main propulsion engines (535-bhp each at 2,100 rpm) and two Cat 3408s (490-bhp each at 2,100 rpm) to drive the fire pumps. Firefighting equipment will include four FirePro monitors, Aurora horizontal split-case fire pumps and six hydrants. For more information on Elliott Bay Design Group,

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## Hyundai Delivers 300,000-dwt VLCC To Vela Intl.

On January 31 Hyundai Heavy Industries Co., Ltd. (HHI) of Korea delivered the 300,000-dwt VLCC *Mirfak Star* to Vela International Marine Ltd., the shipping arm of Saudi ARAMCO.

The vessel is the first in a series of six 300,000-dwt class VLCCs awarded to HHI in 1992 by Vela, the international tanker subsidiary of the Saudi Arabian Oil Co. Last December HHI, in its Ulsan shipyard, held simultaneous naming ceremonies for Vela's first and second VLCCs. **Abdallah S. Jum'ah**, executive vice president of International Operations for Saudi ARAMCO, said in a speech that both VLCCs were of excellent quality.

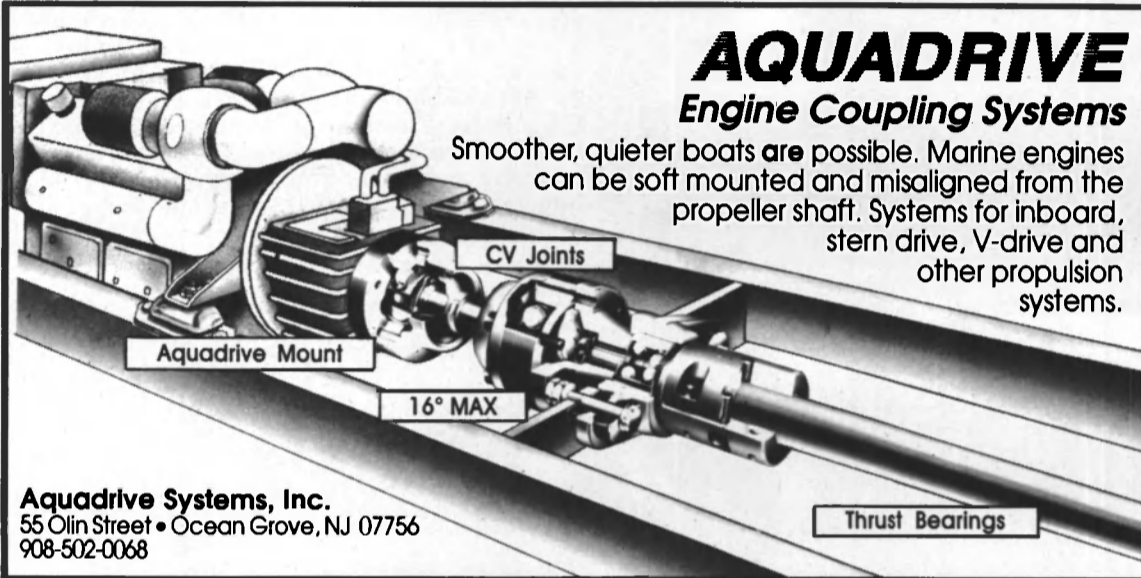
The *Mirfak Star* features a host of advanced technological features, including a state-of-the-art navigation and automation system. Also, extra thick steel was used to ensure longer life and for the prevention of oil spillage due to hull structure failure. The vessel measures 1,096 feet (332 m) long and 191 feet (58 m) wide. Her 15 cargo tanks are capable of transporting 2.16 million barrels of crude oil.

The second VLCC, the *Hamal Star*, is due for delivery this month, and the four other ships are all scheduled for delivery by the end of October 1994.

HHI has established a good record in the design and construction of super tankers. Since 1973, Hyundai Shipyard has delivered more than 30 VLCCs, totalling 8.5 million dwt. Presently, HHI has 10 VLCCs on its order backlog, including five from Vela International Marine, Ltd. The shipyard has completed more than 560 vessels of various types, including 125,000-cu.-m. LNG carriers.

For more information on the shipbuilding capabilities of HHI,

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## Steel Cad Wins Ferry Hull Design Order

The Malmo-based Swedish design company Steel Cad AB won an order from the Fosen Mekaniske Verksteder A/S in Norway to design approximately 66 percent of a 31,000-gt ferry hull bound for Greece. This is the first vessel for Fosen Mekaniske Verksteder designed in STEERBEAR™ by Kockums Computer Systems (KCS).

The order includes the steel design, workshop preparation and production information.

This order represents the single biggest order for Steel Cad to date. "This is the final breakthrough for Steel Cad within the marine sector," says president **Jan Rosenquist**. With the exception of KCS itself, the HR-Group, consisting of Steel Cad AB and Viking Engineering AB, is the consulting company with reportedly the largest STEERBEAR capacity in the world. It is also reportedly the only company whose engineers have worked for more than 25 years with STEERBEAR from the very beginning. At present, 10 VAX Workstations are used with STEERBEAR by KCS.

The 580-foot (176.8 m) Ro/Ro vessel was ordered by the Greek company Minoan Lines and will carry 1,500 passengers and 150 cars for sailings between Greece and Italy. Steel Cad has in the past designed the *Albatross* built by Finnyards, and juice tankers and chemical tankers built by Sterkoder Verft in Norway.

For more information on Steel Cad,

Circle 77 on Reader Service Card

Maritime Reporter/Engineering News



## Kramek Nominated As Next USCG Commandant

Rear Admiral **Robert E. Kramek** was recently nominated to be the next Commandant of the U.S. Coast Guard (USCG), when current Commandant **J. William Kime** retires on June 1. The USCG's senior rear admiral, **Radm. Kramek** is currently the USCG's chief of staff, and commanding officer of USCG headquarters. Both a surface operations specialist and a naval engineer with extensive service, **Radm. Kramek** has commanded two USCG districts, as well its largest base at Governors Island, N.Y. He commanded the USCG's newest High Endurance Cutter and the Haitian Migration Task Force, leading the interdiction and rescue of 37,000 Haitians.

## AEA Pulls Out Of Kloster Cruise Divisions Purchase

Kloster Cruise Ltd. and AEA Investors Inc. of New York announced that AEA has decided not to pursue the purchase of Royal Viking Line and Royal Cruise Line, two of Kloster's operating divisions. In December 1993, AEA had executed a letter of intent to acquire the two Kloster divisions for \$565 million.

AEA decided not to pursue the transaction after it concluded that AEA's investment goals could not be achieved within the financial framework proposed for the transaction.

## Trinity Marine To Build Third Double-Hull Oceangoing Barge For Allied Towing

Trinity Industries Inc.'s subsidiary Gretna Machine & Iron Works has begun construction of a 300-foot (91 m), oceangoing double-hull barge for Allied Towing Corp., Norfolk, Va. When completed in June 1994, the barge will have 10 cargo tanks with a total capacity of 35,000 barrels or 6,000 short tons of phenol and petroleum products. It will have a 55-foot (17 m) beam and a 22-foot (7 m) depth. It will transport phenol between Philadelphia and Hopewell, Va. for Allied-Signal Corp., and will be based out of Norfolk, Va.

Cargo will be transferred by two Detroit Diesel driven Byron-Jackson deepwell pumps. The barge will have steam coils for heating the cargo for easier discharge, and it will be equipped with a diesel driven generator to supply power for deck lighting and hydraulic systems.

On deck, the barge will be equipped with a hose-handling boom, a New England Trawler Equipment anchor winch and two Patterson wire ropes pushing winches. The barge will be outfitted for vapor recovery and fully closed loading. An Ian-Conrad Bergan, Inc. TankRADAR sampling system will be installed. It will meet or exceed the requirements of OPA 90 and will be certified as an oceangoing, Type I Oil and Chemical Tank

Barge by the U.S. Coast Guard and by ABS. Trinity-Beaumont, another Trinity shipyard, recently delivered two 332-foot (101 m), 80,000-barrel capacity double-hull oceangoing barges to Allied Towing.

Gretna Machine & Iron Works, Inc. is part of the Trinity Marine Group, Gulfport, Miss., which is owned by Trinity Industries, Inc. The group includes 13 shipyards in Texas, Louisiana, Mississippi,

Florida, Missouri and Pennsylvania. For more information on Trinity,

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## Empresa Nacional Bazan Names TAST Corp. U.S. Rep

**Jose L. Moya**, general manager of Empresa Nacional Bazan, re-

cently announced the appointment of the TAST Corp. as its exclusive representative in the U.S. Bazan consists of three large factories in Ferrol, northeastern Spain, on the Atlantic; Cartagena on the Mediterranean; and San Fernando near the Straits of Gibraltar. In each, there is a shipyard and a specialized production center. For more information from the TAST Corp.,

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Photo Credit: Brix Maritime

**T**he American Waterways Operators (AWO) is celebrating its Golden Anniversary in St. Louis at its Annual Meeting & Spring Convention. This special section is dedicated to the last 50 years and to the next 50 years of AWO. Read up on the strategies today's leaders are pursuing to ensure a safe, reliable and competitive industry for years to come.



## AWO Annual Meeting & Spring Convention

### Navigational Safety Major Focus Of 50<sup>th</sup> Anniversary Meeting

The American Waterways Operators (AWO), the national trade association of the inland and coastal barge and towing industry, will hold its Annual Meeting and Spring Convention, Wednesday, April 13 through Friday, April 15, at the Adam's Mark Hotel in St. Louis, Mo. The city of St. Louis holds special significance for AWO, especially in 1994. Not only is it home to AWO's Midcontinent office and 12 of the association's member companies, but it also was the site of AWO's first membership meeting in 1944.

Fifty years later, in 1994, AWO is celebrating its golden anniversary in St. Louis. The association's 50th anniversary will be celebrated throughout 1994 with three events in locations which represent the presence of the industry — inland (St. Louis); coastal (San Francisco); and its legislative activities on Capitol Hill (Washington, D.C.)

AWO's more than 300 member companies will participate in the

Annual Meeting and Spring Convention, which provides an opportunity for members to be briefed on pertinent issues and major challenges confronting the industry and the association. **Thomas A. Allegretti**, AWO's new president, will present his first report to the membership since becoming president on January 1, 1994. He succeeded **Joe Farrell**, who retired after serving 11 years as president.

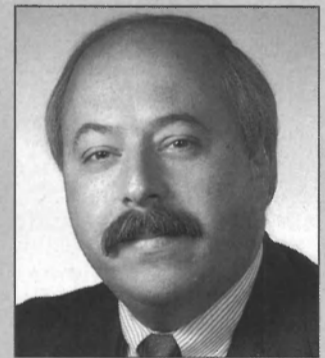
The issue of navigational safety in the industry is expected to be a major focus of this year's Annual Meeting. At AWO's Winter Board of Directors Meeting in December 1993, nine recommendations for improved safety in the wake of the Amtrak derailment were developed by the membership. Another feature of the meeting will be the election of officers for 1994. For more information on this and other AWO meetings throughout the year,

(Continued on page 38)

## AWO's New Leader To Tackle Tough Issues During First Years

**Thomas A. Allegretti**, in his first year at the helm of the American Waterways Operators, faces some tough issues and challenges—with the dual task of ensuring the industry is treated fairly by legislators, while helping members maintain safety and competitiveness.

Mr. **Allegretti** took time from his busy schedule to answer some questions from *Maritime Reporter & Engineering News* on the challenges that loom ahead, and how he and AWO, along with the industry, will tackle them.



Thomas A. Allegretti

**MR: What are the burning topics that will keep you and the AWO staff busiest during the coming year?**

**A:** It is not an overstatement to say that the challenges of this year may well dwarf those which we've faced in the past.

At the top of the agenda will be the need for AWO and the barge and towing industry to exercise leadership and guidance as federal decisionmakers grapple with the issue of marine safety. The tragic proportions of the Amtrak derailment in Bayou Canot in September of last year, and the recent oil spill

in Puerto Rico have focused new attention on both the federal regime which governs the operation of tugboats and barges and the industry practices which complement those governmental requirements.

We are also likely to face new challenges on the user tax front as the federal government seeks new and increased revenues to fund the construction of inland waterway projects and the operation and maintenance of the inland waterways system. Managing that debate, and bringing to the attention of federal decisionmakers all the facts, will be

(Continued on page 36)





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worn or damaged components with new parts. Bearing assemblies are calibrated on a factory-designed test stand. Lubricating pumps are tested by measuring oil flow at full running speed. In addition, bearing and pump assemblies expertly reconditioned at our *U.S. Repair Facility in North Brunswick, NJ* are offered on an exchange basis at substantial savings over new parts. ABB Turbocharger's warranty is included with every reconditioned bearing pump assembly.

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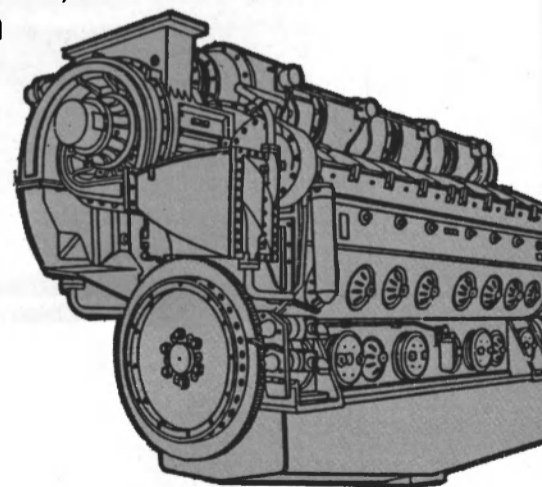
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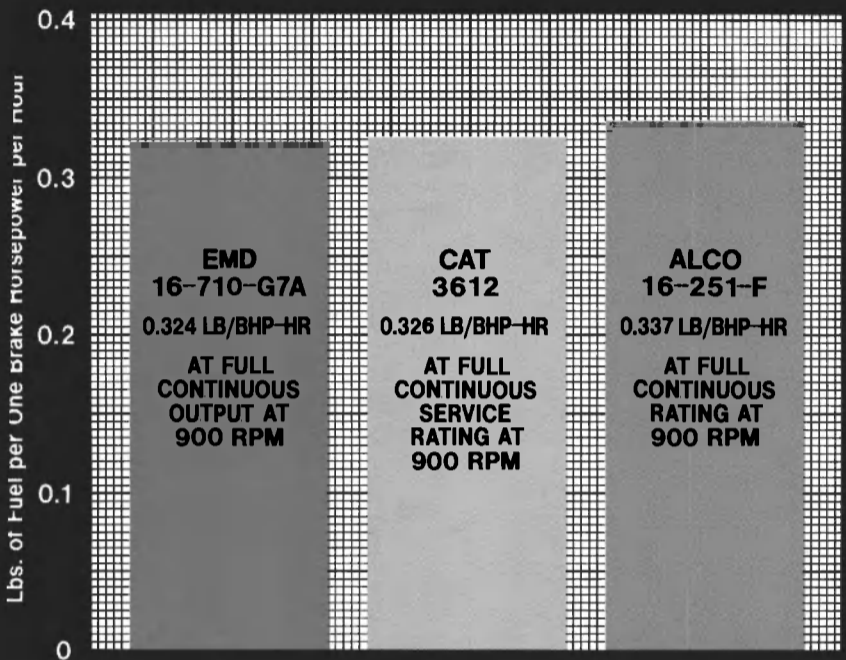
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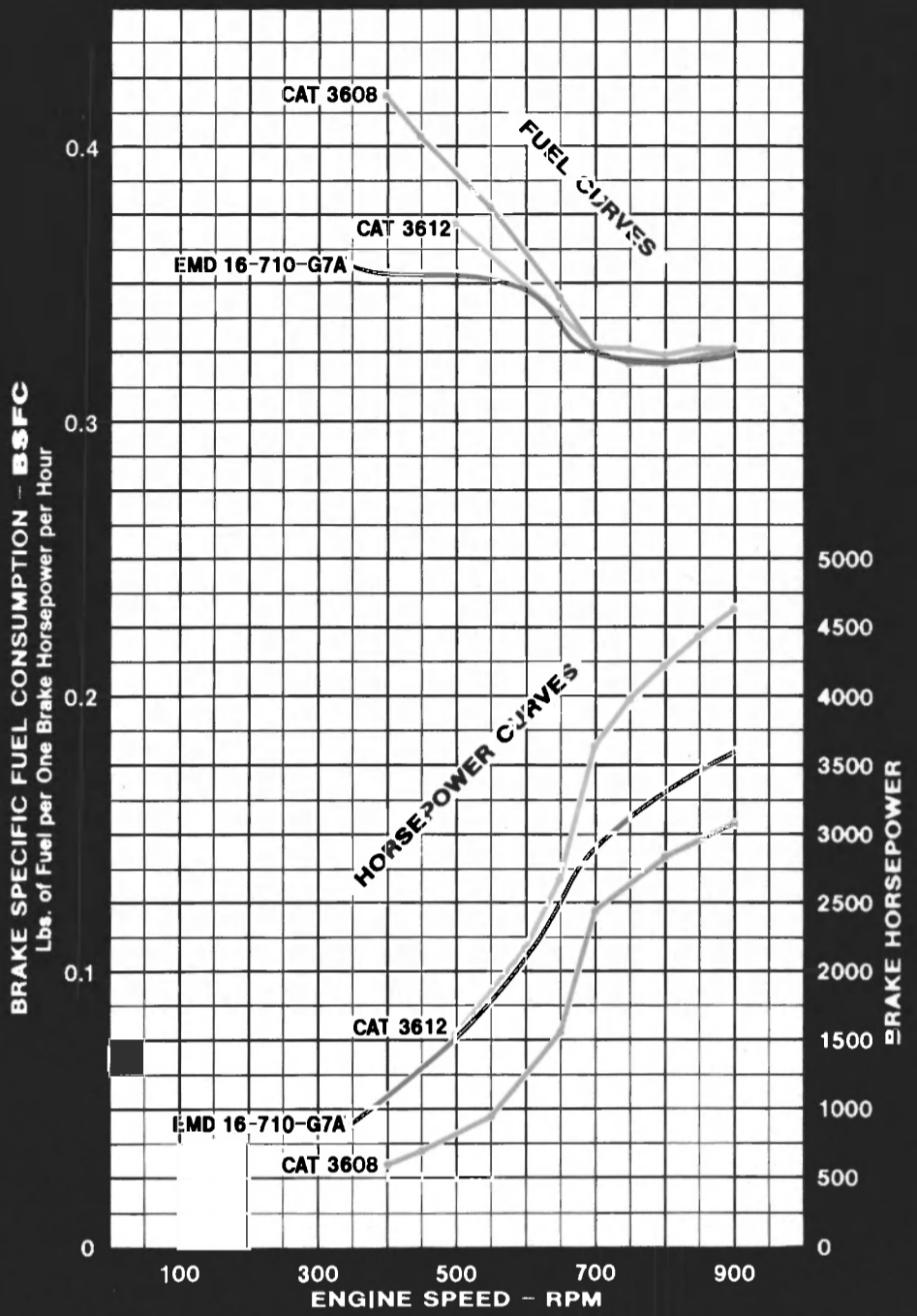
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(Continued from page 32)

a central part of AWO's work in 1994. Those two issues will command a good deal of our attention this year. But, we'll need to assure that there is sufficient time and resources to handle all the rest as well.

**MR: What pieces of current legislation are you watching the closest, i.e. what legislation currently could have the biggest potential impact on the industry?**

**A:** As a general matter, the legislation which AWO traditionally keeps its closest eye on is that which we see as uninformed and misguided, and which left to its own direction will impose requirements on the industry that make no contribution to safety or environmental protection. As I said earlier, the attempt of a small cadre of ideologues in the federal government to burden this industry with higher, inappropriate

ate levels of user taxes concerns AWO and its members greatly. Under the mantle of reducing "subsidies" to the barge industry, this group of economic theoreticians would impose crippling financial burdens on an industry which makes real and tangible contributions to the U.S. economy. The \$1.00 per gallon fuel tax proposed last year, which may resurface this year in a different but nonetheless similarly crippling form, is an example of the kind of legislative proposal which causes barge executives to lose sleep at night.

We also watch closely proposals which purport to solve complex problems with a simplistic stroke of the pen. No one in our industry takes exception with the goals of continually increased safety and higher level of environmental protection. Indeed, they are the watchwords of this industry's leadership. But under the cover of those goals, proposals are sometimes put on the table which accomplish neither. Some-

times these proposals are politically attractive. Sometimes they are attractive for garnering media attention. Other times they have a punitive allure. But if they don't achieve the objective, they are worse than ineffective, because they lead the public to believe that solutions have been achieved, when in fact the fundamental problem has gone unaddressed. Those are the kinds of problems and issues to which we try to be continually attentive.

**MR: What is AWO doing to ensure its members run the safest vessels possible?**

**A:** AWO, as a part of its mission as laid out in the association's *Constitution*, is committed to the promotion of the highest standards of health, safety and training throughout the industries represented by the association. Issues which address subjects like better vessel operations and higher levels of personnel competence are a fundamental and continuing part of the agen-

das of AWO's Board of Directors and its standing committees. Our industry has a long track record of two important characteristics. The first is that it is often willing to independently suggest to the federal government new means of enhancing marine safety. Second is the fact that the towing industry runs its vessels and trains its personnel at levels significantly greater than that required by federal law or regulation. That is not a characteristic of recent vintage, but has existed for many, many years. Safety is a deep and abiding concern of the towing industry, evidenced by the governmental statistics which point to waterborne commerce as the safest mode of transportation in the United States.

**MR: What is your general assessment of the stability of the towing industry?**

**A:** It's something of a mixed bag, depending on which geographic or cargo market you have in mind. We sometimes forget that the towing industry is not a monolith, but rather an industry with very different market segments.

Generally speaking, the industry is relatively stable. However, some market segments continue to experience an oversupply of equipment. In others, while vessel utilization is high, rates are very low. In the face of this, costs continue to rise, especially insurance costs and equipment replacement costs. This is a difficult time for small operators.

The industry is stable, but its health could stand to improve.

**MR: What is your agenda for the industry for the future?**

**A:** AWO is today an organization with longstanding success and a proud tradition. Much of that is directly attributable to the leadership which my predecessor, **Joe Farrell**, exercised over the more than 10 years that he ran this organization. But AWO is also an organization that has evolved over the years as the industry has changed, government attention has increased, and member needs have shifted. Its ability to adapt has been a chief source of its strength.

My vision for AWO is driven by the view that we should strive for continual improvement. Making AWO better is a process which has no terminus; it seeks to identify and improve that which works well and abandon that which doesn't.

A small group of AWO's leaders have now embarked on the process of constructing a modern strategic plan for the association which will guide our work over the remainder of this decade. While the content of that plan is not yet clear, it undoubtedly will be one which modernizes the association, instills more progressive thinking into its activities, and enhances the industry's ability to not only manage the federal agenda, but to *lead* the development of laws and regulations which contribute to sound public policy.

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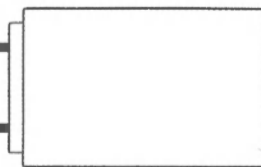
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## Safety in the Towing Industry: Meeting the Challenge

by

Jennifer A. Kelly, director-government affairs, American Waterways Operators

In the early hours of September 22, 1993, the Amtrak Sunset Limited derailed after a six-barge tow struck and damaged a railroad bridge at Big Bayou Canot, Alabama. In the aftermath of the tragedy, in which 47 passengers and train crewmembers were killed, a flurry of activity ensued: in the Congress, the leadership of the House Coast Guard Navigation Subcommittee moved quickly to hold hearings on the casualty, and subcommittee Chairman **Billy Tauzin** (D-LA) promptly introduced legislation (H.R. 3282) to increase navigation equipment requirements for towing vessels. At the Department of Transportation, DOT Secretary **Federico Pena** acted within days of the accident to direct that a five-part study of towing industry safety be undertaken by the U.S. Coast Guard (USCG). In the media, the accident received front-page coverage. And, within the industry itself, the painful process of understanding why the accident had oc-



Jennifer A. Kelly

curred, and what might be done to prevent such tragedies in the future, began. For the barge and towing industry, the Amtrak accident was a stark reminder of the one lesson common to all casualties: no matter how good our safety record is or has been, we must get better. Continuous improvement must always be our objective.

The lesson that one such casualty is too many is all too apparent in the aftermath of a tragedy. The other

lessons which accidents teach us are often less easily identified, however, and may vary considerably with the circumstances of a particular case. Unearthing these lessons, and identifying the measures which will prevent such casualties in the future, demands sober assessment, careful thought, and no small measure of operational expertise.

Effective in preventing future casualties, we believe, is a deep-rooted commitment by the industry and by the governmental agencies which regulate it to improving safety on the waterways and identifying real solutions to demonstrated weaknesses in the system.

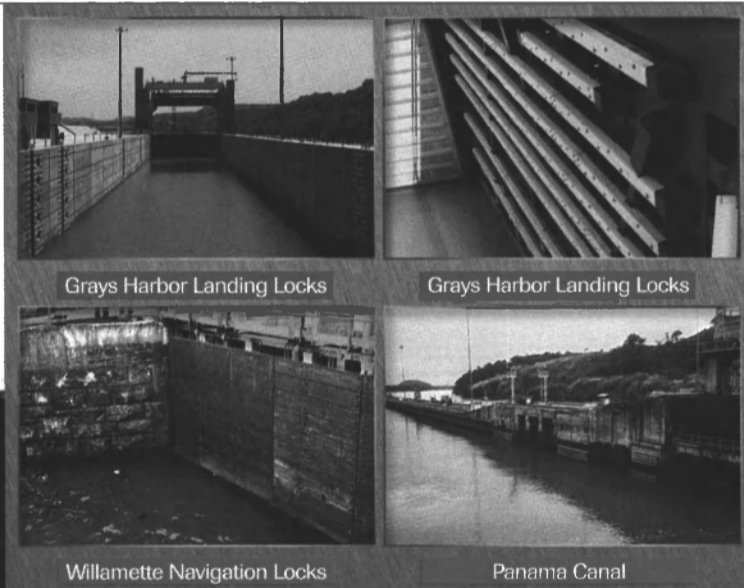
The industry itself has perhaps the greatest ability, and surely the paramount responsibility, to take the lead in that process. The USCG, as the principal regulatory agency which governs our industry, has a special role to play as well. Together, we believe the industry and the USCG are well positioned to identify those measures which will have a real impact on navigational safety and environmental protection.

Since the Amtrak derailment occurred, AWO has worked closely with the USCG and with the Congress in an effort to achieve that goal. AWO has endorsed H.R. 3282, a bill which would bring statutory requirements for navigation equipment on towing vessels to a level which more closely approximates

actual practice in the inland industry. The association has lent its expertise to the USCG as that agency embarked on its DOT-mandated study of safety in the towing industry, and is now prepared to work closely with the USCG in implementing the study's recommendations regarding operator licensing, navigation equipment, aids to navigation, and bridge marking.

AWO has also embarked on a rigorous internal process aimed at identifying other ways in which safety in the barge and towing industry might be improved. In December 1993, the association testified before the National Transportation Safety Board, offering nine recommendations for enhancing navigational safety. Among AWO's recommendations were:

- Navigation equipment requirements (compasses, fathometers) should be tailored to a vessel's area of operation to ensure that required equipment makes a genuine contribution to the safety of the vessel. In addition, consideration should be given to requiring that a searchlight, whistle light, and general alarm — equipment widely used in the inland towing industry — be carried aboard all towing vessels;
- Greater use of fendering systems, radar reflectors, range lights, buoys, and approaching guidewalls should be instituted to alert commercial navigators to nearby bridges.
- The USCG should consider in-



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cluding within the license issuance and renewal process a requirement that a navigator's proficiency be checked by a qualified person within the industry; and

- Initial notification procedures for reporting marine casualties should be standardized to avoid inconsistency and confusion.

- Entry-level training for towing industry personnel should be standardized via voluntary guidelines now under development within the Towing Safety Advisory Committee.

We believe these recommendations have the potential to produce real improvements in navigational safety. And, within AWO, we are continuing our examination of industry operations and governmental requirements in an effort to identify other areas in which safety may be enhanced. That process will continue, as will our cooperation with all parties who share our commitment to sound, fact-based safety so-

lutions.

Finally, much of the public debate in the wake of the Amtrak accident has focused on the need for more rigorous governmental regulation of the barge and towing industry. Indeed, AWO has not hesitated to endorse or to call for such regulation where we believe it will yield concrete results. At the same time, however, we must bear in mind that safety is a process in which many actors must play a part. Clearly, government, as the guardian of the public trust, must set the floor — the basic standard of safety — below which industry operations must not take place. Shippers, who employ carriers to move their products, must be willing to insist on, and to pay the price for, high standards of transportation safety and quality. But, it is carriers themselves who bear the ultimate responsibility for ensuring safe navigation on our nation's waterways. Government regulation is not, and will never be, a substitute for a company's own responsibility to ex-

ercise the highest and most rigorous standards of care. Rigidly prescribed safety "solutions" which at-

tempt to bypass this most important link in the safety chain will never be more than partially effective.

## AWO ANNUAL MEETING

(Continued from page 32)

please, contact **Tina Norris** at AWO headquarters, (703) 841-9300.

### Schedule of Events

#### Wednesday, April 13

The American Waterways Shipyard Conference (AWSC) will hold its committee meetings in St. Louis.

1:30 - 2:30 p.m.

AWSC Regulatory Committee Meeting

2:30 - 4:00 p.m.

AWSC Legislative Committee Meeting

#### Thursday, April 14

8:00 - 10:00 a.m.

AWO Common Issues Council Meeting

9:30 - 11:30 a.m.

AWSC Membership Meeting

10:00 a.m. - noon

AWO Public Affairs Committee Meeting, with a special presentation on managing crisis by Brown Nelson Public Relations  
11:00 a.m. - 1:00 p.m.:

AWO Coastal Sector Committee Meeting  
1:00 - 3:00 p.m.

AWO Inland Dry Sector Committee Meeting  
2:00 - 3:30 p.m.

AWO Harbor Services Sector Committee Meeting  
3:00 - 5:00 p.m.

Inland Liquid Sector Committee Meeting  
6:00 - 7:00 p.m.

AWO 50th Anniversary Reception

7:00 - midnight

AWO 50th Anniversary Gala Dinner-Dance

#### Friday, April 15

8:30 a.m. - noon

AWO Board of Directors Meeting and Annual Meeting

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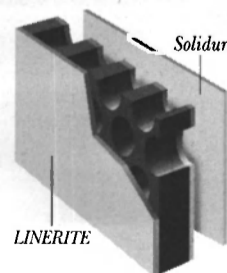
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## INLAND WATERWAYS USER FEES: 'An Industry Perspective

by  
Curtis Whalen, vice president, legislative affairs, American Waterways Operators

Since it fortunately appears that no new barge fuel taxes or other new user fees will be included in the Administration's 1995 budget proposal, now would be an opportune time to step back from the emotional and heated debate surrounding last year's \$1 per gallon Barge Tax legislative battle and set out more dispassionately the particulars of the commercial navigation user fee issue.

First, two distinct issues surround the overall user fee debate; the first concerns fee proposals to cover Operation and Maintenance costs (O&M-overhead) such as the aforementioned \$1 per gallon barge fuel tax which was estimated to collect an additional \$460 million per year from the industry. The other issue concerns the existing fuel tax funding program for navigation-related construction projects associated with the waterways, currently prescribed by the Water Resources Development Act of 1986 (P.L. 99-662). Pursuant to this landmark legislation, 50 percent of the construction costs for inland river transportation structures are financed from revenues taken from the Inland Waterway Trust Fund, which is financed through a diesel



Curtis Whalen

fuel tax levied on the towing industry at an annual escalating rate (currently at 19 cents per gallon, set to reach 20 cents per gallon in 1995) which extracts from the industry approximately \$80 million per year. As part of the negotiations which led to passage of this cooperative public-private financing program, Congress specifically agreed that "...The federal share of the costs of operation and maintenance of any project for navigation on the inland waterways is 100 percent."

Subsequently, following lengthy industry and Corps of Engineers negotiations, an additional agreement to include 50 percent Trust

Fund financing for major rehabilitation projects — which are expected to comprise a major portion of the Corps' waterways construction budget in the years ahead — was incorporated by the Congress in the Water Resources Development Act of 1992.

Thus, the joint funding system that has been established pursuant to specific congressional mandates, requires commercial navigation to pay one-half of all construction and rehabilitation costs of the system, and the federal government to pay the other one-half plus 100 percent of the O&M costs.

As to the particulars of the actual user fee debate, in essence, some economists and officials within the Administration believe that the barge and towing industry is overly subsidized and should pay more (all) of the cost associated with inland river navigation-related structures, and particularly for those operational (O&M) costs associated with these structures, from which they receive substantial benefit. The industry generally counters that they already directly pay their fair share for benefits received through Inland Waterways Trust Fund fuel tax deposits, and that whatever additional economic "subsidy" is deemed to exist regarding the waterways network goes not to them but to the commodity shippers and the many other users/beneficiaries of the system, a result clearly envisioned and intended by the Congress.

Indeed, while commercial navigation's direct financial support of the waterways infrastructure from which they benefit is established under law, there is no similar

direct financial obligation assigned to the waterways' many other users and beneficiaries, and particularly the millions of Americans outside of commercial navigation interests who directly benefit from the inland river network's impact on:

- **Flood control** — The U.S. Army Corps of Engineers estimates that \$18 billion has been expended for flood control projects incorporated in the inland river system, which have prevented over \$100 billion in flood damage (flood damage savings impacts from the Great Flood of 1993 are not included in this number);

- **Fish, wildlife, and wetlands preservation** — Since enactment of the Endangered Species Act of 1973, the Corps has given priority to fish and wildlife protection for threatened and endangered species over all authorized water uses except flood control. River flows are increased or decreased when necessary to enhance the spawn of various fish species and to improve the survival rates of threatened bird species. River flows are also controlled to enhance and protect America's dwindling inventory of wetland areas and, along the Gulf Coast, numerous lock structures control damaging salt water intrusion;

- **Water supply** — Literally thousands of communities and municipalities and millions of people rely on the lake and pooling areas created by the inland river lock and dam facilities for drinking water, industrial water resources, and for water for crop irrigation requirements;

- **Hydroelectric power generation** — Utilities along the inland



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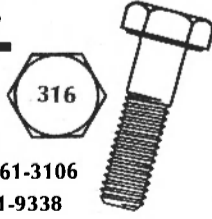
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system utilize vast quantities of water for power generation and operational uses;

• **Recreation** — The lakes and pooling areas created by and for the inland waterways infrastructure provide recreational and fishing areas which are utilized and enjoyed by millions of Americans each year;

• **Regional Economic Activity** — Low cost waterborne transportation serves to extend, both domestically and internationally, the markets for regionally produced goods,

and stimulates positive employment growth in a multitude of support services associated with the major bulk commodity industries which utilize barge transportation to move their goods.

The argument that these many other economic impacts are, in fact, what has stimulated and justified the government's waterways investment is clearly underscored by the approval process established by the Congress for inland river projects. That process requires that before

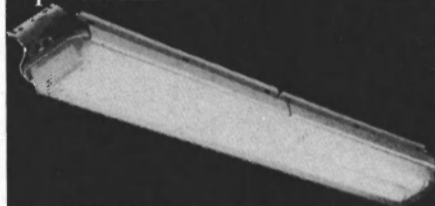
any project is approved, it must pass a rigorous cost/benefit test which establishes under law that the public benefits surpass by a large margin the project's projected costs. Noteworthy to the ongoing debate is the fact that included in the cost side of this analysis are the projected Operation and Maintenance expenses of the project over its estimated useful life.

Thus, while the Congress requires commercial navigation interests to directly pay for benefits

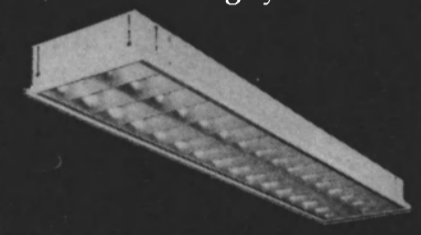
they derive from the system through specific escalating fuel charges, other users/beneficiaries of the system, i.e., the general public, have their costs "covered" by the federal government based on the cost/benefit analysis which establishes that for each navigation infrastructure project the "public benefits" exceed the public's-government's costs (including O&M). Unfortunately, even though the record of economic return on investment clearly establishes that the public/private partnership which has fashioned today's waterways infrastructure has indeed been a success and has yielded great financial and social returns to the government/public for its investment, in today's reality of budget deficits, past successes may not be enough. In its near desperate search for new sources of revenues, "user fees," which simply transfer government's expenses to the private sector, clearly have become a Washington favorite. A recent Congressional Budget Office (CBO) report documents that between 1980 and 1991, federal user fee charges increased (in constant dollars) 54 percent (to \$120 billion) and CBO predicts more of the same in the '90s. This fact shouldn't come as a surprise when one considers that under the government's accounting system, user fees are classified as spending reductions and not what they really are — new tax increases.

Against this bleak backdrop, the industry is beginning to take the offensive, particularly concerning the cost side of the infrastructure itself. The congressionally-established Inland Waterways User Board has initiated efforts to encourage the Corps of Engineers to examine ways to reduce navigation construction costs, streamline project selection and approval processes, consider the benefits of privatizing all or parts of the inland waterways, and to delay approving more river projects not already in the funding stream. Some industry executives are also urging that construction schedules for projects already approved be stretched out to slow down the drain on Trust Fund receipts, which could be depleted before the end of the decade. In addition, work has commenced on providing better and updated documentation of the massive economic benefits which are derived from the waterways infrastructure, which will hopefully serve to debunk the commercial navigation "subsidy" argument. If the Congress deems it appropriate to reconsider the current funding structure, the industry submits that it should do so based upon solid impact analyses, and after full discussion and debate in the authorizing and appropriating committees which have fashioned their public/private financing set-up. This full debate request — as opposed to the no debate format of the budget process — is particularly important given the magnitude of private investment which has been made or underwritten by a vast number of local governments, individuals, and companies for land-side improvements based on the government's commitment to share in the financing of this multi-use waterways system.

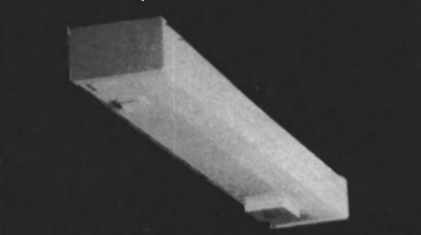
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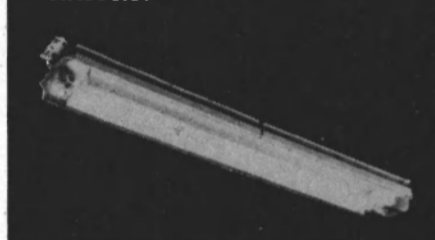
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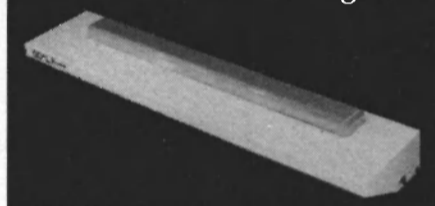
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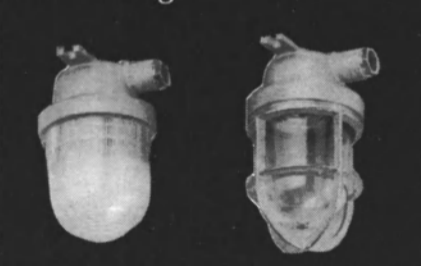
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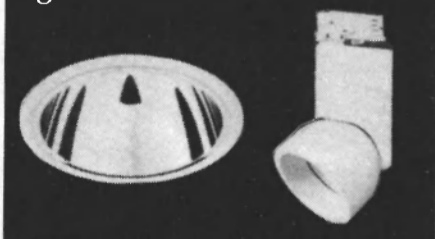
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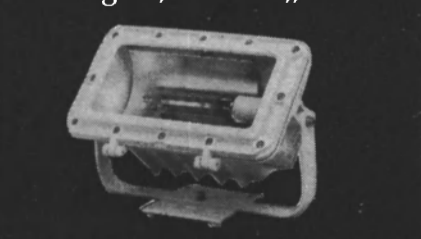
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## AWO: 50 Years Of Excellence

This year, as AWO and its members celebrate the association's 50th anniversary, we are reminded that the last half-century of challenge, progress, and victory demonstrate AWO's enduring commitment to service to the barge and towing industry. Here are a few of AWO's historical highlights:

• **May 1944:** The American Waterways Operators (AWO) organizes in Washington, D.C., charged with representing the inland barge and towing industry. The association is incorporated in Delaware on May 22, 1944. On May 26, AWO holds its first meeting in St. Louis. Throughout 1944, regional offices in New Orleans, Pittsburgh, and Chicago are established.

• **July 1, 1950:** The New York-North Atlantic area is formally established, along with the Atlantic Region (New York City) office, under an arrangement with the New York Towboat Exchange and the Harbor Carriers Association.

• **September 1955:** The National Waterways Conference organizes under the leadership of AWO to combat the threat of tolls and user charges on the nation's inland waterways.

• **June 1958:** AWO organizes a Boating Safety Committee with the purpose of achieving a better understanding between operators of commercial vessels and users of pleasure craft to assure more harmonious and safe use of the waterways. The Boating Safety Committee quickly expands into the National Safe Boating Association in 1959.

• **February 1969:** AWO's Board of Directors votes to amend the *AWO Constitution and Bylaws* to include representation of the coastal sector as well as the inland sector.

• **February 1976:** AWO opens its Midcontinent office in St. Louis to enhance service to members in the Ohio Valley and Midwest regions. The office is closed from 1983 to 1990 during the inland industry depression, but is reopened in 1991 in the midst of an ambitious membership campaign in those regions.

• **February 1976:** AWO's Shipbuilding and Ship Repair Committee reorganizes as the American Waterways Shipyard Committee, addressing exclusively the needs and concerns of AWO members' second-tier shipyards.

• **December 1978:** The American Waterways Shipyard Committee becomes the American Waterways Shipyard Conference (AWSC). AWSC emerges as an integral part of AWO, representing the interests of small- and medium-sized shipyards.

• **Fall 1979:** AWO leaders approach the House Coast Guard and Navigation Subcommittee to seek assistance in enhancing communication between the industry and the Coast Guard. Subsequent meetings result in the drafting and passage of a bill by the Subcommittee calling for the establishment of the Towing Safety Advisory Committee (TSAC). TSAC becomes an advisory group to the Secretary of Transportation on October 6, 1980.

• **March 1983:** AWO unites with its sister organization, the Water Transport Association, to form the Water Transport Conference, to address the issues of rail-water competition.

• **July 1988:** The midwest drought spurs AWO to organize leaders from industry, the Corps of Engineers, and Coast Guard to form the River Industry Executive Task Force (RIETF) to manage the drought's

effects on navigation on the nation's inland river system. The RIETF is resurrected in 1993 with the Great Flood in the midwest.

• **March 1989:** AWO launches its *Lifelines* boating safety program, borrowing on its early and enduring commitment to marine safety.

• **January 1991:** The Towboat and Harbor Carriers Association merges with AWO, bringing 20 new members to the association and creating a single, stronger voice for the industry along the Atlantic Coast.

• **April 1993:** AWO's Task Force on Mission, Structure and Finance recommends a plan to, among other things, create four committees and a Common Issues Council to better target AWO on the needs of the industry's operational sectors. The new committees, Inland Dry, Inland Liquid, Coastal, and Harbor Services, give members forums in which they can focus on issues specific to their particular operation. *Compiled by Eve Ann Holloway, American Waterways Operators*



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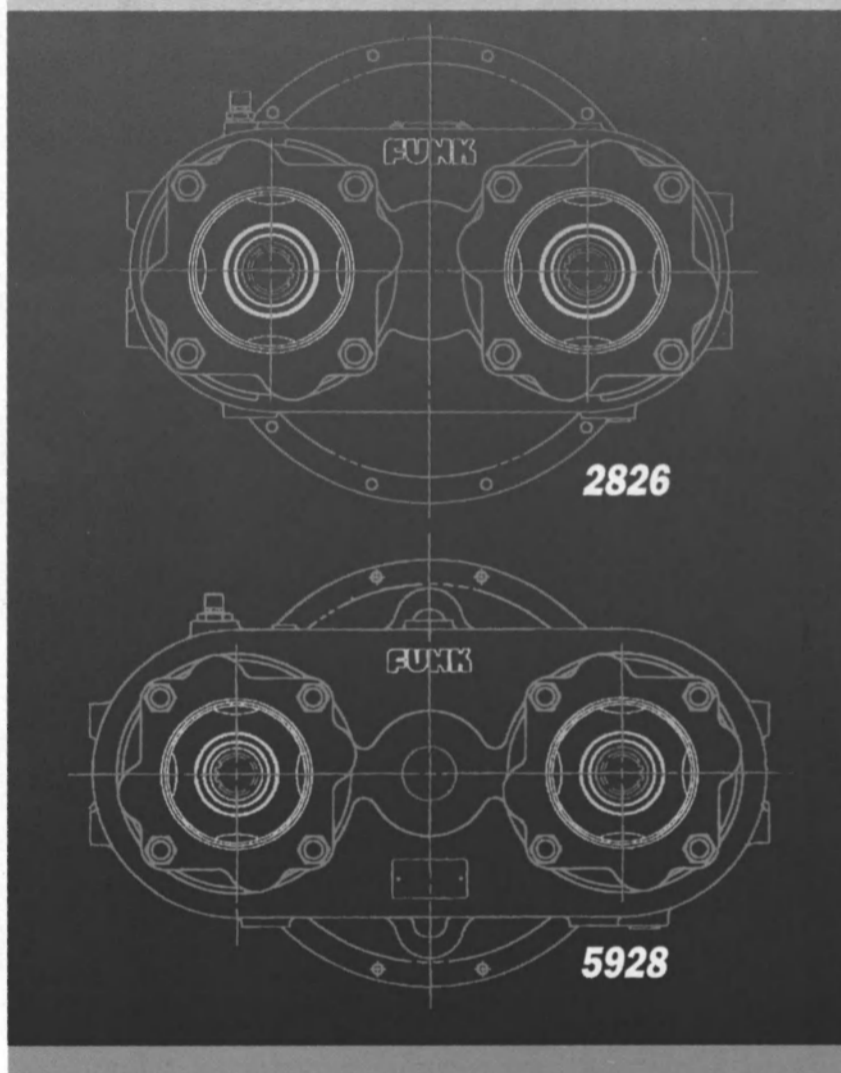


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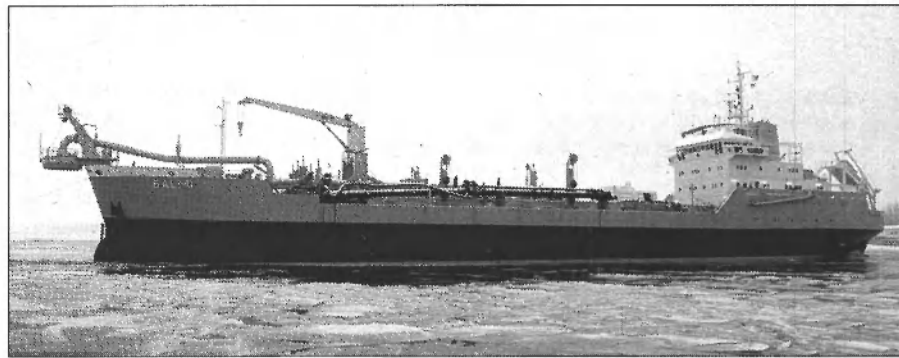
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# German Consortium Delivers Hopper Suction Dredger *Bali II* To Indonesian Company



*Bali II*, the first of three 5,000-cu.-m. hopper suction dredgers on order by a German consortium, was delivered in Stralsund to the Ministry of Communications of the Republic of Indonesia. Built by a consortium comprising the Volkswerft GmbH shipyard, Stralsund and the marine technology product group of Krupp Fordertechnik GmbH, Lubeck, the dredger is to be used by PT (Persero) Pengerukan Indonesia, Jakarta, for harbor and waterway maintenance.

*Bali II* is 413 feet (126 m) long with a beam of 59 feet (18 m) and a draft of 13.5 feet (4 m). The second hopper suction dredger with the same dimensions will be delivered at the end of April 1994. The third, scheduled for supply in the second half of 1994, is a self-propelled cutterhead dredger. On *Bali II* Krupp Fordertechnik was responsible for the engineering and the supply of state-of-the-art dredger equipment.

For more information on Krupp Fordertechnik,

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## Port Of Portland Finalizes Crane Construction Project

The Port of Portland Commission awarded a \$2,408,880 contract to Copenhagen Utilities & Construction (Copenhagen) of Clackamas, Ore., which is the final link in the chain of contracts required for the crane expansion program at Terminal 6 on the Columbia River. The crane expansion program includes acquisition of a new post-Panamax container crane from Hyundai Heavy Industries, Korea, as well as improvements to the existing crane rails and utility system to support the new crane.

The Copenhagen contract is for work at Terminal 6 berths 604 and 605 constructing new 100-foot-gauge crane rails, modifying the storm water drainage system and installing crane electric service. Construction is scheduled from spring 1994 to autumn 1994, prior to the delivery of the new crane.

The new crane is expected to be delivered in early 1995, when it will be assembled and tested. The schedule calls for it to be in service by late 1995. It will join the port's eight other container cranes. A second post-Panamax crane may be needed at Terminal 6 as early as 1997. For more information from the Port of Portland,

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## IGBE To Feature Casino Boat Builders, Suppliers

The International Gaming Business Exposition '94 (IGBE) will feature a wealth of information for both casino business newcomers and veterans.

Scheduled for April 26-27 at the MGM Grand Hotel in Las Vegas, IGBE offers a full roster of educational seminars which are geared to

maximize the profits of any and all casino operators. In following the industry trend toward the expanding riverboat casino market, the show features a full complement of maritime builders and suppliers.

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 Out-



standing 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. Enlisted 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 26, and from 11:30 a.m. to 5:00 p.m. on Wednesday the 27<sup>th</sup>. 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.

### IGBE '94 Exhibitor List (Partial)

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International Gaming Technology (IGT)  
Jeffboat  
Maritime Reporter  
Trinity Marine Group  
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## Members Service Corp. Grants Option To Trump

Members Service Corp.'s wholly owned subsidiary Riverboat Gaming Corp of Missouri granted an option for the St. Charles Riverboat site to the Trump Princess Missouri Corp. of Delaware. Should Trump exercise the option, Members Service Corp.'s subsidiary is to receive a reported \$3.2 million.

## Boomtown Seeks Indiana License

Boomtown Inc. and SES Gaming are reportedly looking for Indiana state permission to operate a pair of riverboat casinos on the Ohio River near Cincinnati. The companies filed application in a joint agreement, and each company would operate one riverboat.

Maritime Reporter/Engineering News

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## WASHINGTON UPDATE

### USCG Seeks Members For Towing Safety Advisory Committee

The U.S. Coast Guard (USCG) is seeking applications for membership on the Towing Safety Advisory Committee (TSAC).

TSAC is sponsored by the USCG and provides advice and consultation to the USCG on matters relating to the safe operation of towing vessels and barges.

The advice and recommendations of TSAC also assist the USCG in formulating U.S. positions at meetings of the International Maritime Organization and in implementing regulatory programs.

Applications are being considered for expiring terms and for other existing vacancies on the committee. Each member serves a two-year term and may be reappointed. The committee meets at least twice a year at USCG Headquarters in Washington, D.C. Special meetings may be called and subcommittee meetings are held to consider specific problems as required. Members service without salary, per diem or compensation for travel.

To be eligible, applicants should have experience in either marine transportation, occupational safety and health, environmental protection, or in business operations associated with the towing industry.

In support of gender and ethnic diversity among the committee membership, the USCG is encouraging qualified women and minorities to apply.

To become a member, application forms may be obtained by writing to Commandant (G-MTH-4), U.S. Coast Guard Headquarters, 2100 Second St., S.W., Washington, D.C. 20593-0001, or by calling Capt. **Gordon D. Marsh** or Lt.j.g. **Robert P. Gillan** at (202) 267-2997.

### Congresswoman Schenk Debuts Legislation To Rehab Maritime Industry

Citing budget restraints which would prevent funding for new initiatives, Congresswoman **Lynn Schenk** of California introduced legislation that would, as the Congresswoman points out, be a budget neutral approach.

The plan would reserve up to 30 percent of U.S. oil imports and 50 percent of U.S. motor vehicle imports for U.S.-documented vessels. The law, as proposed, would remain in effect until the top 10 foreign shipbuilding countries end subsidies to its maritime industries.

Congresswoman **Schenk** points to a recent Transportation Department survey—which shows that of 57 maritime nations, all of them provide maritime subsidies, 70 percent of them have bilateral cargo preference agreements, and 40 percent enforce a general cargo reservation requirement—to state a case that the U.S. maritime industry is in crisis, in need of strengthening, similar to legislation passed by Congress in 1974 in response to the oil crisis.

Dubbed the Merchant Marine Revitalization Act of 1994, the plan would purportedly open a portion of the international shipbuilding market to U.S. shipyards by creating a demand for U.S.-documented, U.S.-built and U.S.-crewed tankers and Ro/Ro vessels, it is claimed.

Projections by the Congresswoman claim it would provide order for about 130 ships and jump start the revitalization of the U.S. shipbuilding and ship repair industry, while at the same time ease the transition from defense to the civilian market without generating federal deficit pressure. The act, in its infancy, is designed to augment the maritime programs passed last year.

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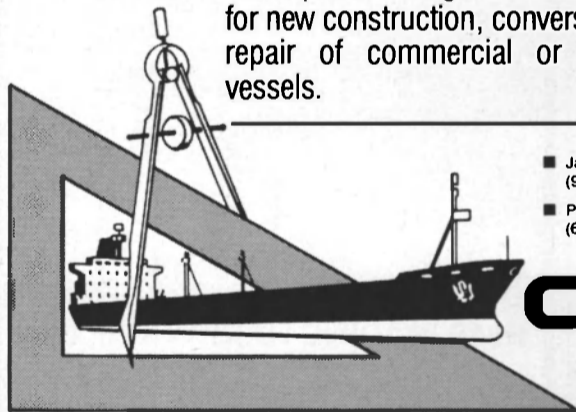
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President

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## WASHINGTON UPDATE

### MarAd's Herberger Comments On FY '95 Budget

The following is the statement issued by MarAd maritime administrator **Albert J. Herberger**, regarding the 1995 proposed budget:

The Administration's FY 1995 budget requests reflects the President's commitment to maintaining the status of the U.S. as a maritime nation. It moves us a step closer to Secretary **Pena's** goal of revitalizing America's maritime industry. It also fits into Secretary **Pena's** Strategic Plan to create a new alliance between the nation's transportation and technology industries to make them both more efficient and internationally competitive.

General parameters of the Administration's Maritime Security Program are outlined in the budget. The program is designed to maintain a modern American merchant fleet, provide sealift for national emergencies and ensure continuing American presence in the transportation of our vast international commerce.

The proposal will foster a modern, competitive American merchant marine at substantially lower costs than the existing program. It seeks to ensure the continued operation of merchant ships under the American flag by skilled American civilian seafarers. It also provides cost-effective supplemental sealift capacity which can be made available when needed to support the nation's armed services.

By identifying a source of revenue to offset program costs, the budget goes beyond previous maritime proposals. An increase in tonnage fees will provide the offset required by budget rules.

Legislation to implement the program is being prepared, and will be sent to Congress shortly. I look forward to working with Congress to achieve its enactment, this year.

The budget also supports the President's shipbuilding initiative, through MarAd's Title XI and research and development programs, and through funding of the Defense Department's Advanced Research Projects Agency.

It continues to fund other activities of the Maritime Administration which support our mission and Secretary **Pena's** strategic goals for the Department of Transportation (DOT). I appreciate the support of President **Clinton** and Secretary **Pena** for these important efforts.

### MarAd's FY '95 Budget Highlights

- **Maritime Security Program** — 10-year, \$1 billion program for maritime security payments to about 52 liner vessels in the foreign commercial trade of the U.S.
- **Shipbuilding Loans** — FY '95 includes \$50 million in DOT funds to cover the risk factor costs for Title XI loan guarantees. Over 1995-95, the budget will guarantee about \$1.5 billion of shipbuilding in the U.S.
- **Ready Reserve Force** — No new funds for ship acquisition in 1995, but \$118 million in deferred funds from FY '94. Additionally, DoD is expected to allocate \$43 million from sealift resources to acquire vessels for the RRF in FY95. From these combined resources, MarAd expects to buy seven Ro/Ro vessels in FY '95. New budget resources of \$250 million for RRF maintenance, operation and facilities.
- **U.S. Merchant Marine Academy** — Full funding for the U.S. Merchant Marine Academy.
- **R&D** — FY '95 budget provides for an increase of \$1.8 million in the MarAd's research and development program. In addition, funds in the DoD Advanced Research Projects Agency FY '95 budget will enable expansion of MARITECH. This industry-driven, defense conversion initiative program is part of the President's shipbuilding initiative.

Maritime Reporter/Engineering News



## Autoship Releases Hull Design/Surface Modeling Program

Autoship Systems Corp. (ASC) has released the *Autoship* for Windows hull design/surface modeling program, a system which combines the graphic user interface of Windows with the dexterity of NURBS (Non-Uniform Rational B-Spline) mathematics, the high-end CAD standard for surface modeling.

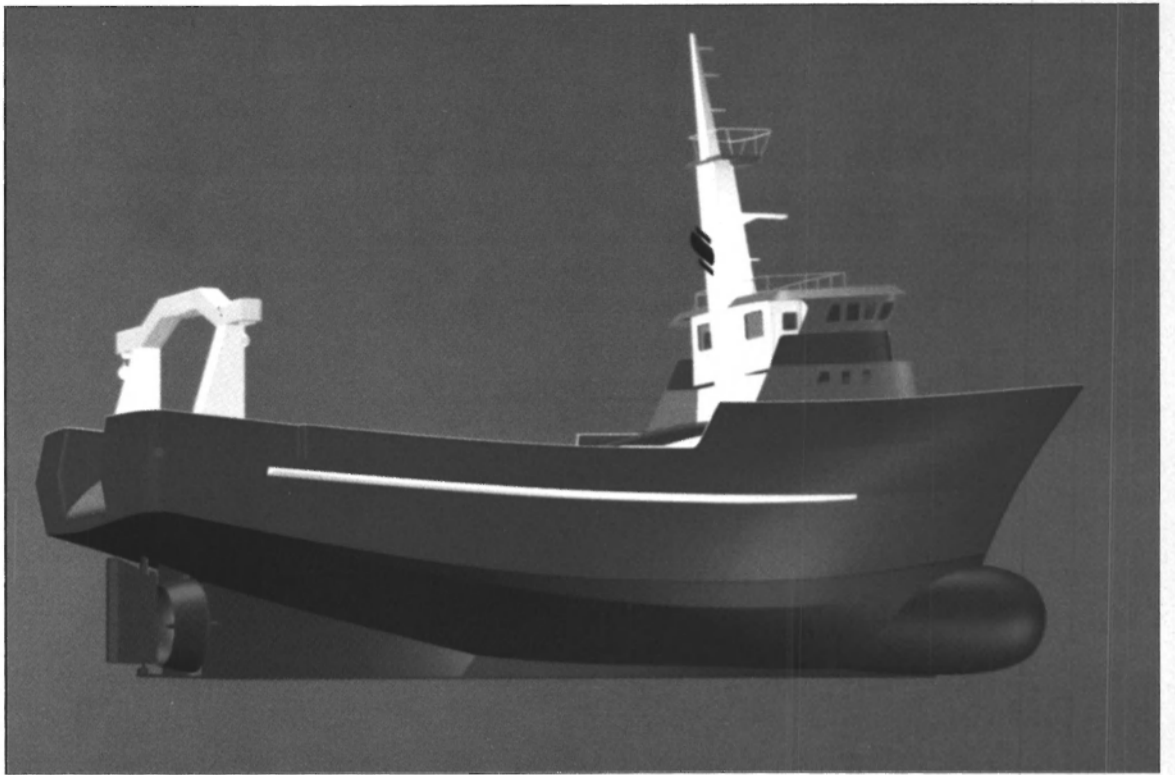
Designed from the ground up based on a survey of ASC's installed base, international dealers and beta testers, *Autoship* was designed to be an easy to use, powerful system which eclipses other surface modeling programs.

The system reportedly features a user-friendly interface, which allows a designer to work in one or four views, representing three orthographic views (profile, plan and body) and a rotatable 3-D view. The views may be re-sized by using a dynamic re-sizing feature.

Other features include: five-level, two-way zoom with pan and five-level, two-way Oops! which enables the designer to trace and retrace design steps. Gaussian and mean curvature may be depicted visually in color-mapped renderings, and the fairness of curves and surfaces may be graphically viewed using a "porcupine" feature.

*Autoship* uses a hierarchy consisting of points, curves, surfaces and assemblies. Objects can be linked together so that moving or editing an object automatically updates its dependents, meaning that, for example, a keel or other appendage can be attached to a hull and changes to the hull automatically update the keel/hull connection.

To ensure its success, ASC implemented a comprehensive series of beta testing before



Bill Wendel of Marco Seattle produced this model of **Chuck Cannon's** 125-foot Marco trawler entirely in *Autoship* for Windows™ and then exported it to 3D Studio® for rendering.

*Autoship's* release. **Bill Wendel** of Marco Seattle produced a model of a 125-foot (38 m) Marco trawler designed by Marco chief naval architect **Chuck Cannon** using 55 points, 183 curves, 105 surfaces and 84 assemblies. "I modeled everything in *Autoship* right down to the life rails, deck planks, window frames and mast platform and then exported it to 3D Studio for photorealistic rendering," said Mr. **Wendel**. *Autoship* models may be exported in 2-D or 3-D via industry standard DXF or IGES file formats into all major CAD and graphics programs.

The user of *Autoship* can specify a tolerance and all curves and surfaces are automatically refined to meet or improve the specification, enabling the user to meet 1mm accuracy for NC cutting or to specify greater tolerances to save on computation time for graphical display purposes.

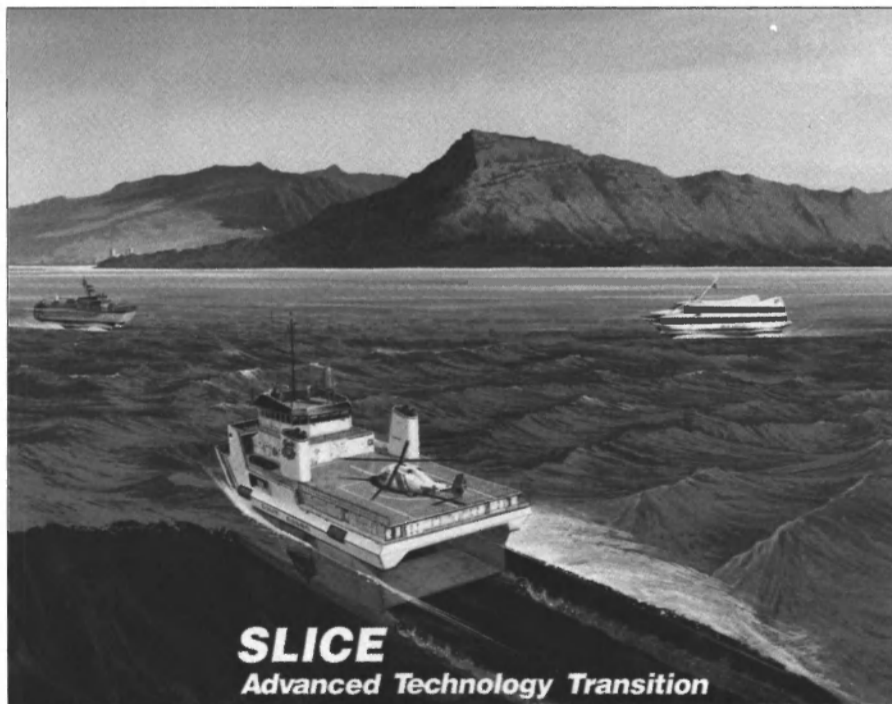
*Autoship* runs under Windows and Windows NT (as a 16-bit application), and ASC is planning to release its entire program suite as 32-bit applications under Windows NT.

For more information on the new program,

Circle 21 on Reader Service Card

## NEW TECHNOLOGY

### U.S. Government Allocates \$9.3 Million For SLICE Technology



Senator **Daniel K. Inouye** has secured \$9.3 million in funding from the Office of Naval Research, Washington, D.C. for the design and construction of a 120-foot (36 m), 35-knot prototype "ship of the future" incorporating an advanced SWATH ship tech-

nology called SLICE. A Hawaiian company, Pacific Marine, has been selected as subcontractor to build the high-tech vessel using a patent-pending design provided by prime contractor Lockheed Corp. of California.

The vessel will be constructed at

Pacific Marine's subsidiary Honolulu Shipyard, Inc. (HSI), according to parent company president **Steven C.H. Loui**. HSI has completed work on the 22-knot, 150-passenger SWATH tour vessel *Navatek II*, which began service in late January as the newest ship in the Royal Hawaiian Cruises fleet.

SLICE is a high-speed, 35-knot design variation of existing Small Waterplane Area Twin Hull (SWATH) technology found in the slower, 18-knot Hawaii SWATH tour boat *Navatek I* and the newer, faster 22-knot *Navatek II*. Both ships were designed by Pacific Marine's subsidiary Navatek Ships. "SWATH technology gives you an exceptionally stable ride, but if you try to make it go really fast, it requires more horsepower than a regular boat," explains Mr. **Loui**. "Based on computer simulations and model-testing, SLICE technology gives you a super-smooth SWATH ride, at high speed, without requiring additional horsepower. If the prototype performs as well as we expect, it could prove to be a breakthrough technology."

The funding proposal for the SLICE Advanced Technology Demonstration vessel was developed jointly by Lockheed Corp. and Pacific Marine. "Our extensive SWATH ship design, construction and operating experience, combined with Lockheed's new SLICE technology and design capabilities, made the proposal attractive to the Office of Naval Research," Mr. **Loui** explained. "We hope this is just

the beginning for high-tech ship construction in Hawaii."

Pacific Marine has negotiated exclusive commercial rights to Lockheed's SLICE technology, with Lockheed retaining the military market. "The prototype funded by the Office of Naval Research allows us to quickly advance the technology through the 'proof-of-concept' state," said Mr. **Loui**. "Ship buyers are conservative. They want to see a real operating ship before they buy. And this program will provide the proof. If the technology is proven successful, we think we can build vessels in Hawaii for export around the world."

For more information,

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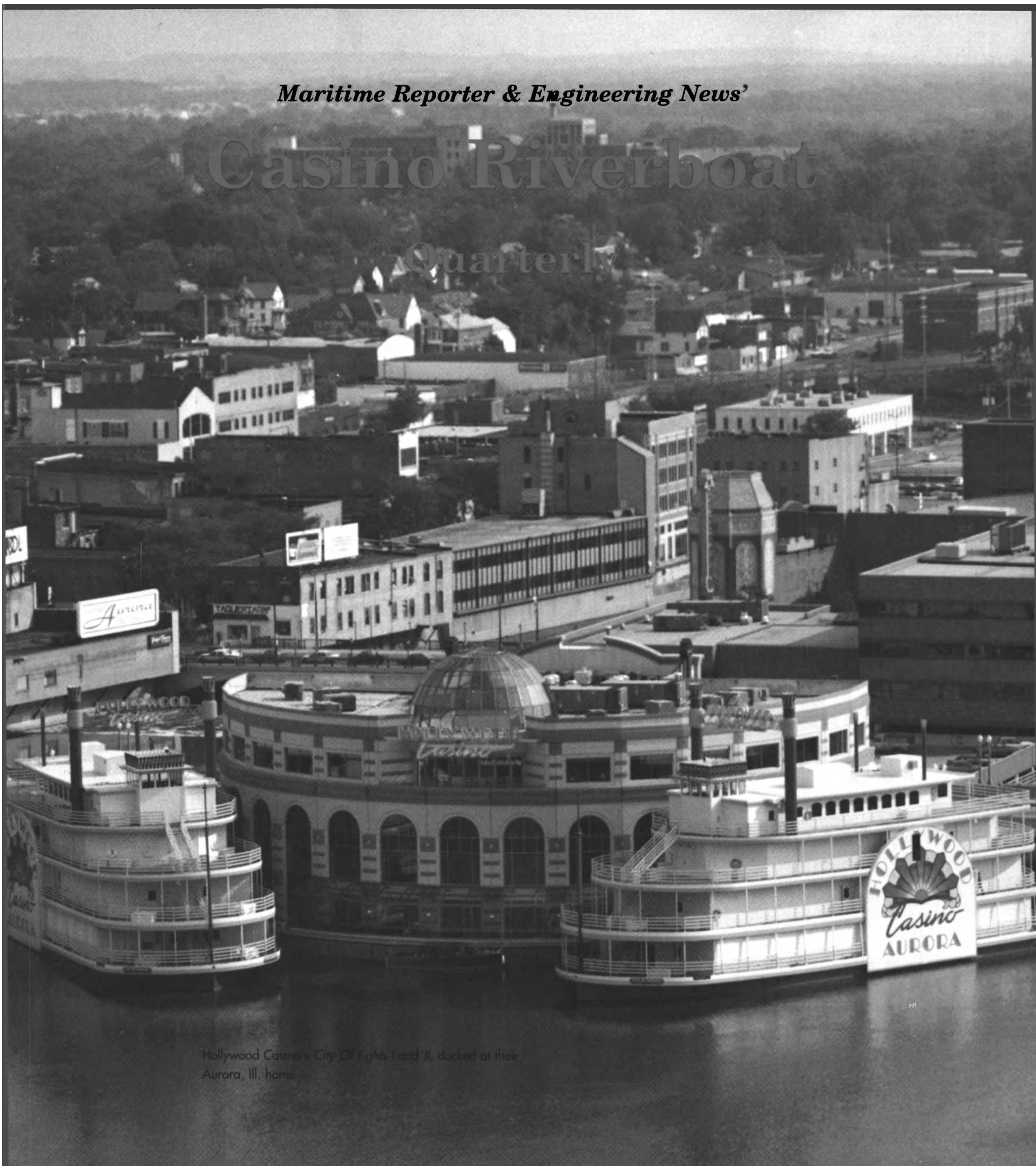
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*Maritime Reporter & Engineering News'*

# Casino Riverboat

Quarterly



Hollywood Casino's *City Of Lights I* and *II*, docked at their Aurora, Ill. home

## **In This Issue:**

- **Market Report: Owners Plan Future Newbuilds (pg. 51)**
- **Legislation: Missouri's Legal Battle Throws Casino Operators A Slug (pg. 58)**
- **Yard Review: Picking A Shipyard To Build Your Next Boat (pg. 60)**

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# Casino Boat Review

A boat currently under construction by Service Marine for Casino America's Bossier City, La. location.

By Greg Trauthwein, managing editor

The casino vessel market continues to ride a wave of optimism and orders, and state legislators are in the driver seat to take the market even higher. There have been several high-profile deliveries and openings recently, including the Trinity-built *Queen of New Orleans* and the Service Marine-built *Shreveport Rose*, and the log book for orders and deliveries remains full.

As shipyards churn out the casino vessels, the news of new licenses awarded and of states which are very close to legalizing riverboat gaming—including Texas and Ohio—have yards, suppliers and owner/operators alike showing confidence in the growing market.

There have been recent setbacks, however, namely an ongoing Missouri Court battle. The legal case revolves around the Missouri State Constitution and its ban on games of chance. The situation, which at press time remained unresolved, may require a state constitutional amendment to get casino vessels up and operating full-tilt in the state (see story, page 58 for details). Nevertheless, the proliferation of casino riverboats is quickly spreading, a reality even the staunchest critics and skeptics cannot deny.

## MARKET OUTLOOK

"The industry has a tremendous opportunity," said **Jack Pratt**, president and chairman of Holly-

wood Casino Corp. (Dallas), noting the many states which are currently considering riverboat gaming legislation, and, in general, the proliferation of gaming across the country. Hollywood currently operates two vessels in Aurora, Ill., a dockside facility in Tunica, Miss. and land-based casinos.

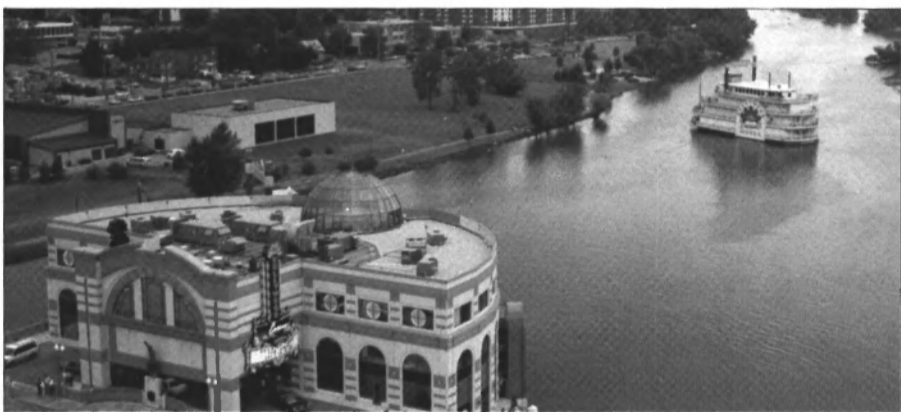
**Bernard Goldstein**, chairman of Biloxi, Miss.-based Casino America, predicts his organization will build one or two vessels a year. Casino America, which effectively started the industry with the opening of the *Diamond Lady* on April 1, 1991 in Iowa, currently has a vessel under construction at Service Marine for operation in Bossier City, La., a vessel which **Mr. Goldstein** hopes will open in April. **Mr. Goldstein** currently has his eyes and plans, as do many others, on the Missouri and Indiana markets, with a watchful eye on Pennsylvania and Texas, just two of the states

rumored to be close to riverboat gaming legislation.

While the prospects of new boat builds remains good for the next few years, both **Mr. Goldstein** and **Mr. Pratt** believe that as more states legalize, and the waterways become more clogged, dockside facilities will eventually become more widely accepted.

Summing up his company's riverboat gaming expansion plans as "our interests lie in anyplace that has or is contemplating gaming," **Scott Cooper**, executive vice president, corporate operations at Lake Charles, La.-based Players Riverboat Casinos, said that, based on the company's initial experience as a casino boat owner, the prospects for future expansion are good.

Players opened its Metropolis, Ill. facility in February of 1993, and its Lake Charles, La. operation in December of 1993; to date both have exceeded budgets, said **Mr. Cooper**.



Reverse view of the Hollywood Casino facility featured on the supplement's cover. The vessels featured on the cover are the *Aurora City Lights I & II*, owned by Hollywood Casino Corp. and stationed in Aurora, Ill. The boats, built on the side of the riverbank due to narrow navigation, were designed by DeJong & Lebet. The iron structure of the boats and their metal fabrication was completed by Garbe Iron Works; Maritime Systems Designs outfitted the vessels with electricity; the engines were designed by Cummins; and interior furnishings were provided by Gasser Co.



Players Riverboat Casinos, happy with the quality and timing of its two Leevac-built vessels, will seek a builder for a new vessel for its Missouri facility as soon as the state clears up a legal battle regarding gaming in the state.

per. Both Players vessels were built by Leevac. In part, he attributes the success to location, as Players is the only holder of a riverboat license in Southwest Louisiana, and the vessel draws nearly 70 percent of its business from Texas.

Contrary to reports of owners worried about the status of gaming in Missouri due to the recent legal battle, Mr. Cooper said "It won't affect (our Maryland Heights)

project one bit," an operation which is projected for a first quarter 1995 opening. To date, the company has not yet ordered a vessel for the site, but he said once the company gets a feeling for "what will happen and when, we will order a vessel. It's not a matter of if we go forward, it's a matter of how and how fast."

On the overall state of the industry and Players' role in, Mr. Cooper said, "The way I look at the industry is only a handful of states have legal-

ized, and there are about two or three handfuls which are considering it. I think the industry has a long way to go...the industry is just in its infancy."

While many in the industry are quick to point out the alleged downfalls of the cruising portion of riverboat casinos, Mr. Cooper sees it as a marketing advantage. "The riverboat portion does have some nostalgic appeal to our customers. Some of our business is through bus-

groups, older clientele who may not be big gamers but are into the overall experience."

#### OWNERS DIFFER ON BUILD STRATEGIES

The actual vessel procurement and purchase decision varies widely from one owner to the next. On one hand there are companies like Casino America, which is the offshoot of a barge line business in operation since 1960. On the other hand there are companies like Promus, a land-based organization, entirely new to the boat owner/operator role.

**Bernard Goldstein**, who started Alter Barge Line Inc. in 1960, saw a tremendous expansion opportunity arise with the legalization of riverboat gaming in Iowa, and resulted in the formation of Casino America. "We were in operation in Iowa since 1960, and that's why when there was talk of riverboat casinos coming to Iowa, I said we have to be involved." Mr. Goldstein, who refers to the "new animal of riverboat casinos," said river experience is very important to ultimate success. Casino America is an unusual case, as it came to the riverboat gaming table with the marine experience—having its own pilots and engineers—and it had to recruit from the casino industry for its expertise.

But whether marine experience—and personnel—is there to start or picked-up along the way, success as a casino vessel owner/operator is still very plausible. Promus Companies, whose Harrah's company has five vessels total—three delivered, two being built—started from ground zero regarding marine experience.

**Don Stroessner**, director of design and construction, has been with Promus for roughly six months, coming from a background in architecture. Mr. Stroessner said Promus counts on the expertise of naval architects, designers and the boat builders to make the Harrah's vessels a reality. Harrah's has two Service Marine-built vessels, the *Northern Star* and the *Southern Star*, in operation in Joliet, Ill.; at press time it took delivery of the Service Marine-built *Shreveport Rose* for Shreveport, La.; and it currently has two vessels under construction by Service Marine and Bender Shipbuilding & Repair, for Maryland Heights, Mo. and N. Kansas City, Mo. respectively. Mr. Stroessner, who is charged with the task of hiring the architects, designers and negotiating construction contracts, said the marine equipment specification is left up to the boatbuilder, and forwarded to him for comment and approval. Currently he uses marine specific consultants to review the specs, but he projects as the fleet grows, they may lean toward hiring a marine consultant for the staff.

Terming most of the riverboat vessel projects as "fast track," Mr. Stroessner said the key to a yard winning business is work schedule, past performance, price and people.

Mr. Cooper said Players is very

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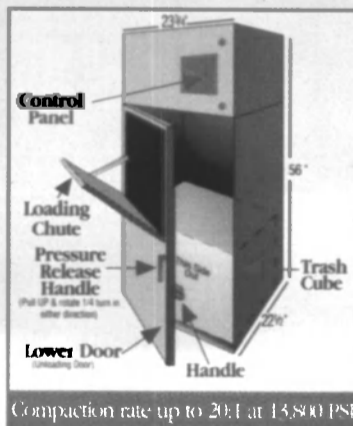
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## Casino Vessel Market

(Continued from page 52)

pleased with the quality and timing of its boats delivered from Leevac. He described his company's role in the building process as "hands-on," as Players retained the services of Rodney Lay & Associates and "sends people with construction experience in."

Terming the competition for licenses in legalized areas as fierce, he stressed the need to provide a complete entertainment package with a community outlook to be successful.

Finally, Mr. Pratt said Hollywood Casino Corp. has "hired the best naval architects and brought in people who know how to operate the marine side of it." Regarding decisions on specific equipment, he defers to the decisions of the naval architects and the vessel builders. "We specify what we need from a casino standpoint, and leave it up to the marine experts to fit it all together."

## Hollywood Casino, Hemmeter Team To Tackle Indiana License

New Orleans developer **Christopher Hemmeter** and Hollywood Casino Corp.'s **Jack E. Pratt** announced that their firms will form a partnership to compete for the gaming license for Michigan City, Ind.

Dallas-based Hollywood Casino currently operates two riverboats in Aurora, Ill., and will complete construction of a dockside gaming facility in Tunica, Miss. this summer. Mr. Hemmeter submitted an initial proposal to Michigan City for the construction of a gaming complex, the first to do so in September 1993.

Preliminary plans call for development of a combination waterfront resort/riverboat casino, with additional convention and recreation facilities.

Hollywood's Aurora boats are reportedly the second-highest revenue-generating riverboats in Illinois.

## Intl. Gaming Management Granted Zoning Permit

The Mississippi Wildlife, Fisheries & Parks Commission/Bureau of Marine Resources has granted a coastal wetlands permit to International Gaming Management, Inc. for its proposed dockside casino development project in D'Iberville, Miss. This action by the commission allows the company to seek approval for its application for a permit from the Army Corps of Engineers. The company's application for a Mississippi gaming license is also in progress.

## Ameristar Casino Vicksburg Opens

Ameristar Casino Vicksburg, reportedly the largest and most diverse gaming facility in Central Mississippi, opened February 27. Modeled after the paddlewheel vessels which cruised in the 1870s, the Ameristar Casino Vicksburg dockside riverboat is a part of a \$70 million development. The riverboat casino has 32,000-sq.-ft. of gaming space, and includes 1,050 slot and video poker machines, 44 blackjack tables, 12 poker tables, six craps tables and other gaming options.

All three levels of the riverboat are connected by escalators in a multi-level atrium.

## Lady Luck Raises \$185 Million

Lady Luck Gaming Co. announced that it has raised \$185 million, and the company reportedly plans to use the funds in part to proceed with expansion programs of constructing individually-themed casinos in several emerging markets, including in Mississippi and Missouri.

## Rodney E. Lay & Associates Offers Casino Cat™ For Offshore Service

The Casino Cat™ casino cruise vessel hull, developed by Rodney E. Lay & Associates in 1991 for Empress River Casino Cruises, is currently under construction at Atlantic Marine in Jacksonville, Fla. The 288-foot (87.7 m) *Empress III* features a combination of roll stabilizers to both minimize roll angle and increase roll period, to reduce discomforting lateral accelerations. The stabilizers are effective at any speed.

For more information on Rodney E. Lay & Associates,

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For more information on Atlantic Marine,

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## Walter Machine Outfits Casino Vessels With Keel Coolers

The Walter Machine Co. of Jersey City, N.J. supplied Walter Keel Coolers on the Bender-built *Star Casino*, the first gaming vessel to open in Louisiana.

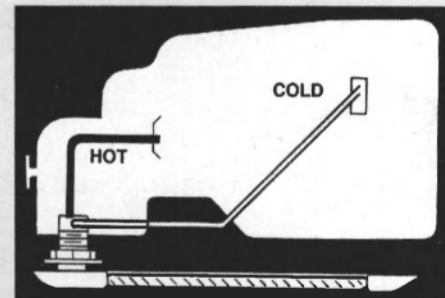
Walter Keel Coolers have been used on a number of other gaming vessels to cool propulsion engines, auxiliary engines and air-conditioning systems.

Keel coolers are a proven form of marine engine cooling, since their completely closed-loop cooling system eliminates the possibility of clogged sea strainers and raw water pump failures in dirty or ice-laden waters.

Featuring 70/30 cupronickel "Turbo Tube," Walter Keel Coolers' streamlined design conforms to hull curvatures and does not require recessing.

Prefabricated Walter Keel Coolers save thousands of pounds of weight on the hull, translating into reduced operating costs, according to the manufacturer.

Walter's Sea Chest model has also been reported to significantly decrease installation time since it eliminates the need for cofferdams inside the hull. Walter offers keel



Drawing of Walter Machine keel cooler circuit.

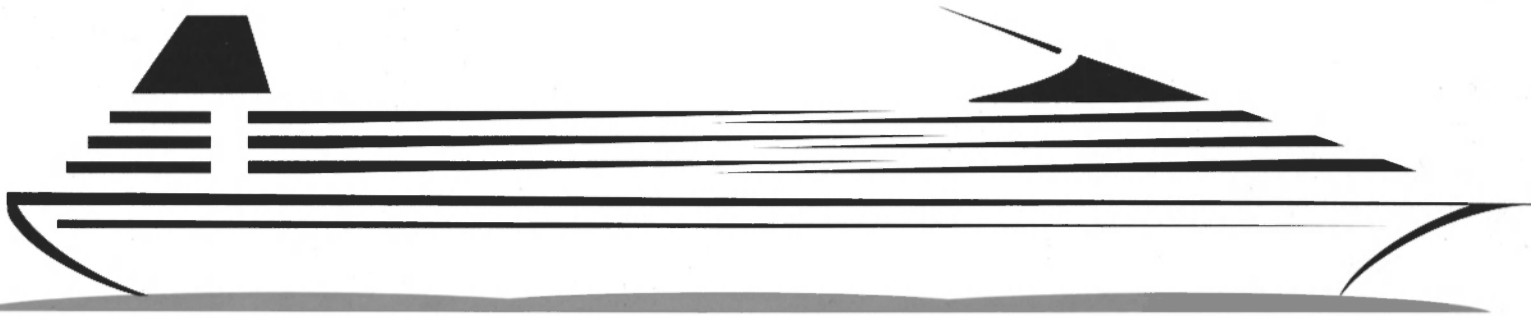
coolers for propulsion and auxiliary engines from 10 to 5,000 hp, including Caterpillar, Cummins, Detroit Diesel, Volvo Penta, MAN, GM EMD, John Deere, Luggar and more.

Established in 1927, Walter Machine Co. also manufactures a complete line of marine and industrial gear drives (V-Drives, reduction gears and speed increasers).

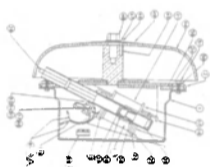
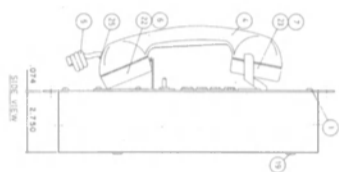
For additional information on Walter Machine's products and services for the casino riverboat market,

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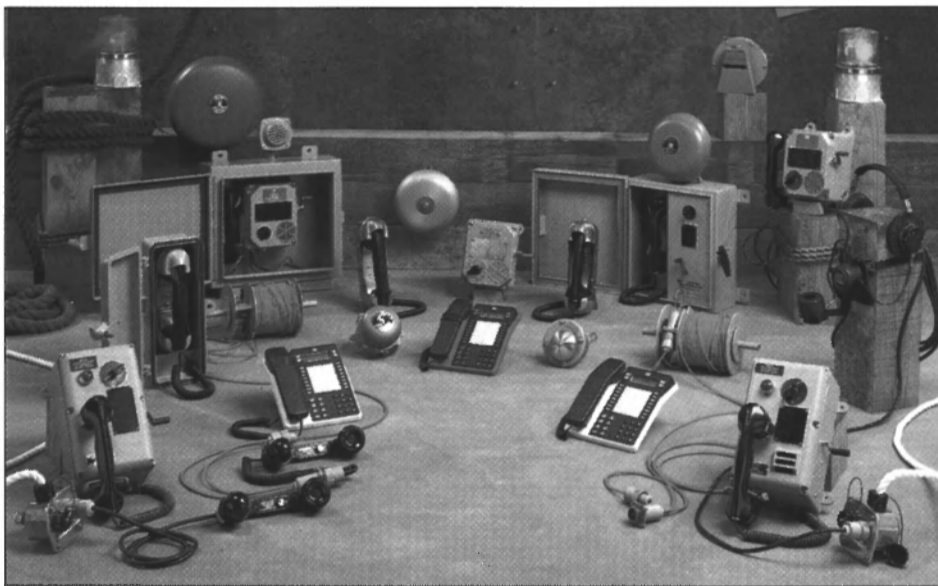
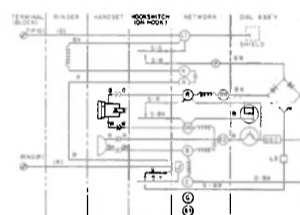
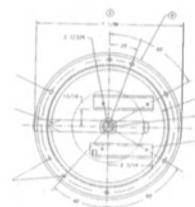


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# Legislators Help To Keep Gaming Wheels Turning

The legislative wheels keep on churning in the states which have already legalized—and the ones which are close to legalizing—riverboat gaming. Keeping abreast of the latest legislative happenings is key to capturing a valuable market first. The Transportation Institute of Camp Springs, Md. publishes the "Guide to Riverboat and Shipboard Gaming Legislation," a publication geared to keep all interested parties abreast of the latest legislative happenings. The following are excerpts from the latest report. For information on receiving the study on a regular basis, contact: The Transportation Institute, **Larry Evans**, 5201 Auth Way, Camp Springs, Md. 20746; tel: (301) 423-3335 or (202) 347-2590; fax: (301) 423-0634.

## ALASKA

H.B. 240, introduced in 1993, carries over to the 1994 session. While the intent of the bill is to legalize gaming aboard ferries, its purpose is to enhance the revenue of the ferry system in order to alleviate the subsidy it receives. H.B. 240 was the first gaming bill to be introduced since 1990.

## INDIANA

On November 2, 1993, nine counties and two cities held referenda on the question of allowing riverboat gaming. Voters in Vanderburgh, LaPorte, Ohio, Dearborn and Switzerland counties approved riverboat gaming; voters in Porter, Clark, Floyd and Warrick counties did not (and must wait two years to hold another vote). Riverboat gaming was also approved by voters in the cities of Hammond and East Chicago in Lake County. Voters in Gary in Lake County approved riverboat gaming two years ago.

As of January 6, 1994, there were a total of 25 applications pending for riverboat gaming licenses for the cities and counties that have approved riverboat gaming: six for Evansville in Vanderburgh County, three for Michigan City in LaPorte County, one for Rising Sun in Ohio County, two for Lawrenceburg in Dearborn County, one for Vevay in Switzerland County, three for Hammond in Lake County, one for East Chicago in Lake County and eight for Gary in Lake County.

The Indiana Gaming Commission has its offices in Government Center South, located at 302 West Washington St. in Indianapolis. **Alan Klineman** is the commission chair-

man, **Ann Marie Bochnowski** is the vice chairman, and members include **Dr. David Ross**, **Donald Vowels**, **Robert Sundwick**, **Bob Gilmore** and **Gene Hensley**. **John Thar** is the executive director.

## IOWA

In Iowa, the *Sioux City Sue* was sold by Sioux City Riverboat Corp. to Gamma Intl. of New Jersey, a move considered inevitable because of the restrictions in Iowa's gaming laws which put the state at a competitive disadvantage with surrounding states. Gamma hopes to use the vessel in Sugar Creek, Mo., pending obtaining a riverboat gaming license for the jurisdiction. Three communities, including Council Bluffs, which is on the Missouri river across from Omaha, Neb., as well as Marquette and McGregor have expressed an interest in riverboat gaming.

The *Mississippi Belle II* was sold to Southeast Iowa, and the boat will be renamed *Catfish Bend Riverboat Casino* and will sail out of Ft. Madison and Burlington, hopefully no later than September 1, 1994. Southeast Iowa has been without a gaming boat since July 1992 when the *Emerald Lady* departed to Biloxi,

Miss. Robert's River Ride, the current owner of the *Mississippi Belle II*, will replace the boat in Clinton with a larger boat that is being built by Houma Fabricators. Meanwhile, the *Dubuque Diamond Jo Casino*, a conversion, is located at Dubuque's Third Street Ice Harbor, and is expected to start operation this month. The H-class vessel at press time had yet to be inspected by the U.S. Coast Guard (USCG) to determine passenger and crew capacity.

## LOUISIANA

Five riverboat gaming licenses have been issued in Louisiana to date, to the Star Casino, Inc. (a partnership between **Louie Roussel III** and Showboat, Inc.), to Players Lake Charles Casino, to Queen of New Orleans (a partnership between Hilton and New Orleans Paddlewheels, Inc.), to Caesar's on the River, and to Louisiana Riverboat Gaming Partnership for Bossier City. The state's first gaming vessel, the Guido Perla-designed *Star Casino*, opened to the public on November 8 (see *MR/EN* December 1993) and the *Players II* opened on December 8.

The Trinity Marine-built *Queen of New Orleans* is scheduled to open

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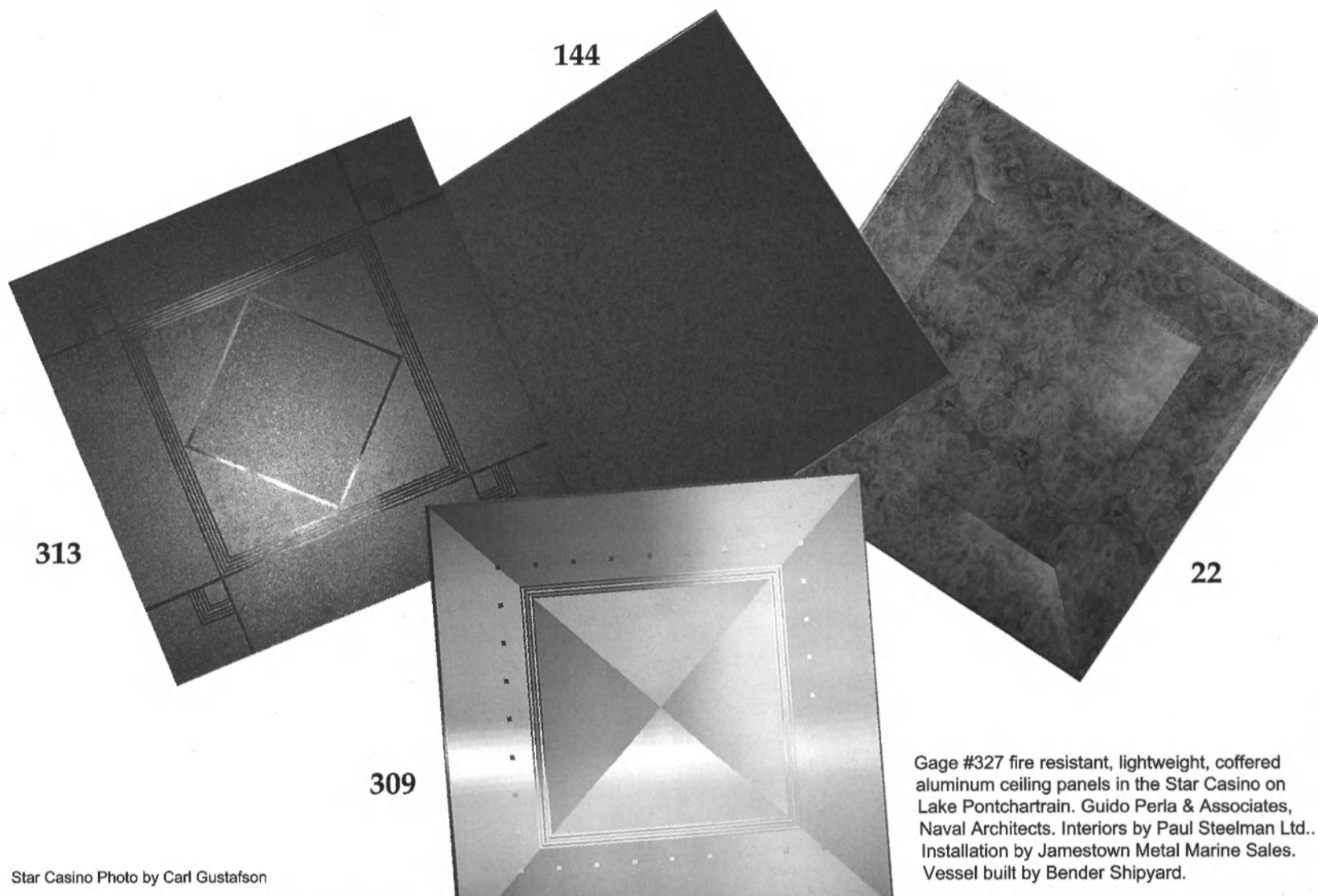
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# Casino Ceilings From Gage

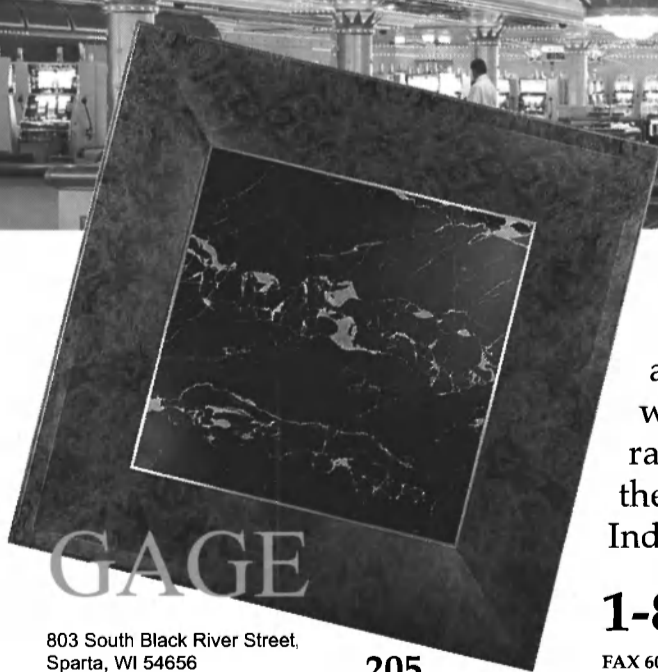


Star Casino Photo by Carl Gustafson

Gage #327 fire resistant, lightweight, coffered aluminum ceiling panels in the Star Casino on Lake Pontchartrain. Guido Perla & Associates, Naval Architects. Interiors by Paul Steelman Ltd.. Installation by Jamestown Metal Marine Sales. Vessel built by Bender Shipyard.



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on February 10, while the *Isle of Capri-Bossier City* is tentatively scheduled to open on April 15.

## MISSOURI

Missouri has been the center of attention due to a legal case which challenges the legality of certain "games of chance," including slot machines, baccarat, craps and rou-

lette, under the the state's constitution, which expressly forbids games of chance (see related story on this page for full details).

In requesting the rejection of Hilton Hotel Corp.'s proposed riverboat gaming location in Kansas City, the USCG has helped bring to the forefront the question of to sail or not to sail. The USCG requested that the Army Corp of Engineers refuse the permit because the project "would create an unacceptable haz-

ard to navigation." The planned site was near to a navigational channel that is already difficult to navigate, and both the USCG and local tow-boat operators objected to the project.

Without approval from the Army Corps of Engineers, the Missouri Gaming Commission cannot issue a gaming license. The USCG expressed the same concern for all areas along the Missouri River, and has suggested that the most rapid and acceptable solution would be to

require Hilton and others located on the river to be permanently moored. In Kansas City, Hilton, Hyatt and Boyd Group have been selected by the Kansas City Port Authority for riverboat gaming licenses. Here's the latest on other areas in the state:

- **North Kansas City**—Promus is planning to invest \$65- to \$70 million on a 60,000-sq.-ft. shoreside facility;
- **Riverside**—Argosy has contracted with the city, and its application is being reviewed by the Missouri Gaming Commission;
- **St. Joseph**—CMS International/Grace Development of Phoenix and Reno selected, application is being reviewed by the Missouri Gaming Commission;
- **Parkville**—Sahara Resort Casino selected, plans one stationary boat and one family entertainment boat;
- **Randolph**—ETT Ltd. of Las Vegas is negotiating with Randolph;
- **Sugar Creek**—Griffith Gaming was selected, but problems over logistics for its location are unresolved and Gamma International, a former candidate, approached the community again;
- **Jefferson City**—Becker Gaming won in March.

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## Court Case Puts Gaming On Hold In Missouri

A battle over the legality of some "games of chance" is proving to be a headache for casino riverboat owner/operators, possibly keeping their doors shut for months until a final decision is rendered.

The center of the story is the case Troy Harris, et al. v. The Missouri Gaming Commission, a case in which the constitutionality of the legislation approving dockside and riverboat gaming is being challenged. The Missouri Supreme Court reportedly held that the Missouri Constitution specifically recognizes games of "skill" but not games of chance. The Court held that poker and twenty-one were games of skill, and permissible under the Missouri Constitution. As to the other games permitted by the Missouri gaming legislation, including slot machines, baccarat, craps, roulette, klondike, faro and video games of chance, the Missouri Supreme Court remanded to Circuit Court for determination.

It is now believed that it will be necessary to seek a constitutional amendment in order to alleviate the challenge. Missouri governor Mel Carnahan reportedly said in a prepared statement "While today's ruling by the Missouri Supreme Court is important, I do not see this as a major setback for riverboat gaming in Missouri. The citizens of this state voted overwhelmingly in support of riverboat gaming in 1992, and I think we have an obligation to ensure that it is implemented. It is

*(Continued on page 62)*

Circle 209 on Reader Service Card





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

Top left: 189 ft. Paddlewheel Excursion Vessel.

Bottom left: 184 ft. Excursion Vessel.

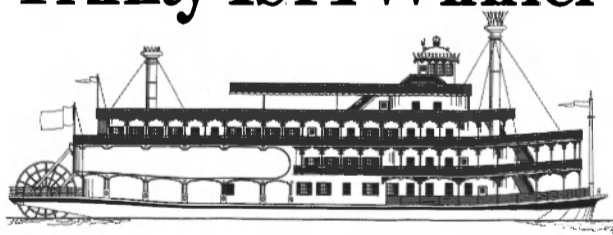
Top right: 200 ft. Trinity Space Ship.

Bottom Right: 140 ft. Excursion Vessel.

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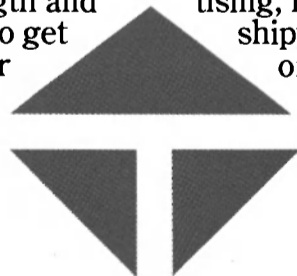
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## YARD REVIEW

The following is a quick-look guide to some of the yards active in the newbuilding and conversion of vessels and barges for use as riverboat casinos.



**Trinity's Lockport Yard**



**Service Marine**



**Peterson Builders**



**Patti Shipyard**



**Leevac Shipyard**



**Homeport Marine**

### Atlantic Marine

Circle 127 on Reader Service Card

Atlantic Marine, Inc., able to build vessels up to 400 feet long, has built six vessels to date and has six under construction. Atlantic built its first gaming vessel, the paddlewheeler *Diamond Lady*, in nine months. The next two vessels built by Atlantic Marine, the *Emerald Lady* and the *Par-A-Dice*, were also paddlewheel-style. These three gaming vessels were followed by three catamaran-style vessels, the *Empress*, the *Alton Belle II* and the *Empress II*. Atlantic Marine currently has two catamaran-style vessels under construction. The first is being built for Par-A-Dice Gaming Corporation and will operate in Peoria, Ill. It will have 26,000 sq. ft. of casino space on three decks. The second is a 280-foot by 74-foot boat designed for Great Lakes service. It will have capacity for 1,800 passengers. Atlantic Marine also specializes in the installation of equipment and systems critical to casino boat operation, such as gaming equipment, surveillance, data collection, etc.

### Bender Shipbuilding & Repair

Circle 128 on Reader Service Card

In July 1991, Bender Shipbuilding & Repair Co. completed the conversion of the 156-foot *Alton Belle Casino*, the first riverboat casino to operate in Illinois. Bender's engineering department offers an extensive library of casino designs.

Bender expanded its capabilities by opening a shipyard in Braithwaite, La. in January 1993. 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 *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 casino-restaurant barge operating in Tunica, Miss., was converted in less than 120 days.

### Homeport Marine Services

Circle 161 on Reader Service Card

Homeport Marine offers a full range of casino vessel services from barge and vessel construction on down. Homeport Marine undertook the task of connecting four barges together both transversely and longitudinally for Treasure Bay Casino in Robinsonville, Miss. The barges are permanently connected with a 13.5 foot space between them. This configuration gives the casino a foot print of 440 feet in length and is 116 feet wide. The bow end rake was removed from the barges and a new pointed bow was fabricated and installed to facilitate the pirate ship theme of the casino. One-inch-thick plate bulkheads were added at 46 locations to support the column loads exceeding 300 tons each. When completed, the *Treasure Bay Casino* in Robinsonville will reportedly be the world's largest private ship. Homeport recently undertook a project to do moorings and hull repairs for another casino barge, this time for Palace Casino, Biloxi, Miss.

### Leevac Shipyards, Inc.

Circle 129 on Reader Service Card

Since the delivery of the *Casino Rock Island* in November 1991, Leevac has delivered five casino vessels, each reportedly completed on or before the promised date. The vessels have ranged in size from 190- to 367 feet long. The last delivery was the 367-foot *President Casino IV*, the third casino vessel for the President Riverboat Casino Company, completed on February 4, 1994. The vessel closely followed the second vessel built for Players International last November. Leevac Shipyards, Inc. is a moderate size shipyard with modern capabilities, employing 250. Leevac has an engineering/programming staff that utilizes AutoCAD to develop the required construction drawings and programming to cut the steel on its own computer-aided Plasma-cutting machines. In January 1994 Leevac expanded its capabilities by leasing another shipyard 2.5 miles south on the Mermentau River.

### Patti Shipyard

Circle 130 on Reader Service Card

Patti Shipyard was proud to be the first shipyard to deliver a riverboat gaming vessel on the Mississippi. The *Dubuque Casino Belle*, now the *Casino St. Charles*, was delivered in April 1991. Patti has not looked back since, delivering what is reportedly the largest gaming vessel on the river, the *Casino Queen*, in June 1993. The *Queen* weighs in at 7.1 million lbs. fully loaded and is a tug/barge combination, similar to its predecessor. The shipyard prides itself on pricing and boasts that each of the vessels were built for the price that they were bid for. Patti Shipyard operates with an average "core" crew of 60-70 individuals. Its facilities include a large construction bay, a blasting shed, building ways with three railroad tracks for launching and a fabrication shop outfitted with up-to-date tools and equipment. Patti also offers in-house design with complete Computer Aided Design (CAD) and visualization capabilities.

### Peterson Builders, Inc.

Circle 131 on Reader Service Card

Peterson Builders, Inc. (PBI) is a full-service shipyard located on Lake Michigan which designs, builds, converts and repairs vessels for both the commercial and military markets. PBI has positioned itself to provide Great Lakes casino boats for operation on the Lake Michigan shore of Indiana and other potential Great Lakes and coastal sites. Throughout its history, PBI has constructed many different types of passenger and commercial vessels, including those of similar size (300 + feet long) to the requirements of most casino vessel operations. PBI has vast experience in the use of different materials for hull construction and outfitting. PBI has immediate space available to support a quick construction or conversion period. Additionally, PBI has developed a wide variety of Great Lakes and coastal casino boat designs, both new construction and conversion of existing vessels, with gaming areas in the 30,000 to 60,000-sq.-ft. range.

### Service Marine Industries

Circle 132 on Reader Service Card

The riverboat casino market has been very important to Service Marine Industries, Inc. (SMI) in both sales and the expansion of its facilities. SMI has built 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. SMI has expanded to two shipyards in the Morgan City, La. area with a majority 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. Knowing that timing is key to this market, SMI has recently started building one of its standard 254-foot diesel electric, 30,000 sq.-ft. casino boats using its own resources, on speculation that this vessel will be purchased in the near future.

### Trinity Marine Group

Circle 133 on Reader Service Card

Trinity has the capability to design casino boats with its own in-house naval architects. Its engineering staff of over 100 has developed preliminary plans for gaming vessels ranging from 220 to 405 feet; with passenger capacities from 1,200 to 3,500; and of the sternwheel, imitation sidewheel or ultra-modern design. All designs can be modified. Trinity has also worked with naval architects to build boats to owner specs. Trinity has developed a 337-foot by 68-foot by 15-foot Casino Paddlewheeler for Hilton/New Orleans Paddlewheeler. 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*. Trinity currently operates 13 shipyards in six states and its large capacity enables the construction of numerous boats concurrently.



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## Missouri Gaming On Hold

(Continued from page 58)

apparent, however, that we need to take another step to complete the process. I believe it will be necessary to seek a constitutional amendment that addresses the Court's concerns. I will be working with Speaker **Griffin** and Sen.

**Mathewson** and other legislative leaders to put a constitutional amendment before Missouri voters."

A simple majority of voters in a statewide election is required to amend the Missouri Constitution, and the earliest that such an election can be held is April 5.

Despite the obvious glitch, it's reported that the Missouri Gaming Commission is continuing its efforts to move forward with the licensing process. Those most affected by the

turn of events—the owners and operators which have already spent millions in building boats, refurbishing waterfronts, etc.—responded to the news in a mixed, but mostly upbeat fashion.

Station Casinos Inc. announced its plans to participate in the statewide effort to address the constitutional issue, and that it will proceed with preparation for operations at its site in St. Charles, and will begin gaming operations as soon as an

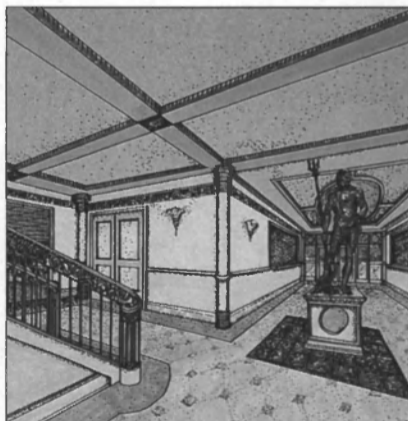
appropriate constitutional amendment is adopted.

Argosy, which currently has an application under review for the City of Riverside, stated that the original *Alton Belle Casino I*, which would be used on a temporary basis, is currently located in Kansas City and is available for cruising upon receipt of all necessary permits, approvals and licensing. It is also evaluating providing table poker, video poker machines and twenty-one upon receipt of all regulatory approvals for its Riverside site until the final outcome of the Missouri gaming legislation is given. Finally, the company has delayed any barge construction for its St. Louis site until the outcome of the pending lawsuit is known. President Riverboat Casinos issued a statement saying while the court's decision raises questions, it intends to move forward together with the Missouri Gaming Commission in its licensing process. The company also said that it intends to open the facility with as many games as are permissible under the existing laws.

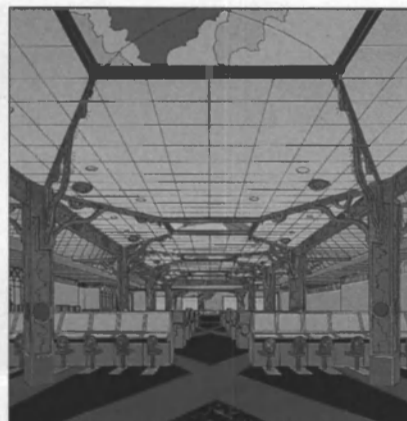


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## Bohnet & Assoc. Offers New Mississippi Rescue Boat System

Bohnet & Associates announced the first rescue boat system under the new requirements of U.S. Coast Guard New Orleans for large passenger vessels in protected and semi-protected waters. Bohnet's model MQDB rescue boat system passed testing for main deck and upper deck launch conditions in the Mississippi River on February 9, on board the Trinity-built *Queen of New Orleans*. The systems were developed by Bohnet & Assoc. in a joint venture with Mar-Quipt, Inc., Custom Boat and Tim's Marine. For more information on the MQDB system from Bohnet & Assoc.,

Circle 141 on Reader Service Card

## Infanti Chair Awarded Three U.S. Patents For Gaming Chair Assembly

Infanti Chair Manufacturing Corp. of Staten Island, N.Y. was recently awarded three separate patents for a detachable game stool assembly for use in conjunction with slot machines.

The manufacturer claims that the assembly allows the casino owner/operator easier access to the machine when collecting money, and the uniquely designed unit offers the maximum in player comfort.

Infanti specializes in the manufacture of stackable chairs and commercial furniture. Well-known among land-based clients in the hotel, restaurant and catering business, Infanti is actively involved in the riverboat casino market.

For more information on Infanti,

Circle 147 on Reader Service Card

Maritime Reporter/Engineering News



**Shelby Williams Introduces Slot Machine Stool Base, "Action Back" Chair**



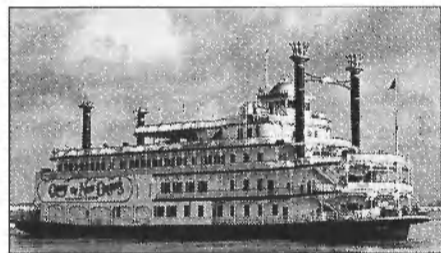
Chair with slot machine stool base from Shelby Williams.

Shelby Williams has introduced a patented slot machine stool base constructed of anodized aluminum and available in satin gold, brass, architectural bronze or satin natural aluminum finishes. The base is available for either "quick-release" or permanent bolt installation. The base can be used on any style Shelby Williams stool upper.

Shelby Williams also makes a new "Action Back" swivel blackjack stool with an all-aluminum base and solid brass footrest. The outside edges of the back are protected by clear vinyl applied over the upholstery material. The outside back of the stool is available in a variety of abstract designs. For more information from Shelby Williams,

Circle 70 on Reader Service Card

**Trinity Delivers Queen Of New Orleans**



The *Queen of New Orleans* Riverboat Casino, a joint venture of Hilton New Orleans Corp. and New Orleans Paddlewheels Inc. and built by Trinity Marine Group, opened recently in New Orleans. Among participants in the 245-foot 74.7 m) *Queen's* christening ceremonies were Louisiana State Senator **Francis C. Heitmeier**; New Orleans Mayor **Sidney Barthelemy**; and **J. Ron Brinson**, president and CEO of the Port of New Orleans.

Following the christening ceremonies, the *Queen of New Orleans* was opened to the general public for boarding and gaming at 11 a.m. and left the dock on her sold-out inaugural cruise at 11:45 a.m. The *Queen* will offer six cruises a day, and one more on Fridays and Saturdays. Later in the year the *Queen* will be replaced by a larger vessel of the same name, with 30,000 sq. ft. of space to the present vessel's 20,000, and able to accommodate 2,400 passengers to the present vessel's 1,500.

For more information on Trinity,

Circle 118 on Reader Service Card

**SMI Delivers Shreveport Rose**

Service Marine Industries, Inc. (SMI) of Morgan City, La., a major builder of both riverboat and dockside casinos, recently announced the departure of the sternwheel casino vessel *Shreveport Rose*, for her maiden journey to Harrah's Casino, Shreveport, La.

The 210-foot (64 m), three-deck

vessel sailed under her own power from the Service Marine outfitting facility in Morgan City at 11 a.m. on Friday, February 11, 1994.

Present for the Mardi Gras theme send off were local vendors, shipyard employees, and press from the St. Mary Parish area, Caddo Parish, New Orleans and various municipalities to be served by the Harrah's Shreveport Ship and Facility Complex.

The *Shreveport Rose*, Service

Marine Hull Number 169, is the second ship of her dimensions and design built for the Promus Companies/Harrah's Organization and the first of five such gaming ships currently under construction at the Amelia Island Main Shipyard which will be delivered in 1994.

For additional information on the casino vessel building abilities of Service Marine,

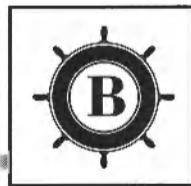
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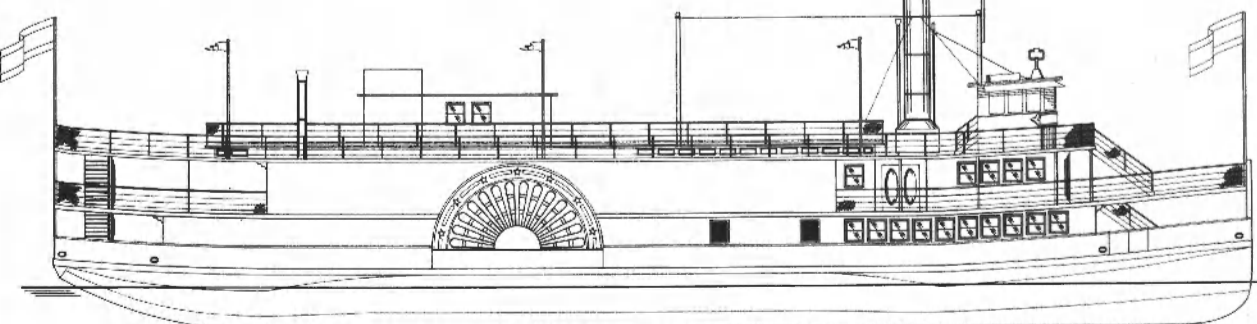


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Circle 21C on Reader Service Card

## Imperial Palace Of Indiana Files For Gaming License

Imperial Palace of Indiana Inc., a newly formed Nevada corporation which is being qualified to do business in Indiana to develop a 30,000-sq.-ft., four-level riverboat gaming operation and full-service destination resort, announced that the corporation filed on Feb. 2 an application for an Indiana gaming

license and a proposal for casino-style riverboat gaming in Lawrenceburg, Ind.

Imperial Palace of Indiana, Inc.; Imperial Palace Hotel and Casino, Las Vegas; and Imperial Palace of Mississippi are separate Nevada Corporations, related by ownership and management philosophies.

Imperial Palace Hotel and Casino, Las Vegas, is the world's tenth largest hotel, Nevada's fourth-largest private employer, the world's

largest independently-owned hotel and has been a successful 21-year gaming operator.

## Chicago Metallic Offers Range Of Ceiling Options

Chicago Metallic offers a wide range of ceiling system options, in-

cluding the Vista Parallel Beam System, Cube 1 & 2 Open Cell Ceilings, MegaCube Open Cell Ceilings, and Innoveil Linear Baffle Ceilings. Chicago Metallic's line of metal ceiling panels include Classique Metal; Lay-In Ceiling Panels, MirrImage Reflective Ceiling Panels, and OrnaMetal Stamped Ceiling Panels.

The company's line also includes the wood-veneered WoodPlus series of panels, in both lay-in and linear beam forms.

For more information on Chicago Metallic,

Circle 66 on Reader Service Card

## MTS Seating Offers Options For Space-Saving And Comfort

MTS Seating offers a wide selection of seating lines, including its Regency Collection, Premium Comfort Stackers and Space Savers, and Premier Stackers, to the Nestable LaBella line with exclusive ABS seat closure for maximum upholstery protection when nesting.

MTS also offers a line of counter seat stools, which come in the customer's choice of LaBella, Vienna Classic, Ricardo or Vincente designs, available for any pedestal application.

For more information on MTS Seating,

Circle 67 on Reader Service Card

## Wallace Appointed Bally Gaming Director Of Finance

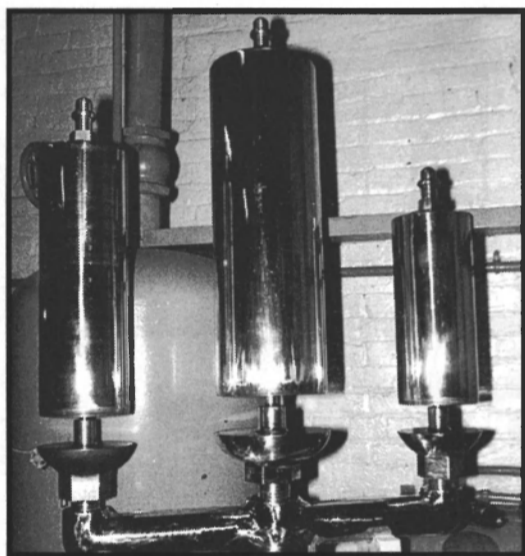


Benjamin Wallace

**Benjamin Wallace** was recently appointed Bally Gaming's director of finance. Mr. **Wallace** possesses more than 20 years of diversified financial and operations experience. A former U.S. Air Force officer, he began his business career at Hughes Aircraft Corporation. He then spent 16 years in financial management positions with Arco, where he attained the position of controller at Arco Pipe Line. Now he will use his extensive analytical, planning and managerial skills to direct the financial and administrative functions of Bally Gaming, Inc.

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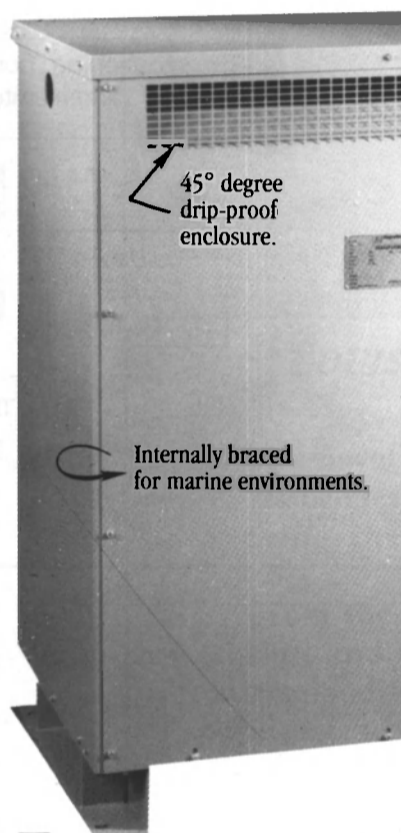
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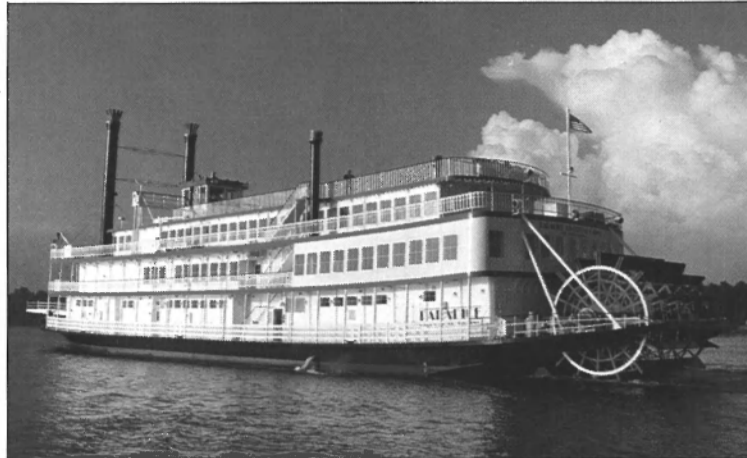
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## MARITIME PRODUCTS



### Willard Marine Sea Force 540 RIB For Rescue Or Workboat Application

New from Willard Marine, the Sea Force 540 RIB (Rigid Inflatable Boat) is a SOLAS 74/83 Rescue Boat, also produced in inboard and outboard diesel models with outdrive or waterjet propulsion as commercial workboats and tenders.

The 540 SOLAS is 18 feet (5.5 m) in length and complete with a SOLAS-approved 70-hp OMC outboard.

The versatile boat has also received U.S. Coast Guard (USCG) approval. Willard is a U.S. manufacturer of RIBs, and also a manufacturer of fiberglass boats to the USCG and the U.S. Navy. For more information on Willard Marine's Sea Force 540,

Circle 150 on Reader Service Card



### Trimble And Orion Introduce Satellite Spill Tracking Buoy

Trimble Navigation and Orion Electronics introduce the Slik•trak GPS buoy, designed for spill tracking in darkness and bad weather. Trimble demonstrated Slik•trak in Alaska's Cook Inlet to members of several oil spill response cooperatives, who reportedly said the system worked despite 40-knot winds, six-foot waves and icy waters.

Orion's are reportedly the only buoys proven to stick to oil and float with a spill. A Trimble receiver inside each buoy uses signals from GPS satellites to calculate its position. An internal radio modem transmits this location to a PC. The PC displays icons of the buoys which move with every position report from the buoys. For more information,

Circle 151 on Reader Service Card



### Handheld GPS: Full-Function Plotter At 4" x 7"

Raytheon's Raystar 198 is a differential-ready, full-function electronic charting system that uses C-MAP cartography. Only four by seven inches, it monitors up to five satellites on five parallel channels to pinpoint a boat's position. The unit is complete with five position and five navigation displays. Ten routes can be planned with 200 waypoints. The Raystar 198 comes with a mounting bracket and a card reader which enables C-MAP electronic charts to be downloaded into the unit's memory. The unit can accept Raytheon's optional Differential Beacon Receiver for differentially corrected satellite position accuracy. For more information on Raytheon's Raystar 198,

Circle 152 on Reader Service Card

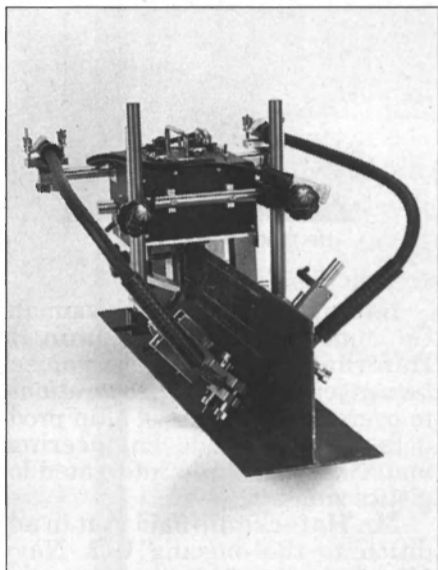


### American Eagle Offers SAFE Line Of Boats

The SAFE line of boats, from 12-23 feet (3.6 to 7 m), is now available from American Eagle Manufacturing, Inc. The SAFE principle (Secure, Around, Flotation Equipment) matches a self-bailing, aluminum V-hull with the patented Norseman, rigid-foam collar — reportedly creating a fast, stable and roomy craft with built-in fendering.

The collar design complements the strength of the hull, since the closed-cell collar doesn't deflate like inflatable tubing. The manufacturer says the topsides are literally bullet-proof, but that should the polyurethane skin be holed by a high-speed impact, repairs are easy. For more information on American Eagle's SAFE craft,

Circle 153 on Reader Service Card



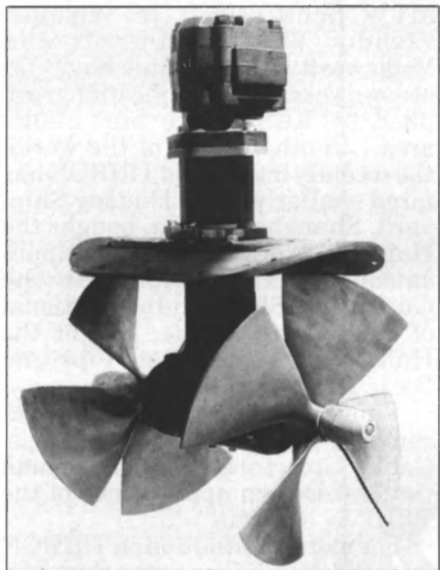
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Bug-O Systems has designed a lightweight, portable machine, the Compact Stiffener Welder, which reportedly provides smooth, precise fillet welds. The drive roller assembly sets against it, locking it into position.

The gunholder assemblies (compact corner followers) extend into position and center the welding guns in each joint. The machine can reportedly provide both continuous and skip welds. Controls on the top of the machine determine the type of weld to be used. Travel distance while welding, speed and skip time are also easily controlled.

For more information from Bug-O Systems,

Circle 154 on Reader Service Card



### Wesmar Expands Bow Thruster Line

Wesmar has expanded its counter rotating design Dual Prop Bow Thrusters by adding four new commercial models: 200, 250, 300 and 350 hp. Wesmar is targeting the commercial market: supply boats, crew boats, utility boats, barges, river boats, ferries and tugs. Fixed-pitch four-blade Kaplan propellers are designed to deliver equal thrust in either direction of rotation. Wesmar's thruster drive motors are mounted inside the boat for easy service and changeability from electric to hydraulic, allowing low to high horsepower changeover without hauling the boat.

For more information on Wesmar's bow thruster line,

Circle 155 on Reader Service Card



### Hilman Rollers Move Up To 1,000 Tons And Over

Hilman, Inc. of Wall, N.J., offers a new six-page "all-products" catalog.

Included are the most popular of the manufacturer's high capacity machinery roller dollies for moving machinery and heavy equipment, complete with photos, full descriptions, and charts of technical and dimensional data. Featured product lines include the deluxe moving kits and economy sets; special protective nylon rollers; construction quality OT, T, and NT series rollers; and super heavy duty rollers which range from 100 to 1,000 tons of capacity per unit.

For more information on this or other Hilman literature,

Circle 156 on Reader Service Card



### Seat Belt/Bolsters Protect Against Injury

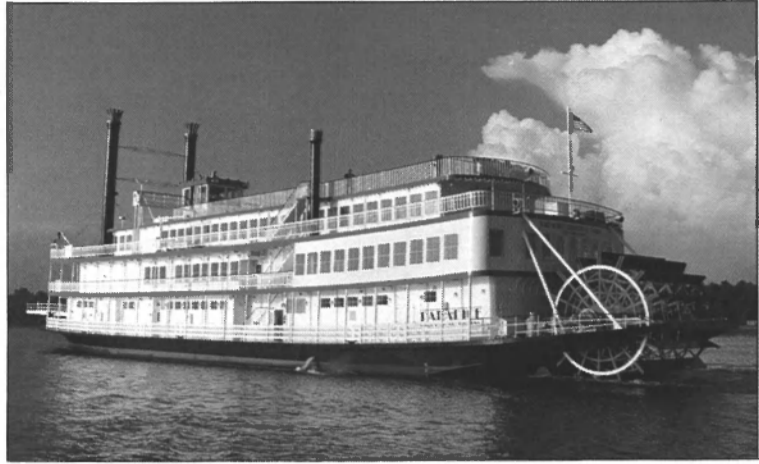
Stidds Systems, Inc. has added the Series 800 Seat Belt/Bolsters to its line of high performance marine seating products. The Series 800 is reportedly now in use aboard Naval Special Operations Craft, enduring long missions and harsh ambient operating conditions that spurred the development of many of the Series' advanced features. Incorporating Stidds' proprietary EPS (Ergonomic Positioning and Stabilization) technology, Stidds says the Series 800 is a high-performance seat which offers ergonomically correct stabilization to protect against orthopedic injuries which occur aboard high speed craft. For more information on the 800 Series Seat Belt/Bolsters,

Circle 157 on Reader Service Card





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Atlantic Marine-built Par-A-Dice

The finest vessels  
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Fax (216) 262-4151 Call Toll Free: (800) 321-4936

# SERVICE MARINE GETS YOUR FLOATING CASINOS BUILT, OPENED AND MAKING MONEY--FAST!



Harrah's Northern Star, pictured here, is one of Service Marine's first and most famous success stories. Service Marine helped Harrah's make their vision of a dramatic, three-story atrium become a reality on the Northern Star.

**"Time is money."** It's never been truer than in today's riverboat gambling industry. The greatest market share and gaming profit potential will go to the casino operator who gets the right vessel on the water in the minimum amount of time.

**Service Marine: the nation's most experienced builder of gambling boats.** Service Marine immediately began building casinos when riverboat gambling was first instituted. We currently have more casino vessels under construction than any other shipyard, and have recently expanded to handle even more.

**We customize floating casinos to your vision, to help you keep your guests coming back.** Tell us your casino vision — we'll build a boat around it. Service Marine works with your people to create a unique casino interior, surrounded by a turnkey vessel design customized to your needs. Never do we lose sight of the fact that your project is a casino first, and a boat second.

**Fast Track**  
Design and Build

**Our Fast Track Design & Build process gives you fast delivery.** Service Marine's



Fast Track Design & Build process gives you a head start. You can save two months or more in construction time. And you don't have to know ships, boats and barges — that's our job.

**Your casinos are delivered safe, and Coast-Guard approved. Guaranteed.** You don't have to worry about compliance with federal, state and Coast Guard regulations — that's our job, too. Whether a dockside barge, paddle wheeler or yacht, Service Marine will build it to code. And, it goes without saying, safe for your guests and employees.

**Not just on time, but on budget.**

No surprises, no over-promising. We take full responsibility for delivering your casino ready for business. Our goal is to help you maximize your gaming profits.

**We're ready to talk.** A member of our senior management team will handle all aspects of your project, in charge and in-the-know from start to finish. Let's talk.

Call Tom Hensley, VP Marketing:  
(504)-631-0511



**Service Marine Industries, Inc.**

Mile 88.5 West on the Intracoastal Canal  
P.O. Box 3606, Morgan City, LA 70381  
Phone (504) 631-0511 • Fax (504) 631-0046

Circle 247 on Reader Service Card



## CALENDAR

### MARCH

**Gulf Coast Business & Industry Expo '94:** March 1-3, Mississippi Gulf Coast Convention Center  
Contact: tel: (601) 863-2933 or (800) 999-EXPO.

**Oceanology International '94:** March 8, Brighton, England  
Contact: **Judith Patten**, Public Relations, OI 94, Neville House, 55 Eden Street, Kingston upon Thames, Surrey KT1 1BW, U.K., tel: +081 547 1566; fax: +081 547 1143.

**Connecticut Maritime Academy (CMA) Shipping '94 -** March 14-16, Sheraton Stamford Hotel & Towers, Stamford, Conn.  
Contact: **Brad Berman**, Esq., Seward & Kissel, CMA Trade Show Chairman, tel: (212) 574-1204; fax: (212) 480-8421 or **Peter Casciano**, International Marketing Strategies, Inc., tel: (203) 622-4014; fax: (203) 622-1929.

**ASNE Creative Logistics Technologies for Tomorrow's Environment:** March 15-17, Harrisburg, Pa.  
Contact: **Jane McMullen**, tel: (717) 790-6227.

**GasTrade '94:** March 16-18, Hong Kong Convention Center, Hong Kong  
Contact: **James Ball**, GasTrade Limited, 82 Rivington St., London, EC2A 3AY, England, tel: +44 71 613 0087; fax: +44 71 613 0094.

**SIBCON '94:** March 22-24, World Trade Center, Singapore  
Contact: The Conference Manager, Times Conferences & Exhibitions Pte. Ltd., Times Centre, 1 New Industrial Road, Singapore 1953, tel: +65 284 8844; fax: +65 286 5754.

**Singapore '94:** March 22-25, World Trade Center, Singapore  
Contact: The Conference Manager, Times Conferences & Exhibitions Pte. Ltd., Times Centre, 1 New Industrial Road, Singapore 1953, tel: +65 284 8844; fax: +65 286 5754.

**Fluid Power West, The Expo and Technical Conference for Electrohydraulic and Electropneumatic Motion Control Technology:** March 23-24, Anaheim Convention Center, Anaheim, Calif.  
Contact: **Karen Ertl**, Expositions Coordinator, tel: (414) 778-3349.

**Save a Life at Sea (SALTS) Training Course:** March 23-25  
Contact: Maritime Health Services, 5343 Tallman Ave. N.W., Suite 104, Seattle, Wash. 98107, tel: (206) 781-8770; fax: (206) 781-8771.

**"Journées Oceanoscience" - Exhibition, Symposium & Conference:** March 30-April 3, Toulon, France.

Contact: **Sophia Antipolis**, tel: +33 93 65 34 13; fax: +33 93 65 34 16.

### APRIL

**International Offshore and Polar Engineering Conference:** April 10-15, Senri Life Science Center, Osaka, Japan  
Contact: ISOPE-94 Osaka, Technical Program Committee (attn: Prof. **Jin S. Chung**), ISOPE, P.O. Box 1107, Golden, Colo. 80402-1107, tel: (303) 273-3673; fax: (303) 420-3760.

**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.

**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.

**RORO '94:** April 26-28, Svenska Massan, Gothenburg  
Contact: RORO Conference Secretariat, BML Business Meetings Ltd., 2 Station Road, Rickmansworth, Hertfordshire, WD3 1QP, England; tel: +44 923 776363; fax: +44 923 777206.

**Inland Rivers, Ports & Terminals, Annual Meeting:** April 27-30, The Benson Hotel, Portland, Ore.  
Contact: **Cynthia Rehagen**, 204 E. High St., Jefferson City, Mo. 65101, tel: (314) 634-2028.

**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.

**USMSA Sixth Annual Safety Seminar:** May 17-19, Sandy Hook, N.J.  
Contact: **Kristina Hagman Goldfield**, tel: (215) 564-3484.

### Condor Marine Builds Fremantle Port Authority Vessel

Condor Marine's Henderson yard in Western Australia is currently testing an 82-foot (25 m) multi-purpose response vessel for the Fremantle Port Authority.

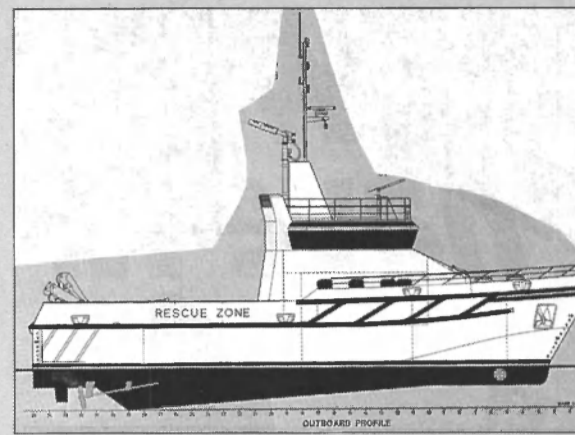
The vessel features twin MAN D2842LE 401S main engines, delivering 1,000 hp each, providing the vessel with a 22-knot top speed. The three monitors, the hydrants and the self deluging systems are powered by three additional MAN's.

The vessel design is available also in a 98-foot (30 m) form, in either a catamaran or monohull form. The vessels are driven by and get auxiliary power from multiple engines on common shafts. This system is made possible by elec-

tronic controls with manual override, and a Kevlar belt drive from each engine onto the common shaft.

For more information on the vessel from Condor Marine,

Circle 91 on Reader Service Card



### Bremer Vulkan Group Selects TRIBON

The Bremer Vulkan Group chose Kockums Computer Systems' (KCS) TRIBON shipbuilding system for its outfit design area. The Bremer Vulkan Group yards of Bremer Vulkan GmbH in Bremen, Schichau Seebeckwerft in Bremerhaven, MTW Schiffswerft in Wismar, Flender Werft in Lubeck and Volkswerft in Stralsund have, for several years, used applications supplied by KCS in the hull design area. In other areas of the world, the recently introduced TRIBON has fared similarly well. Hudong Shipyard, Shanghai, China, bought the Hull and Work Preparation applications of TRIBON, while the Guangzhou Shipyard International of Guangzhou, China, bought the Hull, Work Preparation, Pipe and Basic Design applications.

Finally, Atlantic Marine of Jacksonville, Fla. purchased the Pipe, Cable, Structure, Ventilation and General Design applications of the TRIBON system.

For more information on TRIBON from Kockums Computer Systems,

Circle 107 on Reader Service Card

### OTECH Buys 900-LT Drydock

Ocean Technical Services, Inc. of Harvey, La. bought a 900-long ton drydock from Conrad Industries, Inc. The 120-foot (36.5 m) by 52-foot (15.8 m) by 15-foot (4.5 m) drydock was built in 1990 and is reportedly in new condition. It has eight 1,400 gpm eight-inch Lo-Lift volume propeller pumps driven by 10-hp 230/460 volt 60 cycle three-phase electric motors. The piping system is designed so in the event of pump failure, the affected compartment could be pumped by the adjacent pump. For more information on the services of OTECH,

Circle 99 on Reader Service Card

### Intermarine Appoints Haferkamp As General Manager



Hermann H. Haferkamp

Intermarine USA of Savannah, Ga. announced that **Hermann H. Haferkamp** joined the organization as general manager, operations, to oversee all aspects of ship products which include engineering, material control and integrated logistics support.

Mr. Haferkamp said that in addition to the ongoing U.S. Navy Minehunter construction program, Intermarine is developing the facility's ship repair activities.

He said that the 1,000-ton marine railway and the 535-ft. (163 m) graving dock will add needed flexibility and choice for small- and medium-sized vessels in the South East Coast area.

During his more than 30 years in new construction and repair of ships, yachts and offshore marine structures, Mr. Haferkamp has held numerous management positions.

Intermarine has seven additional MHC-51 Class Minehunters to build for the U.S. Navy, the last of which is scheduled for delivery in 1997.

The shipyard manufactures the structure of the ships from glass reinforced plastic (GRP).

For more information on the capabilities of Intermarine,

Circle 100 on Reader Service Card

## MARITIME PRODUCTS



### Willard Marine Sea Force 540 RIB For Rescue Or Workboat Application

New from Willard Marine, the Sea Force 540 RIB (Rigid Inflatable Boat) is a SOLAS 74/83 Rescue Boat, also produced in inboard and outboard diesel models with outdrive or waterjet propulsion as commercial workboats and tenders.

The 540 SOLAS is 18 feet (5.5 m) in length and complete with a SOLAS-approved 70-hp OMC outboard.

The versatile boat has also received U.S. Coast Guard (USCG) approval. Willard is a U.S. manufacturer of RIBs, and also a manufacturer of fiberglass boats to the USCG and the U.S. Navy. For more information on Willard Marine's Sea Force 540,

Circle 150 on Reader Service Card



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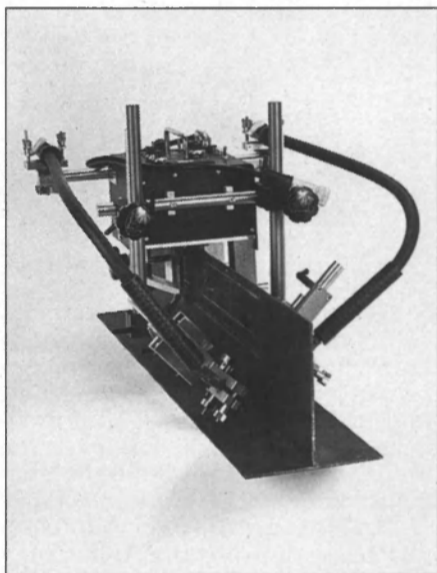


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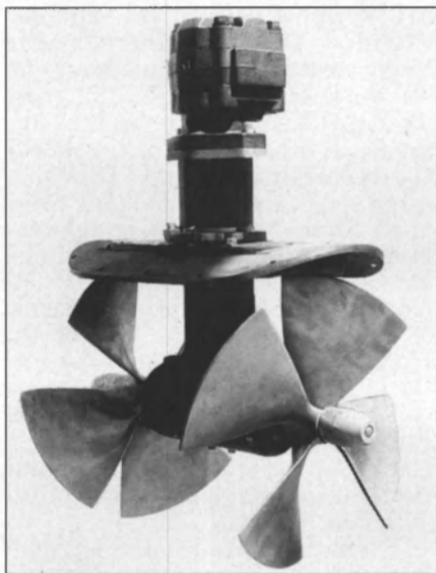
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Circle 154 on Reader Service Card



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Circle 156 on Reader Service Card



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Circle 157 on Reader Service Card



## Kockum Sonics AB Continues North American Expansion, Announces New Distributors

Kockum Sonics AB has made several moves recently to expand its markets in the Americas.

Traditionally strong in the European and Asian markets, the decision was made to establish a foothold in the U.S. market, and last September Kockum Sonics Inc. was established in Kenner, La., with **Billy Edwards** chosen for the helm.



**Billy Edwards**

To help the business grow, Kockum Sonics Inc. has established market channels for the group to serve the Americas, and as a result a number of sub-agents at strategic geographic locations are now selling Kockum Sonics' products. These companies include Archway Marine Lighting in St. Louis; Beck Electric in San Francisco and Seattle; Callenberg Engineering in Miami; Harbor Ship Electric Co. in Wilmington, Calif; Blue Water Marine/I.M.S.S. in Houston; and Sea Coast Electronics in Jacksonville, Fla. Together with Radio Holland, a network of depots with service engineers, trained on Kockum Sonics' products, is now established. The company's marine product line includes signalling equipment such as whistles, bells, gongs and signal controllers; level gauging equipment such as the Levelmaster<sup>®</sup>; the cargo planning system LoadRite<sup>®</sup>; the autopilot Steermaster 2000<sup>®</sup>; and Norselight marine and industrial lighting products. For more information on Kockum Sonics, Inc.,

Circle 104 on Reader Service Card

## Hyde Products Named Agent For Kvaerner Eureka

Hyde Products, Inc. was recently named an agent to distribute Kvaerner Eureka's firefighting systems. A world leader in large, modern firefighting systems, Kvaerner Eureka is a single source for all components including monitors, pumps, gearboxes and controls. Kvaerner Eureka has installed more than 200 systems on vessels throughout the world, including units aboard two new Foss tugs recently. The product line include water monitors with capacities from 5,280 gpm to 15,840 gpm, and a foam monitor with a 3,520 gpm capacity. For more information from Hyde Products,

Circle 98 on Reader Service Card

## Wartsila, SEMT Pielstick Opt Not To Renew License Agreement

Wartsila Diesel has been a licensed manufacturer of the French medium speed SEMT Pielstick diesel engines in Gothenburg, Sweden in the former Lindholmen Motor since 1948, and in Turku, Finland since 1965. During the last few

years, this activity of Wartsila has been mainly spare parts sales and service to marine and power plant customers. The license agreement having come to an end, the two companies have concluded that each will concentrate on its own engine program and that the licensing agreement will not be renewed.

Wartsila Diesel will transfer its Pielstick after sales service business and all spare part stocks to

SEMT Pielstick, which will continue the activity in all markets previously serviced by Wartsila Diesel's worldwide network. This is being done to ensure a continuing high class of service.

The transfer is expected to be completed this month. The after sales service of Wartsila Diesel will be concentrated on its own engine program of medium- and high-speed diesel and gas engines.

## No Matter How Far Out to Sea You Go, There's Always Someone Who's Ready and Anxious to Hear From You...



### ... a COMSAT operator.

Anytime at all, 24 hours a day, every day. Anywhere in the world you may sail. They're standing by to help you in any way they possibly can.

Courteously. Tacitly. Professionally. And, most of all, at no charge!

COMSAT operators are the only team of operators in the Inmarsat system dedicated to working around the clock to personally assist you in every way possible. From placing your person-to-person calls to helping you conduct business at sea, they are always there to help you.

In fact, many people at sea have come to think of COMSAT operators as a "friendly voice from home" that they can always count on.

And in a real emergency, you can always

count on highly trained COMSAT operators such as Suzanne Loetz of our Santa Paula facility. Suzanne recently sprang into action to get quick rescue assistance to a cargo ship sailing near Indonesia after she received an urgent distress call saying the ship had been boarded by armed pirates.

Plus... you can always count on COMSAT operators to help you with services that can maximize the efficiency of your communications:

- FREE Time and Charges
- FREE Operator Assistance
- FREE Translation Assistance in Over 140 Languages
- 56/64 kbps Call Assistance
- Telex Group Calls
- Credit Card Billing
- Global Telex Switching Services

Circle 272 on Reader Service Card

Whatever the situation, COMSAT's operators are ready and anxious to help you. During an emergency... helping you conduct business... or just making sure you are never out of touch when you are out at sea.

Unlike other providers, we don't provide you with mere switching services or electronic voices. We provide you with real, live people whose only job is to help you.

COMSAT service. It's what we're all about... in every situation.



**1-800-424-9152 (Toll Free in the U.S.)**  
22300 COMSAT Drive, Clarksburg, MD 20871  
Outside the U.S.: +1-301-428-2379

## A World Of Tug And Salvage Issues

13<sup>th</sup> Tug & Salvage Convention In Rotterdam Will Discuss Global Tug And Salvage Concerns



Rimorchiatori Riunite tugboats fighting fire on the sinking tanker *Haven* off the coast of Genoa, Italy.

Rotterdam, The Netherlands will be the focal point for the international towage and salvage industry when, from April 25-28, 1994, the 13th International Tug and Salvage Convention and Exhibition is held at the De Doelen Centre in central Rotterdam.

The Convention, which will be chaired by **Lord Geddes**, will be a forum for discussion of key issues affecting the international towage and salvage industry. More than 20 papers will be presented at the conference, covering a wide range of towage and salvage topics, including a keynote paper on salvage by **Klaas Reinigert**, managing director of Smit Tak BV and immediate past president of the International Salvage Union (ISU). There will be a case study on the British *Trent* disaster by Capt. **Christian Block** of Union de Remorquage et de Sauvetage of Belgium, and also on the complexities of salvage claims and awards. A paper from the U.S. Army Corps of Engineers will detail its extensive responsibilities, including the operation of its largest vessel, the Trinity-built *M/V Mississippi* — at 241 feet (73.5 m) long, reportedly the largest tug ever built in the U.S. The program will feature discussions on computerized salvage calculations, and on the ever-looming issue of tug escorts — an issue currently being debated by Washington State lawmakers. There will even be a discussion on the challenging subject of Russian tugs. Tug effectiveness from a naval architectural point of view will be discussed by **Frans Sas** of Damen Shipyards, The Netherlands. Additionally, a number of recently completed tugs are ex-

pected to be available for delegates to inspect and a spectacular fire fighting demonstration will be staged at Europort's RISC Centre. **Martin Redmayne**, the conference's managing director, said the demonstration should be "quite spectacular" and "lend itself to greater attendance this year." For both delegates and partners, a full social program has been arranged, including evening entertainment. Special dinner events include a boat trip around Rotterdam Harbor and dinner at a former distillery on Noorder Eiland, River Maas, Rotterdam.

According to Mr. **Redmayne**, last year's show was incorporated into a larger workboat show. This year's exhibitors, however, will surround the conference hall in a projected 45 booths. Mr. **Redmayne** estimated last year's conference had only 15 or 20 booths occupied by tug- and salvage-related organizations. Those organizations will include operators, manufacturers, service providers and other associated companies, with details on their latest products and services. For more information on the Tug & Salvage World exhibition, contact **Martin Redmayne** at TRP Ltd., Thames Wharf Studios, Rainville Road, London W6 9HA, U.K., tel: 011 44 71 385 4804; fax: 011 44 71 386 0911.

### Exhibitor List (Partial)

Damen Shipyards  
D.S.M. High Performance Fibers  
Eurodiesel Treatment  
Lips Thrusters  
Ship and Boat  
Smit Tak  
Stork Wartsila  
Ulstein Propellers  
Van Esch Trading  
Workboat World

## Sasmex '94

The Safety At Sea And Marine Electronics Event — On Both Sides Of The Atlantic

The seventh Safety At Sea and Marine Electronics Exhibition and Conference (Sasmex) is scheduled from April 12 - 14, 1994 at the Earls Court Park Inn International Hotel in London. The exhibition space for Sasmex International '94 was sold by July of last year. The program is reportedly first-class, and top level executives are reportedly registering for the event — indications of Sasmex's importance to the marine industry.

Exhibition hours for Sasmex are from 10 a.m. until 5 p.m. on all three exhibiting days. The theme of the conference will be reflected in the products and services displayed in the exhibition area: breathing apparatuses; communications equipment and systems; education and training; fire-fighting equipment and systems; gas detection equipment; lifesaving and rescue equipment; marine safety services; navigational aids; personal safety products; personal survival equipment; research facilities and survival craft.

Dramatic groundings, tanker collisions and an increasing loss of life at sea during the past year will be the focus of the Sasmex International '94 Conference. Keynote speakers will include **William O'Neil**, secretary-general of the In-

ternational Maritime Organization (IMO), and **Lord Donaldson**, whose report into safety measures following the *Braer* disaster is a magnet for discussion.

Papers will be presented Wednesday, April 13 and Thursday, April 14. **Richard Harris**, exhibition sales director, said that the event has not changed in terms of focus. However, he said, "The Conference does change to reflect the current concerns in the safety market. *That* has fairly dramatically changed." True to that observation, the opening session, "Restoring Confidence in Safe Shipping," will examine some of the underlying causes of recent maritime accidents and attempt to identify solutions. Among the issues raised will be *Fleet Management — What Is Its Role In Accident Prevention?* and *Rising Cargo Claims — The Need for Loss Prevention*. The session will examine some of the current initiatives to improve safety levels in merchant shipping, including the implementation of the IMO's International Management Safety Code.

A major investigation of personal safety equipment has been conducted by the Fish Industry Train-

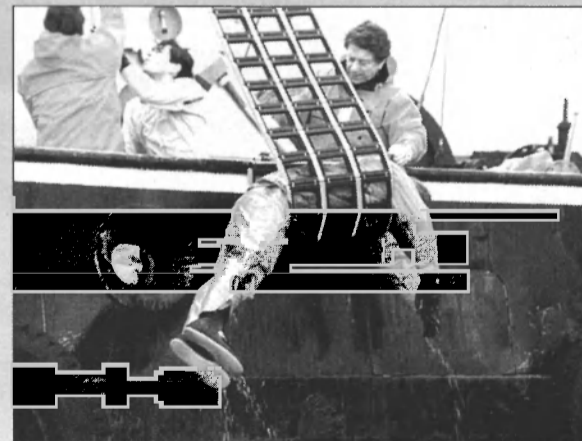
(Continued on page 74)

## Jason's Cradle Helps Rescue Unconscious From The Sea

Tests have proven that Jason's Cradle, from Land and Marine Products, is an effective, efficient means to retrieve an unconscious person into an open lifeboat in as few as 10 seconds, and into an enclosed boat in 20 seconds, the manufacturer claims.

Constructed of tough engineering plastics with polypropylene and marine-grade stainless steel, the cradle is a ladder-like construction which is designed to be rolled up easily in one direction, yet locks into a non-collapsible loop which is lowered over the side of the rescue boat. Crew members and conscious rescues can climb the ladder rungs to board the boat, and unconscious casualties can be guided into the loop and then lifted manually or mechanically. The rigid loop retains its shape and reportedly can not cause further injury.

The cradle is constructed of molded sections, each seven inches (177mm) wide. The rungs are .75-inch (20mm) thick, and are linked at 5.5-inch (137.5mm) intervals hinged around recessed stainless-steel rods. The cradle has been approved for use as a life-saving appliance and boarding ladder by the British Department of Transport, and the U.S. Coast Guard has accepted it for use as a lifeboat boarding ladder for use on U.S.-registered ships. For more information on Jason's Cradle from Land and Marine Products, Ltd.,



Jason's Cradle has proven its efficiency in lifting unconscious people from the water.

Circle 4 on Reader Service Card



## IMO's O'Neil Addresses Seamen's Church Safety Symposium

O'Neil Cites Aging Fleet, Projected Seafarer Shortage As Challenges To Safe Ships

Calling for "some teeth of our own," the Hon. **William A. O'Neil**, secretary general of the International Maritime Organization (IMO), suggested it may be time that this United Nations organization be endowed with power to ensure the 147 member nations comply with the regulations it sets forth.

Mr. O'Neil and a panel of distinguished speakers addressed a crowd of nearly 200 at the recent safety symposium sponsored by the Seamen's Church Institute of New York & New Jersey entitled "Improving Safety-At-Sea: Focusing on



William A. O'Neil

People."

"We are told by the world bank, for example, that the world fleet is now so old that the shipping industry needs to spend \$400 billion between now and the year 2000 to replace and restore it," said Mr. O'Neil.

"We are told by industry experts that by the same date, there will be a world shortage of something like 750,000 seafarers. In reflecting on these forecasts, one might be tempted to conclude that shipping will soon face a crisis (with consequences for safety and environmental protection)...but there is still time to act."

IMO is the U.N. forum where the representatives of 147 member governments meet to develop and adopt measures to improve maritime safety and prevent pollution. To date, there are around 40 different IMO treaties and literally hundreds of codes and recommendations.

While there are many issues and sub-issues concerning the safety and condition of the world's ships and the seafarers who crew them—including new technology and its roles in reducing crew sizes, and the individual government's and company's role in ensuring safe ships, to name a few—the bottom-line concern is the establishment and enforcement of a universal standard.

The general conclusion from the two and a half hour conference: everyone's goal is utmost safety, but paths diverge on how this goal will

March, 1994

be accomplished.

Mr. O'Neil said that the revision of the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Sea-

farers—the IMO's main instrument for ensuring a competent crew—is in conference now and it is hoped that a new convention will be adopted next year, and will enter into force two years after that.

But by his own estimation, reaching new safety standards is just part of the battle.

"How can we be sure that training is carried out in accordance with the high standards adopted and that

certificates can always be relied on?" asked Mr. O'Neil. "Some countries, often those with worse than average safety records, have never sought training assistance from IMO or anyone else."

He did hasten to mention, though, that it is wrong to condemn maritime training as a whole, and that there are many excellent institutions which have succeeded in their teaching of IMO standards.

# Kockum Sonics

## —your electronic marine equipment supplier

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

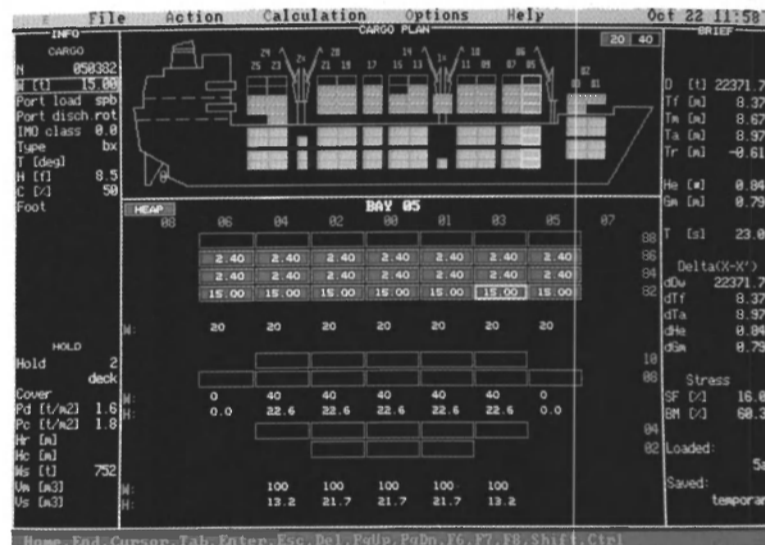
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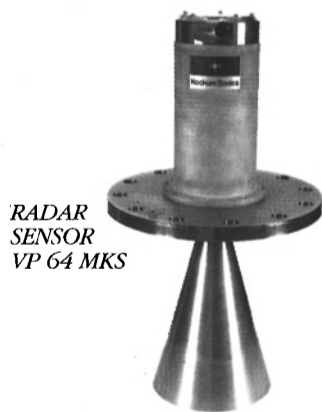
The Group's world-wide operations comprise development, production and marketing of:

- ▶ Cargo planning systems
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- ▶ Marine signalling equipment
- ▶ Marine electronics
- ▶ Lighting equipment
- ▶ Industrial and civil defence alarms
- ▶ Sonic cleaning equipment

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**Other subsidiaries:**  
Kockum Sonics (UK), Leighton Buzzard, UK  
Norseligh A/S, Halden, Norway  
Kockum Sonics AG, Dübendorf, Switzerland

Circle 233 on Reader Service Card

## SASMEX '94

(Continued from page 72)

ing Association with backing from the U.K. Department of Transport. The Association's report will receive its public premiere at Sasmex International '94.

A presentation will be delivered by the U.S. National Transportation Safety Board (NTSB) entitled

*Improving Coastal Safety.* This follows research into recreational boating safety which has been examined by the U.K. Department of Transport. Among the other topics for discussion are:

- As highlighted by the *Braer* disaster, ships passing close to environmentally sensitive areas can pose a very real danger. Dr. **Glen Plant** of the Centre for Environmental Law and Policy at the LSE will be speaking on *Mandatory Ship Reporting*

*and Vessel Traffic Systems in the Developing Context of Particularly Sensitive Sea Areas.*

- The Secretary of the Nautical Institute, **Julian Parker**, will be addressing the question, *Navigational and Seamanship Incidents — Could They Have Been Avoided?*
- The ongoing revision of the Standards of Training, Certification and Watchkeeping will be discussed by **David Stratton**, one of the IMO's consultants working on this initia-

tive.

- The Conference will conclude with an examination of the Electronic Future. The role that correctable electronic charts could play will be detailed by the U.K. Hydrographic Office, while Professor **Jens Froese** of the Hamburg School of Maritime Studies will debate the theme *More Electronics — Improved Safety of More Risk?*

Another change for the Sasmex show is in the event's frequency: once a biannual event, it is now happening annually.

The event is supported by the IMO; the Royal National Lifeboat Institution; the International Association for Sea Survival Training; the International Lifesaving Appliance Manufacturers Association; and the Nautical Institute.

For more information on this event, contact **Gillian Jones**, Sasmex International '94, Queensway House, 2 Queensway, Redhill, Surrey. RH1 1QS, England; tel: +011 44 737 768611, extension 3418; fax: +011 44 737 760564.

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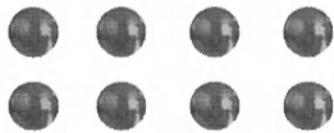
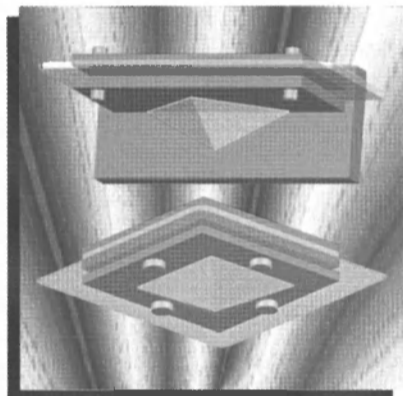
### Exhibitor List (Partial)

ACR Electronics Inc.  
Alden Electronics Inc.  
Ascon-Kemi AB  
Aspli Marine Ltd.  
Assessment Services  
Bayleysuit  
BCB International Ltd.  
Compact AS  
Compass Maritime Ltd.  
Cosalt International Ltd.  
Crewsaver  
Datrex Inc.  
Dunlop Beaufort  
EEV Ltd.  
Eurovinyl  
Existalite  
Fire Services College  
Fleetwood Offshore Survival  
Focal Displays Ltd.  
Fosberry Safety  
Four Elements  
Graseby Nova  
CM Hammar Handels AB  
Hoppecke Batteries  
International Safety Grp. Ltd.  
Jotron (U.K.) Ltd.  
Kelvin Hughes  
Lancs. County Fire Brigade  
Land & Marine Products  
Litton Special Devices  
Loctite Luminescent Systems  
Lokata  
Makefast Ltd.  
Mariners Annual  
Maritime Progress Ltd.  
Maritime Operations Centre  
McMurdo Marine  
MEL Communications  
ML Lifeguard  
Mullion Manufacturing  
Multifabs Survival Ltd.  
Mustang Survival  
Navico  
Neotronics  
Norabel Ransson  
Pains-Wessex Ltd.  
PC Maritime  
RFD Ltd.  
Royal Verkade Ltd.  
Scottish Int'l Fire Training Centre  
Sea-Dog Lifesaving Appliances  
Seaweather Marine Services  
SERPE-IESM  
Shark Sports  
Siebe Gorman  
Stearns Manufacturing Co.  
Strathclyde Fire Brigade  
Tellumat  
U.K. Hydrographic Office  
Vernon Carus  
Walport International  
Viking  
XMS Ltd.

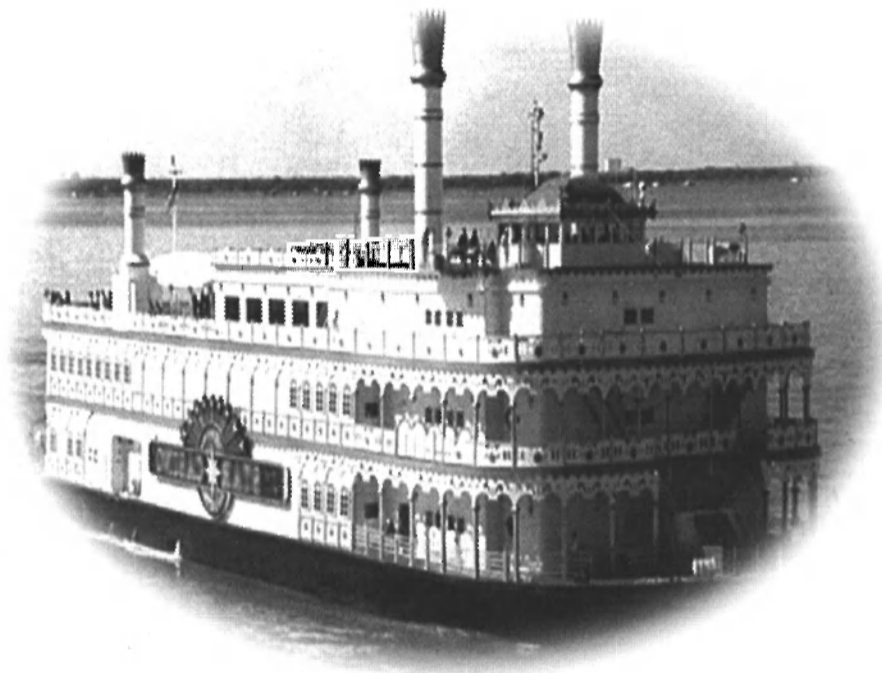


# "ANTIQUE & DECORATIVE"

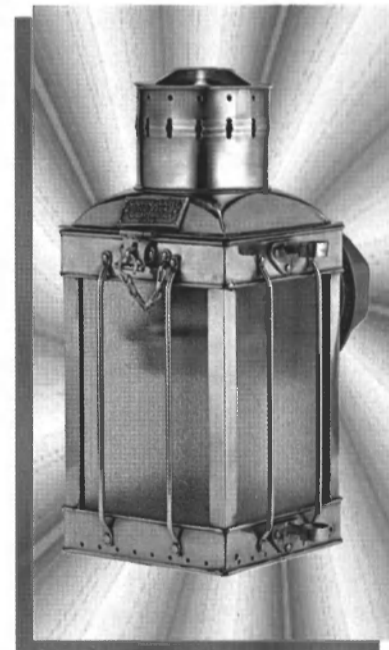
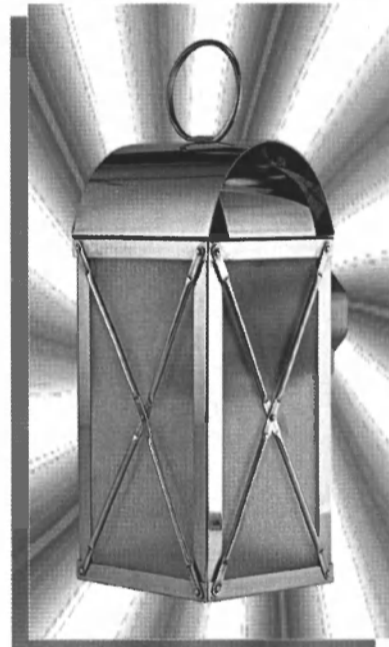
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*Pauluhn has been designing and manufacturing lighting fixtures since 1918. Our NEW line of decorative marine lighting fixtures for Showboats, Cruiseships and Casino boats reflects today's most popular design styles, such as Victorian, Art Deco, Neo-Classical as well as Contemporary.*



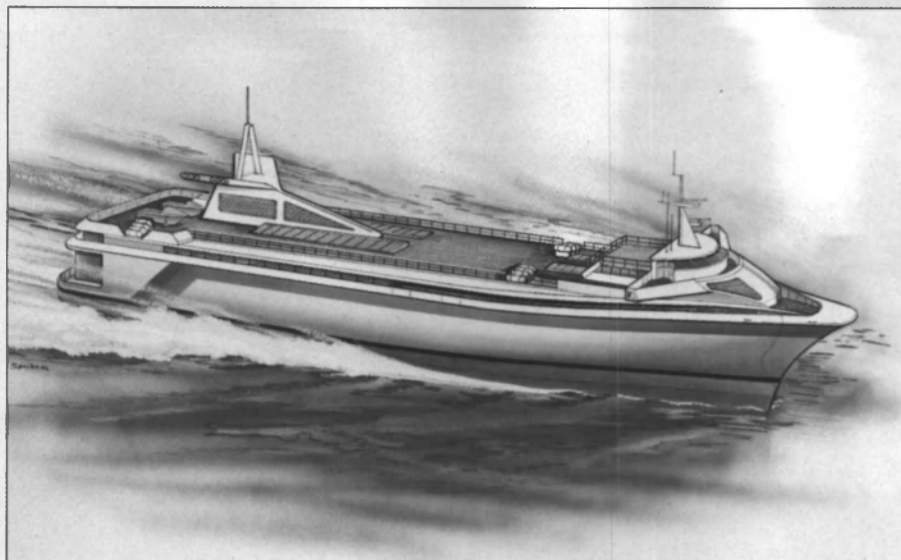
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## Mjellem & Karlsen, Norway To Build \$33 Million, 312-Foot Passenger Ferry



Mjellem & Karlsen, Norway will build a 312-foot passenger ferry for European Ferries Denmark of Copenhagen.

A 312-foot (95 m) aluminum fast passenger and vehicle ferry based on a new design was recently sold for \$33 million by Mjellem & Karlsen of Bergen, Norway to European Ferries Denmark AS of Copenhagen, as originally reported in *Maritime Reporter/Engineering News*, January 1994. The large aluminum hull will be manufactured in sections and assembled at Halsnoy Verft, a yard in the Mjellem & Karlsen group. Final outfitting will take place at Mjellem & Karlsen's main shipyard in Bergen.

The 600-passenger, 160-car monohull ferry will be hired on a long-term, bare boat charter by Driftsselskabet Grenaa Hundested AS to provide ferry service between the two ports of Grenaa and Hundested in Denmark, commencing operations in the spring of 1995. Mjellem & Karlsen expects the ferry to become an alternative to the bridge planned for completion in 1997 for passage between Jylland and Sjaelland in Denmark, and says one of the ferry's advantages is its compatibility with conventional ferry terminals.

The hull design was developed by computer simulation and tank testing to ensure optimum performance.

Mjellem & Karlsen said the design's flexibility makes it possible to meet the requirements of individual customers and trades cost-effectively, and can be developed into a luxurious passenger cruise vessel or an efficient carrier of goods. The design even allows ship length to be altered plus or minus 39 feet (11.9 m). Ship behavior is consistent with ISO recommendations for avoiding motion sickness and ensuring maximum passenger comfort.

The machinery on the newbuild is arranged in a redundant, dual-compartment configuration, fully automatic, controlled and monitored from the bridge. The ferry will have four diesel-driven waterjets for a maximum speed of about 35 knots in 13-foot waves, and future models may be fitted with gas turbines for a cruise speed of about 40 knots.

Mjellem & Karlsen was founded in 1891 as a small mechanical workshop and now offers a variety of marine services in three shipyards: Mjellem & Karlsen Verft AS, Laksevag Verft AS and Halsnoy Verft AS. For more information on Mjellem & Karlsen,

Circle 2 on Reader Service Card

## Racal-Decca ISIS Engine Room Monitoring Systems Chosen For Aramco Arabian Gulf Support Fleet

Racal-Decca Marine has won a contract to supply ISIS 250 engine room monitoring systems for a new series of vessels (four docking tugs and two mooring boats) being built for Saudi Aramco tanker-handling operations at Ras Tanura in Saudi Arabia.

The four docking tugs will be 134.5 feet (41 m) long and will be used for tanker docking, while the two 107-foot (32.6 m) vessels will be used for heavy weather mooring services. All six vessels are currently under construction at the Belgian Shipbuilders' Corporation yards at Fulton and Langebrugge with the first vessels scheduled for delivery in the second half of 1994. The ISIS 250 alarm and monitoring systems being supplied by Racal-Decca will employ a distrib-

uted system in which Local Scanning Units are mounted adjacent to the machinery under surveillance. The systems will monitor the main propulsion and auxiliary machinery on all of the vessels and also provide generator controls aboard the larger tugs. System information is presented to the operators through the use of enhanced trending and graphic displays which take advantage of the increased capabilities of the new ISIS 250 Master Series VDU workstations. The new contract brings the total number of ISIS-equipped vessels in service with Saudi Aramco at Ras Tanura to 11. For more information on Racal-Decca,

Circle 78 on Reader Service Card

## Bremer Vulkan Christens New Container Ship



Bremer Vulkan Werft und Maschinenfabrik GmbH of Bremen recently christened the first of a new series of container carriers for China. The *Zhonghe* is the first of a four-vessel series, a series for which Bremer Vulkan will build three ships and Howaldtswerke-Deutsche Werft AG (HDW) of Kiel will build one.

The vessel, built for the China Ocean Shipping Company (COSCO) of Peking, has a 3,764-teu capacity, and is driven by a BV-Sulzer 9RTA 84C diesel developing 34,380 kW at 100 rpm and 90 percent MCR. Driving a fixed-pitch propeller, the 902-foot (275 m) vessel has a 24-knot service speed. For more information on Bremer Vulkan,

Circle 144 on Reader Service Card

## Wagner Joins Control Technology As Executive VP

Control Technology Co., Long Island City, N.Y., has been joined by **Charles J. Wagner**, who has been

appointed executive vice president. In his new position, Mr. **Wagner** will be responsible for directing the company's global business initiatives in the areas of monitoring, alarm, control and communications systems. CTC currently supplies special interface, indication and control instruments to the marine and aerospace industries.

## NKK Delivers Second Double-Hull VLCC



NKK Corp. has delivered a second double-hull VLCC built for Bergesen d.y. A/S of Norway. The vessel, dubbed the *Berge Stavanger*, follows the *Berge Sigval*, which was delivered last March.

The 300,000-dwt supertanker's double hull extends along its side and bottom. The ship, which measures 1,087 feet (331.5 m) long, with a 190-foot (58 m) breadth and a 73-foot (22.34 m) depth, is powered by an NKK-DU Sulzer 7RTA84M main engine, driving the 160,299-gt vessel to a 16-knot service speed. For more information on NKK Corp.,

Circle 145 on Reader Service Card

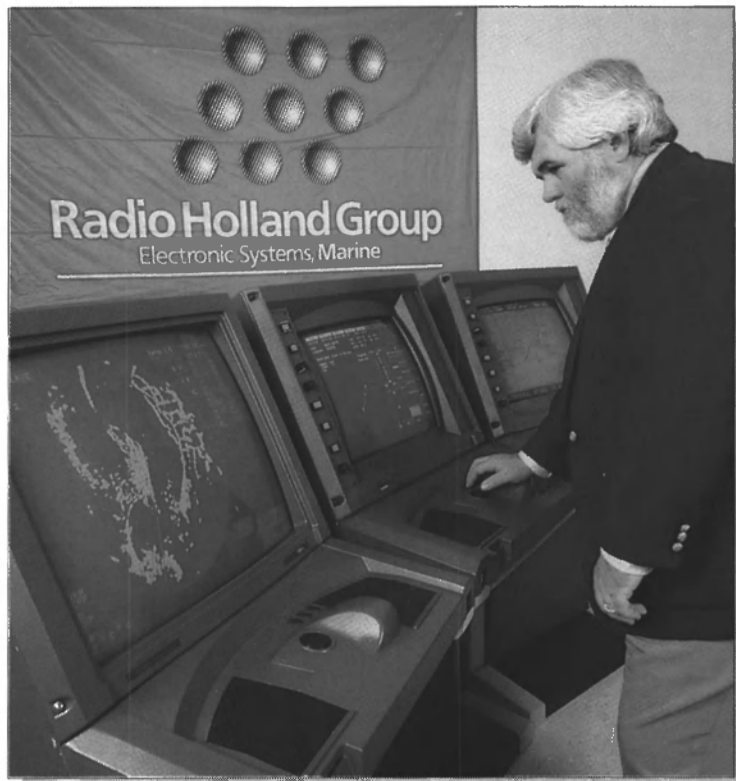
## Tsavliris Acquires Salvage Tug



Reportedly the largest and most powerful salvage tug in the world, the former U.S.S.R. Navy tug *Fotiy Krylov* was recently purchased by Tsavliris Salvage International of Piraeus, Greece. Now called the *Tsavliris Giant*, the 40,000-hp tug was built about three years ago for approximately \$45 million at

Hollming Oy of Rauma, Finland. It is approximately 328 feet (100 m) long, with a beam of 63.8 feet (19.45 m) and a 23.6 feet (7.2 m) draft. The *Tsavliris Giant* reportedly performed its first salvage on the *Ecua-dor*, a 22,000 dwt bulk carrier disabled in the South China Sea and towed to Singapore.





# nucleus - the new definition of modern radar!

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

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

Functions are selected by simply clicking a button after moving the pointer with the tracker ball through the easy-to-use, on-screen menus. The high definition display provides a superior color radar picture with very sharp target contrast. The data displays clearly show operating functions, warnings, target information, and integrated own-ship navigational data.

The NUCLEUS Series offers five choices of displays, NUCLEUS 6000 A (ARPA), 6000 T (true motion) and 6000 R (relative motion) Color Radars with 26 inch display; and NUCLEUS 5000 T (true motion) and 5000 R (relative motion) Color Radars with 20 inch display. NUCLEUS features powerful X-Band and S-Band transmitters in different configurations.



Other standard features include interswitching, dual preset

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

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# 1994 Marine Electronics Yearbook

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## Navigation & Communication Equipment

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### Adroit Systems Inc.

Circle 28 on Reader Service Card

Adroit Systems Inc. (ASI) supplies custom design of GPS attitude determining products to meet specific customer requirements. ASI offers TRIADS Model 100 and TRIADS Model 200, GPS-based attitude determining systems which provide GPS derived heading, pitch, roll, position, velocity and time anywhere in the world on a 24-hour basis. The system is DGPS capable and accepts RTCM SC-104 corrections. TRIADS outputs NMEA com-

pliant solutions via RS-232 or RS-422 serial ports.

TRIADS has an embedded 486 single board computer, multiple GPS receivers and antennas, and an antenna assembly. Model 100 updates its attitude solution once per second and achieves accuracies of 0.4 degrees azimuth, 0.5 degrees pitch, and 0.5 degrees roll. TRIADS Model 200 provides a 5 Hz attitude update rate for more dynamic applications.

### Alden Electronics, Inc.

Circle 29 on Reader Service Card

To support the Global Maritime Distress Safety System (GMDSS), Alden Electronics provides the new SATFIND-406™ SURVIVAL EPIRB in both float free and manual release models; the new ALDENSART, which responds to radar signals from rescue planes or vessels by painting its location on the rescuer's radar screen; and the Alden Navtex Receiver, AE-900, that automatically receives all weather and navigational warnings. Alden is also in the process of introducing the

Alden SATPHONE™ SP1600 Inmarsat-M Terminal.

### Ashtech, Inc.

Circle 30 on Reader Service Card

Ashtech, Inc. designs a variety of GPS receivers for use in survey, mapping, navigation, Real-Time Differential applications and three-dimensional positioning. New products include the 3DF ADU that provides real-time attitude measurements with accurate position, heading and velocity and the DNS-12 that comes standard with Real-Time Differential while using its new SUPER C/A code technology.

The 3DF ADU's applications include INS integration, vehicle heading and attitude, photogrammetry and artillery pointing. The 3DF ADU is a real-time heading and attitude sensor for oceanographic, seismic exploration activities and gyro calibration at sea. With Real-Time Differential the system can accept RTCM-104 differential corrections while simultaneously outputting the corrected position. The 3DF AFU is ideal for dynamic conditions such as use on ships, aircraft and land vehicles.

The DNS-12 receiver can continuously track up to 12 satellites simultaneously on 12 separate and parallel channels with SUPER C/A code technology. The DNS-12's features include Waypoint navigation, datum selection, UTM's or latitude, longitude, satellite visibility and QA/

QC display and outputs. Post-processing raw data can be achieved with PNAVTRAJECTORY Software giving the same sub-meter accuracy.

### Atlas Elektronik of America

Circle 31 on Reader Service Card

Atlas Elektronik of America has a number of developments, including Atlas Multipilot, a turnkey integrated navigation unit combining ARPA, ECDIS and track control functions which superimposes radar images on an electronic chart display. It has been successfully evaluated under the auspices of the U.S. Coast Guard at Kings Point, N.Y.

Other systems include a new range of low-cost survey sounders, DESO 11, 14 and 15, for precision measurements down to 650 meters. Also new is the SP 1600 series of Inmarsat-M mobile communications terminals, including an approved briefcase version.

### CAST, Inc.

Circle 112 on Reader Service Card

Computing Applications Software Technology (CAST), Inc., a subsidiary of Billerica, Mass.-based Pacer Systems, Inc., offers the ADS 580V for use with an Automated Dependent Surveillance System (ADSS). The ADS 580V is fully compliant





with Federal regulations for Automatic Dependent Surveillance equipment required on tankers operating in Prince William Sound, Alaska. The unit features an all-in-view, 12-channel GPS navigator, augmented with differential corrections automatically accepted as determined by pre-stored NDB almanacs. When a vessel enters designated waters, the ADS 580V automatically reports its position within 32 feet to a shore-based vessel traffic control center on a VHF-FM DSC transceiver, along with the time, figure of merit (HDOP), ship's speed and course over ground and its Lloyd's Registration number.

**Cellnet**

Circle 113 on Reader Service Card

For marine operators of all types, Cellnet Corporation provides CallAboard<sup>®</sup>, a solution for offshore environments where public telephone service is desired.

Using state-of-the-art cellular and pay-phone technology, CallAboard reportedly fills a need for many industry companies including operators of ferries, gaming vessels, work barges, marine offshore construction projects, etc.

CallAboard allows callers to dial anywhere in the world and bill the entire call to a major credit or phone company calling card, as well as make collect calls. The vessel or platform operators never receive any bills for user calls. In addition, Cellnet pays commissions based on percentages of the monthly gross cellular airtime revenue that is generated. The service is provided free of charge to qualified marine operators and is available across the U.S. and in certain foreign markets.

**C-Map USA**

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C-Map USA's digitized electronic chart library includes more than 8,500 charts covering all major areas and ports around the world.

C-Map electronic charts are accurate digitized composites of all pertinent information from government charts. Observations made during a trip, like the location of dangerous reefs, may be permanently stored in the charting system or on a C-Map "User-Cartridge." A C-Map-based system may also be connected to a compatible printer to print a hard copy of each course. All C-Map-based systems have the capability to convert meters to feet or fathoms with a push of a button.

**ComNav Marine**

Circle 33 on Reader Service Card

ComNav Marine has manufactured commercial marine autopilots since 1982. ComNav introduced the ComNav 2200 Autopilot in response to customer demand. The 2200's actual heading and commanded course are continuously shown on a traditional compass rose which is also used for dialing in the

course changes. Knobs are used for function control, rudder and turn rate. Automatic Yaw Control constantly senses and adjusts for sea state conditions. A DC motor controller circuit interfaces the 2200 to most available steering drive systems.

**Comsat**

Circle 111 on Reader Service Card

Comsat's new Mobile Link digi-

tal satellite communications service provides instant direct-dial telephone connections anywhere in the world through marine terminals small enough to be fitted on boats 40 feet (12 m) and up. In 1994, Comsat will expand Mobile Link coverage to include the Indian Ocean Region through a new land earth station to be opened at Kuantan, Malaysia. Comsat also offers worldwide telephone, fax, telex and high-speed data links for larger vessels through its Inmarsat-A and Inmarsat-B ser-

vices. Store-and-forward text and E-mail services are also available through small, lightweight Inmarsat-C terminals.

**C. Plath**

Circle 86 on Reader Service Card

C. Plath offers the Computer Aided Gyrocompass (CAG) and the NAVILOT line of electronic chart tables. The CAG from C.Plath fulfills the requirements of a draft

**It's Hatchable.**

Standard two and three piece modular construction allows Lang marine cooking equipment to pass through a 26 x 66" hatch.

What's more, Lang marine equipment is Underwriters Laboratories tested and listed as meeting UL 197 to include the marine supplement per U.S. Coast Guard regulation 46 CFR 111.77-3.



For more information, please call Mark Jones at (206) 885-4045



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Circle 22 on Reader Service Card

which includes speeds of up to 60 knots at latitudes as high as 75 degrees. The C.Plath NAVIGAT X gyrocompass is the heart of the CAG system. In the CAG system, the computation of the correction values is carried out by the compass monitor NAVITWIN II, and one or two NAVIGAT X gyrocompasses may be used. The compensation value is calculated and applied separately for each gyrocompass. Data transfer between the individual system components is serial. The repeater distribution box generates all analogue and digital heading signals required to drive peripheral equipment.

### EEV, Inc.

Circle 34 on Reader Service Card

EEV's complete range of long-life marine radar magnetrons, covering output power of 1.5 kW to 60 kW, have been designed to provide long operational life. EEV now manufactures three new long-life magnetrons to replace a standard glass 2J55 magnetron. Types MG5435/2J55, MG5445 and MG5455 provide up to three times the life of a standard 2J55 magnetron, are competitively priced and in stock for same day shipment.

### EMS Advanced Product Group

Circle 71 on Reader Service Card

Electronic Marine Systems, Inc. (EMS) Advanced Product Group manufactures Differential GPS (DGPS) Systems and has developed a complete DGPS system which automatically selects the closest beacon and tunes to it in software, which also acts as a complete voyage recorder.

Another new product from EMS Advanced Product Group is the Marine DC UPS power supply which is built to ABS and USCG specifications as a 115VAC to 12 or 24 VDC uninterruptible power supply for navigation or automation equipment.

### EMS Marcon

Circle 75 on Reader Service Card

EMS Marcon manufactures Shipboard Automation Monitoring and Control Systems approved by the U.S. Coast Guard and American Bureau of Shipping for ACCU applications. EMS Marcon has a new product line of overflow alarm sensors with no moving parts, which can be replaced on deck, without venting to atmosphere, in minutes. It is approved by USCG, ABS and FM for Class I Div. I Groups C&D use. On deck displays and closed tank gauging rounds out this new technology.

### Frotronics, Inc.

Circle 114 on Reader Service Card

Frotronics, Inc., the North American distributor for Tokimec, Inc. (formerly Tokyo-Keiki), an international designer and manufacturer of marine gyrocompasses, radars and autopilots, offers Tokimec's new ES-100 series of gyrocompasses and BR-2500 color radar system. The ES gyrocompass series, the ES-140, ES-150 and ES-160, offer the latest in Tokimec's combined "mechatronics" and computer technology, providing a highly reliable compact gyrocompass, designed for use on any size of vessel. The ES-160 exceeds IMO requirements.

Tokimec's BR-2500 color radar system uses a very high resolution 20-inch, seven-color CRT, a touch panel control, with person-machine interfaced menus for all high level functions and automatic tracking of up to 20 targets.

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

Circle 109 on Reader Service Card

Furuno, U.S.A., Inc. has, in addition to its traditional big ship ARPA radars and GMDSS equip-

Maritime Reporter/Engineering News



## Marine Electronics Yearbook

ment, new additions to the Furuno product line ranging from more big ship radars to sounders, sonars to NAV receivers, weather faxes to plotters—even autopilots and marine radios. Furuno has a new 1994 product catalog featuring full details on more than 75 different products.

### Garmin International

Circle 35 on Reader Service Card

Garmin International designs, manufactures and markets navigation and communications electronics worldwide. New products from Garmin for 1994 include:

- GPS 45: an ultra-compact handheld receiver with rocker keypad operating environment
- GPSMAP 220: a color, LCD GPS/chartplotter with waterproof case; also available as GPSMAP 210 with black & white LCD screen
- GBR 21: a differential beacon receiver enabling an accuracy of better than 33 feet.

### Graseby Nova Ltd.

Circle 148 on Reader Service Card

Graseby Nova's RT260M EPIRB received type approval from the U.S. Coast Guard. Launched early in 1993, the company has sold more than 2,000 units, with a major contract to the Royal Navy. The new compact beacon operates on 406/121.5 MHz and features a five-year battery shelf life. The RT260M can be programmed externally by use of a handheld Infra Red link. The RT260M is approved to Cospas-Sarsat, and throughout the world, including Russia and China.

### Henschel, Inc.

Circle 115 on Reader Service Card

Henschel, Inc. supplies the industry with marine alarm, control and interior communications equipment. Henschel's UMS 2000 Alarm and Monitoring System has expanded graphic options such as full mimic diagrams for the Alarm and Monitoring System. Henschel also offers the UCS 2000 control system and integration for the company's communications systems.

### Hose-McCann, Inc.

Circle 116 on Reader Service Card

Hose-McCann Telephone Company moved south last year from its Englewood, N.J. location to a larger, state-of-the-art manufacturing facility and corporate headquarters in Deerfield Beach, Fla.

Hose-McCann continues to manufacture its product line of sound-powered telephones, navigation light panels, audible and visual signaling devices and a complete line of U.S. Navy symbol number items, as well as the series 9500 dial telephone system.

### ICOM America, Inc.

Circle 36 on Reader Service Card

ICOM America offers a complete line of marine communications equipment. ICOM is known for its VHF transceivers, VHF handhelds and single sideband transceiver, but also has a GPS handheld and radars. ICOM provides a full two-year warranty on all marine VHF transceivers, single sidebands and the IC-M11 handheld. Newly introduced gear includes the IC-M15

waterproof VHF handheld and the IC-M126DSC (Digital Selective Calling) VHF transceiver. ICOM's IC-M126DSC is a marine VHF transceiver with Digital Selective Calling (DSC). ICOM's IC-M15 is a marine VHF hand-held transceiver and is FCC-type approved.

### IDB Mobile

Circle 85 on Reader Service Card

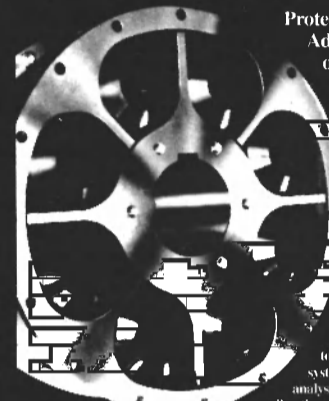
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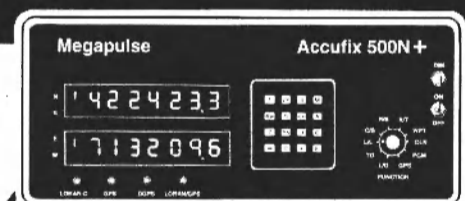


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Products include on-line and off-line Uninterruptible Power Supplies, Static Frequency Converters, Rectifiers, Battery Management Systems and other related products. The company also provides a full range of Integrated Logistic Support Services.

**Kelvin Hughes, Ltd.**

Circle 105 on Reader Service Card

The latest integrated bridge systems being fitted by Kelvin Hughes include chart displays capable of showing the new Admiralty Raster Charts as well as the future of ECDIS charts.

Its bridge systems can also include the full range of GMDSS communications and safety equipment. Kelvin Hughes Ltd. is the Naval and marine division of Smiths Industries Aerospace.

The company designs and manufactures a full range of marine navigational products including Nucleus radars, navigational displays and electronic chart displays.

**Litton Special Devices**

Circle 37 on Reader Service Card

Litton has recently introduced two new EPIRBs that are geared toward the commercial fishing community. The Model 952 Category I is a 406 MHz EPIRB that transmits the vessel's location and identity to the worldwide COSPAS/SARSAT Satellite System initiating an immediate search and rescue response. The Category I is a hydrostatically released, float-free EPIRB that automatically transmits the 406 MHz distress signal when released.

The Model 952 Category I comes with a weather resistant protective housing and the entire unit can be removed from its mounting bracket for safe storage without disarming or dismantling the EPIRB. The Model 952 is also available as a manually activated Category II 406 MHz EPIRB. The Model 953 Class B (Micro "B") is a manually-activated 121.5/243 MHz EPIRB and the distress frequency can be detected by search and rescue aircraft and vessels and by the COSPAS/SARSAT Satellite System. The Micro "B"'s small size makes it suitable for compact stowage in life vests, life rafts and survival kits. Litton Special Devices designs, manufactures and supplies Emergency Radio Indicating Beacons (EPIRBs) for the marine industry. Litton now has more than 10,000 EPIRBs on board commercial and recreational vessels.

**Lokata**

Circle 106 on Reader Service Card

Lokata specializes in equipment for Global Maritime Distress Safety Systems (GMDSS). Lokata's Emer-

gency Position Indicating Radio Beacon (EPIRB) alerts rescue authorities, through a satellite link, of the name and position of a ship when it is in distress. Lokata's Search And Rescue Transponder (SART) indicates on a rescuing ship's radar the bearing and range to a life-raft.

And Lokata's Navigation Radiotelex Receiver (NAVTEX) is designed to receive up to the minute information on navigation, weather and local emergencies.

**Mackay Communications**

Circle 87 on Reader Service Card

Mackay Communications introduces the new Saturn B all digital marine terminal for class I and II Inmarsat services. The main control unit is smaller than the typical TV-VCR and is suitable for desk top mounting. The unit has a local handset, five RJ-11 ports, Group 3 fax and DTE connectors for RS232 modem operation to 9,600 bps and V.21, V.35, V.36 interfaces for optional DHSD at 56/64 kbps. The system is approved by IMO for GMDSS.

**Magnavox Electronic Systems Company**

Circle 88 on Reader Service Card

Magnavox's most recent product introduction is the MX 3400 MAGNAPhone-M, a marine terminal designed to provide access to the new Inmarsat-M service.

The antenna system, which is contained in a fully weather-proofed radome, measures 26-inches diameter by 31-inches high and weighs approximately 100 lbs. It fits com-

fortably on vessels down to 40 feet (12 m) in length. The system has been designed to make operation of the terminal as easy as using your home or office telephone or fax machine. Magnavox received Inmarsat Type Approval of the MX 3400 MAGNAPhone-M in November and is currently making production deliveries. This new product will make available the advantages and security of satellite communications to a class of vessels that have not previously been able to make use of it.

Magnavox Electronics Systems Company has been a supplier of Inmarsat Marine Satellite Communications terminals since the beginning of the Inmarsat system in 1982.

**Marine Electric Systems**

Circle 117 on Reader Service Card

The Galbraith-Pilot Marine™ product line of Marine Electric Systems, Inc. provides shipboard loudspeaker systems for reliable intership communications. The systems are used to communicate from ship-to-ship and ship-to-shore, particularly during docking maneuvers. Marine Electric Systems has designated its systems as: docking and navigation loudspeaker systems; general announcing and talkback systems; emergency loudspeaker systems (a safety requirement for large passenger ships); loudhailer systems; and fog signal systems. The company's loudspeaker systems are available from 50 watts to more than 4,000 watts.

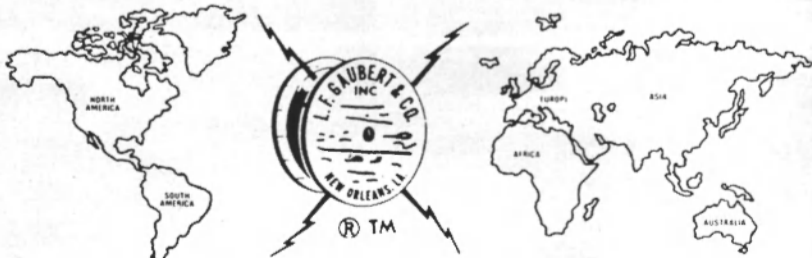
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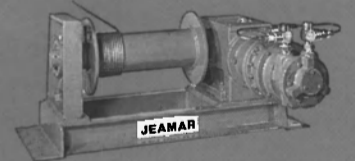


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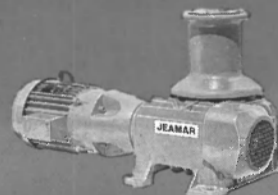
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## Marine Electronics Yearbook

U.K., builds efficient Message Transfer Agents (MTAs) for marine satellite communications.

The MTA provides a proven store and forward electronic messaging service with the ability to transfer information electronically, whether it be text, facsimile, image or program files. In the last year, Marinet Systems has built a message handling system which works across x.400 networks and reportedly allows satellite communications to be more than 85 percent cheaper than normal satellite traffic.

### Megapulse, Inc.

Circle 120 on Reader Service Card

Megapulse, Inc., a designer and manufacturer of solid-state Loran-C systems, offers marine customers its Accufix 500N+ integrated navigation receiver.

Several navies and research institutes have purchased the Accufix series of receivers since the company began production in 1981, with more than 150 units currently in operation worldwide. The Accufix 500N+ includes an internal DGPS MSK receiver as an option at the time of ordering or at a later date.

Megapulse also offers the Accufix D100 and D200, DGPS MSK Beacon Broadcast receivers, which are designed to work with any DGPS RTCM104 capable GPS receiver.

### Micrologic, Inc.

Circle 79 on Reader Service Card

Micrologic has added a low cost, full-featured GPS to its line of GPS receivers. The Sportsman handheld receiver has 1,000 waypoint capacity, 500 of which can be en-

tered 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. It can also be used as a fixed mount unit by connecting it to an optional external antenna, and serial data adapter box. The Sportsman has one programmable input port, and one programmable output port, each selectable as NMEA 0180, NMEA 0183, NMEA RMc, laptop PC or standard PC.

Micrologic has also added features to its Admiral GPS. The Admiral has four built-in databases to choose from: East Coast, West Coast, Asia and Europe. The East Coast database contains 13,500 lights and buoys, the West Coast 13,200, Asia 8,300, and the European database 13,000. The unit is differential data ready, so when connected to any SC104 DGPS receiver is reportedly accurate to within five meters. Additionally, the Admiral now supports NMEA 0183 Version 2. The 250 waypoints can be entered by Lat/Lon present position, range and bearing, UTM, MGRS or Loran TDs. The Admiral will also automatically record and plot a vessel's track including all waypoints, lights and buoys within the plot area. Micrologic Inc. has been manufacturing marine electronics for 20 years and sells to more than 450 dealers worldwide.

### Morad Electronics Corp.

Circle 38 on Reader Service Card

Morad offers a complete line of VHF SSF CB and special frequency antennas and accessories for marine and land-based applications.

Morad antennas and accessories are sold around the world through more than 600 marine electronics dealers. Morad's new VHF 10dB antenna is available in UPS shippable version. Morad Electronics has been manufacturing marine and land-based antennas for more than 40 years.

### Motorola, Inc.

Circle 134 on Reader Service Card

Motorola, Inc. offers the TRAXAR™ GPS Navigator, a handheld navigation computer that provides mariners with accurate position, navigation, velocity and time information. It can be used anywhere in the world, at any time of day and in harsh weather. Although designed to be portable, the receiver can be set into a mounting bracket for access to external power. The TRAXAR also provides NMEA 0183 output to other electronic devices and offers a completely menu-driven operation, a remote antenna for use below decks and audible alarms. Other special features include graphic steering and cross track error displays and "man overboard" emergency steering function.

### Naval Electronics Inc.

Circle 39 on Reader Service Card

Naval Electronics, which manufactures marine television antennas and distribution systems, offers complete systems designed, supplied, installed and serviced.

Naval's MK20/22 Marine TV Antenna now feeds a brand new "Head-End" amplifier system. The new 3000 series of cassette amplifiers splits the TV spectrum up into sev-

eral bands. Each band has its own amplifier with a high dynamic range automatic gain control (AGC). This improves system performance through lower noise and reduction of ghosting. A cascade filtering system incorporated in the 3000 series further reduces noise and the possibility of ghosting.

### Norcontrol

Circle 135 on Reader Service Card

Norcontrol Automation a.s., part of the Horten, Norway-based Norcontrol group, offers the marine industry its fourth generation integrated ARPA and navigation system, the DataBridge 2000I.

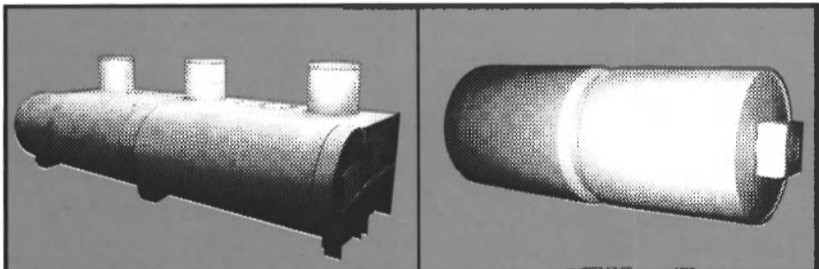
Designed as a total navigation system, DB-2000I is linked to dual radars, doppler log, gyro, anemometer, echosounder and various other sensors to concentrate operator information and simplify data evaluation. GPS, Loran-C and Decca are read simultaneously by the DataPosition subsystem to obtain the ship's best position.

The system is prepared for direct communication and control of ship's propulsion, speed, course and fuel consumption, as well as digital maps and functions for voyage control. Easy operation is handled by a "direct addressing" softkey, trackerball, a high resolution color display and separate alphanumeric data display.

### Offshore Systems Ltd.

Circle 136 on Reader Service Card

Vancouver, Canada-based Offshore Systems, Ltd.'s Electronic Chart-based Precise Integrated Navigation System (ECPINS) is fully compliant with all IMO ECDIS stan-



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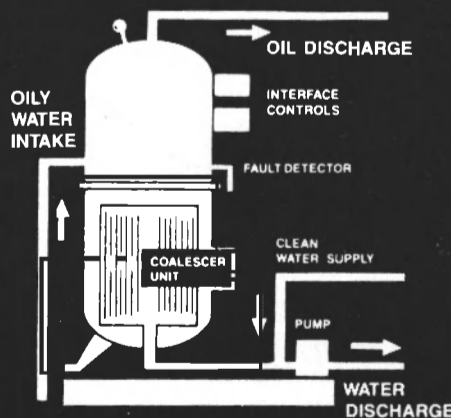
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dards through testing on a variety of government and commercial vessels. ECPINS links precise navigation and radar data to electronic vector charts, providing the navigator with "own ship" position once every half-second directly on a clear, multi-color electronic chart. ECPINS can also display radar images and ARPA targets scanning ahead to warn of chart features less than a selected "safe depth." Chart data can also be viewed simultaneously at close and long range settings through a multi-window presentation.

**Panasonic**

Circle 40 on Reader Service Card

Panasonic's new KX-G5700 handheld GPS receiver weighs less than a pound and has five-channel plotter featuring a graphic LCD display for a visual map of your current position or any of the 256 programmable waypoints (expandable to 1,024). The KX-G5700 features bearing, range, speed over ground and cross track error, plus built-in electronic compass and Navionics chart card-compatibility.

**Racal Decca Marine Ltd.**

Circle 41 on Reader Service Card

Racal-Decca's MIRANS range of integrated bridge systems features the BridgeMaster 340 ARPA radar which combines ease of use with bad weather clarity. The ChartMaster system can display vectorized electronic charts as either a MIRANS or stand alone model, with ARPA targets being shown on the ECDIS compatible chart display. The MapMaster system combines the ChartMaster's performance with cost savings by enabling users to draw their own electronic maps to a high standard.

**Radio Holland**

Circle 137 on Reader Service Card

Radio Holland, with its U.S. headquarters located in Houston, Texas, has established a complete program for maritime GMDSS stations, including GMDSS equipment, shore-based maintenance and radio traffic accounting with air time cost-saving programs. An SP Radio

(Sailor) integrated communications console combines all GMDSS-required radio elements into a compact package, designed to be installed on a vessel's bridge. Radio Holland's GMDSS package also includes a qualified shore-based maintenance program which supports worldwide operation. System installation can be accomplished at ports throughout the world with operator training available aboard ship and at shore locations. The Radio Holland GMDSS system, in conjunction with Kelvin Hughes "Nucleus" radars and integrated bridge components, is designed to improve efficiency and safety.

**Raytheon Marine Co.**

Circle 110 on Reader Service Card

Raytheon's SeaTalk<sup>®</sup> technology is a prime example of how the manufacturer strives to provide customers with customization and versatility, as it allows simplified integration and information sharing. Raytheon equipment integrated with SeaTalk takes advantage of a system that shares navigation information between all electronics. Position, heading, speed, waypoint, depth, temperature and routes are typical of the many types of information that can be sent between electronic instruments. This eliminates the need for duplication, since separate sensors aren't required and a single head acts for several instruments. Other Raytheon instruments can easily be integrated into SeaTalk. And even if one instrument shuts down, the others will continue to operate. Raytheon electronics, and SeaTalk connected instruments, can be integrated with your existing NMEA 0183 compatible equipment. Also new from Raytheon this year is the line of XX radars. The company offers numerous products to both the military, commercial and recreational markets, including autopilots, electronic charting, GPS, sensors, GPS/Loran, VHF-FM radiotelephones, loudhailer, SSB radiotelephones, antennas, SARTs and EPIRBs.

**RD Instruments**

Circle 108 on Reader Service Card

RD Instruments develops and manufactures Acoustic Doppler Current Profilers (ADCP). BroadBand ADCPs provide performance in speed logs or moored and mobile measurement of water currents at many depths simultaneously. Five standard models cover a wide range of applications in water depths from 5.5 feet.

**Reson, Inc.**

Circle 140 on Reader Service Card

Reson, Inc. offers the SeaBat Series of Sonar Systems: the SeaBat 9001 (single-head multibeam real-time system) and SeaBat 9002 (dual-head multibeam real-time system). SeaBat 9002, the newest SeaBat

model, utilizes two SeaBat 9001 Systems that have been modified to operate together within the same acoustic environment. The two sonar heads can be mounted from either a single location or from separate locations to cover any angle of between 90 degrees and 180 degrees. The SeaBat 9001 is a solid state bathymetry system that measures the profile of the seafloor. Profiles are recorded and displayed at speeds of up to 30 times per second, while the computed seafloor data is output via a standard RS-232 interface for real-time presentation, allowing for critical real-time interaction. Tests conducted on the SeaBat 9001 and SeaBat 9002 by the National Oceanic & Atmospheric Administration (NOAA) have resulted in accuracies that meet the International Hydrographic Organization's (IHO) standards for inshore bathymetry operations.

**Saab Marine Electronics**

Circle 42 on Reader Service Card

Saab Marine Electronics provides cargo level gauging for tankers. Since 1976 more than 800 tankers have been equipped with the radar-based, non-contact level gauging system Saab TankRadar<sup>™</sup>. Together with the computerized cargo handling system Saab MaC/501, Saab TankRadar gives total control on board any kind of tanker, from small coastal vessels to VLCCs. Saab Marine Electronics also provides equipment for ballast gauging and load calculation.

**Sea-Hornet Marine Industries, Inc.**

Circle 54 on Reader Service Card

Sea-Hornet Marine Industries has developed the new VM-5501, a Vessel Monitoring And Control system (V-MAC) which has 768 separate analog and digital input zones to monitor and control equipment like engines, gensets, tank levels, hydraulic pressure, pumps, etc. The VM-5501 aids navigation with integrated radar, plotter, sonar and GPS, and aids ships' safety and security with recognized Multi-Deck fire alarm system, built-in watch alarm, burglary, anti-theft, anti-tamper and Watchman's Tour system. The VM-5501 V-MAC can communicate via satellite, cellular phone or VHF/SSB.

**SI-TEX Marine Electronics Inc.**

Circle 43 on Reader Service Card

SI-TEX Marine Electronics manufactures a complete line of marine electronics including radars, GPS and Loran receivers, depth finders/fish finders, VHF radio, marine stereo, electronic charting systems and autopilot. Kodan manufactures a complete line of marine electronics including radar, GPS, sounders, plotters, ADF and VHF radio.

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### Sperry Marine Inc.

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Sperry Marine Inc. is a major international developer and manufacturer of marine electronic navigation, control and communications equipment with company sales and service offices in 11 countries. Sperry Marine provides a complete line of gyrocompasses, radars, autopilots, doppler speed logs, bridge integration and communications equipment for commercial and naval vessels. Along with advancements in Watch-1 integrated bridge systems, ring laser gyrocompasses for the military, the company recently introduced its MK-4217R, a new raster scan river radar for U.S. and worldwide rivers.

viding its Horizon line of fixed and handheld radios, electronics accessories and digital instrumentation.

The new Horizon Nova, a 25 watt fixed mount radio available in black or white, provides a large LCD; up/down channel selector on the speaker/mic; rotary channel selector; scanning and priority scanning; direct access to all U.S., Canadian and international channels, channels 9 and 16, and 10 weather positions plus Weather Alert.

The Horizon Omni, a 25 watt fixed mount 1992 and 1993 NMEA winner, provides GASFET circuitry, Weather Alert and optional new technology Class C Digital Selective Distress Calling.

### Techsonic Industries

Circle 46 on Reader Service Card

Techsonic Industries offers the Humminbird line of marine electronics. The Humminbird DC-5 hand-held VHF radio features all U.S. and international channels, all weather channels and 10 memory channels. Both the LCD and the key panel are backlit and incorpo-

rate an automatic shut off feature. The unit has a low battery indicator, automatic battery saving feature and is 5W/1W selectable, which can maximize battery life at close ranges.

Humminbird's NS10 GPS gives the navigator detailed built-in mapping in a waterproof unit.

Humminbird's Wide™ product family consists of seven new Humminbird sonar products, targeting the fishing and consumer boating market. Four of the new wide units incorporate the latest technology in two-dimensional operation, while three of the products display advanced three-dimensional features. Each of the seven new Humminbird products incorporates such new standard features as: a universal Quick Disconnect mount, allowing the interchanging of each product with any other unit in the Wide family; a curved anti-glare lens for easy-on-the-eye viewing; and a clear view lens, allowing viewing with polarized sunglasses.

Traxar™ GPS handheld navigator, which Techsonic manufactures and for which Motorola supplies the GPS technology, provides six chan-

nel, hand-held portability that provides boaters and other outdoorsmen with position, navigation, velocity and time information.

### Trimble Navigation

Circle 47 on Reader Service Card

Trimble Navigation reportedly offers the first GPS receiver with a built-in differential receiver. The company also reportedly offers the first GPS receiver with a two-slot card reader, a feature that includes another first: a slot for GPS memory cards. Owing to these developments, mariners no longer have to buy and install a separate beacon receiver to get differential's 33-foot accuracy. And because of these developments mariners can now record and archive their GPS navigation data.

These developments are featured in Trimble's new NT product line, the company's next generation of big-screen GPS receivers for the marine market. Trimble's NT line comprises three products: the NT200D GPS, the NT200 GPS and the NT100 GPS. The NT200D provides built-in differential and an

### Standard Communications Corp.

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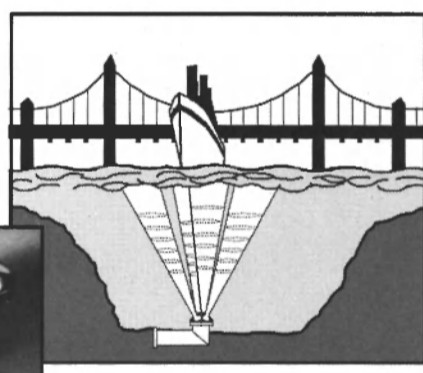
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**RD Instruments**

Circle 270 on Reader Service Card

## Marino Electronics Yearbook

optional two-slot card reader that supports both PC-compatible memory cards and nautical chart cards. The card reader enables mariners to watch a moving image of their boat on a nautical chart while recording their GPS receiver's navigation data. Like the NT200D, the NT200 offers the optional two-slot card reader. It accepts differential corrections and provides two National Marine Electronics Association (NMEA-0183) ports for interfacing with other navigation de-

vices. The NT100 is geared to the first-time buyer. Like its sister products, it offers rugged, waterproof construction, user-configurable navigation screens and a six-inch graphical liquid crystal display, among other features.

### Waterway Communication Systems

Circle 48 on Reader Service Card

Waterway Communications Sys-

tems offers the WATERCOM to place direct-dial telephone calls. WATERCOM offers fax and modem data transfer capabilities; calling card and collect calling for crew members; 24-hour customer service; and itemized, monthly billings.

### Simrad-Robertson, Inc.

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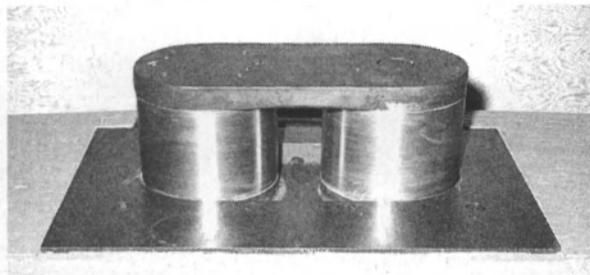


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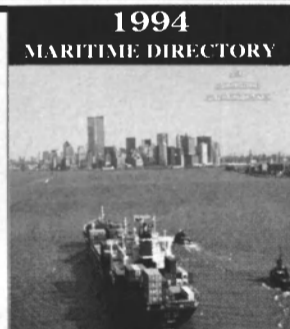
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## Pacific-Gulf Marine And A.C. Toepfer Sign Contract

Pacific Gulf Marine, Inc. (PGM) signed an agreement with Alfred C. Toepfer Schiffahrtsgesellschaft of Hamburg, Germany regarding the manning and operation of four container vessels currently being built for A.C.T.S./U.S., Inc.

"Under the terms of the contract, Pacific-Gulf Marine, Inc. will have the obligation for manning and operating these vessels," explained Captain Peter F. Johnson, chairman and CEO of PGM.

The four ECOBOX 42 container vessels are currently under construction at the Flensburger Schiffbau-Gesellschaft shipyard in Flensburg, Germany. Each vessel has a length of 665 feet (202.7 m) with a breadth molded of 100 feet (30.5 m) and a dwt capacity of 41,500 metric tons. The first ship of the series is scheduled to be delivered for U.S.-flag operation during the first quarter of 1995 with the others delivered within the subsequent 12 months.

## Bishop To Carry Royal Purple Lubricants

Bishop Lubricants Inc. of Seabrook, Texas has reached an agreement with Royal Purple Synthetic Lubricants Inc. of Humble, Texas to be the exclusive marine industry distributor for Royal Purple's products. Tests have shown Royal Purple's lubricant formulations provide lubes with a tough film strength. This film, by bonding with surfaces, reportedly reduces friction dramatically. According to Bishop Lubricants, operating temperatures drop, RPMs increase, amperage draw drops and wear is virtually eliminated - with engines lasting twice as long or longer. Bishop also says Royal Purple's tough film strength allows boat owners to double the engine oil drain interval, so only the filter need be changed, and that oil disposal problems are cut a minimum of 50 percent. Bishop offers a complete line of synthetic lubricants including gear oil, motor oil, 2-cycle, ATF and grease as well as a full line of industrial oils for compressors, pumps, etc. For more information on Bishop's products,

Circle 126 on Reader Service Card

Maritime Reporter/Engineering News



## Portuaria '94 Preps For May Date

Scheduled for May 23 to 28, Portuaria '94, an international port exhibition, will focus on commercial relations and technological developments. Included among the participating institutions are: all of the port authorities of Spain; the Ports Authority of Andalusia; the Dept. of Ports and Coasts of the Government of Catalonia; and more. Portuaria '94 will also feature technical seminars—scheduled to be held in the World Trade Center, Seville—covering topics from ports and docks paving and surfacing; wave forecasting and ship route consultancy; and combined transport, port and dock logistics. For more information on Portuaria '94, contact: MARGE, Avda. Diagonal, 541, 3 . 08029, Barcelona, Spain; tel: + 34 3 419 6941; fax: + 34 3 405 2258.

## Engineers Detail Pros Of Fiber Optic Technology

New techniques are being pioneered to make the installation and maintenance of underwater fiber optic cable systems more affordable and accessible for developing countries. Details of these methods were presented in a paper by two leading engineers from B.T. Marine at the Pacific Telecommunications Council (PTC) 16th Annual Conference.

The paper, entitled "Cost Effective Installation and Maintenance of Subsea Links for Developing Economies," was presented by Roy C. May and Andrew R. Cannell. In the paper the duo call for a totally new concept of undersea installation and maintenance to be considered. One way developing countries can lower installation costs include using what Mr. May and Mr. Cannell call the "ship of opportunity" concept, which calls for selecting a suitable local vessel which can be adapted for cable handling. Among the types of vessels which can be used are supply ships, fishing boats, barges and others which can effectively be adapted for undersea cable installation, the authors claim.

## AMSEA Awards TSA Project Tracking On Two Ships

Tracking Systems of America (TSA) was recently awarded a contract by AMSEA on the MarAd-owned S/SCape Jacob and S/SCape John, currently undergoing Sealift Enhancement contracts in a Texas shipyard. TSA is providing AMSEA's port engineer and onsite inspectors with graphic reports detailing manhour productivity, performance and completion rates based on data received from the port engineer and the contractor. Cape Jacob and Cape John are the ninth and tenth MarAd ships to utilize TSA's advanced reporting system during the past year.

TSA utilizes a custom-designed

comparative analysis software system to evaluate the contractor's plan, as prescribed by the CPM and Gantt charts, and compares them to the current progress as reported. A complete planning service to ship owners is also offered so that maximum impact is achieved through its exclusive tracking system. The output provides a snapshot of the progress of each ship by item, with Critical Path items more closely monitored since the completion of each report

rests on those items coming in on time. The report is then sent overnight to the on-site management team for review and corrective action. TSA's complement of services has expanded during this time to also include preparation of charts and graphs utilized in settlement of post-contract disputes. For more information on TSA's products and services,

Circle 93 on Reader Service Card

## SPD Teams With Henschel To Win Sealift Contract

SPD and Henschel were awarded a contract from Newport News for two shipsets of equipment for its Sealift Conversion Program, covering switchgear and circuit breakers, as well as machinery control systems, and more. For additional information on SPD Technologies,

Circle 89 on Reader Service Card

# 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

Circle 306 on Reader Service Card

## Rex Bousfield Launches Marine Furniture Products

Rex Bousfield Ltd. now offers the RB 32 marine furniture range for cruise ships and other commercial vessels. The product range reportedly offers a wide variety of styling and performance options. The crux of the new line is the Holdfast assembly technology, which reportedly ensures sturdy construction

across a range of materials. The RB 32 range was independently tested and approved in the U.K. by the Furniture Industry Research Association (FIRA), to international furniture performance standards; strength: ISO 7173, stability: ISO 7174, at a level which makes the furniture suitable for severe and general contract applications. For a free brochure on the new line,

Circle 96 on Reader Service Card

## Ovako Couplings Now Offers 24-Hour Service

Ovako Couplings manufactures shaft couplings that don't require keys or other conventional methods of shaft preparation, such as thrust rings of backing nuts.

Long known as SKF OK couplings, and the flanged version of OKF cou-

plings, more than 20,000 of these units—which are classified by ABS, Lloyds and other classification societies—are in service around the world.

From 2,000 to 3,600-shp tugboats, to nuclear submarines to fishing boats and ferries, OK and OKF couplings and the SKF Supergrip bolts are designed for rugged service conditions and high torque and shock loads.

The couplings feature two basic parts: a thick outer sleeve with a tapered bore and a thinner inner sleeve, making shaft preparation for the couplings straightforward, requiring only straight, fine-tuned shafts butted together.

The use of oil injection enables the coupling's outer sleeve to be driven up over the inner sleeve.

The inner sleeve is compressed onto the shaft and the torque is carried by the whole pressure area of the coupling.

Using this method, no high-stress areas are created and reportedly no fretting takes place, even under conditions of reversing torques or heavy shock loads.

Special oil injection tools have been designed by SKF, and are provided with the OK couplings and Supergrip bolts.

Ordinary mineral oil is used as the injection medium, and the removal of the OK or OKF coupling from the shaft is reportedly as simple and quick as the installation.

Many retrofit applications for OK couplings have been installed over the years, from repairing rudder stocks, to reconnecting broken bow thruster drives.

In conjunction with Ovako's hydraulically installed expansion bolt system, a class of ferries was retrofitted with a combination of specially designed flange couplings, tie bolts and expansion dowels.

Ovako Couplings Division's sales manager **Robin King** also announced that the company has set up a 24-hour spare parts facility in Torrington, Conn.

For more information on the products and services of OVAKO Couplings,

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## SVENSKA MÄSSAN GOTHENBURG 26-28 APRIL

Circle 278 on Reader Service Card

## Ban On U.S.-Vietnam Transportation Lifted

President Clinton's lift of the U.S. trade embargo against Vietnam has prompted the Department of Transportation (DOT), in conjunction with the Department of Commerce (DOC), to lift a ban against U.S. ships and aircraft transporting goods or traveling to that country.

The DOT and DOC have previously prohibited any U.S. documented ship or U.S.-registered aircraft from engaging in those activities. In early February the secretaries of State, Commerce and Treasury were instructed to lift the trade embargo against Vietnam.



# Five Year Outlook For U.S. Shipbuilding

by

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

## Overall Business Setting:

The scene is set for significant developments in global shipbuilding. Pent up demand for ship construction is about to be unleashed, producing a significant increase in orders for new ships during the second half of the 1990s. Replacement requirements will be the principal driver, as 47 percent of the world fleet will be 20 years or older within the next five years.

Meanwhile, traditional key players in the shipbuilding business are being impacted by currency exchange rates and increasing labor costs. Hourly rates in Northern European shipyards are up to 60 percent higher than in the U.S. Japanese shipyard labor rates are now at least 30 percent higher than in the U.S., and Japanese builders are increasingly looking to foreign sources for component supply to lower costs.

Never has there been a better time for U.S. companies to reposition in the worldwide commercial shipbuilding market. As shown in our study, opportunities are largely in the international area. They dwarf the domestic sector. Available revenues in the seven international sectors examined in the report are three times the size of the Navy and domestic sectors combined.

## International Market

In our report we examine seven segments in the international business sector that look particularly interesting. They show signs of significant growth, involve relatively high technology and appear open to international competition. Together, these seven markets represent available revenues of \$37 to \$54 billion over the next five years.

— **Product tankers** - This is probably the most interesting business sector. A large number of ships are to be built. Demand will be driven by replacement requirements and additional transport needs. For the U.S. alone, we project a requirement for up to 195 additional tankers to handle increased petroleum product imports.

— **Crude carriers** - Replacement requirements will drive demand in this sector. The building spike of the early 1970s is creating block obsolescence of crude carriers. We project that 36 percent of crude carriers currently in service will be retired over the next five years.

— **Liquefied gas carriers** - Addi-

tional transport requirements will be the principal driver for LNG/LPG ship construction. The LNG trade looks like it will increase 30- to 45 percent in the second half of the 1990s. The LPG trade is projected to increase 20 to 29 percent.

— **Chemical ships** - Replacement of aging tonnage and adding capacity to meet chemical transport demand will drive construction requirements. These expensive, small ships are an excellent opportunity for shipbuilders, and the growing interest in diesel-electric propulsion for parcel tankers opens interesting possibilities.

— **Cruise ships** - This highly visible market sector has generated a great deal of interest. Cruise travel has grown at a rapid rate, and we see cruise passenger demand growing 1.5 to 2.2 million in the second half of the 1990s. Additional ships will be required to handle this growth and SOLAS 97 will cause some retirements.

— **Containerships** - Required containership capacity is projected to increase 23 to 30 percent by 1999. Of particular interest is construction of mega containerships, a segment of the business which has been growing very rapidly.

— **Floating plants** - Ability to get quick delivery and access to maritime financing make floating plants an interesting option to land-based facilities. Over the next five years we see opportunities to supply a significant number of floating power plants, methanol plants and desalination plants.

## Domestic Market

Six market segments in the domestic trade will offer future business opportunities. We estimate in our report that these opportunities will generate \$3 to \$5 billion in available revenues over the next five years. Since the law requires domestic trading ships be built in the U.S., the market is reserved for shipyards located in this country. There is no barrier to equipment manufacturers and other suppliers who want to sell into the domestic sector.

— **Coastal tankers** - Between 1995 and 1999, the single hull restriction in OPA 90 will force out of service 36 of the 130 tankers with coastal trading privilege. There won't be a one-for-one replacement requirement, as the need for coastal tankers is expected to decline over the next five years. However, we see a need for new product tankers to replace

some of those being retired. Several interesting rebodilying projects are also in an advanced planning stage.

— **Domestic containerships** - Softness in the U.S. economy and business conditions unique to Hawaii, Puerto Rico and Alaska have dampened demand for containerized shipping. We see a requirement for a few ships in the late 1990s.

— **Offshore support vessels** - The Gulf of Mexico market has recently shown signs of revival. Equipment utilization and day rates are up, though not yet to the level that justifies major capital expenditures in new vessels. Particularly interesting are the expected orders for large anchor handling tugs and large supply vessels.

— **Ferries and small passenger vessels** - There are 5,000 passenger vessels registered in the U.S. Construction has averaged 150 to 200 vessels annually. Over the next five years, there are several major ferry construction projects in the pipeline. These projects involve construction of large passenger or passenger/vehicle ferries requiring diesel-electric or cycloidal propulsion. A variety of other small passenger vessel orders are expected.

— **Tugboats** - Regulations calling for escort of tankers entering U.S. harbors will create demand for new, large escort tugs fitted with Z drive or cycloidal propulsion. We expect a significant flow of orders for these tugs over the next five years.

— **Floating prisons** - The crime bill in Congress will provide an additional \$800 million per year for correctional facilities. Floating prisons can be delivered quickly and offer other advantages over land-based sites. We expect to see some orders for prison barges.

## U.S. Navy Sector

No doubt the Navy market is declining. But even at the reduced level of future ship construction, the revenue potential cannot be overlooked. This market will continue to be important, particularly to the four or five major players in this sector. Contracts totaling \$8.5- to \$11 billion will be thrown off by Navy business over the next five years.

## A Time To Think Global

To repeat an earlier comment: never has there been a more compelling reason for U.S. shipbuilders and marine suppliers to think glo-

bal. As our study clearly documents, U.S. firms will be drastically limiting their available business base without a global approach to the market. The downturn of Navy work is reducing new business opportunities and the flow of domestic commercial work will not be adequate to offset these reductions. Meanwhile, the international shipbuilding market is about to take off, driven by the need to replace aging ships and satisfy increased transport demand.

This is not to say transitioning to commercial work will be easy. There's no question that there's strong competition. There's also no question that the market is often disturbed by soft financing and other government assistance. But the shipbuilding and marine equipment industry in the U.S. has an abundance of skilled personnel, modern facilities, good management, access to capital and relatively low labor costs. It possesses all of the ingredients needed to position in the international commercial market.

Importantly, the U.S. government has shifted from a hands-off to a proactive policy toward shipbuilding. Several new programs have been implemented over the past four months that will help shipbuilders compete for international orders. Of particular significance is the availability of federal financing guarantees for ship export orders. Ask Boeing how important government financing guarantees have been in selling commercial aircraft overseas. U.S. shipbuilders now have access to similar financing assistance.

The report profiles the existing inventory, identifies key owners and builders, examines underlying business trends and provides a construction forecast in each business sector over the next five years. More than 135 exhibits and 18 statistical tables document the findings and conclusions.

A study published in mid-February by IMA lays out the entire marine market available to shipbuilders and ship system suppliers over the next five years. The 225-page study looks at the market from a U.S. perspective — detailing future business opportunities in seven key international shipbuilding sectors, six domestic market sectors and five Navy sectors.

"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., N.W., Suite 140, Washington, D.C. 20037, tel: (202) 333-8501; fax: (202) 333-8504.

## MSI Offers Pilot-Specific Bridge Resource Workshop

Bridge Resource Management (BRM) will be applied to the role of the marine pilot in a new training program available from MarineSafety International (MSI).

Entitled "Bridge Resource Management for Marine Pilots," the workshop was developed for pilotage organizations in response to initiatives from the American Pilots Association and recommendations from both the U.S. Coast Guard and the National Transportation Safety Board.

The BRM training program for marine pilots available from MSI is presented as an initial workshop with optional follow-on training. Recurrent training, in the form of either a one-day seminar/workshop or a three- to five-day program using simulator-based exercises, is recommended to keep skills sharp through periodic reinforcement. MSI has been conducting shiphandling training for marine pilots, the U.S. Navy and other com-

mercial clients since 1974 with simulator complexes located in Kings Point, N.Y., Newport, R.I., San Diego, Calif., and Rotterdam, The Netherlands. For more information on the new training workshop,

Circle 5 on Reader Service Card

## USMSA Sponsors Sixth Annual Safety Seminar

Dubbed "Understanding the Marketplace: Factors Influencing the Buyers and Users of Marine Safety Equipment & Services," the sixth annual United States Marine Safety Association (USMSA) seminar is scheduled for May 17-19, 1994 in Sandy Hook, N.J. The two days of seminars feature noted speakers talking about: Politics: Law & Regulations—How to Affect Change; Jones Act and Product Liability; Marine Insurance; and Fisheries Management and Safety: The Bottom Line, to name a few. Inter-mixed with the educational seminars are lunches, dinners, boat tours, and even an optional naviga-

tion and plotting class. The USMSA is comprised of more than 140 companies and individuals involved in either the design and/or manufacture of marine safety equipment, service or sale of safety equipment, or providing training in the use of such equipment. For more information on the USMSA sixth annual safety seminar, contact **Kristina Goldfield** at (215) 564-3484.

## International Survival At Sea Expo & Symposium

Scheduled for September 8-10, 1994 at the Westin Hotel, Renaissance Center in Detroit, the International Survival And Safety At Sea Exposition & Symposium will feature a number of seminars and demonstrations to complement the well-rounded exposition portion.

For more information, contact: **Irwin I. Chaitin**, managing director, International Survival and Safety At Sea Exposition & Symposium, 403 Midland, Detroit, Mich. 48203; tel: (313) 865-1000; fax: (313) 865-7030.

## Allied-Signal Makes Metal-Protector Available

Allied-Signal's A-C Performance Additives Group announces the commercial availability of ACqua™ 220, ACqua™ 240 and ACqua™ 250 aqueous dispersions. ACqua dispersions reportedly provides environmentally friendly protection against acids, chemicals and corrosion. For more information from Allied-Signal,

Circle 103 on Reader Service Card

## Alden Names New Leader

Alden Electronics, Inc. announced that **Arnold A. Kraft** joined the company as president and CEO, responsible for the overall strategic direction of the company, overseeing all sales, marketing and development efforts. "I am glad to be here and excited to be a part of the Alden team," said Mr. Kraft. Mr. Kraft was previously president and CEO of Bachman Information Systems, Inc., and under his guidance Bachman became known as a leading software application development tools and services vendor. Alden Electronics is a leader in computer-based weather data display systems, color weather radar terminals, weather satellite ground receiving systems and a variety of specialized terminals supporting the global meteorological and oceanographic community. For more information on Alden Electronics,

Circle 97 on Reader Service Card

## Western Machine Introduces New Compact Tow Pin Unit

Western Machine Works introduced a new compact tow pin unit, which features two hydraulically driven tow pins with two small stern rollers and an optional hold-down mechanism for restricting the towing cable. The unit is designed for use with smaller, inland tugs which may not need all of the capacity that Western Machine's standard units provide for larger tugs. The compact unit welds to the cap of the bulwark. For more information,

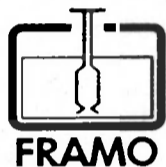
Circle 95 on Reader Service Card

## McElroy Machine Appoints Randazzo To Outside Sales

**Michael Randazzo** has been named to fill an outside sales position for McElroy Machine & Mfg. Co. Inc. of Biloxi, Miss. He will be responsible for winch and deck machinery sales to shipyards, boat owners and operators, rig builders and owners, and operators.

McElroy Machine has been in the business of winch and deck machinery manufacturing for more than 75 years. For more information on the company's products and services,

Circle 92 on Reader Service Card



## Frank Mohn Houston Inc.

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

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

**Dunlop-Beaufort**

CANADA: 12351 Bridgeport Rd. Flichm ind B.C.  
Canada V6V 1J4 • Tel: (604)273-3221 Fax: (604) 278-7812  
U.K.: Birkenhead, Merseyside L41 1HQ England  
Tel: 051-652-9151 Fax: 051-653-6639

Circle 268 on Reader Service Card



# Shipping '94: The Risks & Rewards Of Quality Shipping

March 14-16, Stamford, Conn.

The Connecticut Maritime Association's (CMA) annual shipping conference, "Shipping '94: The Risks and Rewards of Quality Shipping," will examine the strides the maritime industry has taken over the past years to improve service, to protect the environment and the safety of those at sea, and to meet the challenges of global responsibility and competition.

Shipping '94 is positioned to attract industry leaders including shipowners and ship managers, shippers, shipbuilders and designers, financiers, attorneys and other consultants. Last year's conference, "Shipping '93: Shaping the Future of Shipping - The Road to Recovery" featured 50 exhibitors and more than 600 attendees, and show management projects this year's show as being bigger and better.

The Shipping '94 seminar program has been drawn up by members from the CMA, working in consultation with members of the industry.

Co-sponsors of the event include: The Baltic and International Maritime Council (BIMCO), International Association of Independent Tanker Owners (INTERTANKO), Federation of American Controlled Shipping (FACS) and International Association of Dry Cargo Shipowners (INTERCARGO).

The CIT Group, the Association of Ship Bro-

kers and Agents, Bureau Veritas, Canaveral Port Authority, Segumar/Panama, Crescent Towing, Unitor and Seward & Kissel, and MCI International will all be sponsoring show events.

Scheduled to speak and participate in panels are, among others: **Philip J. Loree**, chairman, FACS; **Capt. Joachim Meyer**, managing partner, Hanseatic Shipping Company, Ltd. and president, International Shipmanagers Association; **Richard Quegan**, Texaco, Inc.; **RAdm. A.E. Henn**, chief, Office of Marine Safety, Security and Environmental Protection, U.S. Coast Guard; **Frank Iarossi**, American Bureau of Shipping; **Andreas Ugland**, chairman, The Ugland Group and INTERTANKO; and **Robert Wellner**, president, International Marine Carriers.

In conjunction with Shipping '94, the CMA Board of Governors will present the CMA Commodore Award.

Shipping '94 will be held at the Sheraton Stamford Hotel & Towers, Stamford, Conn. For more information on the conference, contact **Peter Casciano** or **Rikki Moran**, International Marketing Strategies, Inc., 66 Field Point Road, Greenwich, Conn. 06830, tel: (203) 622-4014; fax: (203) 622-1929.



## Cable & Wireless (Marine) Ltd. Orders Cables From Kvaerner



Cable & Wireless (Marine) Ltd.'s new cables from Kvaerner.

Cable & Wireless (Marine) Ltd. ordered a cables from Kvaerner Masa-Yards for a reported value of \$71 million.

The new generation of cable laying ship was developed especially for the fiberoptic submarine cable market. The diesel-electric vessel will be fitted with a dynamic positioning system, and feature accommodations for 80 in single berth cabins. The ship will measure 467 feet (142.4 m) long, with a 79-foot (24 m) breadth and a 27-foot (8.3 m) draft. Cable & Wireless (Marine) Ltd. of Chelmsford, England, is a leading operator of cables around the world. The company currently operates an existing fleet of nine specialized laying, maintenance and survey vessels based in different locations.

In 1992, Kvaerner Masa-Yards won a contract for two cable maintenance vessels from International Cables Pte. Ltd. of Singapore, and in 1990 the yard delivered another cable ship for the United Arab Emirates Telecommunications company. For additional information on the shipbuilding capabilities of Kvaerner Masa-Yards,

Circle 74 on Reader Service Card

## Simulation Training And Research Center To Open In Seattle In April



West Coast and Alaskan mariners can upgrade their piloting skills and knowledge at the the STAR Center Seattle simulation training facility, set to open in April 1994.

The West Coast's first commercial ship simulation training facility will begin operations in Seattle this April. STAR (Simulation Training And Research) Center Seattle will be equipped to serve up to 1,000 mariners per year.

The Seattle facility will feature two full mission, visual simulation bridges, as well as a suite of navigational radar/ARPA simulators. Each bridge will be created as an authentic wheelhouse, equipped with radar/ARPA, a steering stand with autopilot, communication systems and navigational instruments. Clearly visible through the wheelhouse windows, via computer-generated imagery, will be land, shore structures, buoys, channel markers, tugs and passing ships. Both bridge simulators will have debriefing theaters. Together, instructors and trainees will review simulation exercises that can include mechanical and engine failures, high winds, etc. STAR Center Seattle will provide both training and operations research services to the West Coast and Alaskan maritime communities. For more information on STAR Center Seattle,

Circle 14 on Reader Service Card

### Shipping '94 Conference Sessions

#### • Tues., March 15

##### MORNING SESSION:

"The Costs - Does Quality Pay?"

*Speakers include:* **William A. Crawford**, Star Shipping, president of CMA; **James R. Lawrence**, president, Intl. Mrktg. Strategies; **Philip J. Loree**, chairman, FACS; **Richard Quegan**, gen. mgr., Texaco; **RAdm. A.E. Henn**, chief, Office of Marine Safety, Security and Environmental Protection, U.S. Coast Guard.

##### AFTERNOON SESSION: "The Benefits - What Are They?"

*Speakers include:* **Frank Iarossi**, chairman, ABS; **Bo Wahloff**, president, International Union of Marine Insurance; **Andreas Ugland**, chairman, The Ugland Group and INTERTANKO.

*Awards Dinner—Commodore Award Recipient:* **Thomas E. Moran**, chairman, Moran Towing Corp.

#### • Weds., March 16

##### MORNING SESSION:

"The Proof - Where Has Quality Paid?"

*Speakers Include:* **Arlie Sterling**, president, Marsoft, Inc.; **Lars Carlsson**, president, Concordia AB, Sweden, charterer; **Robert Wellner**, president, International Marine Carriers, owner.

*AFTERNOON SESSION:* The Risks - The Threat of Ignoring Quality. *Speakers Include:* **Richard W.J. Schiferli**, deputy secretary, Paris Memorandum on Port State Control, Netherlands; **Guy Morel**, pres., MC Shipping.

#### Shipping '94 Exhibit Hours:

Tuesday, March 15 ..... 9 a.m. to 7:30 p.m.

Wednesday, March 16 ..... 9 a.m. to 7:00 p.m.

#### Exhibitor List (partial)

American Bureau of Shipping  
Atlantic Marine/Atlantic Drydock  
BIMCO  
Brown Nelson Public Relations  
Bureau Veritas  
Canaveral Port Authority  
Crisis Consultants  
Dagmar Systems  
Denholm Ship Management  
Det Norske Veritas  
International SOS Assistance  
Lloyds Register  
Maritime Reporter  
National Association of Marine Surveyors  
National Response Corp.  
Nautical Management Systems  
Newport News Shipbuilding  
Ocean Weather  
Strachan Shipping  
Unitor  
Warren Pumps

# BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

## ABRASIVES

Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219  
Ervin Industries, Inc., 3893 Research Park Drive, Ann Arbor, MI 48106-1668  
Stan-Blast Abrasives, 3300 River Rd., P.O. Box 968, Harvey, LA 70059

## ABSORBENT PRODUCTS

Haz-Maz Response Technologies, 5841 Box Canyon Rd., La Jolla, CA 92307  
Sorbent Products, 645 Howard Ave., Somerset, N.J. 08873

## 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, 141D Central Ave., Farmingdale, NY 11735  
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001  
Carrier Transcold, P.O. Box 4805, Syracuse, NY 13221  
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

## ANODES/CATHODIC PROTECTION

American Corrosion Services, 218 Rue Beaugerd, Ste. B., Lafayette, LA 70508

## ANTENNAS—Rate of Turn Indicator

Rivertronics, 2624 East Broadway, Alton, IL 62002

## BALLAST

Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219  
Genstar Stone Products, Executive Plaza IV, Hunt Valley, MD 21031  
Mineral Research & Recovery Inc., P.O. Box 986, Sonoita, AZ 85637

## BARGE BUILDING

Conrad Industries, P.O. Box 790, Morgan City LA 70381

Zidell Marine Corp., 3121 S W Moody Ave., Portland, OR 97201

## BARGE—Leasing

Zidell Marine Corp., 3121 SW Moody Ave., Portland OR 97201

## BASKET STRAINERS

Beard Industries, P.O. Box 31115, Shreveport, LA 71130

## BEARING—Rubber, Metallic, Non-Metallic

B.F. Goodrich, Engineered Polymer Products, 150 Division Dr., Wilmington, NC 28401  
Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY  
U.S.A. Repts: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
In-Place Machining, 1929 N. Buffum St., Milwaukee, WI 53212  
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Orkot Engineering, 2535 Prairie Road-Unit D, Eugene, OR 97402  
Tenmat Inc., 511 Interchange Blvd, Newark, DE 19711  
Thordon Bearings Inc., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6

## BERYLCO SAFETY TOOLS

NGK Metals Corporation, P.O. Box 13367, Reading, PA 19612

## BILGE OIL/FUEL ABSORBER

The Bilge Rat, P.O. Box 4244, Fort Walton, FL 32549

## BOILER CONTROL SYSTEMS

G.R. Bowler Co., 2701 Culver Rd., Ste. 200, Rochester, NY 14622

## BOILER—Manufacturers

Aalborg Ciser (Miami) Inc., 2449 Northeast 13th Avenue, Ft. Lauderdale, FL 33305

## BROKERS

151 Maritime Services, 34062 El Encanto/B, Dana Pt. CA 92629  
Bayou Rentals, 9356 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 Caddy Lane, P.O. Box 371, Flossmoor IL 60422  
Mowbray's Tug & Barge Sales Corp., 35 De Hart St., Morristown NJ 07960

## BULKHEAD SEALS

Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY  
U.S.A. Repts: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
John Crane Marine USA, 1536 Barclay Blvd., Buffalo Grove, IL 60089

## BUNKERING

Crowley Maritime, 155 Grand Ave., Oakland, CA 94612

Zidell Marine Corp., 3121 SW Moody Ave., Portland OR 97201

## CELLULAR TELEPHONE SERVICE

Cellnet Corp., 400 Main St., Ste. 800, Stamford, CT 06901-3004

## CHAINS

Crاندall Dry Dock Engineers Inc./Marit 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  
G.J. Wortelboer Jr. B.V., Postbus 5003, 3008 AA Rotterdam, NETHERLANDS

## CHAIRS

Gasser 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., Morristown, TN 37813  
Turnbull, Inc., 3818 134th St. N.E., Marysville, WA 98271

## CHEMICALS

Drew Ameroid Marine, One Drew Plaza, Boonton, 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

ZSI, 12749 Richfield Ct., Livonia, MI 48150

## CLASSIFICATION SOCIETY

American Bureau of Shipping, 2 World Trade Center, 106th Fl, New York, NY 10048

## COMPACTORS

A/S Vesta, Skudehavsvvej 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

ITW 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 Mercator Drive, Reston, VA 22091-3413  
Kockums Computer Systems AB, PO Box 50555, s-202 15 Malmö, SWEDEN  
TIMSCO, P. O. Box 91360, Mobile AL 36691

## CONDENSERS/SEPARATORS

Beard Industries Inc., P.O. Box 31115, Shreveport LA 71130

## CONTROL SYSTEM—Monitoring

ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND

Autronica 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

MMC International, 60 Inip Dr, Inwood NY 11696

Marine Electric RPD, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135

Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006

Siemens Energy & Automation, Inc., Systems Div., Marine Systems No. America (A23N), 100 Technology Drive, Alpharetta, GA 30202

Teleflex Naval technologies, 205 Church Rd., North Wales, PA 19454

## CONTROL SYSTEM—Steering

KGW Schweriner, Wismarsche Strasse 380, 19055 Schwerin, 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

Klehma Rubber Engineering, GERMANY  
U.S. Rep: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168

## CORROSION CONSULTANTS

S.G. Pinney & 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 Olin St., Ocean Grove, NJ 07756  
Lo-Rez Vibration Control Ltd., 156 West 8th Avenue, Vancouver, BC CANADA, V5Y1N2

## CRANE—HOIST—DERRICK—WHIRLEYS

Bisso Marine Co. P.O. Box 4113, New Orleans, LA 70178  
The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101  
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072  
Hagglunds Inc, Marine Div. Headq., 50 Chestnut Ridge Rd, Montvale, NJ 07645  
Liebherr-Werk Nenzing GES.mbh, P.O. Box 10, A-6710 Nenzing, AUSTRIA  
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235  
J.D. Neuhaus Hebezeugue 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  
Pettibone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883  
Smatco Industries, P.O. Box 4036, Houma, LA 70361  
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

## CRANES

Morgan Marine, 1300 Nomandy Place, Santa Ana, CA 92705  
Palfinger Inc., 8040 Dorchester Rd., Niagara Falls, Ontario, CANADA L2E 6V6  
Tech Crane Int'l., Inc., 61130 Timberbend Dr., Lacombe, LA 70445

## CYLINDER LININGS

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## 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  
Markey Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788  
McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454  
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150  
Skookum/Rope Master, P.O. Box 280, Hubbard, OR 97032  
Smatco Industries, P.O. Box 4036, Houma, LA 70361  
Smith Berger Marine Inc., 516 South Chicago Street, Seattle, WA 98108  
Willem Pot b.v., P.O. Box 29102, 3001 GC Rotterdam, The Netherlands

## DECK MACHINERY

Loeffler Corp., US #1 & Robbins Ave., Penedel, 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  
Pusnes, PO Box 102, N-4818, Faervik, NORWAY  
Skookum/Rope Master, P.O. Box 280, Hubbard, OR 97032  
Smatco Industries, P.O. Box 4036, Houma, LA 70361  
Smith Berger Marine Inc., 516 South Chicago 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  
Rochem Separation Systems, Inc., 3904 Del Amo Blvd., Ste. 801, Torrance, CA 90503  
Rochem Separation Systems, P.O. Box 156, 54 Rue Agasse, 1211 Geneve 17, SWITZERLAND

## DEPTH SOUNDING EQUIPMENT

Innerspace Technology, Inc., 36 Industrial Dr., Waldwick, NJ 07463

## DIESEL ACCESSORIES

Coltec Industries Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511  
General Thermodynamics Corp., 210 South Meadow Rd., P.O. Box 1105, Plymouth, MA 02360

Kiene Diesel Accessories, 325 S. Fairbanks St., P.O. Box 386, Addison, IL 60101

## DIESEL ENGINE — Spare Parts & Repair

Aalborg Ciser (Miami) Inc., 2449 Northeast 13th Avenue., Ft. Lauderdale, 33305  
Alaska Diesel, 4420 14th 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  
Coltec Industries, Parts & Service Div., 701 Lawton 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 61265  
Diesel Engine & Parts Co., 8123 Hillsboro Ave., Houston, TX 77029  
Geiger Truck Parts, P.O. Box 365, Watsela, IL 60970  
Giro Engineering Ltd, Talisman, Duncan Road, Park Gate, South Hampton, S03 7BX ENGLAND

Golden Marine Company Inc., 160 Van Brunt St., Brooklyn, NY 11231

Hall-Toledo, Inc., 525 West Sophia St., Maumee, OH 43437

In-Place Machining, 1929 N. Buffum Street, Milwaukee, WI 53212

Klattenberg Marine, 17 Grandview Ave., W. Orange, NJ 07052

MAN B&W Diesel AG, Stadtbachstrasse 1, D-86153 Augsburg 1, GERMANY

MAN B&W Diesel A/S, Central Syd, Stamholmen 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 Ronninge, SWEDEN

New Sulzer Diesel, Inc, 200 Park Ave, New York, NY 10166

Nor Tech, 21 West Street, Ste. 3100, New York, NY 10006

Paxman Diesels, P.O. Box 8, Paxman Works, Colchester, Essex, CO1 2HW, ENGLAND

Paxman Diesels USA, (A Div. of Ruston Gas Turbines, Inc.), 15950 Park Row, Houston, TX 77084

Posi-Clean Corp., 3301 Chapline St., Wheeling, WV 26003

Textron Lycoming, 550 Main St., Stratford, CT 06497

Ulestein Bergen AS, PO Box 924, N5002 Bergen, NORWAY

Warsila Diesel, 201 Defense Highway, Annapolis, MD 21401

## DIVING & SALVAGE

Bisso Marine Co. P.O. Box 4113, New Orleans, LA 70178

H.J. Merrihue, P.O. Box 23123, New Orleans LA 70183

In-Place Machining, 1929 N. Buffum St., Milwaukee, WI 53212

Muldoon Marine Services, Inc., P.O. Box 3221, Terminal Island, CA 90731

## DOORS - MARINE & INDUSTRIAL

Mapeco Walz & 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 3255, Jacksonville, FL 32206

## ELECTRICAL EQUIPMENT

ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND

Bender Inc, 400 Gordon Dr, Bldg 501, Exton, PA 19341

L. F. Gaubert & Co., Inc., P. O. Box 50500, New Orleans LA 70150

MMC International, 60 Inip Dr, Inwood NY 11696  
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116  
Siemens Energy & Automation, Inc., Systems Div., Marine Systems No. America (A23N), 100 Technology Drive, Alpharetta, GA 30202

## 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 ENCLOSURES

A&J Manufacturing, 14131 Franklin Ave., Tustin CA 92680

## 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

Fishermans Wholesale Marine Supply Co., Inc., 4540 B. Downman Road

New Orleans, LA 70126

GMT Electronics, Inc. 171 Main St., South River, NJ 08882

## EMERGENCY MEDICAL ASSISTANCE

International SOS Assistance, 8 Neshaminy Interplex, Ste., 207, Trevose, PA 190

## EMISSION CONTROLS

Haldor Topsoe Nymollevel 55, DK-2800, Lyngby, Denmark

## ENGINEERING SERVICES

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, Pearland, 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 8415

## EPIRBs

ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale

FL 33310-5247

Alden Electronics, 40 Washington St., Westborough, MA 01581

Litton Special Devices, 750 W. Sprout Road, Springfield, PA 19064

## EQUIPMENT - Marine

Bonnet & Associates, 1150 Rue Rochelle, Slidell, VA 70458

Byrne, Rice & Turner, Inc., 1172 Camp St., New Orleans, LA 70130

Fisherman's Wholesale Marine Supply Co., 4540 B Downman Rd., New Orleans, L

70126

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302



**INCINERATORS**

American United Marine Corp., 5 Broadway Rt. 1, Saugus, MA 01906  
A/S Vestia, P.O. Box 548, DK-9100 Aalborg, DENMARK. U.S. Agent: Aalborg Ciserv  
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., Harihan, LA 70123  
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97301

**INTERIOR DESIGN**

Directions in Design, 633 Emerson Suite 100, St. Louis, MO 63141  
Interior Design Int'l, 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 97301

**JOINER—Watertight Door—Paneling—Ceiling System—Decking**

Branton Industries, Inc., 1101 Edwards Ave., Harihan, LA 70123  
Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980  
Insulations, Inc., 1101 Edwards Ave., Harihan, 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 Drive, Hood River, OR 97301  
Walz & Krenzer, Inc., 90 Forest Ave. Locust Valley N.Y. 11560

**KEEL COOLERS**

R.W. Femstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858  
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
The Walter Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307

**LIFEBOATS/RAFTS**

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-2876 Berne 2, Wesse, GERMANY  
Norsafe AS, P.O. Box 115, N-4818 Faerøy, Norway  
Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806  
Zodiac of North America, P.O. Box 400, Stevensville, MD 21666

**LIFESAVERING EQUIPMENT**

Stearns 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 70126  
Gotten Marine, 160 Van Brunt St., Brooklyn, NY 11231  
The L.C. Doane Co., P.O. Box 975, Essex, CT 06426  
Julian A. McDermott, 1639 Stephen St., Ridgewood, NY 11385  
Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearland, TX 77581  
Phoenix Products, 6161 N 64th St., Milwaukee WI 53218  
Francis Searchlights/Stam Supply Co., 4415 6th N.W., Seattle, WA 98107

**LINE BLINDS**

Stacey/Fetteroff, P.O. Box 103, Skippack, PA 19474

**LIQUID LEVEL INDICATORS**

Setcor, 2 Dean St., Tenafly, NJ 07670

**LIQUID OVERFILL PROTECTION SYSTEMS**

E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026  
Setcor, 2 Dean St., Tenafly, NJ 07670

**LOGISTICS**

Chand Corporation, 157 Hwy 654, Mathews, LA 70375  
GED, 4646 N. Witchduck Road, Virginia Beach, VA 23455  
VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs, MS 39564

**LUBRICANTS**

Jet-Lube, Inc., 4849 Homestead Road, Houston, TX 77226  
B P Marine Americas, 200 Westlake Park Blvd., Houston, TX 77079-2682

**MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING**

Del Gavio, 619 Industrial Rd., Carlsbad, NJ 07072  
Gotten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231  
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

**MACHINERY MONITOR AND CONTROL SYSTEMS**

Electronic Marine Systems, 800 Ferndale Pl., Eahway, NJ 07065

**MACHINING—On Site Repair**

In-Place Machining, 1929 N. Buffum Street, Milwaukee, WI 53212

**MARINE ACCOMMODATIONS**

Directions in Design Inc, 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 Northwest Second Ave., Boca Raton, FL 33431  
Marine Accommodations Inc., 8535-3 Baymeadows Rd, Ste 140, Jacksonville, FL 32256

Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97301

**MARINE BATTERIES**

Rae 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 2G2

**MARINE CEILING**

The Gage Corp., 803 S. Black River St., Sparta, WI 54656  
Hydro-Aluminium, Vik Verk, N-5880 VIK I SOGN, Norway

**MARINE COATINGS**

CORROSEAL, Inc., 1045 12th Ave. NW-F5A, Issaquah, WA 98027  
Vecorn 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 Goteborg, SWEDEN

**MARINE FIRE PROTECTION**

Hiller Systems, 3710 Lakeside 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 08906-7565  
Jamestown Metal Marine Sales, Inc., 4710 NW Second Ave. Boca Raton, FL 33431  
Marine Accommodations Inc., 8535-3 Baymeadows Rd, Ste 140, Jacksonville, FL 32256  
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97301

**MARINE GEARS**

Cincinnati 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**

BarbaArkhn, 1810 Chapel Ave. West, Cherry Hill, NJ 08002

**MARINE SURPLUS SALES**

Defense Reutilization & Marketing Service, 2163 Airways Blvd., Memphis, TN 38114

**MARITIME EDUCATION**

Seamens Church Institute, 741 Water St., New York City, NY 10038

**METAL PRODUCTS**

Engineered Data Products, P.O. Box 565, Woodbury, NJ 08906-7565  
Jamestown Metal Marine Sales, Inc., 4710 N.W. Second Ave., Boca Raton, FL

**MONITOR CONTROL ALARM**

Tracor Marcon, 800 Ferndale 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  
CDI Marine Co., 4040 Woodcock Dr., Suite 200, Jacksonville, FL 32207  
Chids Engineering Corp., Box 333, Medfield, MA 02052  
Crandall Dry Dock Engrs., Inc., 21 Potters Ln., Dedham, MA 02026  
Crane Consultants, 15301 First Ave S., Seattle WA 98148  
C.R. Cushing, 18 Vesey St., New York, NY 10007  
Arthur D. Darden, 3200 Ridgeway Dr., Suite 403, Metairie LA 70002  
Design Associates Inc., 14360 Chev Mentour Highway, New Orleans, LA 70129  
Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320  
Econ Mgmt & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706  
GHM Inc. (Ind. Measurement Consultants), P.O. Box 1836, Newport News, VA 23601  
Gibbs & Cox, Inc., 50 West 23rd St., New York, NY 10010  
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 Peria & Assoc., 4039 21st Ave., Ste. 300, Seattle, WA 98199  
Morris Guralnick Associates, Inc., 130 Sutter St., Ste. 400, San Francisco, CA 94104  
C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110  
Hydrocomp, Inc., 45 James Farm-Lee, P.O. Box 865, Durham, NH 03824  
JHJ Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08034

R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073  
James S. Krogen, 1515 NW 7th St., Ste. 124, Miami FL 33125  
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225  
David P. Levy Enterprises, 527 Legendre Dr., Slidell, LA 70460  
MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626  
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063  
John V. McCollum, Inc., 1199 Long Point Road, M. Pleasant, SC 29464  
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454  
John J. McMullen Associates, Inc., 1 World Trade Cir, Ste 3000, N.Y., NY 10048  
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401  
Marine Design & Operations, Inc., 225 Chestnut St., Roselle Park, NJ 07204  
Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902  
Marine Power Associates, 1010 Turquois St., Ste 217, San Diego, CA 92109  
Maritech, Seaciff, Bay Road, Newmarket, NH 03857  
Maritime Design, Inc., 3020 Hartley Rd., Jacksonville, FL 32257  
R.J. Mellusi & Co., 71 Hudson St, New York, NY 10013  
Nautical Designs, Inc. 2101 S. Andrews Ave, Suite 202, Ft Lauderdale FL 33316  
Olsen Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777  
QED Systems Inc., 4646 Wilchuck Rd., Virginia Beach, VA 23455  
M. Rosenblatt & Son, Inc., 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, 10812 Gandy Boulevard, St. Petersburg, FL 33702  
Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 975, Barnegat Light, NJ 08006; 2 Skyline Pl., 5203 Leesburg Pike, Suite 700, Falls Church, VA 22041; 50 Vashell Way, Orinda, CA 94563  
George G. Sharp, Inc., 100 Church St., New York, NY 10007  
R.A. Steam, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
TIMSCO, P. O. Box 91360, Mobile AL 36691

**NAVAL BOAT BUILDERS**

Atlantic Boat Group, Inc., 1850 Lake Park Dr., Ste. 216 Smyrna, GA 30080

**NAVIGATION & COMMUNICATIONS EQUIPMENT**

AT&T, High Seas Dept., 412 Kemble Ave., Room C380, Morristown, NJ 07960  
Autronica Marine E/S, Drammensveien 126, N-0277 Oslo 2, NORWAY  
CAST, Inc., 5450 Katella Ave., Los Alamitos, CA 90720  
Cellnet Corp., 400 Main St, Stamford, CT 06901-3004  
Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024  
C. Plath, 222 Severn Ave., Vonnop, MD 21403  
CruisePhone, Inc. 2100 Park Central N., Pompano Beach, FL 33064  
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065  
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
Hose-McCann, 1241 W. Newport Center Dr., Deerfield Beach, FL 33442  
IDB Mobile Communications, 1828 L Street NW, Suite 660, Washington, D.C. 20036  
Mackay Communications, 300 Columbus Circle, Edison, NJ 08837  
Marine Electric RPD, 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  
Offshore Systems Intl., 19015 36th Ave. W., Ste. BC, Bldg. F, Lynwood, WA 98036  
Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearland, TX 77581  
Portland Ship Repair Yard, 5555 N. Channel Ave., Bldg. 50, Portland, OR 97217  
RD Instruments, 9855 Businesspark Ave., San Diego, CA 92131  
Raytheon Marine Co., 46 River Road, Hudson, NH 03051  
Robertson Marine Systems, 3000 Kingman Street, Suite, 207, Metairie, LA 70006  
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia, PA 19116  
Scandinavian Micro Systems P.O. Box 155, N-1411, Kolboten, NORWAY  
Simrad, 19210 33rd Avenue West, Lynnwood, WA 98036  
Sound Propeller, 1608 Fairview Ave. E., Seattle, WA 98102  
Sperry Marine Inc., 1070 Seminole Trail, Charlottesville VA 22901  
Standard Communications, P.O. Box 92151, Los Angeles, CA 90009  
Summer Equipment Ltd., 24 West 4th Ave., Vancouver V5Y 1G3, CANADA  
Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086  
Waterway Communications System, Inc. 453 E. Park Pl., Jeffersonville, IN 47130

**OIL—Marine—Additives**

Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001  
Shell Oil, P.O. Box 2463, Houston, TX 77252  
Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

**OIL/WATER SEPARATORS**

Alfa-Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974-0556  
Blohm & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY; U.S.A. Reprs: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
Centric, Inc. (Westfalia Separators), 100 Fairway Court, Northvale NJ 07647  
Fast Systems, 3240 North Broadway, St. Louis, MO 63147  
MMC International, 60 Inip Dr., Inwood NY 11696  
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  
Amclean Coating Removal, 12320 S.W. 99 N. Ave., Miami, FL 33176  
Ameron, 201 N. Berry St., Brea, CA 92622  
The Amessen Corp., Corrosion Dynamics Div., 1100 Walnut St., Rosell, NJ 07203  
Esgard, Inc., P.O. Drawer 2698, Lafayette, LA 70502  
Jamestown Distrib., 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02835  
Hempel Coatings, Foot of Currie Avenue, Wallington, NJ 07057  
International Paint, 6001 Antoine, Houston, TX 77292  
Microphor, Inc., Marine Div., 452 E. Hill Rd., P.O. Box 1460, Willis, CA 95490  
Royal Chemical, 2705 Concord Road, Belle Chasse, LA 70037  
Sigma Coatings, 8979 Market St., Houston, TX 77029, 330 Rover Rd., Harvey, LA 70059, 1100 Adams St., Hoboken, NJ 07030  
UT Technologies Ltd., Box 31114, Robie St. RPO, Halifax Nova Scotia Canada B3K5T9

**PAINT REMOVAL**

Robert C. Collins & Co., 6772 N.E. 4th Ave., Miami, FL 33138  
LTC Americas, 101 G. Executive Dr., Sterling, VA 22170

**PIPE FITTINGS/CONNECTING SYSTEMS**

Stanley G. Flagg Co., 1020 W. High St., Stowe, PA 19464

**POLLUTION PACKER COMPACTORS**

TPC Corporation, 77415 Cahill Rd., Minneapolis, MN 55439

**PORT SERVICES**

Port of Portland, 5555 N. Channel Ave., Portland, OR 97217

**PROJECT TRACKING, PLANNING & MANAGEMENT**

Tracking Systems of America, 8789 San Jose Blvd., Jacksonville, FL 32217

**PROPELLER POLISHING SYSTEMS**

Robert C. Collins & Co., 6772 N.E. 4th Ave., Miami, FL 33138

**PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines**

Avondale Industries, Harvey Quick Repair, P.O. Box 116, Harvey, LA 70058  
American Air Filter, P.O. Box 35690, Louisville, KY 40432  
ABB 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  
Aquamaster-Raumla Ltd., Box 220, SF-26101, Rauma, FINLAND  
Bird Johnson Company, P.O. Box 1528, Pascagoula, MS 39567  
Brunvoll A/S, P.O. Box 370, N-6401, Molde, Norway  
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320  
Collec Industries (Fairbanks Morse Engine Div.), 701 Lawton Ave, Beloit, WI 53511  
Fincantieri, Diesel Engines Div.—GMT, Bagnoli della Rosandra 334, Trieste, ITALY  
GE Naval & Drive Turbine Systems, 166 Boulder Dr., Fitchburg MA 01420  
Harbormaster Marine, Inc., 31777 Industrial Road, Livonia, MI 48150  
Holset Engineering, Inc., 1320 Kemper Meadow, Ste. 500, Cincinnati, OH 45240  
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Krupp MaK, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9  
Kobelt Manufacturing, 11720 Horseshoe Way, Richmond, BC Canada V7A 4V5  
Lohmann & Stollerfoht, P.O. Box 1860, D-58408 Witten, Germany  
Mapeco Products Inc., 90 Forest Ave., Locust Valley, N.Y. 11560  
Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY  
MAN B&W Diesel, 17 State St., New York, NY 10004  
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Høleby, DENMARK  
MAN B&W Diesel AS, Alpha Diesel, Niels Juels Vej 15, DK-9900 Frederikshavn, DENMARK  
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-86153 Augsburg 1 GERMANY  
Mathers Controls, 675 Pease Rd., Burlington, WA 98107  
Mitsubishi Heavy Industries America, Inc., 630 Fifth Ave., Ste. 3450, NY, NY 10011  
MTU of N.A., 10450 Corporate Dr., Sugar Land, TX 77478  
New Sulzer Diesel, Ltd., CH-8401, Winterthur, SWITZERLAND  
Omnihruster Inc., 9515 Sorenson Ave., P.O. Box 2144, Santa Fe Springs, CA 90670  
Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND  
Rolla SP Propellers USA, 4030 Mustang Road, Melbourne, FL 32934, USA  
Karl Senner Inc., 25 W Third, Kenner LA 70062  
Schottel-Werft, D-5401 Spay, GERMANY

Shipwrights, Inc., 855 Worcester Rd., Farmingham, MA 01701  
Siemens Energy & Automation, Inc., Systems Div., Marine Systems no. America (A23N), 100 Technology Dr., Alpharetta, GA 30202  
Stewart & Stevenson, 1400 Destrehan, P.O. Box 8, Harvey LA 70059-0008  
Textron Lycoming, 550 Main St., Stratford, CT 06497  
Thrustmaster of Texas, 12227-K FM 529, Houston, TX 77041  
Ulstein Bergen Diesel A/S, P.O. Box 924, N-5002, Bergen, NORWAY  
J. M. Voith GmbH, Marine Division, Postfach 1940, D-7920, Heidenheim/Brenz, GERMANY U.S. Rep: Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021  
Oy Wartsila Ab, Vasa and Abo Divisions, P.O. Box 244, SF65100 Vasa, FINLAND  
Westinghouse Marine Div., 401 E Hendy Ave, Sunnyvale, CA 94088

**PROTECTION MATERIALS**

Megafilm, Bone Lane Industrial Estate, Newbury, Berkshire RG14 5SH ENGLAND

**PROTECTIVE WRAPS**

FANA (Film Applicators of North America), 1260 E Woodland Ave., Springfield PA 19064

**PUMP—Repair—Drives**

Coffin Turbo Pump, Inc., 326 S. Dean Street, Englewood, NJ 07631  
Del Gavio, 619 Industrial Rd., Carlsbad, NJ 07072  
Frank Mohn Houston, Inc., P.O. Box 1586, La Porte, TX 77572-1586  
Gilkes, Inc., PO Box 628, Seabrook, TX 77586  
Jim's Pump Repair, 48-55 36th St., Long Island City NY 11101  
Leistriz Corporation, 165 Chestnut Street, Allendale, NJ 07401  
Vita Motivator, 99 W Hawthorne Ave., Suite 622, Valley Stream NY 11580

**RESISTANCE TAPE**

Metritape, P.O. Box 2366, Littleton, MA 01460

**REFRIGERATION EQUIPMENT/SERVICES**

Adrick Marine, 141D, Central Ave., Farmingdale, NY 11735  
Bailey Refrigeration Co., 2323 Randolph Ave., Avenel, NJ 07001

**REMOTE VALVE OPERATORS**

American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906  
Teleflex, Inc., 771 First Ave., King of Prussia, PA 19406

**ROPE—Manila—Nylon—Hawsers—Fibers**

Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018  
DuPont, Montgomery 403, 1011 Centre Road, Wilmington, DE 19805  
United Ropeworks (USA), Inc., 151 Commerce Dr., Montgomeryville, PA 18936

**RUDDER STOCK SEALS**

Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY  
U.S.A. Reprs: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168  
John Crane Marine USA, 1536 Barclay Blvd., Buffalo Grove, IL 60089

**RUST REMOVAL**

Robert C. Collins & Co., 6772 N.E. 4th Ave., Miami, FL 33138

**SAFETY LIGHTING**

Datrex, Inc., P.O. Box 1150, Kinder, LA 70648-1150  
Loctite Luminescent Corp., Etna Road, Lebanon, NH 03766

**SAFETY TOOLS**

NGK Metals Corp., P.O. Box 13367, Reading, PA 1961

**SANITATION DEVICE—Pollution Control**

Eitech International Corp, 12850 Bournewood Dr, Sugarland TX 77478  
Jered Brown Brothers, 56 South Squair Rd., Auburn Hills, MI 48326  
Byrne, Rice & Turner, Inc., 1172 Canal Street, New Orleans, LA 70130

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Fast Systems, 3240 North Broadway, St. Louis, MO 63147  
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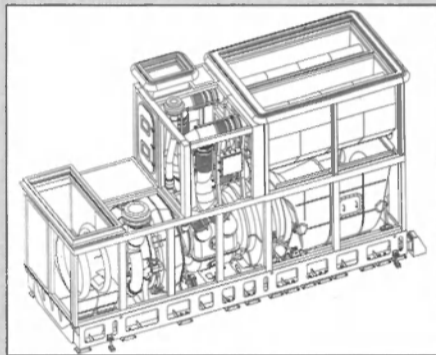
## PROPULSION UPDATE

### Westinghouse Proclaims ICR Engine A Success At NYC Meeting

Westinghouse said a project for developing a fuel-saving engine for the Navy was moving along well at a Feb. 15 joint meeting of the New York Metropolitan section of the Society of Marine Engineers and Naval Architects (SNAME), the American Society of Naval Engineers (ASNE), and the Institute of Marine Engineers (IME).

Westinghouse is the overall contractor of the WR-21 Intercooled Recuperated (ICR) engine for the U.S. Navy, the project having been developed with industry leaders like Rolls-Royce and Allied-Signal Aerospace Systems and Equipment.

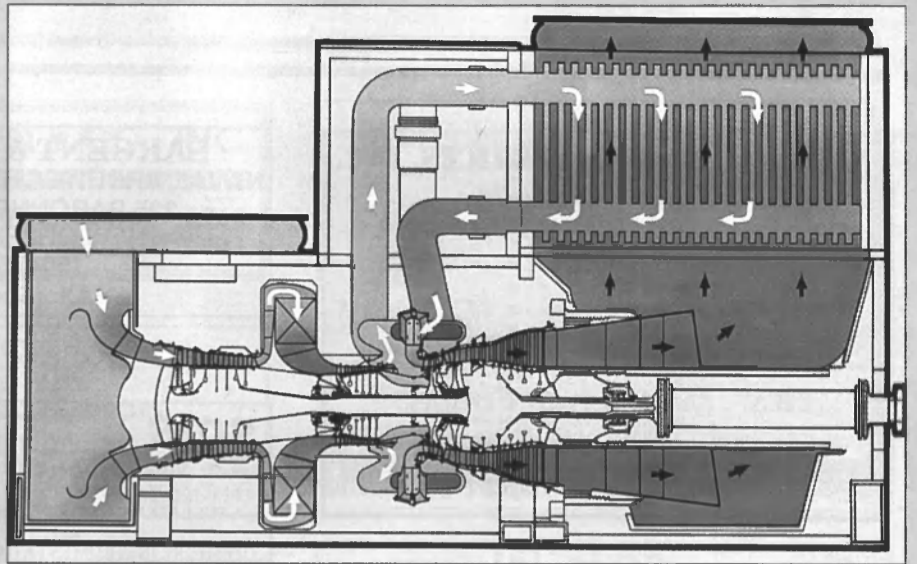
According to **John Chiprich**, ICR Project/Applications engineer-



ing manager, the project is a success, with projections met or surpassed—and the Navy has even accelerated the timetable. The ICR promises the following:

- **Efficiency.** "The biggest attractions are fuel efficiency and operational range," said Mr. Chiprich. "It's a relatively flat consumption curve." The WR-21 incorporates an intercooler and recuperator into the normal engine cycle. The intercooler cools air entering the high pressure compressor, reducing the work necessary to compress the air and keep the high pressure compressor discharge temperature down to increase the effectiveness of the recuperator.

The result, according to Mr. Chiprich, is elevated power output for given air flow. Using gas turbine exhaust air, the recuperator preheats the combustion air, reportedly improving cycle efficiency. Mr. Chiprich said firing temperature is maintained at a nearly constant level over the full power range to maximize cycle efficiency, resulting in 30 percent less fuel usage against a typical Navy operating profile. At 26,400 hp, the engine is required to have a specific fuel consumption of



Cross-section of the ICR engine.

.36 lb/hp-hr. The engine is rated 29,000 hp at 100 degrees Fahrenheit, 40 percent relative humidity at sea level.

- **Environmental Friendliness.** By using variable area turbine nozzles, firing temperatures are maintained nearly constant even at low power levels, reducing CO and unburned hydrocarbon emissions.

- **Ease of Installation.** The engine has removable panels for maintenance flexibility, and the package is relatively small: 315 inches (8,001 mm) long, 104 inches (2,642 mm) wide and 180 inches (4,572 mm) high at the recuperator housing. It weighs 110,000 lbs. (41,602 kg) on the mounts, with a total package weight of 120,000 lbs., as per Navy

requirements.

- **Cost Effectiveness.** Mr. Chiprich estimated the ICR would save the Navy \$1.5 million per year per ship, and the initial projection of 1,000 hours Mean Time Between Failures (MTBF) was increased to 1,600 hours in the finished product, decreasing maintenance and repair costs.

The engine is slated for installation into an FY '96 DDG-51 Class destroyer, but commercial inquiries have reportedly already begun. "Production orders for commercial vessels can follow almost immediately," Mr. Chiprich said.

For more information from Westinghouse,

Circle 25 on Reader Service Card

### Jackson Named New GM

**David N. Jackson** has joined Williams Detroit Diesel-Allison as general manager of the Ohio region. Mr. Jackson is working out of the company's Brunswick, Ohio office. He is responsible for the management of five branch offices in Ohio, including Columbus, Cleveland (Brunswick), Akron, Youngstown and Toledo. Headquartered in Columbus, Ohio, The W.W. Williams Company, through its Williams Detroit Diesel-Allison subsidiaries, sells and services Detroit Diesel and Perkins engines, Allison transmissions and related products.

### IDB Mobile Signs Agreement With ORBCOMM

IDB Mobile Communications signed an agreement with Orbital Communications Corporation to resell ORBCOMM global satellite services to marine industries. IDB Mobile offers mobile satellite services to commercial and private maritime, aviation and land mobile customers worldwide. IDB Mobile's target market for ORBCOMM services will be its more than 5,000 maritime communications customers for shipping, fishing fleets, oil rigs and tankers. IDB Mobile, the sixth largest Inmarsat service provider in the world, delivers a full array of telecommunications services. For more

### Woods Joins Simrad-Robertson As Sales Director

**Craig Woods** has joined Simrad-Robertson as regional sales director based in Hauppauge, N.Y. Mr. Woods will head the sales and service efforts out of the Hauppauge office. Simrad-Robertson's product line encompasses more than 75 different products with 24 offices worldwide. For more information on Simrad Robertson,

Circle 24 on Reader Service Card

### Standard Communications Wins NMEA Awards

For the 11<sup>th</sup> year in a row, Standard Communications Corp. has been presented the 1993 National Marine Electronics Award (NMEA) for product excellence — most recently for the Horizon Omni radio and the HX230S VHF handheld. The Horizon Omni is a full-featured radio with six-watt PA hailer, offering the reception quality of GASFET circuitry plus a host of other important features that include NOAA Weather Alert and optional Class C Digital Selective Distress Calling capabilities. This radio is ultra-compact and available in either black or white. For more information on the entire Standard Communications product line,

### O'Boyle Named Sales Agent For Sobrena And Sociber

Richard F. O'Boyle, Inc. has been named sales agent in the U.S. and Canada for Sobrena of Brest, France. **Paul Philippe**, sales manager for Sobrena, said that over 70 percent of the shipyard revenue comes from non-French owners.

Sobrena, with three drydocks and five repair berths, has the capability to handle any type and size vessel up to 550,000 dwt. Sobrena says it is particularly well organized to service tank ships with modern slop handling facilities in place. Richard F. O'Boyle Inc. also recently became U.S. and Canada shiprepair sales agent for Sociber Ltda. of Valparaiso, Chile

### Two Oil-Recovery Barges Completed For MSRC

Diversified Marine, Inc. recently completed converting two barges for the Marine Spill Response Corporation (MSRC). This contract amounted to over \$1 million per vessel. The two tank barges, both classed ABS A1 for oceans, were purchased from West Coast operators and delivered to the Diversified dock on the Columbia River. The extensive alterations began with the existing pumping systems and machinery, which were over-

with a 47,000 barrel capacity became the *MSRC 404*. Its pair of below-deck Detroit 8-71 pumping engines were rebuilt and placed in the new deck house to comply with regulations for Grade A oil. The 248-foot (75.6 m) Hawaiian barge, 32,000 barrels capacity, became the *MSRC 320*. Since it was formerly carrying Grade A oil, the engines were already on deck. The line-up in the engine house now comprises four rebuilt Detroit's. For more information on Diversified Marine,

Circle 123 on Reader Service Card

### Paxman Diesels For New U.K. Patrol Vessel

Paxman, a GEC Alsthom Diesels company, has supplied two Paxman Vega 12CM diesel engines for an 82-foot (25 m) U.K. Customs and Excise protector class patrol craft, *HMCC Vincent*.

The existing protector class design was modified during construction by Babcock Thorn Ltd., the commercial managers of Rosyth Royal Dockyard, to provide a vessel suitable for a wide range of law enforcement duties which include counter-smuggling and offshore terrorism as well as fishery protection, covert surveillance and sea rescue missions.

For more information on Paxman Diesels,


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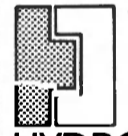
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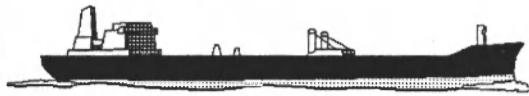
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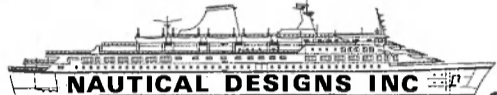
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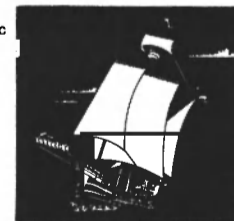
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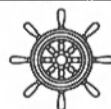
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## PROPULSION UPDATE

### Westinghouse Proclaims ICR Engine A Success At NYC Meeting

Westinghouse said a project for developing a fuel-saving engine for the Navy was moving along well at a Feb. 15 joint meeting of the New York Metropolitan section of the Society of Marine Engineers and Naval Architects (SNAME), the American Society of Naval Engineers (ASNE), and the Institute of Marine Engineers (IME).

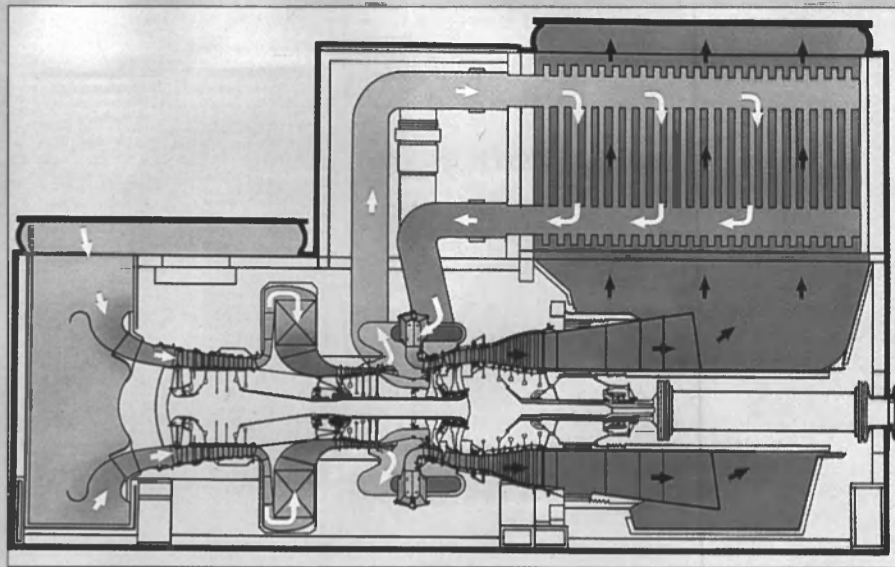
Westinghouse is the overall contractor of the WR-21 Intercooled Recuperated (ICR) engine for the U.S. Navy, the project having been developed with industry leaders like Rolls-Royce and Allied-Signal Aerospace Systems and Equipment.

According to **John Chiprich**, ICR Project/Applications engineer-

ing manager, the project is a success, with projections met or surpassed—and the Navy has even accelerated the timetable. The ICR promises the following:

- **Efficiency.** "The biggest attractions are fuel efficiency and operational range," said Mr. **Chiprich**. "It's a relatively flat consumption curve." The WR-21 incorporates an intercooler and recuperator into the normal engine cycle. The intercooler cools air entering the high pressure compressor, reducing the work necessary to compress the air and keep the high pressure compressor discharge temperature down to increase the effectiveness of the recuperator.

The result, according to Mr. **Chiprich**, is elevated power output for given air flow. Using gas turbine exhaust air, the recuperator preheats the combustion air, reportedly improving cycle efficiency. Mr. **Chiprich** said firing temperature is maintained at a nearly constant level over the full power range to maximize cycle efficiency, resulting in 30 percent less fuel usage against a typical Navy operating profile. At 26,400 hp, the engine is required to have a specific fuel consumption of



Cross-section of the ICR engine.

.36 lb/hp-hr. The engine is rated 29,000 hp at 100 degrees Fahrenheit, 40 percent relative humidity at sea level.

- **Environmental Friendliness.** By using variable area turbine nozzles, firing temperatures are maintained nearly constant even at low power levels, reducing CO and unburned hydrocarbon emissions.

- **Ease of Installation.** The engine has removable panels for maintenance flexibility, and the package is relatively small: 315 inches (8,001 mm) long, 104 inches (2,642 mm) wide and 180 inches (4,572 mm) high at the recuperator housing. It weighs 110,000 lbs. (41,602 kg) on the mounts, with a total package weight of 120,000 lbs., as per Navy

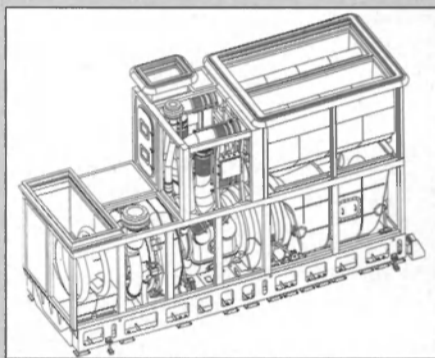
requirements.

- **Cost Effectiveness.** Mr. **Chiprich** estimated the ICR would save the Navy \$1.5 million per year per ship, and the initial projection of 1,000 hours Mean Time Between Failures (MTBF) was increased to 1,600 hours in the finished product, decreasing maintenance and repair costs.

The engine is slated for installation into an FY '96 DDG-51 Class destroyer, but commercial inquiries have reportedly already begun. "Production orders for commercial vessels can follow almost immediately," Mr. **Chiprich** said.

For more information from Westinghouse,

Circle 25 on Reader Service Card



### Jackson Named New GM

**David N. Jackson** has joined Williams Detroit Diesel-Allison as general manager of the Ohio region. Mr. **Jackson** is working out of the company's Brunswick, Ohio office. He is responsible for the management of five branch offices in Ohio, including Columbus, Cleveland (Brunswick), Akron, Youngstown and Toledo. Headquartered in Columbus, Ohio, The W.W. Williams Company, through its Williams Detroit Diesel-Allison subsidiaries, sells and services Detroit Diesel and Perkins engines, Allison transmissions and related products.

### IDB Mobile Signs Agreement With ORBCOMM

IDB Mobile Communications signed an agreement with Orbital Communications Corporation to resell ORBCOMM global satellite services to marine industries. IDB Mobile offers mobile satellite services to commercial and private maritime, aviation and land mobile customers worldwide. IDB Mobile's target market for ORBCOMM services will be its more than 5,000 maritime communications customers for shipping, fishing fleets, oil rigs and tankers. IDB Mobile, the sixth largest Inmarsat service provider in the world, delivers a full array of telecommunications services. For more information on IDB Mobile,

Circle 168 on Reader Service Card

### Woods Joins Simrad-Robertson As Sales Director

**Craig Woods** has joined Simrad-Robertson as regional sales director based in Hauppauge, N.Y. Mr. **Woods** will head the sales and service efforts out of the Hauppauge office. Simrad-Robertson's product line encompasses more than 75 different products with 24 offices worldwide. For more information on Simrad Robertson,

Circle 24 on Reader Service Card

### Standard Communications Wins NMEA Awards

For the 11<sup>th</sup> year in a row, Standard Communications Corp. has been presented the 1993 National Marine Electronics Award (NMEA) for product excellence — most recently for the Horizon Omni radio and the HX230S VHF handheld. The Horizon Omni is a full-featured radio with six-watt PA hailer, offering the reception quality of GASFET circuitry plus a host of other important features that include NOAA Weather Alert and optional Class C Digital Selective Distress Calling capabilities. This radio is ultra-compact and available in either black or white. For more information on the entire Standard Communications product line,

Circle 149 on Reader Service Card

### O'Boyle Named Sales Agent For Sobrena And Sociber

Richard F. O'Boyle, Inc. has been named sales agent in the U.S. and Canada for Sobrena of Brest, France. **Paul Philippe**, sales manager for Sobrena, said that over 70 percent of the shipyard revenue comes from non-French owners.

Sobrena, with three drydocks and five repair berths, has the capability to handle any type and size vessel up to 550,000 dwt. Sobrena says it is particularly well organized to service tank ships with modern slop handling facilities in place. Richard F. O'Boyle Inc. also recently became U.S. and Canada shiprepair sales agent for Sociber Ltda. of Valparaiso, Chile

### Two Oil-Recovery Barges Completed For MSRC

Diversified Marine, Inc. recently completed converting two barges for the Marine Spill Response Corporation (MSRC). This contract amounted to over \$1 million per vessel. The two tank barges, both classed ABS A1 for oceans, were purchased from West Coast operators and delivered to the Diversified dock on the Columbia River. The extensive alterations began with the existing pumping systems and machinery, which were overhauled wherever possible.

The 278-foot (84.7 m) Sause barge

with a 47,000 barrel capacity became the *MSRC 404*. Its pair of below-deck Detroit 8-71 pumping engines were rebuilt and placed in the new deck house to comply with regulations for Grade A oil. The 248-foot (75.6 m) Hawaiian barge, 32,000 barrels capacity, became the *MSRC 320*. Since it was formerly carrying Grade A oil, the engines were already on deck. The line-up in the engine house now comprises four rebuilt Detroit. For more information on Diversified Marine,

Circle 123 on Reader Service Card

### Paxman Diesels For New U.K. Patrol Vessel

Paxman, a GEC Alsthom Diesels company, has supplied two Paxman Vega 12CM diesel engines for an 82-foot (25 m) U.K. Customs and Excise protector class patrol craft, *HMCC Vincent*.

The existing protector class design was modified during construction by Babcock Thorn Ltd., the commercial managers of Rosyth Royal Dockyard, to provide a vessel suitable for a wide range of law enforcement duties which include countering smuggling and offshore terrorism as well as fishery protection, covert surveillance and sea rescue missions.

For more information on Paxman Diesels,

Circle 124 on Reader Service Card



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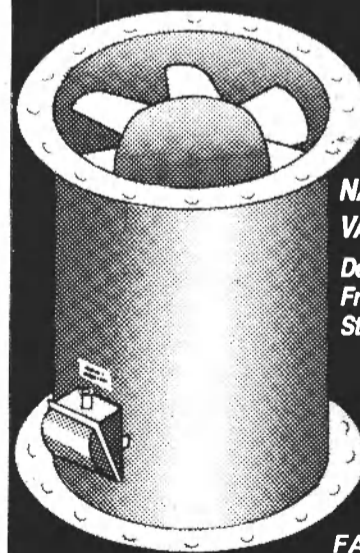


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Application forms can be obtained by calling (907) 465-4430. Applications must be received or post-marked no later than 5/13/94 at: **Division of Personnel/OEEO, P.O. Box 110201, Juneau, AK 99811-0201. Resumes will not be accepted.** NOTE: Recruitment is open outside the State of Alaska. Alaska residents shall receive preference.

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### CENTRIFUGE SERVICE ENGINEER

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### 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 or 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:

Box #301

Maritime Reporter/Engineering News  
118 East 25th Street, New York, NY 10010

### Coltec Wins \$20 Million Order To Supply Engines For Navy Ships

Coltec Industries Inc.'s Fairbanks Morse Engine Division, Beloit, Wis., has been named to supply four propulsion engines and four power generation systems, valued at more than \$20 million, for a U.S. Navy amphibious landing ship, the LSD-52 cargo variant, designed to transport marines and equipment for amphibious assaults. The engines are 16-cylinder PC2.5 Colt-Pielstick engines, each rated at 8,500-hp. The power generation systems are four 12-cylinder opposed-piston engines which provide electricity aboard the ship; each opposed piston engine is rated at 1,300 kW. Fairbanks Morse Engine, which produces large, heavy-duty diesel, gas and dual-fuel engines for marine propulsion, the oil and gas industry and for stationary and marine power generation, will deliver the engines in 1995 to Avondale Shipyards, New Orleans, La.

### Hibernia Supply Vessels To Be Built In Newfoundland

A letter of intent has been signed by Hibernia Management and Development Co. Ltd. with Maersk Supply Service/Seabase to provide supply vessel services required for the Hibernia offshore oil production platform.

The company intends to build two multi-function platform support vessels at Marystown Shipyard in Marystown, Newfoundland. The contract, which exceeds \$100 million over eight years, also includes an option for a third vessel.

The eight year contract is for the provision of supply vessel services for the offshore platform, which will be located 196 miles (315 km) offshore Newfoundland on the Grand Banks.

The contract includes: provision of the required services of two offshore supply vessels, with an option on a third, to support the operation of the Hibernia offshore oil production platform; vessels are required to provide logistical support to the platform and must be equipped with a dynamic positioning system. In addition, the vessels must be capable of providing support to oil spill recovery operations at the offshore platform; at least two of the vessels are to be multi-functional platform support vessels (MFPSVs). These vessels will have the added responsibility of performing standby duty and will be specially equipped to assist the platform in the event of an emergency. Other MFPSV responsibilities include the provision of assistance to shuttle tankers while connecting to the subsea loading system and assistance in ice management operations.

Maersk Supply Service is headquartered in Denmark and its agent, Seabase, is located in Newfoundland.

### Kvaerner Eureka Acquires National-Oilwell's Wellhead Systems

Kvaerner Eureka AS has acquired National-Oilwell Partnership's wellhead systems business for \$30 million.

The acquired business will operate under the name Kvaerner National.

### Q.E.D. Systems Awarded Consulting Contract

Q.E.D. Systems, Inc., Virginia Beach, Va., announced it has won a \$500,000 contract to continue providing Marine Engineering Management Consulting services to the Washington State Department of Transportation Marine Division. This award represents a continuation of Q.E.D.'s growth in ferry systems expertise throughout the U.S.

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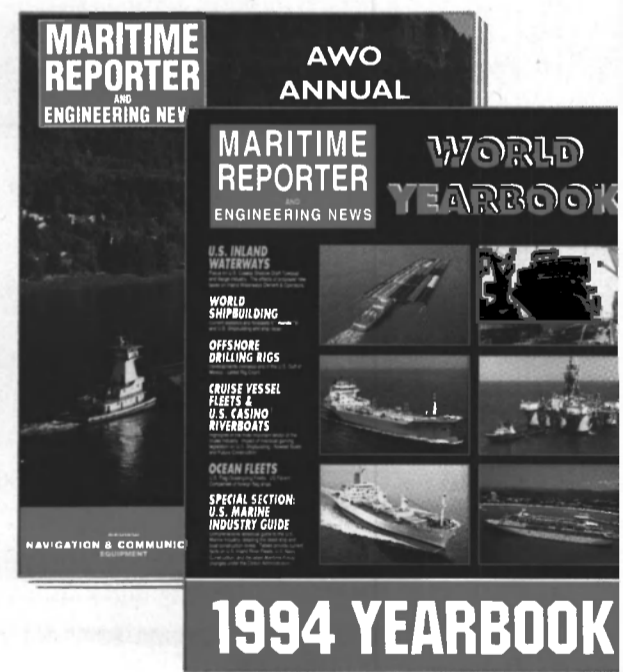
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- **OFFSHORE DRILLING** — The current picture on new rig and support-vessel activity plus estimations of future trends by key industry leaders.
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## Kvichak Delivers Last Of 12 Boom Handling/Skimmer Support Boats For National Response Corp.



One of 12 boom-handling/skimmer support vessels built by Kvichak Marine Industries for NRC is shown during trials on Lake Washington in Seattle.

Kvichak Marine Industries made the final delivery in a 12-vessel series of boom handling/skimmer support boats built for National Response Corp. (NRC) of Calverton, N.Y.

The 28-foot (8.5 m), all-aluminum dedicated response boats are now on station at strategic locations along the Atlantic and Gulf coasts, including Calverton, near NRC's headquarters.

Other sites include Portland, Me.; Buzzards Bay, Mass.; Baltimore, Md.; Charleston, S.C.; Jacksonville, Fla.; Mobile, Ala.; Belle Chasse, La.; Houston and Corpus Christi, Texas; and Panuelas, Puerto Rico.

For more information on Kvichak Marine Industries,

Circle 9 on Reader Service Card

## SeaArk Delivers Dauntless Patrol Inspector Lon Parker To U.S. Border Patrol

The U.S. Border Patrol accepted delivery of a Dauntless class of patrol boat built by SeaArk Marine of Monticello, Ark. The high-speed, all-welded aluminum boat, named *Patrol Inspector Lon Parker*, was purchased for patrol, drug interdiction and rescue operations conducted out of the Ramey, Puerto Rico Station.



The purchase of the new SeaArk was part of the overall plan to upgrade and modernize the Border Patrol's fleet of boats.

Ramey's new Dauntless is powered by triple 300-hp Cummins Diesel engines coupled to Hamilton Water Jets. During customer acceptance trials, the Dauntless exceeded 32 knots at full load. Water jets were selected by the Border Patrol due to the boat's mission profile which requires operations in shallow, reef-infested waters. The Dauntless has a 26-inch (660 mm) draft.

The Dauntless hull is a joint design effort of C. Raymond Hunt Associates and SeaArk Marine's design team. It features a state-of-the-art, deep-vee bottom with variable deadrise ranging from 20 degrees at the transom to 50 degrees forward. To enhance the new boat's survivability, the aluminum hull has one compartment subdivision, consisting of five watertight compartments. In the event that any one compartment should flood, the Dauntless will remain afloat.

In accordance with customer specifications, SeaArk outfitted Border Patrol's new boat with a complete electronics package, including radar, siren/PA system, search lights, emergency lights, flood lights, fathometer, VHF radio and compass.

For more information on SeaArk Marine,

Circle 12 on Reader Service Card

## Mannesmann Demag Gottwald On The Way To Selling 500th Mobile Harbor Crane



HMK 280 mobile harbor crane from Mannesmann Demag Gottwald employed in container transshipment operations at the port of Salerno, Italy.

Mannesmann Demag Gottwald succeeded in selling 29 mobile harbor cranes in 1993.

Whether fitted with motorized grabs or employed for general cargo and container transshipment operations, the pneumatic-tired units with diesel-electric or diesel-hydraulic drive can be freely moved to wherever needed and are easily integrated into the existing infrastructure. They are reportedly in great demand in both smaller seaports and international transshipment centers. In Belgium alone—notably in Antwerp—the 500th mobile harbor crane from Mannesmann Demag Gottwald will be put into service in the near future.

Recent years have seen a steady increase in

the demand for diesel-hydraulic units among cranes in the lower performance class. Approximately 15 percent of the units sold in 1993 were diesel-hydraulic powered. Mannesmann Demag Gottwald has adjusted itself to this situation and can now offer the HMK 60, HMK 90, HMK 120, HMK 170 and HMK 260 crane types with either diesel-electric or diesel-hydraulic drive.

For more information on Mannesmann Demag Gottwald,

Circle 13 on Reader Service Card

## Four Classification Societies Certify Schottel's Compliance With DIN ISO 9001



Presentation of certificates to Schottel Group of Companies: (l. to r.): **Dietrich W. Bork**, chair, Schottel; **Johann G. Prien**, Germanischer Lloyd; **Volkmar Ruhle**, BV Quality International; **Klaus Herzog**, Det Norske Veritas Qualitatssicherungsservice GmbH; and **Udo H. Jocks**, ABS Industrial Verifications Ltd.

Schottel Group of Companies, based in Spay/Rhine, was presented certificates by four classification societies confirming the compliance of its quality management system with DIN ISO 9001/EN 29001.

Presentation of the certificates by the representatives of the certification authorities of Germanischer Lloyd, American Bureau of Shipping, Bureau Veritas and Det Norske Veritas took place in January 1994 at Spay.

Schottel achieved its sales successfully in the past year mostly through deliveries of new developments in the field of steerable marine propulsion systems.

For more information on Schottel,

Circle 22 on Reader Service Card

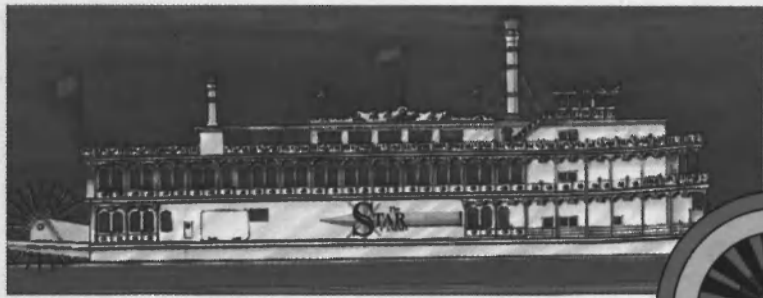
## New Appointments At U.S.S. Great Lakes Fleet, Inc.

U.S.S. Great Lakes Fleet, Inc. headquartered in Duluth, Minn. has made several new appointments. **Thomas R. Baltes** has been appointed director of contract administration and traffic. In his new assignment, Mr. Baltes will be responsible for the fleet's contract administration and traffic department. Also, **John P. Boutin** has been appointed senior hull engineer, replacing the recently retired **James Kinghorn**. Mr. Boutin will be responsible for the structural maintenance and repair of the fleet's vessels. In addition, **Bradley N. Ojard** has been appointed senior engineer, machinery, replacing the recently-retired **Richard K. Johnson**.

U.S.S. Great Lakes Fleet, Inc. is reportedly one of the larger carriers of dry bulk materials in the Great Lakes Region.

Maritime Reporter/Engineering News





# Place Your Bets on the Nation's Top Builder of Riverboat Casinos

In the high-stakes business of riverboat gaming, it pays to place your bets on a winner. From the very beginning of the riverboat casino boom, Bender Shipbuilding has delivered boat after boat — on time and on budget. With five riverboat projects completed and ten under construction, Bender is the nation's top builder of casino riverboats and dockside casino barges.

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.

Bender's conversion of the sleek casino riverboat *Silver Eagle*, operating in Galena, Illinois, was completed in less than 45 days. *Splash*, a 400-foot casino/restaurant barge operating south of Memphis in Tunica, Mississippi, was converted by Bender in less than 120 days. Bender recently

completed the first riverboat casino projects in Vicksburg and Greenville, Mississippi. Before the end of 1993, Bender will complete the first two riverboat casinos in the state of Louisiana.

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

With this impressive track record, Bender offers you turn-key entry into the river casino business. Our experienced staff is fully knowledgeable in gaming regulations in all states and can serve as

your guide through all the red tape. From initial design and concept, we can assist you with site development, securing financing, interior design, food and beverage planning, land-based support facilities — everything you'll need to get you to opening day.

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

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