

MARITIME REPORTER AND ENGINEERING NEWS

OUTSTANDING PASSENGER VESSELS OF 1993



**Special Supplement:
Riverboat Gaming Review**

**Preview:
Intl. Boat Builders
Exhibition & Conf.**

**Preview:
Passenger Vessel Assoc
PVA '94**

JANUARY 1994



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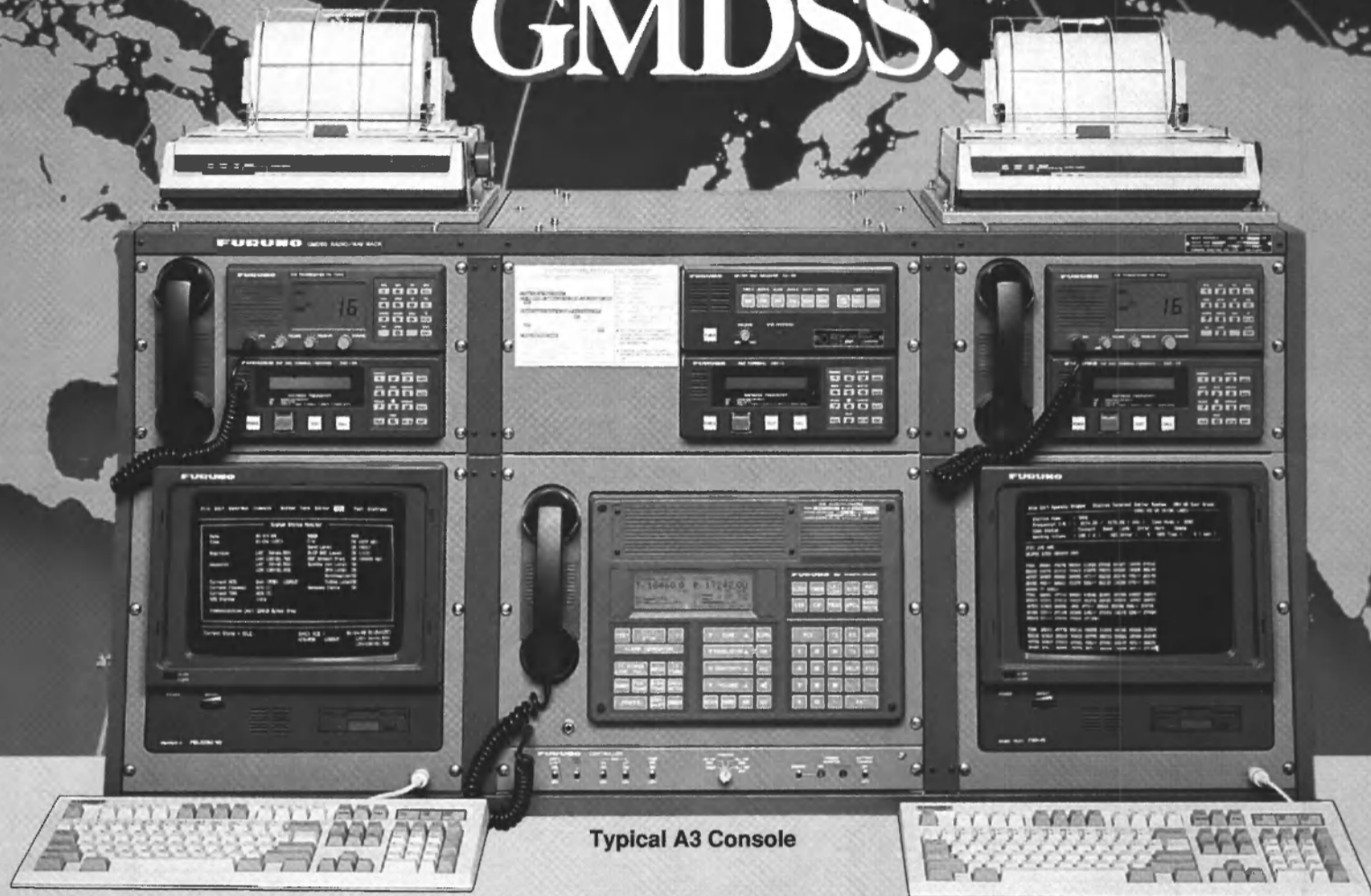
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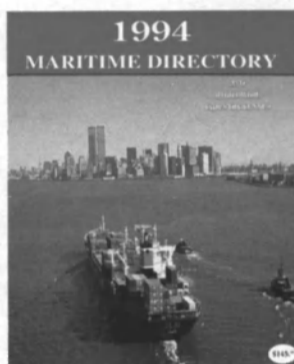
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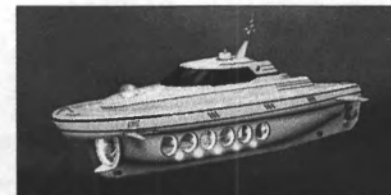
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U.S. Submarines: Incorporating today's technology to build tomorrow's personal submarines.



28 Outstanding Passenger Vessels & Ferries Of 1993

Read up on the designers, suppliers, builders and owners of these outstanding boats.



41 Gaming Vessel Supplement: Eye On Design

High design--of vessel interiors and connecting land sights--will keep the riverboat casino vessel business booming.



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(For a complete List of Regional Reps, turn to page 8)

ON THE COVER

Featured on this month's cover are a handful of the vessels in this year's Outstanding Passenger Vessel Review. Starting from the top left and going clockwise, pictured are: *Martha's Vineyard* (Atlantic Marine); *Kenai Explorer II* (Westport Shipyard); *Lima* (Trinity Marine); *Miss New York* (Blount Marine); *Star Casino* (Bender Shipbuilding); and *Casino Queen* (Patti Shipyard). For full details on this year's Outstanding Passenger Vessels, turn to page 28.

IN THE NEWS

Kvaerner Masa-Yards Wins \$300 Million Cruise Ship Order

Kvaerner Masa-Yards received an order for a 1,950-passenger, \$300-million cruise ship from Royal Caribbean, to be delivered in late 1996. There is an option for a second vessel, for delivery in 1997. Royal Caribbean currently has two 1,800-passenger cruise ships under construction at Chantiers de l'Atlantique.

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

118 EAST 25th STREET
NEW YORK, N.Y. 10010
(212) 477-6700

ESTABLISHED 1939

ISSN-0025-3448

No. 1

Volume 56

Founder: John J. O'Malley 1905-1980

Maritime Reporter/Engineering News is published monthly by Maritime Activity Reports, Inc. Mailed at Second Class Postage Rates at Waterbury, CT 06701 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 118 East 25th Street, New York, NY 10010.

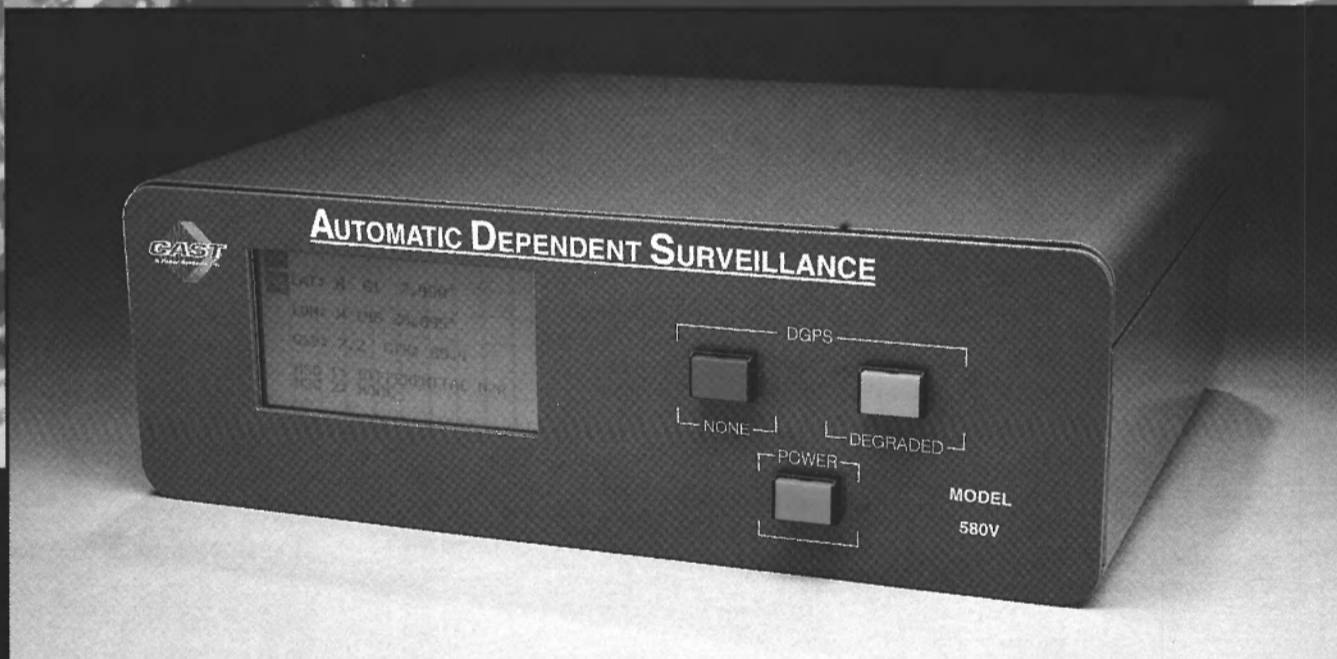
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New Stolt Comex Seaway Contracts Add To Growing Order Book

Major recent contract awards have increased the December 1 contract backlog for Stolt Comex Seaway (SCS) to \$200 million, which compares with the January 1993 backlog of \$204 million. A significant part of the current backlog is for work beyond 1994, although the latest contracts both begin in early

1994.

Two recent contracts in the North Sea totaling \$18 million are welcome additions to the growing SCS order book for the 1994 offshore season. "We are pleased with the present growth of the SCS order book. We are progressing at a satisfactory pace," said SCS President **Guy Fleury**.

The first contract, secured by SCS's U.K. division, is for the tie-in of the Amerada Hess Hudson field manifold and pipelines to the Tern platform. Valued at \$9 million, the

contract involves installation of 30 pipeline spool pieces, the lay and trenching of three umbilicals, and the installation of the control system components. The work will be conducted from the DSV *Seaway Harrier* with the DSV *Seaway Conductor* undertaking the umbilical lay and trench.

A second contract, valued at \$9 million for the years 1994-1996, has been awarded to SCS's Norway division by Elf Norge. The contract calls for the provision of extensive ROV (Remote Operated Vehicle) services

and will include drill support, pipeline inspection as well as the inspection of subsea structures.

Of note in the Elf contract is SCS's commitment to provide a substantial amount of specially-developed state of the art equipment including the Computer Assisted Telemanipulation (CAT) System. The product of more than five years of SCS research, the CAT System enables diverless automated structural inspection and is the latest generation in subsea ROV technology, incorporating artificial intelligence and stereovideogrammetry.

Atlantic Marine Certified To ISO 9002

Atlantic Marine, Inc.'s facility in Mobile, Ala. was certified to ISO 9002 quality standards for ship repair and conversion by ABS Quality Evaluations, Inc., an independent, third party certifier accredited by the RvC and RAB.

ISO 9002 is the standard for quality assurance for companies involved in the production and installation of a product.

Morgan To Manufacture Eight Cranes For Textron

Morgan Marine of Santa Ana, Calif. received a purchase order from Textron Marine Systems for eight marine cranes. The cranes are to be installed on the LCAC built by Textron. Delivery is to take place in February 1994.

Morgan Marine has also been appointed the exclusive distributor of Effer Marine Cranes for the U.S. Morgan Marine, a manufacturer/distributor of knuckleboom and telescoping boom marine cranes, also represents Hiab Seacranes, Trident Marine Cranes, Aurora Cranes, Fassi Marine Cranes, Ferrari Marine Cranes and Morgan Marine Cranes. For more information on Morgan Marine,

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INTERTANKO To Toughen Membership Criteria

The INTERTANKO Council decided to recommend to the forthcoming Annual General Meeting (AGM), to be held in Washington in May 1994, that all tankers entered in INTERTANKO must, from January 1, 1995, be classed by classification societies which are members of the International Association of Classification Societies (IACS). This follows a decision made by the 1993 AGM to require that all new members' tonnage should be so classed. By extending this requirement to existing membership tonnage, INTERTANKO further underlines its determination to maintain higher standards.

Maritime Reporter/Engineering News

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The \$261 Billion Defense Authorization: In Real Terms

Now that President Clinton has signed the \$261 billion defense authorization bill for fiscal year 1994, the question being asked by all companies affected by it is "what's in it for me?" Here's a breakdown of what the bill means to the shipbuilding industry.

ECONOMIC CONVERSION

The bill authorizes \$2.55 billion for programs aimed at helping government and private sector defense workers, defense contractors and their communities adapt to a long-term retrenchment in defense spending. The bulk of that total, \$2.22 billion, is earmarked to help defense firms reorient themselves toward finding commercial markets. This includes \$624 million, or \$300 million more than the President requested, for "dual use" partnerships to help small- and medium-sized firms develop technologies that have military applications

DEFENSE AUTHORIZATION

H.R. 2401, the \$261 billion defense authorization bill, was signed by President Clinton on November 30. Here's the final tally (in millions of dollars):

	Clinton Request	House Bill	Senate Bill	Final Bill
Procurement	\$45,466	\$45,322	\$42,322	\$46,090
Research & Development	\$38,620	\$37,885	\$35,900	\$34,706
Operations & Maintenance	\$89,458	\$89,081	\$86,262	\$87,404
Defense Business Operations	\$1,161	\$1,091	\$1,161	\$1,116
Sealift Fund	\$291	\$291	\$2,669*	\$291
Military Personnel#	—	\$70,671	\$70,711	\$70,184
Military Construction	\$10,786	\$11,597	\$11,156	\$10,066
Other	(\$977)	\$10	\$91	\$101
TOTAL DEFENSE	\$184,806	\$255,948	\$250,273	\$249,958
Energy Department,				
defense-related programs	\$11,536	\$11,046	\$11,291	\$10,877
Other Defense	\$146	\$146	\$153	\$146
TOTAL fiscal 1994 Authorization	\$196,488	\$267,140	\$261,717	\$260,982

* Senate Armed Services combined funding requested for the C-17 cargo plane and for fast cargo ships in a "strategic lift fund" in this amount.
The bill included military personnel costs, which the administration did not consider part of the measure.
NOTE: Numbers may not add due to rounding.

Source: House and Senate Armed Services committees.

but also would give companies a foothold in the commercial arena. The bill also includes \$197 million to help domestic shipbuilding companies become competitive in the construction of commercial ships. And it has several provisions intended to speed the search for new job-producing uses for abandoned military bases.

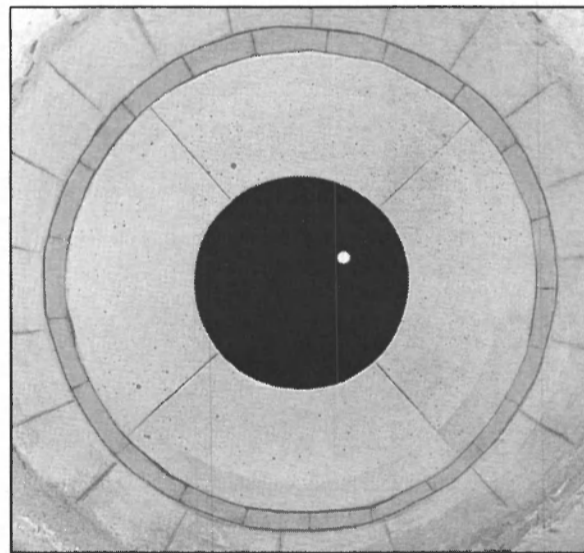
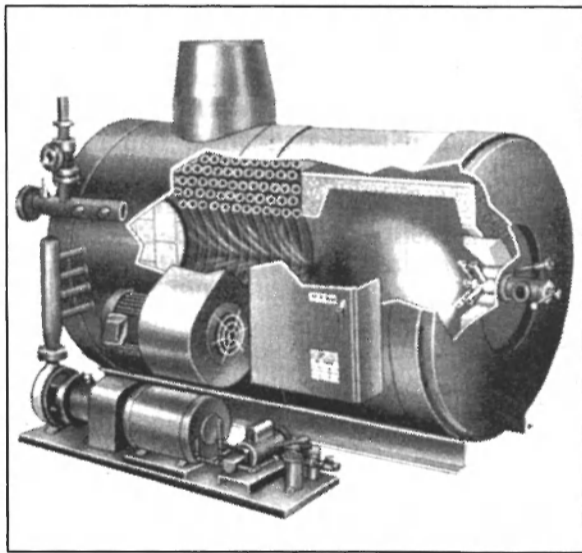
The total authorized for operations and maintenance programs fell \$2.1 billion short of President Clinton's request, totaling \$87.4 billion. Added funds to boost the combat-readiness of forces in the field include \$300 million for major overhauls of ships, planes and vehicles in military depots.

THE NAVY'S CUT

The bill authorizes \$2.64 billion, as requested, for three Arleigh Burke-class destroyers. It provides \$373 million, or \$19 million more than requested, for a program in-

(Continued on Page 25)

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NEW TECHNOLOGY

U.S. Submarines: Taking Technology To New Depths

U.S. Submarines Inc., a newly formed submarine manufacturer based in Anacortes, Wash., is intent

on spawning a new era of undersea technology and exploration. Led by an international team of

professionals responsible for the design, manufacture and operation of more than 30 contemporary subs, U.S. Submarines plans to build the world's first personal luxury submarine, the NOMAD 1000.

Fully designed and engineered, the NOMAD 1000 combines technology already proven in the world's luxury yachts and in military and tourist submarines.

U.S. Submarines and its president and founder, **L. Bruce Jones**,

have developed a vessel that will create an entirely new niche in the world's marine industry.

The NOMAD 1000 is an offshoot of tourist submarines, which are expected to carry more than two million passengers worldwide in 1993.

Mr. Jones and the rest of the U.S. Submarines team have contributed strongly to the growth of the tourist submarine industry over the years.

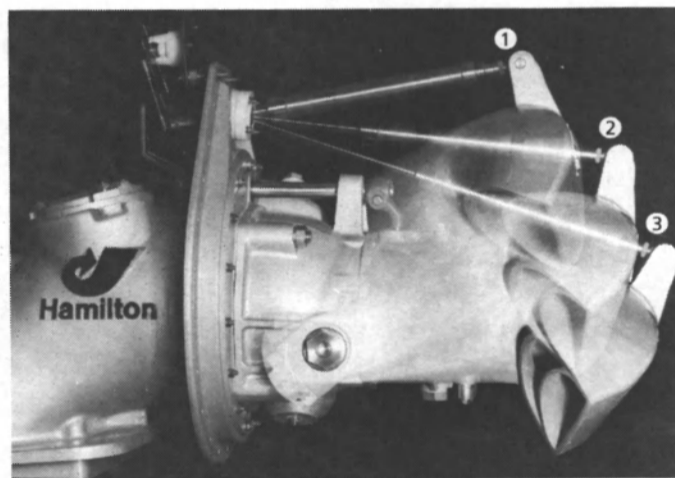
NOMAD 1000 overcomes many of the limitations familiar to today's fleet of nearly 50 tourist submersibles by incorporating technology common on most military subs.

Unlike a tourist submersible, which is dependent on a support vessel for long-range transport and maintenance, the 65-foot, diesel/electric NOMAD 1000 is completely autonomous, the U.S. Submarines team claims.

On the surface, NOMAD 1000 is propelled by twin turbo Cummins diesel engines, capable of reaching speeds up to 12 knots for a range of 1,000 nautical miles.

Once submerged, batteries provide power to a silent-running, 110-hp electric motor that can power the

(Continued on page 19)



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Maritrans Announces Streamlining

Maritrans Inc. has announced streamlining tactics designed to enhance shareholder value and improved customer service.

As part of the company-wide streamlining, the size and role of the corporate office are being radically reduced.

Stephen A. Van Dyck, chairman and CEO, commented, "Our

continuing efforts of cost reduction and disposal of non-strategic assets will enable us to accelerate our move into the petroleum product distribution services business, which is the emerging focus of our long-term strategy."

Maritrans owns and operates a fleet of tugboats and oceangoing petroleum tank barges along the Gulf and Atlantic Coasts. Maritrans also owns and operates oil storage terminals on the Atlantic Coast and provides oil spill contingency planning

and clean-up management services to vessel owners.

APL To Build Three New Ships At Daewoo

American President Companies (APC), American President Lines' (APL) parent company, has entered into an agreement with Daewoo Shipbuilding and Heavy Machin-

ery, Ltd. of Korea, under which Daewoo will construct three new diesel-powered containerships for delivery in 1996.

Each of the new ships will have a cargo-carrying capacity of approximately 3,600 TEUs, including slots for 250 refrigerated cargo containers, and a service speed of about 23.5 knots. The new ships, in combination with capacity from six C11-class ships currently under contract for construction, will replace four chartered vessels now operated in APL's West Asia/Middle East service.

The new ship program will cost approximately \$190 million, and will be financed by funds from a recent debt offering and internally generated cash flow. The agreement is contingent upon the finalization of certain export licensing arrangements in Korea.

In announcing the transaction, APC chairman **John M. Lillie** said, "These new ships will further strengthen our services in some of the world's fastest-growing trade lanes."

U.S. Ports Support Creation Of National Transportation System

U.S. public port agencies greeted Transportation Secretary **Federico Pena's** announcement of the National Highway System (NHS) with enthusiasm, especially the inclusion of access routes to 104 major ports on the NHS map. American Association of Port Authorities (AAPA) president **Erik Stromberg** complimented Department of Transportation efforts to focus on the U.S. transportation system as a whole and include ports and other intermodal facilities in the NHS, as envisioned in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA).

"The inclusion of port access routes in the National Highway System is an important step in getting the appropriate priority and funding for freight projects that meet national commerce needs," said Mr. **Stromberg**.

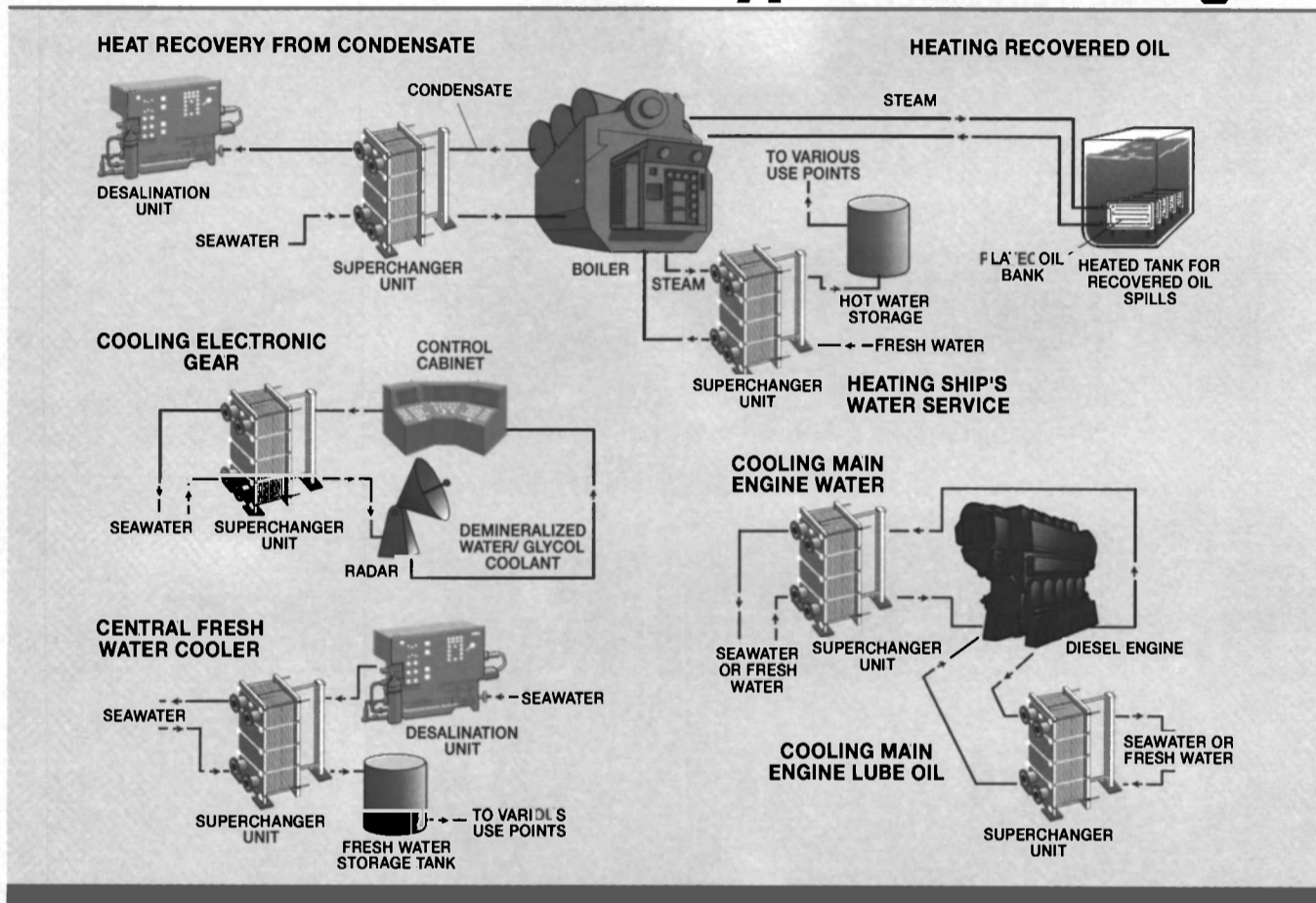
Martin Becomes Marine Index Bureau Representative

Marine Index Bureau, Inc. (MIB) has announced that **Jeanne Martin** became an MIB representative based in San Mateo, Calif.

Previously, Ms. **Martin** worked with American President Lines, Ltd. (APL) in Oakland, Calif., managing personal injury claims made by seamen and longshoremen. Prior to joining APL, Ms. **Martin** worked with the U.S. Department of Labor administering claims under the U.S. Longshoremen's and Harbor Workers' Compensation Act.

The Marine Index Bureau is a national clearinghouse of information on marine employment, injury and claims data.

How to Operate More Efficiently At Lower Cost With Tranter Plate-type Heat Exchangers



Naval ships, fleet oilers, commercial containerships, tankers and dredges are successfully finding new ways to operate more efficiently at lower cost, by utilizing Tranter's unsurpassed plate-type heat exchanger technology. Schematics presented here illustrate typical ways they are doing it.

Superchanger® plate and frame heat exchangers are used in a wide variety of shipboard applications—particularly for cooling main engine jacket water and cooling main engine lube oil with fresh water or seawater; cooling the ship's central fresh water; cooling electronic equipment; or recovering heat from condensate. They are far more efficient than tubular systems, and provide heat transfer coefficients from two to five times greater than those achieved by shell and tube units. They also require 10% to 50% less deck space and weigh up to one-sixth less.

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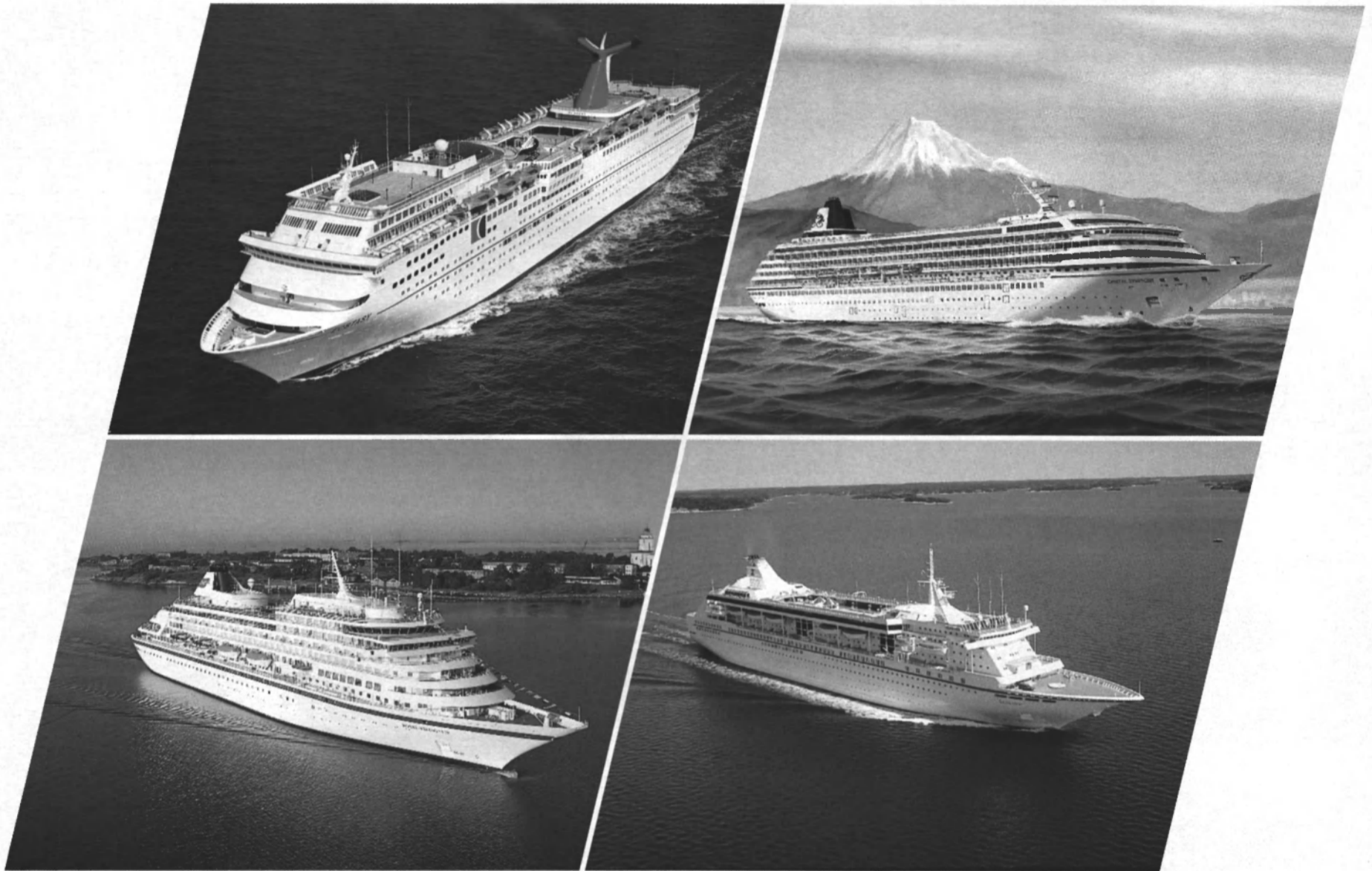
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is a wholly owned marketing and consulting engineering company. Kvaerner Masa-Yards employs 4000 people.

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Kvaerner Masa-Yards

New Commercial Fishing Boat: Performance Through New Design

St. Elmo Marine of Fort Myers, Fla., in an effort to ride out the recent pleasure boat business slump, turned its focus to new designs for niche markets. The result: a revolutionary new commercial fishing boat, which entails state-of-the-art hull and propulsion solutions. At press time, St. Elmo Marine had a letter of intent for 30 boats from an international buyer.

"We realized that the pleasure boat industry was soft, and to be honest, we were having a tough time," said

Skip Jatkauskas of St. Elmo Marine. So he, along with designer **Charles Jannace**, came up with a new era of commercial fishing boats, vessels that featured systems and technologies to make the smaller boats as productive, yet more economical, than older, larger vessels, said Mr. **Jatkauskas**.



from the hold and far away from the pilot house and crew.

This was made possible by the drive belt

The St. Elmo 36 Commercial Fishing boat features many unique design features.

COMPOSITE HULL DESIGN

The St. Elmo 36 vessel is a 36-foot vessel available in three hull designs: full displacement; planing; and a combination of the two. Also available in a 68-foot version, the new vessel line utilizes state-of-the-art hull technology from the yacht industry; constructed using a foam cored hull, which provides tremendous stability while incorporating less internal framework. The planing hulls are speed hulls, requiring large amounts of horsepower and fuel to help the boat ride over the water. On the other hand, the full-displacement hulls require little horsepower and fuel to propel the vessel through the water.

The St. Elmo moves through the water at eight knots, leaving hardly a wake.

With 4,000 pounds of ballast, stability is the norm and rolling tendencies are reportedly eliminated.

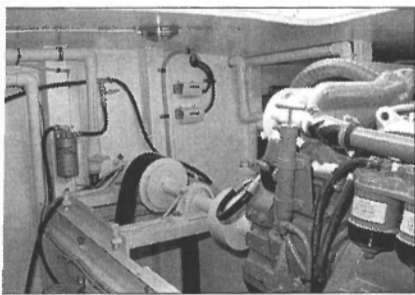
assembly and a Twin Disc MG-506 transmission that transfers power from the 120-hp diesel to the prop shaft via a Kevlar Fiber Chain Belt, supplied by Gates Rubber Company. This setup in the back also provides unlimited engine access for routine maintenance. Besides aiding the handling of the vessel, the engine arrangement provides for big fuel savings, the manufacturer claims.

By incorporating the belt drive propulsion system, the St. Elmo is able to achieve a 4:1 reduction to the propeller, which in essence allows the boat to turn a bigger wheel using less horsepower, Mr. **Jatkauskas** said. The system can drive the St. Elmo at hull speed (about eight knots) using about 30 percent of the horsepower, allowing the vessel to travel 4.25 nautical miles per gallon. On the basis of an average usage of 2,500 hours per year, the boat would consume only 4,000 gallons of fuel at an approximate cost of \$6,000, Mr. **Jatkauskas** estimates.

THE HOLD

Contrary to its small size, the vessel provides big advantages that make it efficient. St. Elmo Marine can deliver the "complete package" to potential owners, including a state-of-the-art cooling system for the fish hold which allows operators to keep more of the catch fresh, said Mr. **Jatkauskas**. The 683-cubic-foot hold is capable of holding 15,000 pounds of product. The hold is uniquely placed in the center of the vessel, another design feature that allows the boat to remain level on her lines regardless of whether the hold is full or empty. For more information on St. Elmo,

Circle 117 on Reader Service Card



The St. Elmo's Kevlar Fiber Chain Belt propulsion assembly.

PROPULSION

The St. Elmo was designed from the beginning as a true commercial fishing trawler, a vessel that would stay level on her lines regardless of the hold being full or empty. To achieve this, the engine was placed at the stern, away

January, 1994

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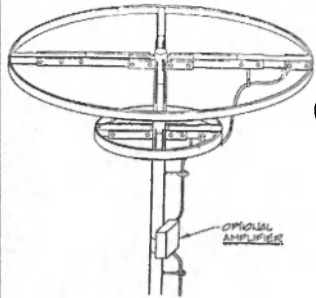
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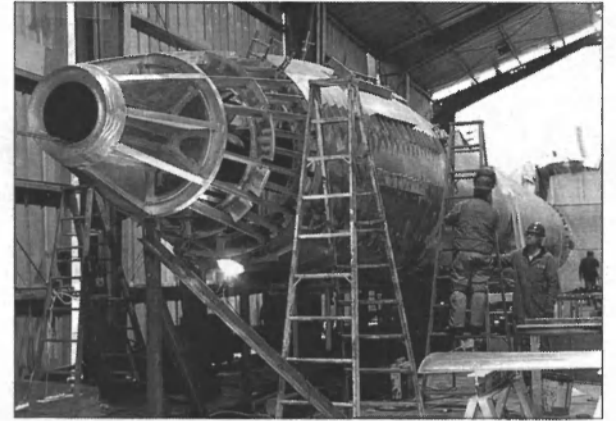
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SWATH, Ferry Under Construction At Nichols Brothers Boat Builders



The SWATH hull under construction at Nichols Brothers .

Nichols Brothers Boat Builders, Inc., Kirkland, Wash. is constructing two vessels: a SWATH vessel for Partyline Cruise Company of Dania, Fla. and a catamaran ferry for the City of Alameda and the Port of Oakland.

The SWATH vessel is a 122-foot, 384-passenger ferry that will initiate service between Fort Lauderdale and the Grand Bahamas when it goes into service this summer.

The catamaran ferry features advanced hulls. The under-carriage and the superstructure of the 98-foot, 250-passenger, twin-jet catamaran ferry, which will be in service on San Francisco Bay this spring, are nearing mating. The Incat-designed catamaran, which will be propelled by two KaMeWa Model 50 waterjets driven by Detroit Diesel engines, will be used primarily as a commuter ferry between Oakland and San Francisco. For more information on Nichols,

Circle 83 on Reader Service Card

Sonsub Mobilizes AROWS-Class Vehicles To Support Flexible Pipeline Laying Operations

Under contract to McDermott Inc., Sonsub mobilized an Advanced Remotely Operated Work System (AROWS) and a Viper Remotely Operated Vehicle (ROV) from McDermott's *Derrick Barge 50* to assist in the laying of the Oryx Energy Company's flexible pipelines in the Gulf of Mexico. Laying operations were conducted in water depths to 2,100 feet. A third AROWS-class vehicle, a 75-hp Triton onboard a semisubmersible drilling rig, was mobilized in conjunction with the other two vehicles to assist with pipeline lay away and completion operations. The vehicles were also used to assist with the repair of one of the flexible pipelines near the base of the West Delta 152 platform. For more information on Sonsub,

Circle 21 on Reader Service Card

U.S. Navy Recognizes BIW CAD Technology Group

Bath Iron Works' (BIW) Computer Aided Design (CAD) and Digital Data Transfer Team transitioned the design of the Navy's most complex surface combatant using 3D CAD. AEGIS program manager Rear Admiral **George A. Hutching** recognized the team with an AEGIS Excellence Award for their outstanding performance in achieving the 3D modeling and data model translator of the Arleigh Burke Class of Guided Missile Destroyers (DDG 51).

For more information on Bath Iron Works,

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Maritime Reporter/Engineering News



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MTI Wins U.S. Coast Guard Contract For 30 Inmarsat Satcoms



Mobile Telesystems Inc. (MTI) has won a U.S. Coast Guard tender for 30 Inmarsat satcoms, to be installed on ocean-going patrolling vessels such as this.

The U.S. Coast Guard's recent tender for 30 Inmarsat satcoms has been awarded to Mobile Telesystems Inc. (MTI) of Gaithersburg, Md.

The MCS-9120 Inmarsat-A systems were delivered and installed in late 1993 on ocean going vessels patrolling both U.S. and international waters. The systems provide voice, fax and data communications regardless of vessel location and augment existing HF and VHF systems. Also included in the tender is an option to upgrade the MCS-9120's for High Speed Data.

MTI's MCS-9120 has gained Inmarsat type approval for duplex high speed data transmissions. This optional package will allow users to communicate at speeds up to 56/64 kbps, facilitating large batch file data dumps, video transmissions, and high-quality audio feeds from ship-to-shore or shore-to-ship.

For more information on Mobile Telesystems Inc.,

Circle 20 on Reader Service Card

Times Debuts New Low Smoke/ Non-Halogen Coaxial Cable

Times Microwave Systems introduced the new LSRG Low Smoke/Non-Halogenated Coaxial Cable series in response to the immediate military need for MIL-C-17 low-smoke cables. Microwave Systems is reportedly the only 100 percent Qualified Products Listing's source for all of the new low-smoke cables (M17/180 through 200) required to address flame retardance, smoke, toxicity and corrosive offgassing properties. The cables are designed to use standard connectors used on RG cables.

Times Microwave Systems is a division of Smiths Industries Aerospace and Defense Systems Inc. For more information on its new low-smoke/non-halogenated cable,

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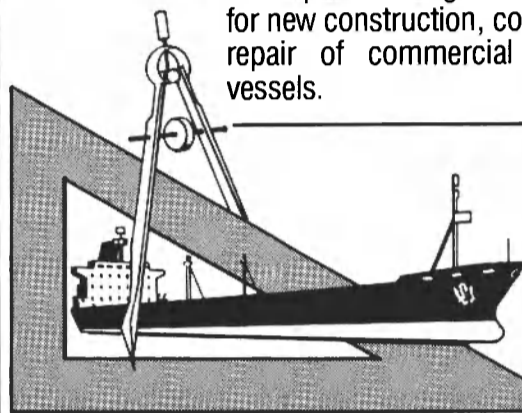
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Sperry Outfits Increasing Number Of Ships With Integrated Bridge



The Sperry Marine VMS Integrated Bridge on the *Colleen Sif*.

In recent months, 11 new ships, seeking vessel navigation systems which will increase vessel safety and reduce operating costs, have joined the more than 125 ships equipped with a Sperry Marine VMS Integrated Bridge. These vessels include:

Sensation cruise ship, owned by Carnival Cruise Lines; *Nordic Empress* cruise ship, owned by Royal Caribbean Cruise Lines; *Costa Romantica* cruise ship, owned by Costa Crociere; *Colleen Sif* containership, owned by K.I. Larsen; *Joergen Lauritzen* reefer, owned by Lauritzen Reefers; *Maersk Euro Quarto* containership, owned by K.I. Larsen; *Eagle* tanker, owned by Mobil Shipping; *Regal Princess* cruise ship, owned by P&O Cruises; *USS Tempest* patrol boat, owned by U.S. Navy; *Polaris Star* tanker, owned by Vela International Marine Ltd.; and *Via Ionio* ferry, owned by Viamare. Realizing that 90 percent of all marine accidents can be avoided by improving navigation information and increasing the watch officer's conning time, Sperry Marine has designed an integrated bridge system which fuses all important data and control functions into centralized information displays for rapid analysis and action. The result is a substantial improvement in risk management. This increased navigation safety means greater operating flexibility and reduced operating costs. By supporting minimum manning levels and bolstering fuel savings, Sperry Marine's Integrated Bridge brings strong economic benefits to owner and operator.

For more information on Sperry Marine,

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Boston Whaler Fire/Rescue Boat On Duty At Massport Fire Department



Boston Whaler, Inc. delivered a new 27-foot Challenger fire/rescue boat to the Massachusetts Port Authority (Massport) Fire Department headquartered at Logan International Airport in Boston.

Built by the Commercial Products Division of Boston Whaler, Inc., Massport's new fire/rescue boat will be used chiefly for fast response to emergencies in the waters surrounding Logan International Airport as well as within Boston Harbor itself. The Massachusetts Port Authority, through its Maritime and Aviation Divisions, is responsible for the operations and maintenance of the Port of Boston, Logan International Airport and the Tobin Bridge.

16

Acquisition of this new high performance fire/rescue boat marks the second Boston Whaler selected by the Massport Fire Department for on-the-water fire fighting duty. An earlier 21-foot Boston Whaler has been in service since 1977.

In addition to full communications, instrumentation and navigation equipment, Massport's Challenger 27-foot was customized with heavy duty rubbing strakes, stainless steel cutwater, spotlight, bow docking lights, floodlights, cockpit lighting and a thru-hull fitting for future installation of a fire pump.

Massport's 27-foot Challenger is powered with a pair of 200-hp Mercury outboards.

For more information on Boston Whaler,

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Mine Countermeasure Vessel On Trial At Kvaerner Mandal A.S. Yard



The first in a series of nine advanced Mine Countermeasure Vessels (MCMVs) built by the Kvaerner Mandal A.S. Yard for the Royal Norwegian Navy (RNoN) has successfully completed more than 70 percent of the extensive test program. Impressed with the progress of the trials, the yard planned for completion of the test program by the end of 1993 when the vessel was delivered to the RNoN.

The vessel being tested is of the Oksoy-class mine hunter, four of which are to be built. The remaining five vessels of the contract are mine sweepers of the "Alta-class." The design of the MCMV is 75 percent air cushion borne Surface Effect Ship (SES). The facilities of Kvaerner Mandal A.S., which is a subsidiary of the Kvaerner Group, have been specifically planned and laid out for the building of high-performance vessels, both military and commercial.

For more information on Kvaerner Mandal,

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Halotron In Cooperation Agreement With Unitor and Svenska Skum

Halotron Inc., Unitor AS, Oslo, Norway, and Svenska Skum AB, Gothenburg, Sweden, announced they have entered into a mutual cooperation agreement committing the companies to the sale of Halotron™ fire suppression and extinguishing agents and systems to the worldwide shipping and maritime industries. American Pacific and Unitor have separately entered into a distribution agreement that encompasses the worldwide maritime and North Sea Offshore Market. The Halotron agents and systems have been developed by American Pacific as replacements for halon 1211 and 1301. The Halotron agents are designed to meet the requirements for "clean" and environmentally-friendly products. It is expected that the necessary marine approvals of Halotron will be obtained no earlier than the summer of 1994. For more information on Halotron from American Pacific Corporation,

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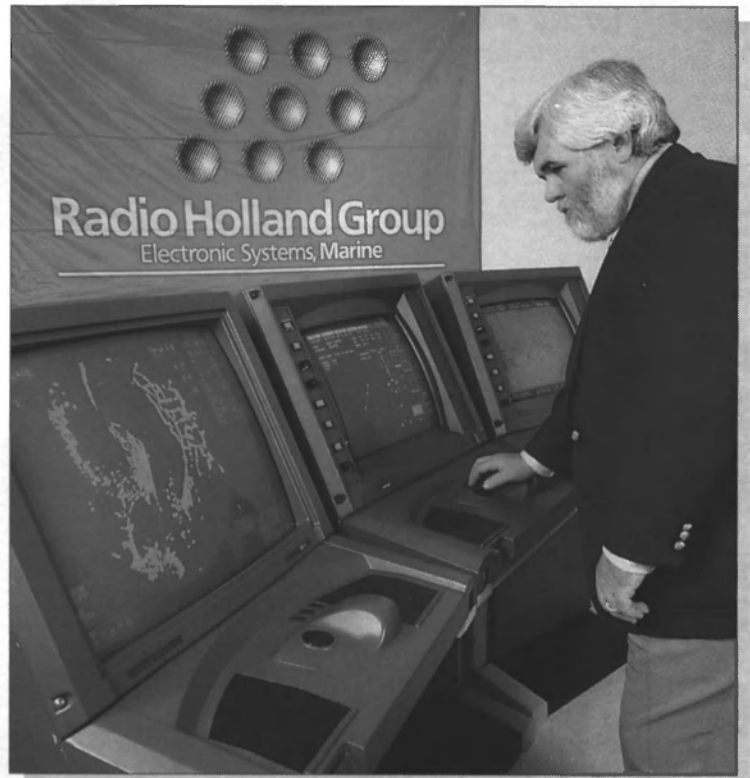
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Functions are selected by simply clicking a button after moving the pointer with the tracker ball through the easy-to-use, on-screen menus. The high definition display provides a superior color radar picture with very sharp target contrast. The data 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

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(Continued from page 8)

craft on dives to 1,000 feet and maintain underwater cruising speeds for up to three days.

"We're talking about a sub that goes seven times deeper and four times faster, with 50 times the range of the average tourist submersible," operations manager **Patrick Lahey** said. "And it's all accomplished without sacrificing vital observation or design features."

Passengers will be able to view the undersea world through 13 viewports in the comfort of an air-conditioned cabin.

The NOMAD 1000's \$4.5 million price tag puts it in a class with many of the world's larger motor yachts.

Anticipating continued growth in the tourist submarine industry, the company is also offering to build the NOMAD 1000 in a 24-passenger configuration.

"We believe there is a small but significant market for luxury submarines that can also be used for tourism and commercial and scientific research," Mr. **Jones** said. Nearly 900 super yachts priced similarly to the NOMAD 1000 have been built in the past 10 years.

The submarine will be classified by the American Bureau of Shipping (ABS) as a +A1 Manned Submersible. More than 3.5 million passengers have been taken down



L. Bruce Jones (center), president and founder of U.S. Submarines, Inc.; vice president **Ellis Adams** (left) and operations manager **Patrick Lahey**.

on ABS classified submarines in the past eight years without a single safety-related incident, according to U.S. Submarines.

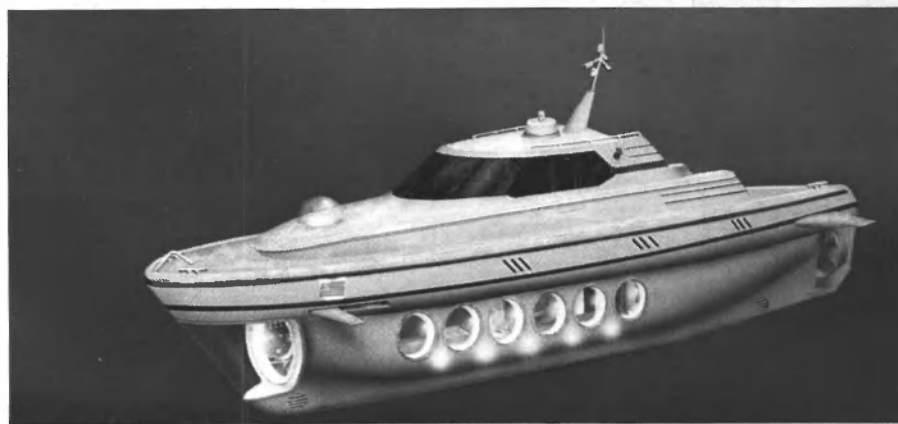
The pressure hull for the NOMAD 1000 measures eight feet in diameter and is constructed of one-inch-thick, high-grade steel. The pressure hulls will be constructed

in Seattle, Wash., and transported to the company's Anacortes headquarters for outfitting.

Mr. **Lahey** predicts the entire building process can be completed in a 12-month period by a 15-person crew.

For more information on U.S. Submarines,

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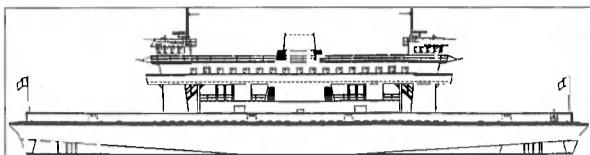
The Horizon Omni VHF radio was awarded "Best of Show" at the 1992 National Marine Electronics Association (NMEA) show where Standard also received their 10th NMEA Award for Design and Engineering Excellence in the last 12 years.

Hottest Horizon yet.



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Trinity Wins Contracts To Build Ferries For Three States, Options For Two More



An artist's rendition of the ferries to be built for the states of Texas and Virginia.

Trinity Industries, Inc.'s subsidiary Moss Point Marine, Inc., Moss Point, Miss., has been awarded contracts to build one ferry each for the states of North Carolina, Texas and Virginia. Virginia holds options for two additional ferries which could bring the total value of the contract to more than \$33 million.

Other Trinity shipyards in Louisiana and Texas are also slated to assist in their construction, with finishing work on the Texas ferry scheduled for Trinity-Beaumont.

The Texas and Virginia ferries, designed to carry up to 70 vehicles and 500 passengers, will each be 263 feet long, with a 65-foot beam, and a 10-foot operating draft. The Texas ferry will operate between Galveston and the Port Bolivar Peninsula in Texas and the Virginia ferry will operate between Jamestown and Scotland, Va.

Voith-Schneider cycloidal units mounted below the bow and stern of each boat will provide propulsion and steering. The units consist of vertically mounted, pivoting, controllable pitch blades suspended from a large diameter disc or turntable which can rotate 360 degrees.

Each unit will be driven by a General Motors EMD 12-645E6 diesel engine developing 1,500-bhp at 900 rpm. The Texas ferry will be equipped with new engines and the Virginia boat will have rebuilt EMDs.

Construction on the Texas and Virginia ferries began in the fourth quarter of 1993, with delivery of each planned for December 1994 and the first quarter of 1995, respectively.

The North Carolina ferry will be able to carry up to 300 passengers and approximately 50 vehicles. It will be 221 feet long, with a beam of 50 feet and a 6.5-foot operating draft. It will be powered by two Caterpillar 3508 DI-TA diesel engines developing 805-bhp each at 1,300 rpm. It will be equipped with a 315-hp bow thruster for increased maneuverability.

Construction began in the fourth quarter of 1993, with delivery expected in December 1994.

For more information on Trinity Marine Group,

Circle 29 on Reader Service Card

Brookfield Engineering Wins ISO 9002 Certification

Brookfield Engineering Laboratories, which designs, manufactures, sells and services viscometers - scientific instruments used in the measurement and control of fluid viscosity - was among the first in its industry to receive the coveted ISO 9002 Certification for Quality Assurance, according to an announcement by **Louis A. DiCorpo**, company president.

Brookfield Engineering developed and implemented a comprehensive program that reportedly assures compliance to ISO standards in all areas that have an effect upon the total quality process.

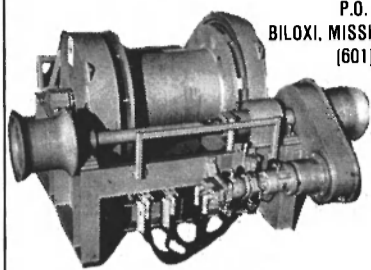
The campaign to earn the valuable certification status was headed by Brookfield Quality Manager **James Owen**, and required months of effort for management, supervisory and other personnel throughout the Brookfield's Stoughton facility. Actual certification was achieved through Lloyd's Register Quality Assurance Limited.

January, 1994



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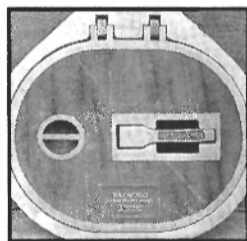
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IRS TAX SALE



The vessel "Full Moon" was for sale in 1992 for \$1.75 million. It will be now sold at an IRS Sealed Bid Sale on March 4th in New Orleans, LA. The vessel "Full Moon" is 114' x 24' with state of the art electronics. It has two 16V71 Detroit main engines, two Delco 35kw and 1 Delco 75kw generators. It has world cruising capability and is ABS/IBS approved and built to exacting Lloyds specifications. For divers, the vessel has a dive preparation station with wrap around seating, a 7' x 22' swim platform with 27 cfm Bauer dive compressor and 4800 cf air storage capacity and water tight tank stowage room. For cruising pleasure the vessel has a 17' x 40' sun deck and a 17' x 84' fly bridge under canopy; luxurious soundproof cabins for 16 guests, plus captain, owner and crew; dining capabilities for 8-16 and a completely equipped all stainless steel galley. Since the vessel was seized by the IRS, it has been docked and maintained with a private individual. It has been stored with the intention of preserving the value of this fine vessel. For More information, please contact **Don Hinkley** at (504) 558-3224.

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Hike Metal To Build Police Patrol Boat



When the Metro Toronto Police Department went looking for a new patrol boat, they wanted a vessel that was laid out to fit their needs.

Hike Metal of Wheatley, Ontario, provided them with an ideal craft: a 30-foot aluminum patrol boat custom-built to help them accomplish their job. The boat is based on Hike's popular standard police boat/workboat design. Powered by twin 200-hp Volvo diesel I/O drives, the V-hulled craft tops out at 35 knots.

The police department selected several unique options which enhance the boat's performance when on patrol. A square bow nose allows the patrol officers to approach a rocky island or promontory and board directly off the bow. The square nose also provides a wider working area on the front deck.

The deep-V hull provides smooth operation and responsive handling. Flat side chines afford excellent lateral stability. Forward chines are designed to knock down spray, provide lift and prevent pounding in heavy seas.

Rugged plates of 5/16-inch and 1/4-inch aluminum provide a hull material which reportedly endures the punishment of groundings. Hike is so confident in its design and construction capabilities, the company warrants its aluminum structures for 10 years.

A unique welding process prevents the fatigue cracks often associated with the welding of aluminum hulls. Hike applies a subresonant vibration to the hull as welding is taking place. This conditioning process results in a smaller, tighter weld "grain," which improves the strength of the weld and ensures the longevity of the hull. For more information on Hike Metal Products,

Circle 82 on Reader Service Card

Aalborg Ciserv Names Frandsen Managing Director



Freddy Frandsen

The board of directors of Aalborg Ciserv International A/S, Denmark, appointed **Freddy Frandsen** managing director. Aalborg Ciserv International is owned by J. Lauritzen Holding, Denmark, and is a leading supplier of marine "aalborg boilers," as well as burners and incinerators. For more information on Aalborg Ciserv,

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Maritime Reporter/Engineering News

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

top left: 189 ft. Middlewheel excursion vessel.

bottom left: 144 ft. Excursion vessel.

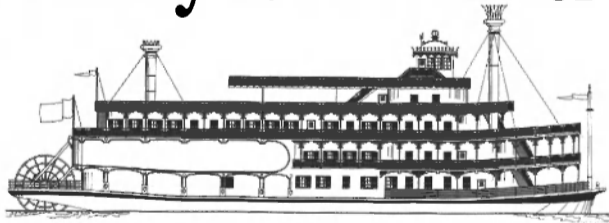
Top right: 200 ft. Trinity Space Ship.

Bottom Right: 140 ft Excursion Vessel.

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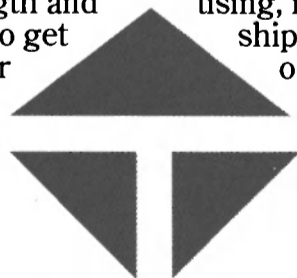
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INLAND WATERWAY SAFETY

AWO Testifies Before NTSB On Navigational Safety

At a hearing before the National Transportation Safety Board (NTSB) related to the Amtrak derailment that occurred in September 1993 in Mobile, Ala., the American Waterways Operators (AWO)

offered nine recommendations for improving safety on the inland waterways.

Thomas A. Allegretti, AWO senior vice president, operations, represented AWO before the NTSB. Mr. Allegretti was joined at the hearing by AWO members **Jack Binion**, vice president of vessel operations, Hollywood Marine, Inc.;

and **Robert Gardner**, vice president and general manager of ContiCarriers & Terminals.

AWO underscored the NTSB's critical role in calling the hearings, to "develop safety recommendations which are rooted in thorough investigation and solidly substantiated by fact." AWO's testimony focused on inland towing operations, inland towboat operator qualifications and licensing, navigation equipment and safety on the inland waterways, and the nature and frequency of towing vessel collisions with bridges, which

have received considerable attention since the Amtrak accident.

During the hearing before the NTSB, AWO conducted an extensive examination of U.S. Coast Guard (USCG) data on bridge collisions and found that over the 12-year period of 1980-1991, barges and towing vessels were involved in some 772 collisions with 292 bridges, or 1.6 percent of the approximately 18,000 bridges which span the nation's inland waterways.

Giving the complexity of the issues surrounding the Amtrak derailment, AWO emphasized there is no easy or quick solution which will eliminate the potential for marine accidents. However, the Association recommends that the following be considered as steps which may lead to improved safety on the waterways:

- In the licensing process, consider including a requirement that an operator's proficiency be checked by a qualified person within the company. USCG requirements for licensing navigators on all U.S.-flag vessels do not currently include a demonstration or test of an applicant's navigational proficiency.
- Consider including an attestation of proficiency in the license renewal process to ensure that a vessel operator maintains his/her navigational and boat handling skills.

- Standardize entry-level training through voluntary guidelines being developed by the Towing Safety Advisory Committee (TSAC).

- Require the use of fendering systems, radar reflectors, range lights, buoys and approaching guidewalls to alert commercial navigators of approaching bridges.

- Tailor required on-board navigation equipment to the geographic area in which a vessel will operate to ensure that requirements are based on the contribution they make to safety.

- Require a searchlight, whistle light and general alarm on towing vessels, already widely used by the inland towing industry.

- Standardize the initial notification procedures for reporting marine casualties.

- If Vessel Traffic Service (VTS) systems are found to be a useful tool in improving navigational safety, make vessel participation mandatory and include real-time monitoring capabilities. Set the system up in such a way that communication requirements do not distract vessel operators from their other vessel handling duties.

The NTSB hearing is AWO's second appearance related to marine safety in the wake of the tragic Amtrak accident. AWO testified before the House Subcommittee on Coast Guard and Navigation in October in Washington, D.C., and thereafter announced its overwhelming support of the Towing Vessel Navigational Safety Act of 1993 (H.R. 3282), which would require that towing vessels carry navigational charts and publications and that vessel personnel responsible for their use be proficient with navigational safety equipment (see *Maritime Reporter & Engineering News* November 1993, pg. 48).

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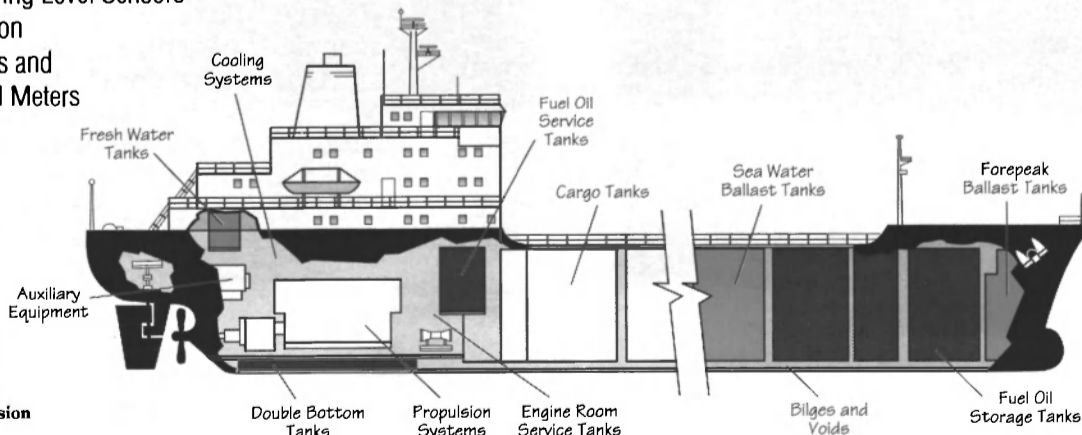
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(Continued from page 7)

tended to link the radars of several types of ships and aircraft so a fleet can protect itself better from high-speed missiles.

Also authorized was \$240 million, as requested, to develop a new nuclear submarine. Dubbed Centurion, it is intended to be less expensive than the two Seawolf-class ships currently under construction. The administration has plans to buy only one more Seawolf.

In a move which reflects the changing world political climate, \$50 million was included to adapt existing Los Angeles-class subs for a sonar system designed for the new Seawolf class. This reflects changes in the Navy's subhunting efforts, from finding Soviet nuclear-powered submarines in the ocean depths to finding other countries' smaller, non-nuclear-powered submarines in relatively shallow water.

Also added to the budget is \$10 million to test the ability of powerful computers to make existing sonars on some older ships more effective in detecting submarines in shallow water.

Finally, the bill authorizes the \$894 million requested for a helicopter carrier the size of a medium-sized aircraft carrier. The ship is designed to carry 2,000 Marines, plus helicopters and barges to haul them ashore.

U.S.C.G. Implements Simplification Of Vessel Documentation Procedures

The U.S. Coast Guard (USCG) has announced the implementation of new vessel documentation rules that streamline procedures and remove needless regulations. The new rules that become effective January 1, 1994, are more user-friendly and substantially eliminate unnecessary paperwork.

The new procedure will:

- reduce required vessel procurement forms from more than seven to only two, the application itself and evidence of title;
- eliminate the 60,000 plus submissions of the MarAd citizenship declaration form presently required for certain owners;
- eliminate the currently required marking certificates that total more than 45,000 submissions; and,
- require only two copies of the preferred mortgage compared with the previously-required four.

In addition to simplifying the vessel documentation procedures, certain regulations are eliminated. Now, it will be possible to renew endorsements at any port of documentation and not just in the home port. For example, instead of being restricted to marking the vessel with the USCG port of documentation or the owner's residence, the owner may choose from more than 190,000 places.

The USCG's new regulations result in a simpler application process. Therefore, inadvertent omissions will no longer automatically void the application. This will result in fewer rejections.

In order to meet the expenses associated with providing these enhanced services, the USCG is applying a reasonable user fee that more accurately reflects the cost of the service. The fee, required by the statute, will be determined by the type of endorsement requested and no fee will be charged for the renewal of an endorsement.

For further information, contact Commandant, U.S. Coast Guard Headquarters, Office of Marine Safety, Security and Environmental Protection (G-MVI-5), 2100 Sec-

ond St., S.W., Washington, D.C. 20593-0001 or (202) 267-1492.

MarAd Honors U.S.-Flag Shippers

In ceremonies held in Houston and Atlanta on December 1st and 8th, respectively, the U.S. Government formally thanked 114 exporters and importers for patronizing U.S.-flag merchant ships. "Through their use of America's merchant ships,

these companies support the nation's economic security and vital seafaring capability," said **Albert J. Herberger**, Maritime Administrator. "America needs commercial cargo ships and civilian seafarers for military support and to avoid being totally dependent upon foreign ships and crews to support the growth of our foreign trade." Mr. Herberger personally thanked the shippers at the ceremonies, and each received the Department of Transportation's U.S. Merchant Marine Certificate of Appreciation.

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Newport News Earns ISO 9001 Quality Certification

Newport News Shipbuilding (NNS) received certification in the most comprehensive, international standard for quality assurance, ISO 9001. This standard includes such areas as design, production, installation and service.

The ISO 9000 series of quality standards is considered an important international marketing ele-

ment and is looked upon as a symbol of a company's dedication to quality throughout its operation. NNS is certified to ISO 9001, the most comprehensive standard in the ISO 9000 series. The ISO 9001 certification was presented to NNS Nov. 30 by ABS Quality Evaluations, an accredited, Houston-based certifying agency for the ISO 9000 series of quality standards. **W.R. "Pat" Phillips**, president and CEO of Newport News Shipbuilding, said of the certification, "This is a signifi-

cant event for NNS, as it will strengthen our ability to compete for business on a global scale." For more information on Newport News Shipbuilding,

Circle 50 on Reader Service Card

Orkot Offers Marine Engineers Solutions

TLM Marine, being used world-

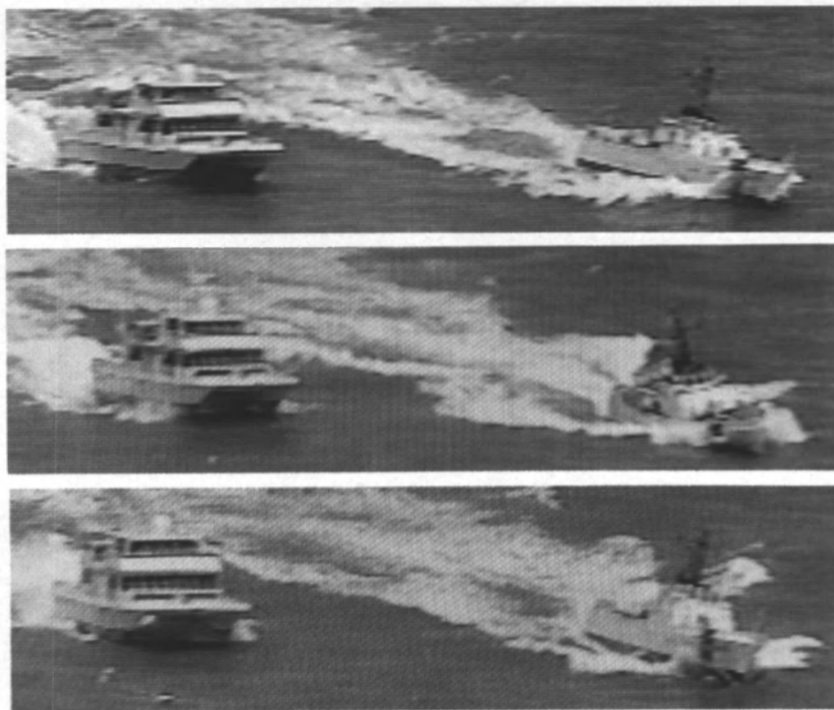
wide for rudder, stabilizer, deck machinery and water lubricated stern shaft bearings, offers marine engineers solutions to a number of highly-specialized problems, according to the manufacturer, Orkot Limited of Rotherham in the North of England. The company, with an associate manufacturing company in Oregon, draws on a wealth of experience of worldwide markets. Orders for its products have come from markets as diverse as Singapore, China, Japan, Italy, Denmark and Spain.

For free information on Orkot Limited products and services,

Circle 60 on Reader Service Card



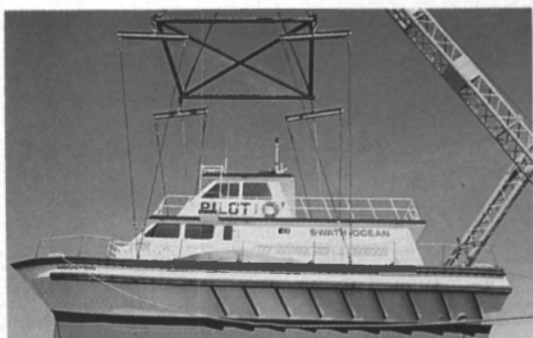
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SWATH vessel: "Chubasco" built by SWATH OCEAN SYSTEMS
Stats: 72 ft. / 31 ft. beam / 70 tons

U.S.C.G. Cutter "Cape Romain"
Stats: 95 ft. / 20 ft. beam / 105 tons
Speed: 20 knots

Sequence of VHS footage taken during sea trials off San Francisco Harbor entrance.
Full video available upon request.



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Circle 22E on Reader Service Card

Kvaerner Eureka Opens New Office; Swedish Subsidiary Completes Repairs

The Kvaerner Eureka worldwide spare parts, service and maintenance network recently welcomed the Gibraltar office to its family. Gibraltar, a branch office of Kvaerner Eureka's Tranby, Norway service center, is headed up by **Andre Lystad** and will be principally engaged in the service and maintenance of reliquefication systems for gas tankers, reefer compressors and all types of pumps. Although completely autonomous from the Kvaerner Gibraltar ship repair yard, the Gibraltar service station is expected to provide complimentary services.

Kvaerner Ships Equipment, Gothenburg, Completes Work On Ferry

Kvaerner Ships Equipment AB of Gothenburg, the Swedish member of Kvaerner Eureka, recently completed the replacement of both the hinge arms and bow doors on the B&I passenger ferry *Isle of Innisfree*. It was a complicated task to prefabricate the new hinge arms in a very short lead time, as the narrow tolerances required precise engineering. However, Kvaerner Ships Equipment AB accomplished the job in two weeks. To ensure the ferry kept on schedule, a three-person riding squad spent a week and a half on the vessel, replacing the hinge arms without interrupting the vessel's sailing schedule of two round-trips a day. The work carried out onboard the ferry involved the dismantling of the existing hinge arms, mounting of the new units and a certain amount of welding work, all of which was carried out in a very confined space, in shifts a minimum of 10 hours.

For additional information on the Gibraltar service station,

Circle 57 on Reader Service Card

For more information on the capabilities of Kvaerner Ships Equipment Gothenburg,

Circle 58 on Reader Service Card

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.

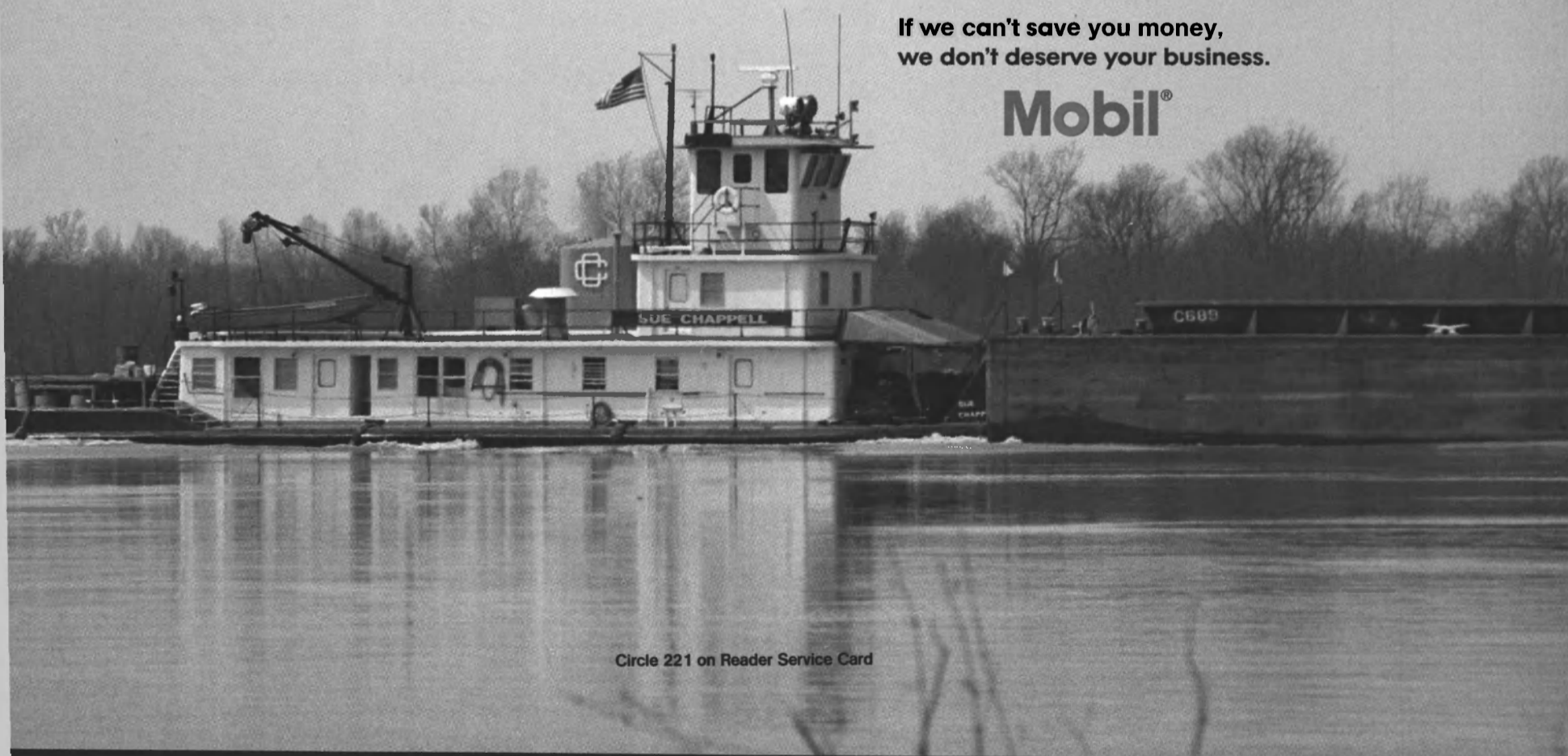
Mobilgard SHC 120 reduced overall engine wear by almost 50%. When the towboat was overhauled, engineers found that the engine's piston rings and cylinder liners had only about half the normal wear rates. Time between overhauls is now projected to extend from 40,000 hours to 60,000 hours.

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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VESSEL AWARDS

OUTSTANDING PASSENGER VESSELS & FERRIES OF '93

There were many outstanding passenger vessels and ferries delivered in 1993. This year's list is dominated by two categories, gaming vessels and ferries, but the group as a whole is a tribute to the shipyards, equipment suppliers, naval architects and owners which made the vessels a reality.

Vessel: Martha's Vineyard
Type: Ferry
Yard: Atlantic Marine, Inc.

In November 1993, Atlantic Marine, Inc. of Jacksonville, Fla. delivered the ferry *Martha's Vineyard* to Wood's Hole, Martha's Vineyard and Nantucket Steamship Authority in Massachusetts. The 230-foot by 60-foot passenger/vehicle ferry will operate between Woods Hole and Martha's Vineyard. *Martha's Vineyard* can carry 1,387 passengers, 17 crew and 70 vehicles.

Directions In Design of St. Louis, Mo. worked on the interiors. The passenger area features comfortable seating, individual reading lights and a snackbar. The *Martha's Vineyard* is powered by two GM 12-645E6A diesel engines with two

Reintjes WAF1540 reduction gear systems with a ratio of 3.039:1. Two 210-kW Caterpillar 3406B generator sets provide electrical power for the ship's service, air conditioning and lighting. For more information on Atlantic Marine, Inc.,

Circle 2 on Reader Service Card

MARTHA'S VINEYARD EQUIPMENT LIST

Main engines	GM
Reduction gears	Reintjes
Generators	Caterpillar
Bow thruster engine	Caterpillar
Bowthruster	Elliot White Gill
Steering gear	Sperry
Radar	Raytheon
Electronic navigator	Raytheon
Seating	Turnbull

Vessel: Star Casino
Type: Riverboat Casino
Yard: Bender Shipbuilding

The paddleboat *Star Casino* was delivered to owner Louie Roussel by Bender Shipbuilding & Repair of Braithewaite, La. in October 1993.

Star Casino was the first riverboat casino to operate in Louisiana.

The 265-foot Caterpillar-powered vessel is a tri-level, 22,500-sq.-ft. floating casino with a beam of 80 feet and a 14-foot draft. The *Star Casino* has a capacity for approximately 1,250 guests. The onboard entertainment consists of 760 slot machines; 39 gaming tables for blackjack, craps and roulette; and video poker. The \$12 million vessel was constructed in about eight months by Bender. The *Star Casino* operator is the casino company Showboat, Inc. For more information on Bender Shipbuilding & Repair,

Circle 3 on Reader Service Card

STAR CASINO EQUIPMENT LIST

Main engines	Caterpillar
Generator engines	Caterpillar
Thrusters	Thrustmaster
Thruster engines	Caterpillar
Generators	Kato
Engine controls	Thrustmaster
Steering controls	Thrustmaster
Deck machinery	McElroy Capstan
Coatings	Devoe
VHF radio	Raytheon
Radar	Raytheon
Bilge pump	Gould
Fire pump	G&L
Slot machines	IGT



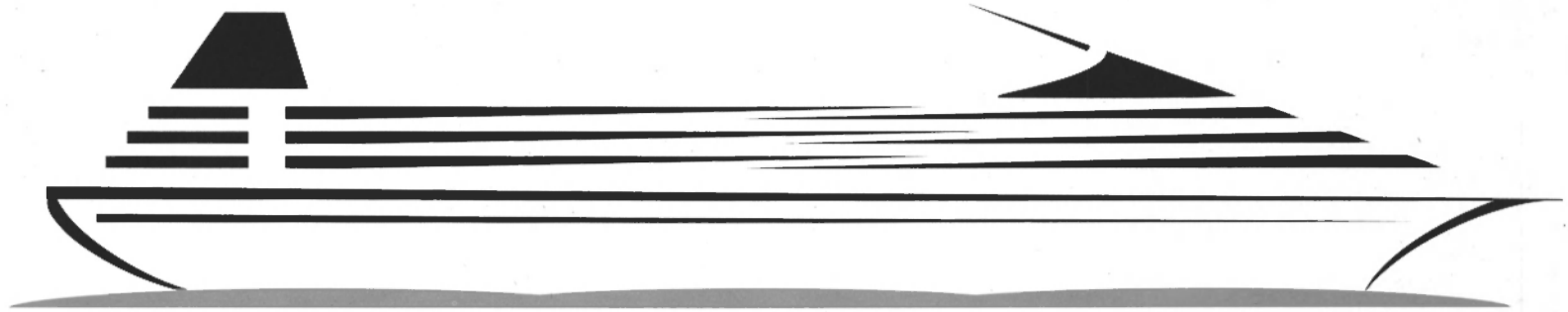
Leevac-built *Players Riverboat Casino II*.



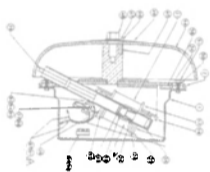
The ferry *Robert Fulton*, delivered by Gladding-Hearn Shipbuilding, The Duclos Corporation.



The dinner boat/excursion vessel *Island Girl VI*, delivered by SkipperLiner.



When designing your next ship think of us!

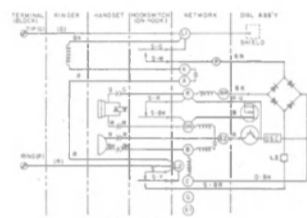
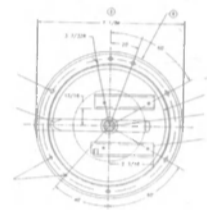


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Circle 256 on Reader Service Card



The ferry *William Market*, built by Peterson Builders.

Vessel: *Miss New York*
Type: Ferry
Yard: Blount Industries, Inc.

The ferry *Miss New York* was delivered by Blount Industries, Inc. to Statue of Liberty Ferry, Inc. in July 1993. The *Miss New York* ferry is 132 feet by 32 feet by 14 feet and is certified to carry 800 passengers. *Miss New York* will be used for excursion trips to the National Park

System's Ellis Island and Statue of Liberty in New York.

Miss New York has a Schottel bow thruster that is powered by a Cummins engine. The design of *Miss New York*, in keeping with the famous Statue of Liberty ferry fleet, features a rounded stern and capped pilothouse. *Miss New York* is the seventh Blount-built boat in the Liberty Ferry fleet. For more information on Blount Industries, Inc.,

Circle 4 on Reader Service Card

**MISS NEW YORK
EQUIPMENT LIST**

Main engines	Cummins
Generator engines	Cummins
Bow thruster	Schottel
Marine gear	Twin Disc
Steering system	Wagner Electric

Vessel: *Lady Anderson*
Type: Ferry
Yard: Freeport Shipbuilding

Freeport Shipbuilding and Marine Repair, Inc., Freeport, Fla. delivered the passenger ferry *Lady Anderson* to Captain Anderson Cruises in July. *Lady Anderson* is 135 feet long, with a beam of 32 feet and a draft of five feet. She is powered by twin Caterpillar 3406TA diesel engines, driving 40-inch by 38-inch Michigan propellers. Two Caterpillar 3304TA generator engines provide electrical power for the ship.

Lady Anderson is a three deck dinner/dance yacht, U.S. Coast Guard approved to carry 500 passengers.

Lady Anderson was custom designed by **Jim Murray**, president of Freeport Shipbuilding, **Hemant G. Bhayde**, naval architect and **Capt. Ken Anderson**, an owner of Captain Anderson Cruises.

For more information on Freeport Shipbuilding,

Circle 86 on Reader Service Card

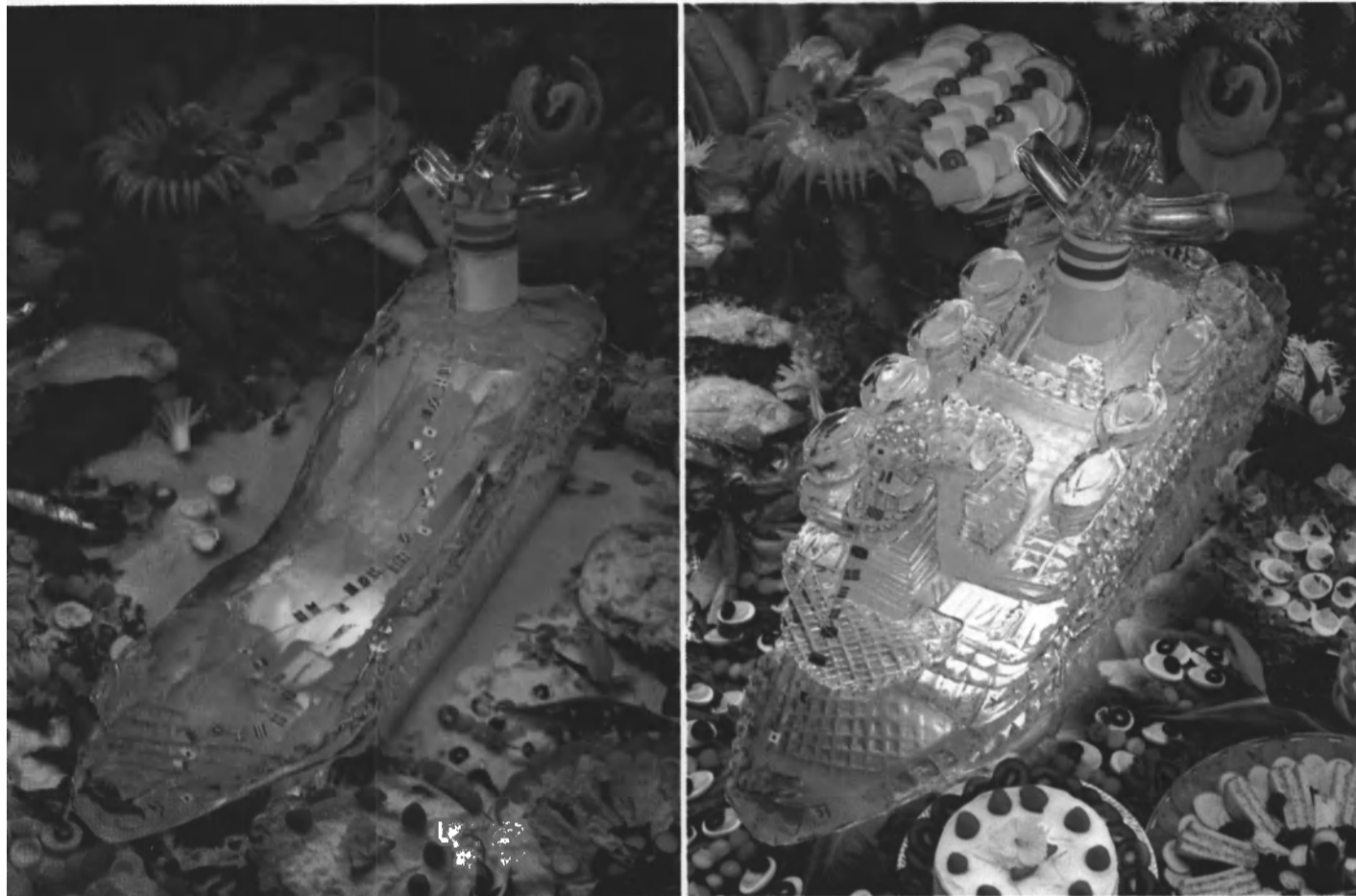
**LADY ANDERSON
EQUIPMENT LIST**

Main engines	Caterpillar
Generator engines	Caterpillar
Propellers	Michigan
Generators	Lima
Reduction gears	ZF
Engine controls	Mathers
Steering controls	Wagner
Shafting	Aquamet
Coatings	Devoe
VHF radio	Sitex
Radar	Furuno
Compass	KVH
Fire pumps	Crown
Bilge pump	Flomax
Sewage pump	Hydromatic

Vessel: *Robert Fulton*
Type: Ferry
Yard: Gladding-Hearn

The *Robert Fulton* is a monohull fast ferry built by Gladding-Hearn Shipbuilding, The Duclos Corp.,

Maritime Reporter/Engineering News



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Circle 255 on Reader Service Card

Somerset, Mass. and delivered to New Jersey-based Port Imperial Ferry Company for passenger service between New Jersey and New York City.

Robert Fulton can carry up to 400 passengers, and the vessel's unique bow-unloading system safely offloads 100 passengers per minute. *Robert Fulton's* moderate-V, hard-chined hull measures 25 feet abeam and draws six feet.

The ferry is powered by twin Caterpillar 3412 diesel engines, each rated at 671 bhp at 1,800 rpm. The engines drive two 42-inch bronze propellers via ZF 2.57:1 reverse/reduction gears and 3.5-foot shafts.

The engines and generators are resilient-mounted to reduce sound levels in the main cabin. Large rudders and propellers, placed farther apart, increase the vessel's maneuverability.

Onboard, *Robert Fulton* boasts upholstered seating, carpeting, two heads (including one for disabled passengers), and convenient handrails. The open upper deck has a large canopy for improved passenger comfort.

For more information on Gladding-Hearn Shipbuilding,

Circle 72 on Reader Service Card

ROBERT FULTON EQUIPMENT LIST

Main engines Caterpillar
Gears ZF

Vessel: **Players Riverboat Casino II**
Type: **Riverboat Casino**
Yard: **Leevac Shipyards, Inc.**

Players Riverboat Casino II, a replica of a 19th century stern paddlewheeler, was delivered by Leevac Shipyard, Inc. of Louisiana in November 1993.

Players Riverboat Casino II was designed by Rodney E. Lay & Associates of Jacksonville, Fla.

Players Riverboat Casino II is 247 feet long, with a width of 62 feet and a draft of 6.6 feet. She has three enclosed decks, totaling 16,215-sq.-ft., and one enclosed snack area with canopied observation area on the fourth deck. *Players Riverboat Casino II* is certified U.S. Coast Guard Subchapter H for 1,900 passengers.

Players Riverboat Casino II is completely wheelchair accessible on gaming and snack bar levels with accommodations for wheelchair-bound patrons in each of the six restrooms.

Players Riverboat Casino II has a total of 21,960-sq.-ft. of gaming area on her three decks combined. She has 1,077 gaming positions in all.

Propulsion consists of two Cummins KT38-M diesel engines, 800-hp each, turning 48-inch diameter propellers.

For more information on Leevac Shipyard, Inc.,

Circle 81 on Reader Service Card

PLAYERS RIVERBOAT CASINO II EQUIPMENT LIST

Main engines Cummins
Decorative propulsion A.C. Electric
Main generators Stamford Newage
Generator engines Cummins
Bow thrusters Cummins, Schottel
Air conditioning Carrier

Vessel: **Casino Queen**
Type: **Riverboat Casino**
Yard: **Patti Shipyard, Inc.**

In June 1993 Patti Shipyard, Inc. of Pensacola, Fla. delivered the casino boat *Casino Queen* to Casino Queen, Inc. of East St. Louis, Missouri.

Casino Queen is 447 feet long with a beam of 70 feet and a draft of 6.6 feet. She is powered by three Cummins KTA50M engines and has

three Kahlenberg 72-inch, four-blade stainless steel propellers. *Casino Queen* can reach speeds of 14 knots. *Casino Queen* is certified to carry 3,000 passengers, but the owner only wishes to carry 1,800 so every customer gets a chance to play at *Casino Queen's* 1,152 gaming positions.

For more information on Patti Shipyard, Inc.,

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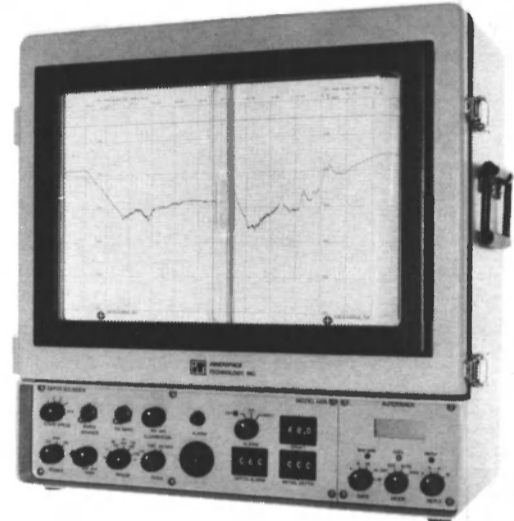
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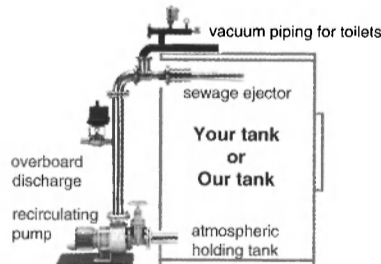
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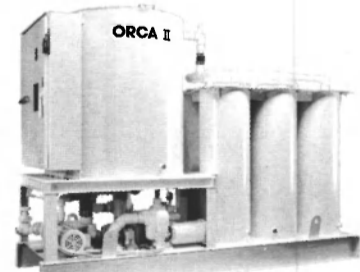
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CASINO QUEEN EQUIPMENT LIST

Main engines	Cummins
Propellers	Kahlenberg
Thrusters	ThrustMaster
Generators	Cummins
Generator (emergency)	Cummins
Thruster engines	Caterpillar
Reduction gears	ZF
Engine controls	Northern Iowa Diesel
Steering controls ..	Custom Hydraulics Components
Shafting	Aquatech
Coatings	Sea Guard
VHF radio	Kenwood
Radar	Furuno

Vessel: William Market
Type: Ferry
Yard: Peterson Builders, Inc.

The 96-foot long ferry *William Market* was delivered by Peterson Builders, Inc. of Sturgeon Bay, Wis. to Miller Ferry Line of Put-in-Bay, Ohio. *William Market* has a 38.6-foot beam and is capable of carrying 500 passengers and 26 cars. Designed by Timothy Graul Marine Design of Sturgeon Bay, Wis., the

William Market is powered by two Caterpillar 3412 DITA diesels, rated at 605 hp at 1,800 rpm each. The engines drive the propeller through Twin Disc MG-520 gears, 4.03:1 reduction.

The *William Market* also has two Northern Lights 33 kW 120/240v/60Hz/1 phase generators.

For more information on Peterson Builders, Inc.,

Circle 7 on Reader Service Card

WILLIAM MARKET EQUIPMENT LIST

Main engines	Caterpillar
Reduction gears	Twin Disc
Generators	Northern Lights
Air horn	Kahlenberg
Radios	Icom
Radar	Furuno
Air compressors	Quincy

Vessel: Northern Star
Type: Riverboat Casino
Yard: Service Marine

Service Marine, Morgan City, La. delivered Harrah's first casino boat, the *Northern Star*, in May 1993.

The *Northern Star* is powered by two 960-hp Caterpillar diesel engines through a flexible mounting system furnished by Lo-Rez, making the engine room sound proof. Three Caterpillar 500-kW gensets furnish power for the boat.

The modern 210-foot by 67-foot mega-yacht features a dramatic atrium through its three levels which offers 17,900-sq.-ft. of casino space and accommodates approximately 1,000 guests plus crew per cruise. *Northern Star* offers more than 500 slot machines and more than 40 gaming tables including blackjack and craps. The *Northern Star* has 460 tons of air conditioning provided by Carrier. For more information on Service Marine,

Circle 6 on Reader Service Card

NORTHERN STAR EQUIPMENT LIST

Main engines	Caterpillar
Generator engines	Caterpillar
Marine gear	Disc
Propellers	Padgett-Swann
Steering System	Skipper Hydraulics
Bow thruster	Caterpillar
Flexible mounting system	Lo-Rez

Vessel: Island Girl VI
Type: Dinner/Excursion Boat
Yard: SkipperLiner

SkipperLiner Industries, La Crosse, Wis., delivered the dinner boat/excursion vessel *Island Girl VI* in April 1993 to Island Girl Cruiselines. The *Island Girl VI* is 80 feet long, with a beam of 20 feet and a draft of 4.6 feet, and can carry 149 passengers for excursions and 120 passengers for dinner cruises, as well as six crew. She has two dining areas. The *Island Girl VI* is powered by two Caterpillar 3116TA engines and cruises at a speed of 12 knots. The boat is propelled by 28 x 22 four-blade Michigan Wheel propellers. Generators are Cummins 4B3.9Ms. For more information on SkipperLiner Industries,

Circle 87 on Reader Service Card

ISLAND GIRL VI EQUIPMENT LIST


Main engines	Caterpillar
Generator engines	Cummins
Propellers	Michigan Wheel
Reduction gear	Hurth
Engine controls	Mather Micro Commander
Shafting	Aquamet
Coatings	Awlgrip
VHF radio	Icom
Radar	Furuno
Compass	Ritchie
Pumps	Monarch

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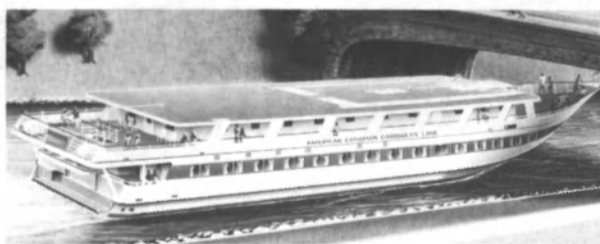
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Vessel: Lima
Type: Catamaran
Yard: Trinity Industries

Trinity Industries, Inc.'s subsidiary, Aluminum Boats, Inc., Crown Point, La., delivered the all-aluminum 100-foot catamaran *Lima* to a private owner in Jeddah, Saudi Arabia. The boat was custom designed for cruising, dining and fishing on the Red Sea. The catamaran design was selected over a monohull because of the greater stability provided by twin hulls.

A fully equipped galley and serving center is situated on the main deck, and spacious decks encircle the cabin. The upper deck includes two 16-foot fishing boats, and two two-ton capacity cranes. *Lima* has quarters for the owner and four guests in one hull, and quarters for four crew members in the other hull. Each 12-foot wide hull includes two Caterpillar 3408 diesel engines developing 542-hp each through ZF reverse/reduction gears driving four-blade propellers through Aquatech stainless boat shafts. Two Caterpillar 3304 diesels drive two 65-kW generators to provide electrical power to the vessel. *Lima* is 100 feet long, with a 32-foot beam. Normal operating draft is approximately 4.5 feet.

For more information on Trinity Industries, Inc.,

Circle 18 on Reader Service Card

LIMA EQUIPMENT LIST

Main engines	Caterpillar
Generator engines	Caterpillar
Reduction gears	ZF
Shafting	Aquatech
GPS	Raytheon
VHF radios	Sailor
Radars	Furuno
Loran	Furuno
Autopilot	Furuno

Vessel: Kenai Explorer II
Type: Tour Boat
Yard: Westport Shipyard

Westport Shipyard, Inc. delivered the the 90-foot *Kenai Explorer II*, the latest model in its line of fast tour boats, in April 1993. The Detroit Diesel-powered, 27-knot boat was delivered to Kenai Coastal Tours of Alaska.

Two Detroit Diesel 16V92TA engines power the boat to 27 knots, allowing it to tour the Kenai Fjords in Alaska in 5-1/2 hours as opposed to the usual eight hours.

The *Kenai Explorer II* can accommodate 149 passengers under U.S. Coast Guard regulations. The top deck layout of the vessel includes a wide, three station pilot-house; a VIP lounge; and fiberglass benches beneath the canopy.

The engines drive four-blade Nibral propellers through DDC 132V reduction gears at 2.38:1 ratio. Westport built the 16-inch wet exhaust and silencer system.

Controls include MMC Micro Commander electronic propulsion systems and a Jastram hydraulic steering system. Westport supplied

its own foil-type, cast urethane rudders. A Dennison T6DO35 hydraulic pump operates off one main engine and provides power to the 25-hp, 12-inch Wesmar dual prop bow thruster, and deck gear. A belt-driven 1.5-inch Oberdorfer pump supplies two fire stations and can be switched into the bilge system if needed. A 1.5-inch Johnson pump serves a bilge system manifold. Teel

(Continued on page 59)



The ferry *Lady Anderson*, built by Freeport Shipbuilding.

THE BEST IN PEOPLE MOVERS



MARTHA'S VINEYARD - 230' x 60' passenger/vehicle ferry operating between Woods Hole and Martha's Vineyard. The double-ended ferry was built for Woods Hole, Martha's Vineyard and Nantucket Steamship Authority and has the capacity to transport 1387 passengers, 17 crew members and 70 vehicles.



ALTON BELLE II - 222' x 66' triple deck casino built for Alton River Boat Gambling Partnership, Alton, Illinois. The 23,000 sq.ft. of casino space has 1200 gaming positions which includes 900 slot machines.



MARGARET CHASE SMITH - 166' x 40' double ended ferry boat with a capacity of 226 passengers and 30 autos built for the State of Maine, for transportation between Isleboro and Lincolnville, Maine.



DIAMOND LADY - 201' x 46' Sternwheel Casino Vessel built for Steamboat River Cruise Lines, Bettendorf, Iowa. This 1200 passenger casino vessel.



CANIMA - 116' 6" x 31' passenger tender built for the Government of Bermuda with a capacity of 750 passengers to serve the Port of Hamilton, Bermuda.



TAMBOR - 130' x 45' double ended passenger/vehicle ferry. The Tambor has a capacity of 375 passengers and 16-24 vehicles.

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SHOW PREVIEW



PVA '94

Passenger Vessel Association 1994 National Convention & Trade Show

Building Relationships: The Course For Success In The Industry Family

The Passenger Vessel Association's (PVA) annual Trade Show provides a top-quality showcase of goods and services specifically designed for or used by the owners and operators of passenger vessels, both large and small. The Show is scheduled for January 15-18, 1994, at the Buena Vista Palace Hotel, Orlando, Fla.

The theme selected for PVA's 1994 Trade Show, "Building Relationships," focuses on the importance of building, maintaining and strengthening relationships within the passenger vessel industry - relationships between operators, suppliers, tour and travel operators, as well as with Congress and the U.S. Coast Guard.

A wide variety of products and services will be offered at the show. The PVA Trade Show is expecting to expand its number of exhibitors by 100 this year, as well as welcoming several new Associate Members who will exhibit at the PVA Trade Show for the first time.

Also featured at PVA '94 are a series of education seminars. Management theories, tactics and practices will be examined at two sepa-

rate plenary session by members of the Walt Disney World[®] Resort management team. Workshops will be offered on topics such as "Developments in Passenger Vessel Financing," "Building Marketing Relationships," and "Planning for Your Financial Future." And "SuperSeminars" will be held on various topics such as "Teaching Your Company to Think Safety," "New Technology and Standards for Vessels," and "Casino Gaming and the Passenger Vessel Industry: Is This a Marriage That Can Work?"

This year's PVA show is different from shows of previous years in that it reflects changes made based on suggestions by Associate Members who have exhibited in the past. Social functions will be emphasized, as they were in the past, but this year additional space has been provided for buyers and suppliers to sit down and do business - interaction that is the primary focus of PVA's annual trade shows.

All in all, the Passenger Vessel Association's 1994 National Convention and Trade Show will offer excellent opportunities for all individuals connected to the passenger vessel market to conduct business and pur-

sue professional development. For more information contact PVA at (202) 785-0510

Schedule of Events

Friday, January 14

9:00 a.m. - 5:00 p.m. Committee Meetings

Saturday, January 15

9:00 a.m. - 3:00 p.m. Board of Directors Meeting

1:00 p.m. - 6:00 p.m. Exhibitor Registration and Set-up

2:00 p.m. - 8:00 p.m. General Registration

2:30 p.m. - 3:00 p.m. Exhibitor Orientation and Pep Rally

3:30 p.m. - 4:00 p.m. New Member/First Timers Orientation Session

4:00 p.m. - 6:00 p.m. Opening Plenary Session: *Management - Disney Style*

6:00 p.m. - 8:00 p.m. Ribbon Cutting Ceremony and Opening Reception in Exhibit Hall

Sunday, January 16

8:00 a.m. - 6:00 p.m. Registration
10:00 a.m. - 11:30 a.m. Captain's Brunch

11:30 a.m. - 2:30 p.m. Exhibit Hall Opens

2:30 p.m. - 5:00 p.m. SuperSeminars
6:00 p.m. - 10:00 p.m. Polynesian Luau & Show; Cruise aboard

Disney's *Kingdom Queen*

Monday, January 17

7:30 a.m. - 9:00 a.m. Continental Breakfast in Exhibit Hall

7:30 a.m. - 4:30 p.m. Registration
9:00 a.m. - 10:15 a.m. Regional Meetings Associate Member Council

10:15 a.m. - 10:30 a.m. Coffee Break

10:30 a.m. - 12:00 p.m. Plenary Session - *Grass Roots Lobbying: The Key To National Advocacy Success*

12:00 p.m. - 2:00 p.m. Public Policy

(Continued on page 37)

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As marine applications became more demanding, the rope industry faced a new challenge -- to engineer a better performing polyester rope product.

Through a program of intense fiber research, AlliedSignal engineers discovered the solution. By applying a unique and proprietary SeaGard[®] finish to the ACE polyester fibers, a better performing wet abrasion resistant rope was now able to be constructed.

In independent testing and in field testing by several rope manufacturers, ACE Polyester SeaGard ropes -- 3-strand and braided -- outlasted and out-performed ordinary polyester ropes by incredible margins, even under the most severe wet abrasion conditions.

Today, rope manufacturers have found that they require a higher level of performance plus cost-effectiveness for the most demanding applications, such as: tethers for balloons, underwater surveillance systems, offshore oil rigging and transmission and distribution (T&D) lines. ACE Polyester SeaGard meets these requirements. And, for the sailor who wants the best in performance, SeaGard ropes offer that certain added security plus easy, smooth handling.

For further information and test results, contact:
Dept. A-S, Suite 1500, 224 West 35th St., NY, NY 10001.

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FIBERS

PVA '94

(Continued from page 34)

Luncheon

2:00 p.m. - 3:30 p.m. Exhibit Hall Open

3:30 p.m. - 5:00 p.m. Workshops

5:00 p.m. - 6:00 p.m. PVA Business Meeting

Tuesday, January 18

7:30 a.m. - 9:00 a.m. Continental Breakfast in Exhibit Hall

7:30 a.m. - 2:00 p.m. Registration

9:00 a.m. - 10:15 a.m. Plenary Session - *Update on the PVA Insurance Program*

10:15 a.m. - 10:30 a.m. Coffee Break

10:30 a.m. - 12:00 p.m. PVA Business Meeting

12:00 p.m. - 3:00 p.m. Buffet Lunch in Exhibit Hall/Exhibits Open

1:30 p.m. - 2:45 p.m. Idea Roundtables, Ferry Council, Gaming Cruise Council, Overnight Cruise Council

3:00 p.m. - 4:15 p.m. Workshops

3:00 p.m. - 5:00 p.m. Closing Plenary Session - *Customer Service - Disney Style*

6:30 p.m. - 10:30 p.m. Closing Banquet

Wednesday, January 19

8:30 a.m. - 10:00 a.m. Board of Directors Meeting

9:00 a.m. - 2:00 p.m. Shotgun Golf Tournament

10:30 a.m. - 4:00 p.m. Optional Walt Disney "Behind-the-Scenes" Program

PVA '94

Plenary Sessions

Opening Plenary Session:
Saturday, January 15

4:00 p.m. - 6:00 p.m. *Management - Disney Style*

Walt Disney World Seminar Productions, a part of the Disney University, will present a 90-minute overview of the successful Disney approach to people management.

The seminar will discuss the ways in which Disney instills and encourages commitment and pride among more than 35,000 employees. The seminar will help the audience formulate strategies to take back and implement in your organization. In this analysis of the Disney management philosophy, the strategies and

techniques behind personnel selection, training, communication and care will be revealed, four keys to developing a work environment that stimulate interest, commitment, quality, productivity and "unity of purpose" among employees.

Monday, January 17

10:30 a.m. - 12:00 p.m. *Grass Roots Lobbying: The Key To Na-*

tional Advocacy Success

Speaker: Michael E. Dunn, president, Michael E. Dunn & Associates, Inc.

This session will open with a brief video presentation, "Player's Guide to Politics," illustrating the effects of an active grassroots program in influencing public policy. Immediately following the video will be a panel session of several PVA

members and Congressional staff who were involved in advocating the bareboat legislation, H.R. 1159, in the U.S. House of Representatives. This will be a session involving audience participation and will demonstrate to attendees that PVA members can make a difference if they get involved.

(Continued on page 38)

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1989, 1990, 1991, 1992
Maritime Reporter

PVA '94

(Continued from page 37)

Tuesday, January 18

**9:00 a.m. - 10:15 a.m. Update on
the PVA Insurance Program**
Moderator: Terry MacRae

This program will outline new developments in the maritime insurance environment and enhancements of the PVA endorsed program, which is utilized by over 60 percent of our members. Featuring input from senior management of PVA's endorsed broker, Johnson & Higgins, this plenary session will provide company owners and operators with the latest information about the PVA program.

**Closing Plenary Session:
Tuesday, Jan. 18**

**4:00 p.m. - 5:30 p.m. Service -
Disney Style**

Pleasing the people you do business with is of critical importance when determining the long-term profitability and competitive edge of your organization.

In this session, Disney management staff will attempt to broaden your professional understanding and expertise in the field of service and customer satisfaction by studying strategies practiced at the Walt Disney World[®] Resort. An exploration of the Disney "Vision of Quality Service," this presentation showcases research techniques, operational procedures and technical systems that support the employees in delivering superior guest service.

PVA '94 Exhibitor List (partial):

Advanced Computer Solutions
Atlantic Marine, Inc.
Bauer Interiors, Inc.
Bender Shipbuilding & Repair
Bensinger's/Div. of Allen Foods
Berg Company
Bud Jones Company
Caterpillar
Chicago Metallic Corporation
Cummins Marine
Custom Ship Interiors
DeJong & Lebet
Det Norske Veritas (DNV)
Directions in Design, Inc.
Elliott Bay Design Group, Ltd.
Envirovac, Inc.
Freeport Shipbuilding
Gee & Jenson
Gasser Chair Co., Inc.
Globe Information Systems
Guido Perla & Associates, Inc.
Hopeman Brothers, Inc.
Interior Design International
Jamestown Metal Marine Sales

Jeffboat
John Holdsworth & Co. Ltd.
Johnson & Higgins
Leevac Shipyards, Inc.
Loomis & LaPann, Inc.
MTS Seating
MTU North America
Maritime Services Corporation
Maritime Systems Designs, Inc.
Multicom Communications
National Ticket Company
Navatek Ships Ltd.
Nichols Brothers Boat Builders
Peterson Builders, Inc.
Rodney E. Lay & Associates
Service Marine Industries, Inc.
Sharpshooter Resort Photography
SkipperLiner
T. J. Software, Inc.
Trans Bay Images
Trase Miller
Trinity Marine Group
Turnbull Inc.

Climax Debuts Mid-Size Portable Milling Machine

Climax Portable Machine Tools, Inc. has introduced the Model PM925 midsize portable milling machine. The new machine is reportedly a versatile three-axis hydraulic milling machine, designed for use in a variety of applications. The PM925 includes three hydraulic motors, allowing the operator to select the correct spindle rpm for optimum metal removal. The machine's vertical travel also allows milling below the bed surface. Horizontal milling of a large area, with a single setup, is possible with the machine hung from an overhead fixture or platen. For more information on the Climax PM925 mid-size portable milling machine,

Circle 45 on Reader Service Card

IDB Introduces New Low- Priced Phone Service

The availability of Oceancell, a revolutionary satellite telephone

service which utilizes reportedly the most powerful commercial mobile communications satellite ever built, was announced recently by IDB Mobile Communications, a unit of IDB Communications Group.

The announcement was made by IDB Mobile president **Jon Klein** and AMSC marketing manager **Maureen Lalor**. AMSC, which is licensed by the FCC to provide mobile satellite services to the U.S. market, is scheduled to launch the new satellite in late 1994.

The power of the satellite enables the use of a much smaller antenna. Oceancell phone service will allow ships at sea to place and receive private and secure phone calls for as low as \$1.50 per minute during peak times.

With virtually complete North American coverage extending 200 miles offshore, including Alaska, the Caribbean and Canada, most tugs, barges, fishing and offshore supply vessel will be in range of Oceancell at all times. Oceancell will also provide fax, data and GPS capabilities.

For more information on Oceancell from IDB,

Circle 47 on Reader Service Card

Maritime Reporter/Engineering News

Kelvin Hughes Debuts Electronic Charts

Kelvin Hughes Ltd. introduced its new Chart Display Unit (CDU) at the recent Europort Exhibition in Amsterdam. The new electronic CDU is fully compatible with the U.K. Hydrographic Office Raster Chart Service (ARCS), which was also launched at the show. The CDU is capable of being used on its own or interfaced directly with the Kelvin Hughes Navigation Display (NINAS). The CDU offers interactive route planning and monitoring along with instantaneous assessment of tracked targets that may be overlaid on the chart from the radar system. A window on the right of the displayed chart provides ship's position, course and speed, the range and bearing of the cursor and chart information comprising name, number and projection. For free information on the new electronic charts from Kelvin Hughes,

Circle 61 on Reader Service Card

G.A. Intl. Opens Miami Branch Office

New York-based G.A. International Electronics Corp. recently celebrated its 10th anniversary and announced the opening of its branch in Miami. G.A. Intl. is a specialist in marine electronics, and represents many leading manufacturers such as Atlas Elektronik, C. Plath, Furuno, Magnavox and STN, to name a few.

With the introduction of GMDSS over the next few years, G.A. Intl. already invested in training on those new systems and has carried out GMDSS installations, allowing the company to better assist its clients with all aspects of the new technology. G.A. Intl. also assists its customers in radio safety certification and for this purpose is recognized by ABS, Germanischer Lloyd, Det Norske Veritas, Lloyd's Register and other classification companies. The company's Miami branch office is scheduled to open this month. For more information on G.A. Intl.,

Circle 62 on Reader Service Card

Seaward Offers Seapile Composite Marine Piling

The Seapile™ composite marine piling is made by a process known as continuous extrusion. In this process, an extruder melts recycled plastic, mixes it with specific additives then forms it around the reinforcing elements of the pile. Duralin™ is the trade name given to the plastic matrix designed by Seaward's chemists and engineers to make the Seapile composite marine piling tough, and to help preserve and enhance the product's longevity and strength. Seapile pilings are available with either fiberglass or steel reinforcement: the model with fiberglass was designed to make available a lighter pile with non-corrosive reinforcing; the model with steel

reinforcement was designed to have a higher axial load bearing capacity than the fiberglass pile.

Seaward has also developed simple clamps for attaching a piling to a dock, to eliminate the need for random bolt hole drilling.

Seaward uses only 100 percent recycled plastic, and black is the standard color of the Seapile. The Seapile can be made in other colors on a custom basis, with a slightly higher price for special orders due to the cost of the colorants.

For full technical specifications on the Seapile composite marine piling,

Circle 64 on Reader Service Card

Rust Kote Approved By MarAd

Royal Chemical Corp. of Belle Chasse, La. announced that its Rust

Kote product was approved by the U.S. Maritime Administration for use as a ballast and void coating on MarAd vessels.

MarAd classifies Rust Kote as a semi-hard asphaltic paint.

Rust Kote is a water-based non-VOC penetrating coating designed to go over a minimally prepared surface.

For more information from Royal Chemical on Rust Kote,

Circle 88 on Reader Service Card

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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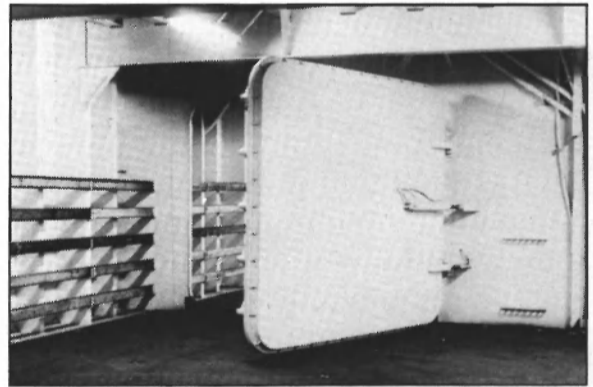
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Circle 220 on Reader Service Card

Marine Magnetometer Available With RS232 Computer Interface

J.W. Fishers Mfg. Inc. announced that its popular towed marine magnetometer is now available with an RS232 computer interface. The Proton 3 is a third generation marine magnetometer that is used to locate iron and steel targets. A built-in

printer prints out the gamma readings with the Loran or GPS position coordinates of the target. This same information is available to input into any computer system. For the past 25 years J.W. Fishers has specialized in the development and manufacture of high-tech underwater search equipment. For more information on J.W. Fishers' Proton 3,

Circle 89 on Reader Service Card

Pres-Vac Appoints U.S. Agents

Pres-Vac Engineering AG appointed Young & Cunningham America, Inc. as its exclusive U.S. marketing agent for all Pres-Vac products. Pres-Vac is a leader in pressure vacuum valves used in vapor collection systems, liquid overflow protection devices (spill valves), and vent check valves. Pres-Vac

products meet USCG, IMO, ASTM and SOLAS requirements. Young & Cunningham America is a designer and manufacturer of valves; hydraulic, pneumatic and electric actuators; and control systems. For more information on Pres-Vac products from Young & Cunningham,

Circle 90 on Reader Service Card

Germanischer Lloyd Expands Again In Eastern Europe

International classification society Germanischer Lloyd announced that it has again expanded its activities in Eastern Europe with the establishment of a new affiliated company in the Slovakian Republic called Slovakian Lloyd. The new company, based in Bratislava, is a joint venture between the Research Institute for Transport (VUD) in Zilina and Germanischer Lloyd and will carry out classification work for the shipbuilding, shiprepair and related industries in the Slovakian Republic. For more on Germanischer Lloyd,

Circle 38 on Reader Service Card

Shipboard Computers For The U.S. Coast Guard

The Ship's Computer is supplying the U.S. Coast Guard (USCG) with computers to be utilized for navigation purposes on the 49-foot buoytenders being built by Maritime Contractors, Inc. The installation of a shipboard computer will offer the USCG a wide range of functional capabilities which include tide and current information, vessel maintenance records, captain's logs, weather fax, satellite communications, cellular fax and modem communications and more. As the marine industry turns more towards shipboard computers, other options such as electrical systems control, alarm system integration and radar overlays can be added. The advantage of all this is the ease of operation and control, lower costs of installation, lower costs on supplies and constantly updated systems. For more information on products available from The Ship's Computer,

Circle 93 on Reader Service Card

C. Plath Imports Tamaya Marine Anemometer

C. Plath North American Div. introduced the Tamaya FV 301 Marine Anemometer. Patented optical pulse technology eliminates traditional spring and synchro mechanisms resulting in a maintenance-free and durable wind speed and direction indicator. Separate displays in the control and head provide both digital read-out of average wind speed and an analog (LED) display for momentary change in direction and speed. For more information from C. Plath,

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WE TRY HARDER**

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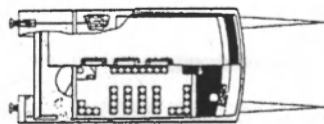
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49 Passenger, 18 Metre Ferry, 30 Knot, \$470,000



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Lt. Displ. 19 tons
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Circle 282 on Reader Service Card

Maritime Reporter & Engineering News'

Casino Riverboat

Quarterly



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- The latest news: contracts awarded, boats launched, licenses issued
- Successful integration of boat, land facility design
- "Eye On Design:" What makes a great interior
- West Virginia: Close-up on this state's legalization situation

For quiet, vibration-free operation and improved service life in passenger, commercial and naval vessels.

LO-REZ

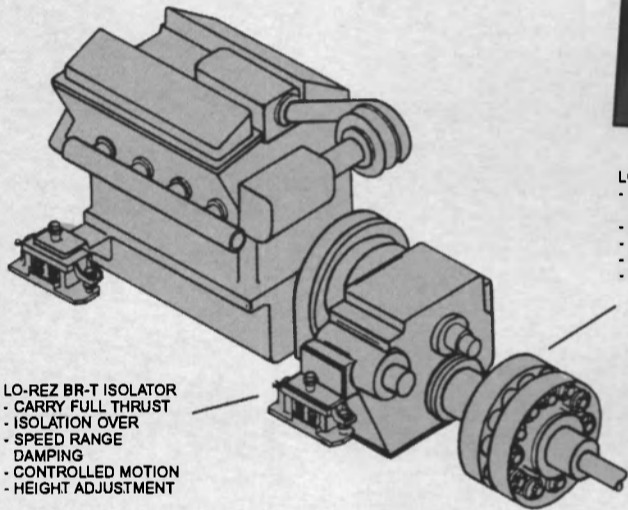
Shown are six 38RT/HLF flexible coupling assemblies as used on naval propulsion systems.

The 38RT couplings, which utilize elastomer cylinders pre-loaded in compression, have three dimensional lateral and torsional flexibility. They provide a high degree of noise attenuation, there being no metal-to-metal contact.

The HLF multiple-lamination coupling components have high Lateral Flexibility and allow the ship propulsion systems to accommodate very high lateral (and associated) excursions.

The particular assemblies shown here have been qualified for accelerations in excess of 35.0 G.

THE LO-REZ 'SOFT MOUNT' PACKAGE



LO-REZ BR-T ISOLATOR
- CARRY FULL THRUST
- ISOLATION OVER
- SPEED RANGE
- DAMPING
- CONTROLLED MOTION
- HEIGHT ADJUSTMENT

LO-REZ RT COUPLING
- TAKES REVERSE THRUST
- LOW STIFFNESS
- HIGH DAMPING
- NON-LUBRICATED
- NOISE ATTENUATION



The configuration of the LO-REZ RT coupling provides many important characteristics such as two directional thrust and torque capability, shock absorption, excellent noise attenuation, high misalignment capability, etc.

The LO-REZ BR-T isolators have special thrust carrying devices which permit them to carry full thrust load without 'locking up' so that they are capable of providing effective isolation of the engine-generated vibration over the entire speed range.

With the installation of the LO-REZ soft mount package there is no requirement for a thrust bearing.

Some current and recent casino excursion vessel construction using LO-REZ 'Soft Mount' vibration and noise control systems and/or genset isolation.

SHIPYARD	VESSEL NAME	OWNER	NAVAL ARCHITECT AND/OR DESIGNER
Atlantic Marine, Inc.	Diamond Lady Emerald Lady Par-A-Dice (I) Alton Belle Casino II Par-A-Dice (II) Empress I, II & III	Steamboat Development Corp. Steamboat Development Corp. Par-A-Dice River Casino Argosy Gaming Corp. Empress Casino Corp. Empress Casino Corp.	John W. Gilbert & Associates, Inc. John W. Gilbert & Associates, Inc. John W. Gilbert & Associates, Inc. Rodney E. Lay & Associates Rodney E. Lay & Associates Rodney E. Lay & Associates
Avondale Boat Division	Catfish Queen Boomtown Belle	Argosy Gaming Corp. Boomtown, Inc.	Rodney E. Lay & Associates Yard Design
Houma Fabricators	Hull 103 - 228 Ft. WL Hull 104 - 228 Ft. WL	Kehl River Boats Kehl River Boats	Yard Design Yard Design
Houma Industries	Hull 82 - 164' *1	Bob Kehl*	Yard Design
Leevac Shipyards	Players River Boat Casino I & II Hull 310 Capitol Queen	Players International Caruthersville R.B. Ent. Capitol Queen & Casino	Rodney E. Lay & Associates Rodney E. Lay & Associates Rodney E. Lay & Associates
Service Marine Industries Inc.	Odessey II* Northern Star Southern Star Shreveport Rose Hull 170 Hull 168 Hull 173	Premier Yachts Harrah's Harrah's Boyd Gaming Corp. Casino America Harrah's	DeJong & Lebet DeJong & Lebet DeJong & Lebet DeJong & Lebet John W. Gilbert & Associates, Inc. John W. Gilbert & Associates, Inc. John W. Gilbert & Associates, Inc.
Skipperliner Industries	Desert Princess M.S. Dixie II Bailey Princess	Travel Systems Ltd. Travel Systems Ltd. Bailey's Harbor Yacht Club	Timothy Graul Marine Design Timothy Graul Marine Design Shipyard Design
Trinity Marine Group	Queen of New Orleans	Hilton	Broadmoor Design Group
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Lady Luck's Oriental Barge in Biloxi is one of the unique riverboat gaming facilities designed by Thalden Corporation, architects.

Riverboat Gaming Design Issues

By
Barry Thalden, Thalden Corporation

With opportunities for riverboat gaming almost everywhere, it seems gaming companies, as well as architects, engineers and designers who specialize in this work, are running at an incredible pace.

Stories of new annual earnings of up to \$50 million on a \$20 million investment have caused many people who had comfortable jobs to

begin working 16 hours a day, seven days a week. Most riverboat projects are being constructed at a fast and furious pace.

Obviously, designing a casino on the water entails many issues that most gaming operators never wanted to learn about. (See "9 Things Gaming Vessel Owners Need To Know," on this page.)

While none of these issues come as a surprise to boat owners and operators, many of these are new problems for the casino operator.

Often, there is insufficient parking space available. There are projects with parking garages on floating barges. In urban situations, there must be a "people place" where people can get dropped off, by car or by bus, and where they can wait around to be picked up. Often, the character of these areas can set the tone that makes the whole development truly exciting.

The entry buildings are the places where people first encounter your facility. These buildings are typically land-based and have some means of transition to the boat itself. They can be as simple as an outdoor pavilion or a temporary building. But, in other projects, they need to be more complex, sometimes containing restaurants, gift shops, waiting areas and children's play areas. In some cases, they are quite elaborate because people may spend a great deal of time there waiting for their cruise. In any case, image is important because it creates the first impression of what the facility is all about.

The entry ramp to the floating casino can sometimes be just an open ramp. In other cases, it needs to be a long ramp to handle the difference in grade elevations. Remember, it is not just the visitors

who have to make it across. Employees, services, equipment, food, trash and utilities must also make the trip. The boats themselves can take on a wide variety of characters. Often, a specific historical character is selected, but boats can also be quite contemporary. Dealing with cruising boats requires a whole series of unique needs—life jackets, special exit stairs, the problem of low ceiling heights and having gaming separated on several different floor levels. One of the ways to solve the problem of low ceiling heights is to have an open space between the floors so that the ambiance of the gaming environment and the noise and the excitement travel from one floor to the other. That way everyone feels they are part of the action.

Through it all, priorities must be kept straight, and remember: the objective is to provide an environment where people have a good time and come back.

BUILDING ON A THEME

In some facilities, the casino's relationship to the water is highlighted. Other owners seem to use the "Las Vegas Scenario" in which one enters a land-based entry building which disguises the connection to the barge. This connection can be so subtle that the customer can't even tell that it is not just one big building. This is

(Continued on page 45)

9 Things Gaming Vessel Owners NEED TO KNOW

There is a realization by gaming vessel owners, who are accustomed to operating land-based gaming operations, of some inherent challenges associated with gaming vessel ownership and operation. Here's a list of key issues a casino vessel owner/operator needs to consider.

1. Parking.
2. Access - Just getting people to and from, on and off the boat is a major problem.
3. Handling people traffic.
4. Cruising.
5. The floor is not flat. Most boat decks have a significant-cambered floor, which makes it very difficult to place and level slot machines.
6. Weight stability and balance.
7. Loss of flexibility in planning.
8. Non-combustible building standards.
9. Low ceiling heights. These low ceilings make smoke removal difficult and reduce surveillance capabilities.

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(Continued from page 43)

becoming increasingly true in Mississippi, where there is no cruise requirement. There are also combinations of boats and barges together, which creates both the entry building and the gaming experience on the water.

An emerging trend is towards the unique. Initially, getting the boat open was the only priority. Now, some of the owners are beginning to realize that they will be in a very competitive market of four, six, eight or more vessels, each competing for attention. One way to differentiate is by creating a unique or theme character. Creating a "must see facility" produces an unforgettable impression. It can be reinforced in advertising, signage, or logo carpet, brochures, and even dealer's ties.

In Biloxi, the facility designed for Lady Luck Casinos has an oriental theme. In the lagoon in front of the casino, every hour the water begins to churn; the churning moves around the lagoon, and finally, a fire-breathing dragon emerges out of the water.

An emerging trend is toward the unique...

Initially, getting the boat open was the only priority; Now, some of the owners are beginning to realize that they will be in a very competitive market of four, six, eight or more vessels...

The entire lagoon ignites in fire as the dragon moves around. The fire is soon extinguished by jets of water, and hidden by the steam, the dragon disappears. It is a "must-see" attraction. Yes, there is tremendous opportunity in riverboat gaming. Yes, it is fraught with a variety of challenges, only some of which are mentioned here. It is clear that until the pace slows down, little time will be available to methodically think through all of the design aspects of the facilities prior to construction. However, when the dust settles, those who made the effort to carefully design a unique gaming experience will end up with the most successful casino.

Barry Thalden, ALA, is president of Thalden Corporation, Architects. Thalden Corp. is a leading firm in the design of riverboat and dockside gaming, and is currently engaged in projects in all the major markets. For additional information on Thalden Corp.,

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Cummins Targets Casino Vessel Market; Uprates K19

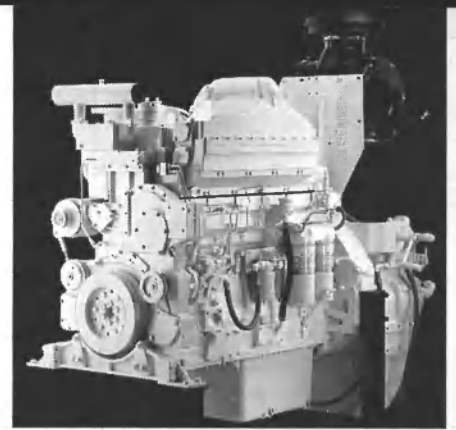
Cummins Marine, having already achieved success in supplying diesel engines for propulsion and power on riverboat casinos, just released a new four-color brochure "Power For Gaming Vessels," to help strengthen its position in this growing market. The new information piece, targeting

those who own, design and build riverboat casinos, provides a general overview of the engine manufacturer's position in the marketplace, as well as detailed information on the entire Cummins Marine engine product line.


Cummins Uprates Engine

Cummins marine introduced a new, continuous-duty rating of 600 bhp (447 kW) at 1,800 rpm for its

(Continued on page 46)



The Cummins KTA 19-M3.



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.

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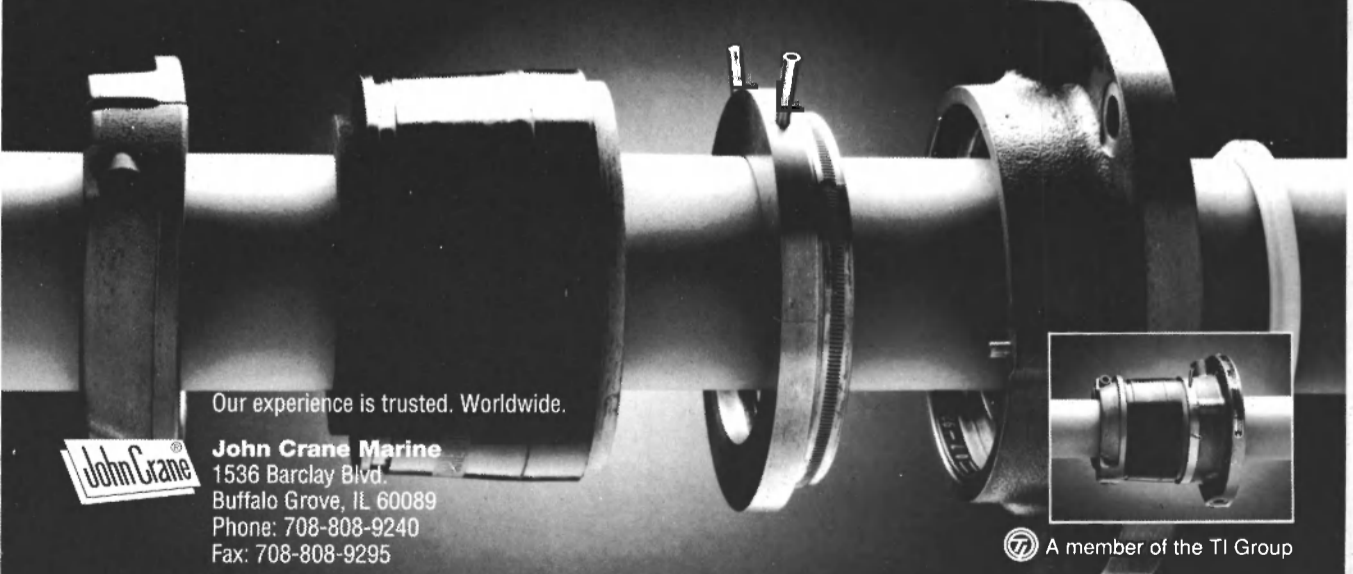
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(Continued from page 45)

K19 engine, with an enhanced turbocharger and other key performance features aimed at achieving lower operating costs and higher reliability.

The new K19 engine has been uprated from 580 to 600 bhp, and the increase in power was accompanied by a five to seven percent increase in available torque throughout the operating range.

On top of the performance strides

are significant gains in fuel efficiency.

Fuel consumption, along the propeller load curve (and at lower speeds), has also been dramatically improved from five to 10 percent, depending on load conditions.

According to **Dave Brower**, chief engineer at Cummins Marine, the improvement could translate into an annual savings of \$6,500 per engine when compared to similar-sized competitive engines, based on 5,000

hours of annual operation with an 80 percent load factor.

To get the improved performance and efficiencies, the company used several new components.

The new Holset HX-80 turbocharger provides a quick response and increased low-speed torque characteristics, the manufacturer claims. New cylinder head designs have yielded improved air flow at all engine speeds; and fuel injection improvements have also contributed to

the K19 engine performance. To get a free copy of the Cummins gaming brochure,

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For more technical information on the KTA 19-M3 engine,

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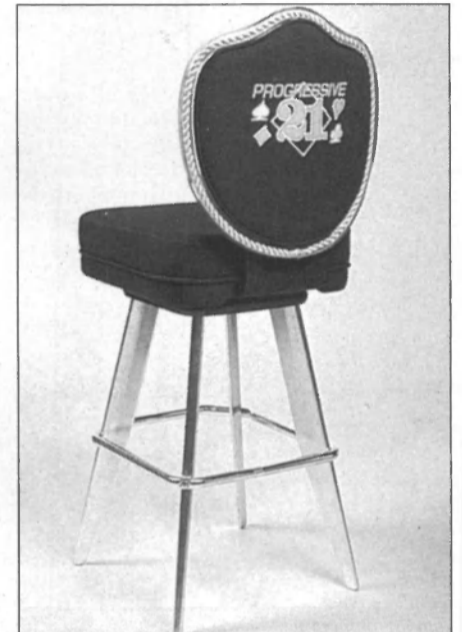
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Infanti seat model SS-11-03 with rope trim (monogramming optional).

Staten Island N.Y.-based Infanti Chair Manufacturing Corp. specializes in the manufacture of stackable chairs and commercial furniture.

The manufacturer, which boasts an impressive list of well known land-based clients in the hotel, restaurant and catering businesses, has been involved in the riverboat casino market for approximately three years, and claims that 30 percent of its current business is based in this growing market.

Besides quality seating products Infanti also makes game chairs for baccarat and poker.

In business for more than 20 years, Infanti Chair Mfg. features a 130,000-sq.-ft. factory, and a skilled workforce which is capable of manufacturing 2,000 completed chairs per day.

In a market segment which stresses a quick turnover and delivery, Infanti is positioned well to deliver for the gaming vessel industry.

Infanti has representatives across the country, as well as in Singapore, Japan, Dubai, Germany, Italy, an England, to name a few.

For more information on seating solutions from Infanti,

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Gaming Vessel Supplement - Legislation

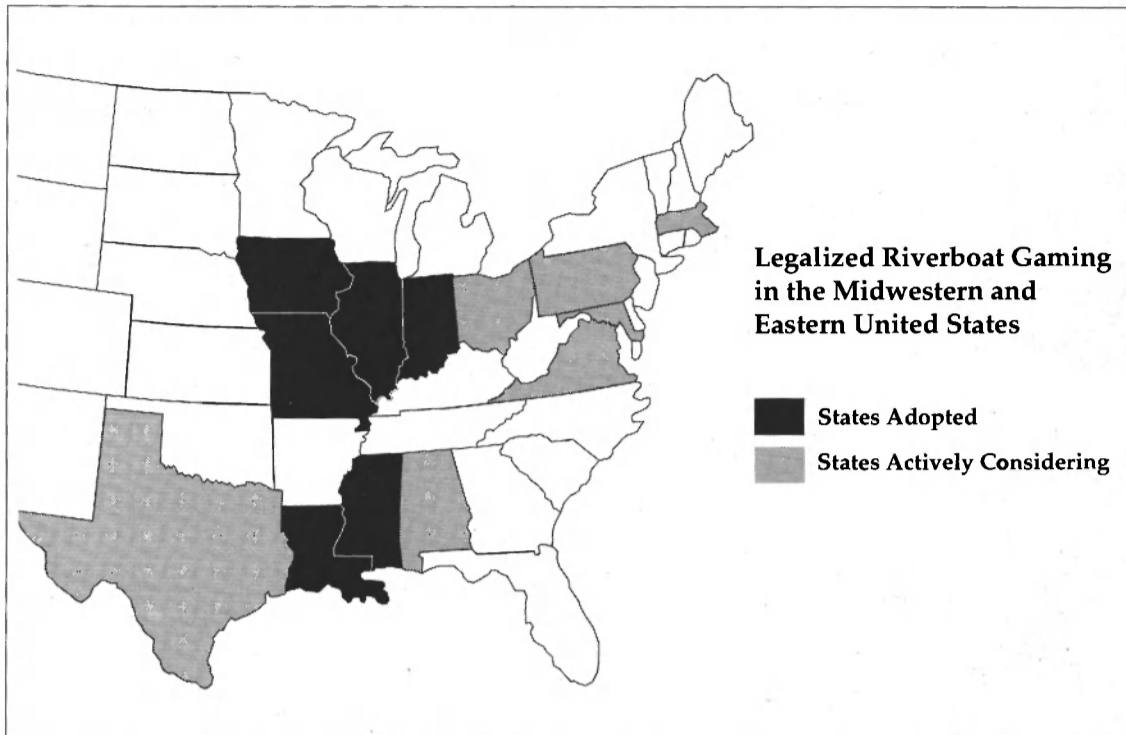
"Mountain State" Mulls Over Issue Of Riverboat Gaming

Lobbying Group Claims Passage Could Bring \$288 Million Economic Impact

One of the hottest state debate topics in the 1994 legislative year will undoubtedly be legalized riverboat gaming. At press time, there are more than a handful of states close to joining the six states—Illinois, Iowa, Indiana, Mississippi, Missouri and Louisiana—which have already given the go-ahead to this growing industry.

The West Virginia Riverboat Gaming Association is a good example of a group lobbying hard for legalization of riverboat gaming. At press time, the

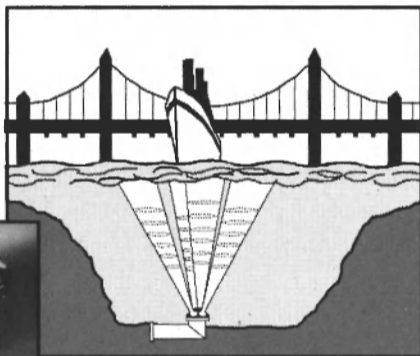
(Continued on page 53)



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Station Casinos To Spend \$65 Million On Missouri Riverboat

Station Casinos has reportedly increased its planned expenditures by \$12 million to \$65 million for its St. Charles Riverfront Station.

The company reportedly believes that the increase in funds will allow

the company to further capitalize on being one of the first gaming operations in the St. Louis area.

Station Casinos plans a \$6 million upgrade of the riverboat *Dubuque Casino Belle's* gaming equipment (including 900 new slot machines to replace the 920 used ones).

Approximately \$1.5 million will be used for a complete upgrade of the boat to provide a clean, new

gaming environment.

About \$3.3 million will be spent on upgrading the barge in preparation for the possibility of continuously docked gaming, and \$1.2 million will be spent on general upgrades.

In the event that Station Casinos receives the continuously docked gaming license it applied to the Missouri Gaming Commission for, the company will spend an additional

\$7 million to add another 900 slot machines and other equipment to the barge facility.

Bayou Caddy's Jubilee Casino Docks At Permanent Site



Bayou Caddy's *Jubilee Casino* is escorted by tugs as it makes its way down the Industrial Channel in Gulfport, Miss., enroute to the Gulf of Mexico. The four-story high floating casino completed a 30-mile journey over open gulf waters to its permanent destination site at Clermont Harbor/Lakeshore, west of Waveland, Miss.

Bayou Caddy's *Jubilee Casino*, a four-story high "New Orleans-style" floating casino, successfully completed a 30-mile journey to its permanent home at Clermont Harbor/Lakeshore, Miss.

The 240-foot long, 72-foot wide, 76-foot high vessel was maneuvered by three tugs through narrow clearances at several bridges along its journey to the Gulf of Mexico. Designed after French Quarter buildings in New Orleans, the floating casino will feature more than 40,000-sq.-ft. of gaming, including 60 table games and 875 slot and video poker machines. *Jubilee Casino* officially opened in mid-November. She is reportedly the only casino on the Gulf Coast to feature nightly headline entertainment. *Jubilee Casino* is owned by Alpha Gulf Coast, Inc., a subsidiary of Alpha Hospitality.

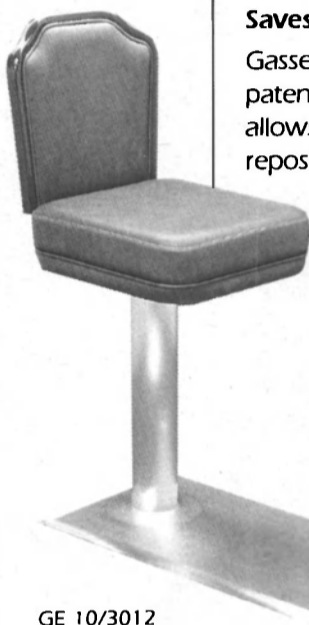
Players International Receives Operator's License

Players International Inc. has received an operator's license from the Riverboat Gaming Enforcement Division of the Louisiana State Police for its as-yet unnamed riverboat casino in Lake Charles, La.

The riverboat casino will employ more than 1,100 people and has a 25,000-sq.-ft. gaming area with more than 800 slot machines and 45 table games. This is the third operator's license awarded by the State of Louisiana. The Players International casino will be the second riverboat to operate in Louisiana. Before the riverboat can open to the public, a checkout cruise will be performed by the Louisiana State Police, following which Players will receive Certificate of Final Approval from the Louisiana Riverboat Gaming Commission.

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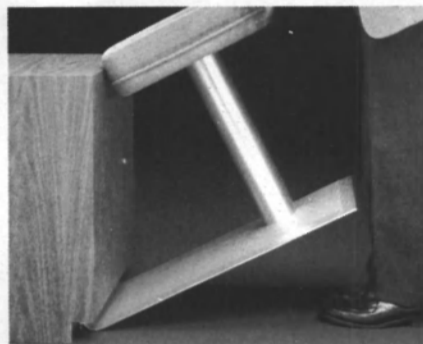
Gasser Chairs exclusive Quick Release is a patented Gaming seating system that allows easy access to gaming machines for repositioning, housekeeping, drop pickup and maintenance.



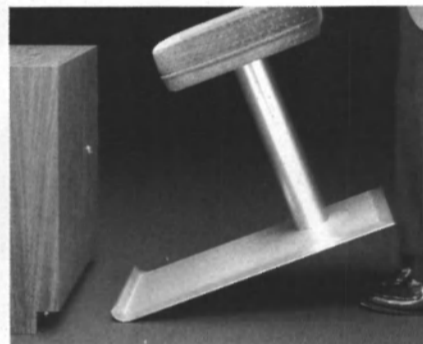
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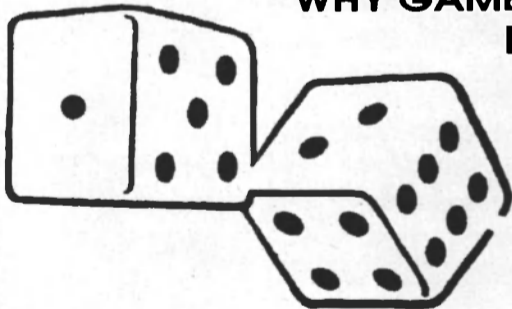


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PROJECT UPDATE

Plans For Home Of Avondale-Built *Catfish Queen* Well Underway

The message "Build it, and they will come," heard in the movie *Field of Dreams*, could be altered slightly to "Revitalize it, and they will come," and applied directly to the riverboat casino market.

Revitalizing a section of a town seems to be a key selling point in most organizations' attempts to capture a riverboat gaming license. While the promises of more employment and tax dollars are strong influences, a well-conceived and planned "redevelopment" of a city section can help one bid stand apart from another. Creating an exciting entertainment destination, which will endure the initial curiosity business flow, is also key in keeping the riverboat gaming business booming, especially as the market becomes saturated.

One such project is Jazz Enterprise's "Catfish Town Project," a revitalization plan for Baton Rouge's unique historical commercial district, Catfish Town.

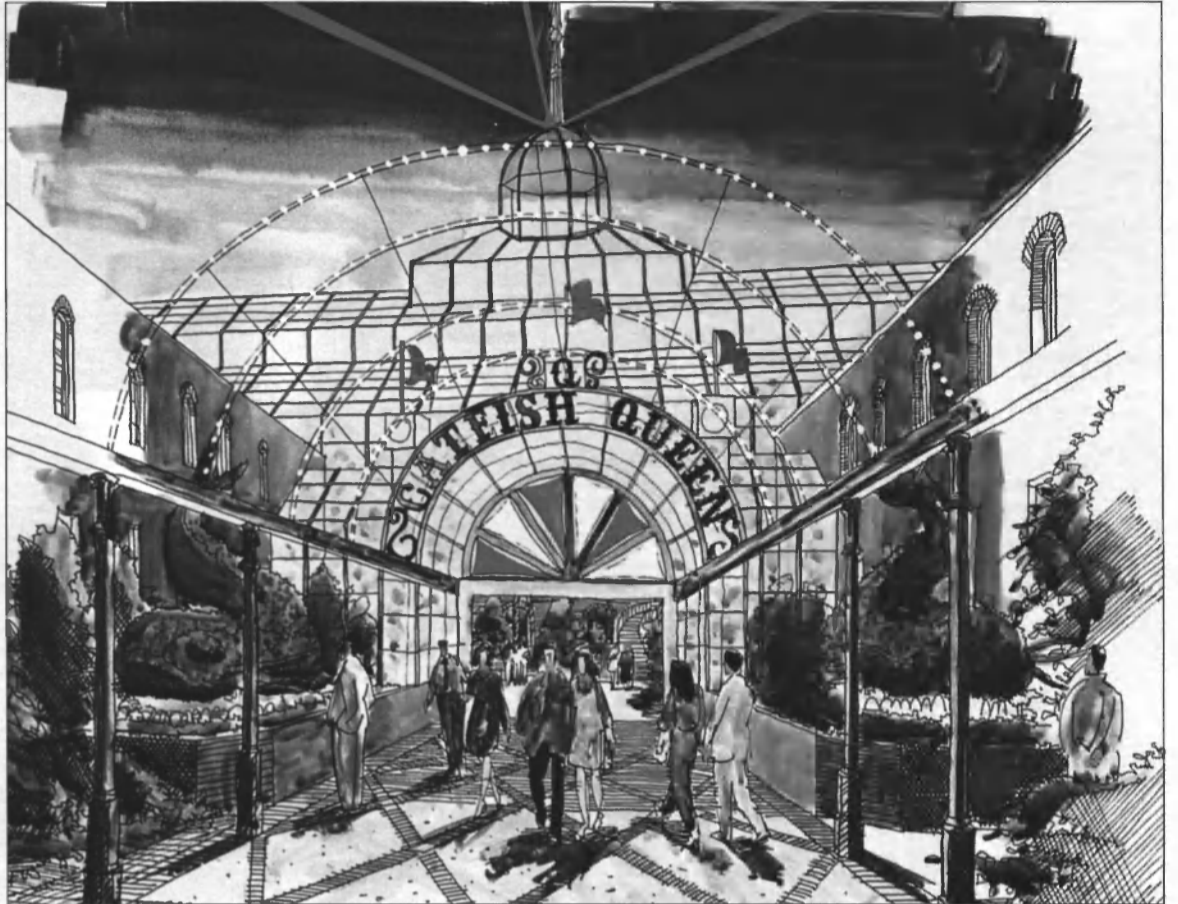
Jazz Enterprises has already contracted with Avondale Boat Div. to build the Rodney E. Lay & Assoc.-designed, 266- by 77-foot *Catfish Queen*, a Detroit Diesel-powered vessel which is due for delivery this spring, and is to be operated by Argosy Gaming.

All this, despite having yet to earn a gaming license from the state of Louisiana.

While the gaming boat in this and any project is the obvious draw, the basis of the project is the revitalization of Catfish Town.

The project, according to Jazz Enterprises, is consistent with the Baton Rouge Riverfront Development Plan of the Downtown Development District.

It will provide a focus for downtown development, which will be stimulated by riverboat gaming allowed under the Louisiana Riverboat Economic Development and Gaming Control Act.



Jazz Enterprise's Catfish Town will be developed and teamed with the Avondale-built *Catfish Queen* to constitute a powerful entertainment draw.

Catfish Town will be renovated keeping the historical character of the district, and will promote the traditional entertainment style of central Louisiana.

According to Jazz's stated objectives, a downtown revitalization program can increase an area's share of private investment and customers. To do so, revitalization plans must improve conditions for investment, and create a physical environment that supports the needs of business and attracts customers. The most successful downtown revitalization plans pay attention to the following principles:

- activity-generating uses must be clustered together;
- pedestrian destinations must be kept within walking distance, or have readily available and easy to use transport;
- primary pedestrian ways must be lined with business which generate activity;
- the district should be an area that can be walked from end to end in no more

than 10 minutes;

- must be connected by frequent, inexpensive transportation;
- the best downtowns contain a variety of public spaces to accommodate a variety of daily activities, and build upon the cultural and historical aspects of the community.

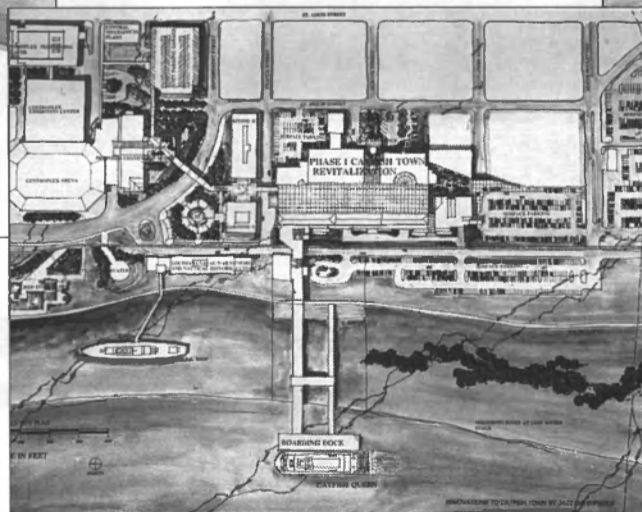
Look at the provided illustrations for a graphical review of Jazz Enterprises' specific plans for Catfish Town.

For additional information on the vessel building capabilities of Avondale, which is also currently building the Boomtown Belle,

Circle 114 on Reader Service Card



The Phase I renovation of Catfish Town includes a glass enclosure for the existing Catfish Town courtyard. Passengers will use an elevated walkway past Louie's on the Levee onto a walkway with moving sidewalks to load the *Catfish Queen*.



The Master Plan for Catfish Town



Future phases of the Catfish Town development could include additional hotel rooms, and retail and entertainment venues in the Maritime One and Maritime Two buildings.

NEW DESIGN



Peterson Builders Unveils Great Lakes Casino Vessel Design

Peterson Builders, Inc. (PBI) of Sturgeon Bay, Wis. announced the development of a Great Lakes Casino Vessel design suited for operation on Lake Michigan for the Indiana gaming market. This new vessel includes 50,000 square feet of gaming area on four decks. Two of these decks have been arranged as mezzanines to enlarge the openness of the area to the entire gaming experience. Gaming decks also have 12-foot ceiling heights, with the uppermost deck rising into a glass atrium for an even greater feeling of openness.

A unique feature of PBI's Great Lakes Casino Vessel design is the VIP Sky Deck gaming area which is serviced by limited access elevators. The other gaming decks are accessed by generous stairways and elegantly-appointed elevators. Additionally, the elevators are sized to accommodate the weight of fully-loaded cash carts for transit between gaming decks and service spaces below deck.

The vessel is designed with passenger comfort in mind, featuring forward and aft flume stabilization systems to provide continuous correction of ship motion. The vessel is powered by twin diesel engines driving fixed-pitch propellers through reverse reduction gears, and driving the vessel to a speed of 11 mph. Maneuvering is controlled by twin-balanced rudders fitted aft with bow and stern thrusters installed.

Air quality, always a concern on this vessel type, is controlled by an efficient HVAC system designed at 900 tons. Ship's service electrical power is supplied by three diesel generators, with emergency power provided by one diesel-driven emergency generator.

"PBI is very excited at the opportunity to construct this state-of-the-art casino vessel for the Great Lakes," said **Mike Hitt**, Peterson's manager of marketing and sales. "We continue to actively follow the Indiana gaming market and are in

serious discussions with several casino operators.

"PBI's vessel design is specifically suited for Great Lakes operation and is not an adaptation of a river boat casino design."

For more information on Peterson Builders' capabilities,

Circle 80 on Reader Service Card



V.I.P. Lounge on the Alton Belle Casino II. Lighting designed by IDI.

Eye On Interior Design: Challenges In Designing A Riverboat Casino

by Erin M. O'Driscoll, assistant editor

From meeting numerous special fire codes and U.S. Coast Guard (USCG) regulations, to special design concerns and complying with the Americans with Disability Act (ADA), designing a riverboat casino requires intense planning to make it functional and profitable.

The Riverboat Gaming Boom

Design firms are starting to recognize the profitability of the

riverboat gaming industry. James P. Colie & Assoc. of Hollywood, Fla. is a design firm which currently focuses on cruise and riverboat refurbishment, but is actively seeking to move into the riverboat casino market. **James Colie**, president, said the Great Lakes is going to open up a lot of business for the riverboat gaming industry. "Maybe one day we'll even see a boat in Chicago,"

(Continued on page 70)

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Trinity Launches Interim Queen Of New Orleans

The first casino boat to operate on the Mississippi at New Orleans was launched by Halter Marine, Inc., a subsidiary of Trinity Industries. The *Queen of New Orleans* is a 245-foot sternwheeler which will have 20,000-sq.-ft. of casino space and will carry up to 1,500 passengers. When completed this Febru-

ary, it will dock at the Poydras Street Wharf behind the New Orleans Hilton Riverside Hotel.

Hilton Hotels Corp. will own the vessel and manage the casinos; New Orleans Paddlewheels Inc. will be the marine operator. The 245-foot vessel will serve as an interim boat until the larger 322-foot, 2,400 passenger permanent *Queen of New Orleans* is completed. It is under construction at Trinity's Equitable Shipyard and is planned for delivery

in November, 1994. At that time the smaller vessel will be renamed and moved to another Hilton facility. **John Dane III**, president of Trinity Marine Group, said his company's success in on-time deliveries of passenger vessels makes Trinity attractive to casino boat owners. For additional information on the casino boat building capabilities of Trinity Marine Group,

Circle 119 on Reader Service Card



Launching of Trinity-built Queen of New Orleans

Star Casino Distributes Tax Revenues; Showboat, Inc. To Increase Its Ownership

After 30 days of operation, *Star Casino*, Louisiana's first riverboat casino, turned over \$1.5 million in tax revenues to the State of Louisiana, the City of New Orleans and the Orleans Levee District. *Star Casino* paid \$1 million to the state in gaming taxes based on "total win" from Nov. 8, 1993 through Dec. 8, 1993, and \$250,000 each to the city and the levee district in boarding taxes.

The riverboat's owner, **Louie Roussel, III** presented checks to Governor **Edwin Edwards**, Mayor **Sidney Barthelemy** and **Robert Harvey, Sr.**, president of the Board of Commissioners of the Orleans Levee District at the *Star Casino*.

Showboat, Inc., which owns 30 percent of *Star Casino, Inc.*, announced plans to acquire an additional 20 percent of the Showboat *Star Partnership*. Showboat will also assume responsibility as managing partner as a result of its new 50 percent partnership.

The additional equity interest in the partnership is subject to approval by the Louisiana Riverboat Gaming Commission and the Riverboat Gaming Division of the Louisiana State Police.

Bally Opens Casino In Mississippi

Bally Manufacturing Corp. officially opened Bally's Saloon & Gambling Hall, the company's first water-based casino docked at Mhoon Landing in Tunica, Miss.

The opening of Bally's Saloon & Gambling Hall brings the number of casinos operated by Bally's to four.

Lady Luck Receives Gaming License For Mississippi

Lady Luck Gaming Corp. received a gaming license from the Mississippi Gaming Commission to operate a casino in Biloxi, Miss.

Lady Luck Biloxi will be a 40,000-sq.-ft. two-story dockside facility with 21,000-sq.-ft. of gaming space. Lady Luck Biloxi will have 660 slot machines and 40 table games.

Lady Luck Biloxi will reportedly be the fourth casino that Lady Luck has opened in the last ten months.

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Chair Manufacturing Corp.

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Legislation-W.V.

(Continued from page 47)

legislation creating riverboat gaming was still being drafted. The following are excerpts from the association's game plan and strategies to legalize riverboat gaming in West Virginia.

The West Virginia Riverboat Gaming Association recently announced a statewide effort to bring riverboat gaming to West Virginia this year. According to the association's spokesman, **John Brown**, a senior vice president with Charles Ryan Associates, a statewide information campaign is being conducted to help answer questions about the riverboat gaming effort. And while the group's draft legislation was incomplete at press time, Mr. Brown did concede that the bill, to be introduced in the West Virginia legislator when the session opens in mid-January, specified seven to 10 locations on the Ohio and Kanawha Rivers.

For example, the results of a recent economic impact study (conducted by Fleishman-Hillard Research and Micro Economics Ltd.) estimate that riverboat gaming could bring 7,000 new jobs to West Virginia, at an average pay of \$24,000 per year. In addition, new taxes generated could exceed \$50 million during the first year of implementation, while the total economic impact is estimated to be more than \$288 million. Counting on the riverboat gaming industry in the state as a powerful tourism and entertainment tool, Mr. Brown estimates that 75 percent of the customers will be from out of state.

The time for legalization is now, contends the association, in order to gain an economic advantage over neighboring states—Ohio, Pennsylvania and Virginia—which are also considering riverboat gaming, Mr. Brown said.

To back its claim of economic progress, the West Virginia Riverboat Gaming Association points to the rapid turnaround of Tunica County, Miss. According to statistics, in June of 1992 unemployment stood at 18.1 percent in this area, and the county budget was just \$3 million. As of early 1993, the unemployment rate had fallen to 4.9 percent, and the county budget had increased to \$11 million. With the advent of riverboat gaming, the unemployment rate along the Mississippi Gulf Coast dropped from 8.2 to 4.3 percent in one year, according to the Mississippi Employment Commission.

While the direct benefit to the state of West Virginia is conservatively set at \$50 million for the first year of operation and \$100 million a year for the second and third year, the West Virginia Riverboat Gaming Association has been trying to drive home the point that all of West Virginia will benefit from the operation, regardless of where the boats are eventually located. For example, the current legislation draft includes a 10 percent revenue allocation set aside for all counties and municipi-

palities regardless of whether the gaming industry resides in their part of the state.

The funds would be discretionary for local government. The 10 percent would be allocated according to population, as provided in the legislation to be introduced in the 1994 session.

According to statistics the association provides, in the first full year of operation in Mississippi, a state of 2.5 million people, \$51.4

million went directly to the state, more than three times the original estimates, and riverboat gaming brought at least \$266 million in capital investment statewide, while producing an estimated 11,600 jobs and an annual payroll of \$170 million.

The West Virginia Riverboat Gaming Association said that experience in other states clearly points to the conclusion that the vast majority of the participating public con-

sider gaming an activity for which participation is limited to discretionary funds.

In fact, the proposed new law in West Virginia sets aside 0.5% of all state revenues dedicated to the treatment and counseling of those with this problem.

The revenues would be earmarked for the Department of Health and Human Resources for distribution to the community mental institutions and other licensed programs.

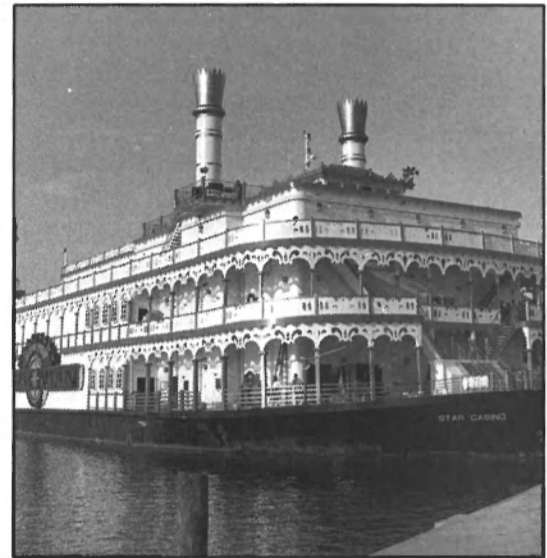
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Gaming Vessel Supplement - New Construction

The riverboat gaming vessel market has been a boon for many shipyards. Here's the rundown on vessels recently delivered, currently being built, or on order. (Source: Maritime Reporter). Publisher not responsible for errors or omissions.

Yard	Vessel Name	Designer	Dimensions	Engines	Owner	Delivery
Atlantic Marine						
				Circle No. 104 on Reader Service Card		
	Alton Belle II	n/a	222 x 66	Caterpillar	Alton Riverboat Gambling	5/93
	Empress II	Rodney E. Lay & Assoc.	230 x 60	Caterpillar	Empress River Casino Corp.	12/93
	Par-A-Dice	John Gilbert	240 x 66	Caterpillar	Greater Peoria Riverboat Corp.	6/94
	Empress III	Rodney E. Lay & Assoc.	280 x 66	Caterpillar	Empress River Casino Corp.	10/94
Avondale Boat Div.						
				Circle 105 on Reader Service Card		
	Boomtown Belle	n/a	250 x 72	Caterpillar	Boomtown	7/94
	Catfish Queen	n/a	266 x 77	Detroit Diesel	Argosy	7/94
Bender Shipbuilding						
				Circle 106 on Reader Service Card		
	Treasure Chest	Bender	260 x 78	Caterpillar	Treasure Chest, Inc.	1/94
	Horseshoe	Bender	295 x 78	MTU	Horseshoe Entertainment	2/94
	Harrah's North Kansas City	Bender	295 x 78	n/a	Promus Companies	5/94
	Casino Rouge	Bender	260 x 78	Caterpillar	Louisiana Casino Cruises	9/94
	Lady Luck	Bender	320x 78	Caterpillar	Lady Luck Casino Hotel	8/94
	Elgin Lady	Bender	400 x 114	Caterpillar	Nevada Landing Hotel & Casino Hyatt	10/94
	Lucky Seven	Bender	232 x 78	Caterpillar	Randolph Riverboat Co., Inc.	7/94
	Crescent City Queen	Bender	360 x 99	Caterpillar	Capital Development Group	11/94
	Grand Palais	Bender	360 x 99	Caterpillar	Grand Palais Riverboat, Inc.	11/94
Gulf Coast Fabrication, Inc.						
				Circle 107 on Reader Service Card		
	Casino Magic Barge	n/a	300 x 90	None	Mardi Gras	3/93
	Gold Coast Casino Barge	n/a	300 x 90	None	Gold Coast Casino	5/93
	Treasure Bay Barge	n/a	300 x 90	None	Bay Vessels, Inc.	7/93
	Boomtown Casino & Hotel Barge	n/a	400 x 110	None	Boomtown	12/93
	Deck Barge	n/a	300 x 90	None	American Int'l Gaming Assn.	3/94

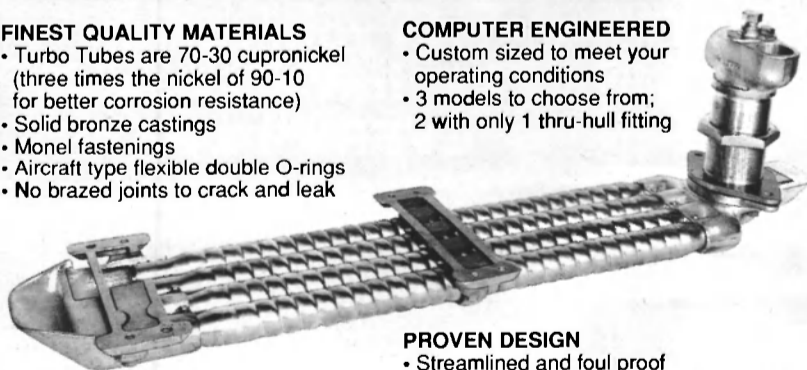
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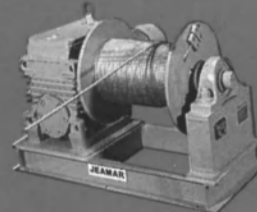
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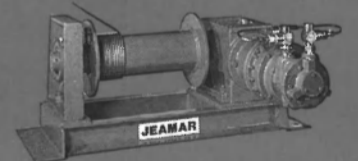


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- Direct drive
- Fully reversing
- Fail-safe braking as standard
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Maritime Reporter/Engineering News

Yard Vessel Name	Designer	Dimensions	Engines	Owner	Delivery
Biloxi Belle Barge	n/a	444 x 116	None	Belle Casinos, Inc.	3/94
Grand Casino Barges (2)	n/a	300 x 148	None	Grand Casinos	4/94
Homeport Marine Services					
Treasure Bay	n/a	460 x 116	None	Treasure Bay Casino & Resort of Tunica	11/93
Houma Fabricators					
Paddlewheeler	n/a	292 x 74	Cummins	n/a	2/94
Paddlewheeler	n/a	292 x 74	Cummins	n/a	5/94
Paddlewheeler	n/a	292 x 74	Cummins	n/a	8/94
Leevac Shipyards, Inc.					
President Casino (Mo.)	n/a	270 x 65	Caterpillar	n/a	6/93
Players Riverboat Casino II	n/a	240 x 65	Cummins	n/a	11/93
President Casino (La.)	n/a	n/a	Caterpillar	n/a	1/94
Casino Vessel	n/a	210 x 62	Cummins	Charlottesville Riverboat Entertainment, Inc.	6/94
Patti Shipyards, Inc.					
Casino Queen	n/a	447 x 70	Cummins	Casino Queen, Inc.	6/93
Service Marine Industries					
Southern Star	SMI	210 x 78	Caterpillar	Harrah's	12/93
Unnamed	SMI	210 x 78	Caterpillar	Harrah's	1/94
Isle of Capri	SMI	254 x 78	Caterpillar	Casino America/La. Downs	2/94
Paddlewheeler	SMI	254 x 78	Caterpillar	Boyd Gaming Corp.	8/94
Paddlewheeler	SMI	254 x 78	Caterpillar	Boyd Gaming Corp.	10/94
Paddlewheeler	SMI	254 x 78	Caterpillar	Harrah's	8/94
Trinity Marine Group					
Two (2) Paddlewheelers	Rodney Lay & Assoc.	245 x 62	Caterpillar	Hilton/ New Orleans Paddlewheel	2/94
Paddlewheeler	Trinity Marine	322 x 90	Caterpillar	Hilton/New Orleans Paddlewheel	11/94
Paddlewheeler	Rodney Lay & Assoc.	266 x 77	Cummins	Bally	11/94

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Barataria Completes Hull Lofting For Service Marine-Built Casino Vessel

Barataria Lofting Co., Inc. of Marrero, La. has completed computer lofting services on a 254- x 78- x 14-foot casino vessel being built at Service Marine of Morgan City, La.

The job for Barataria entailed lines fairing, offset generation and NC tape code for all of the structural plate parts for the hull, including the main deck, shell and flange plates. Approximately 222 Nest Tapes were delivered containing 1,033 unique piecemarks, totaling 600+ tons of 'green' steel.

Cutting services were provided by Jeffrey's Steel Co., Inc. of Mobile, Ala., and NAMASCO, based in New Orleans.

Currently Barataria Lofting is also providing lofting services to Avondale Industries, Boat Div., for its 266-foot *Catfish Queen*. The scope of work for this job includes lines fairing, offset generation and NC tape code.

For additional information on Barataria Lofting,

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Circle 211 on Reader Service Card

PSI Profits From Gaming Vessel Market

PSI, a marine contractor based in New Orleans, combined its commercial flooring experience and marine work to gain contracts for deck covering on riverboat casinos under construction in the New Orleans area.

PSI has already completed decking three area riverboat casinos: *Players Riverboat Casino I*; *Harras's Joliet I*; and the *Star Casino*. Three additional vessels are under contract to PSI: *Players Riverboat Casino II*; *Harras's Joliet II*; and *Dubuque Riverboat Casino*. The contracts total approximately \$50,000 to \$140,000 each.

PSI's commercial experience allows the company to handle the elaborate and decorative aspects of installing more than 3,500 yards of custom carpeting in a typical riverboat; while the company's marine experience has taught them how to install carpeting on a welded steel deck which requires extensive leveling and fairing.

"Decking riverboat casinos came as a natural extension of our marine work," said **Jake Giardana**, general manager of flooring at PSI. "In this type of work, there is no one in this region who has the capabilities and the experienced crew we have."

Besides requiring a more decorative approach in comparison to conventional commercial vessels, Mr. **Giardana** said the products must meet American with Disabilities Act requirements. PSI, founded in 1981, is also engaged in tank cleaning, chemical cleaning, gasfreeing, hydroblasting and offshore platform abandonment cleaning. For more information on the products and services of PSI,

Circle 11 on Reader Service Card

Circus Circus Announces Louisiana Application For Riverboat Gaming Facility

Circus Circus Enterprises Inc. has reached an agreement in principle with American Entertainment Corp. to develop and operate a riverboat gaming facility in Chalmette, La.

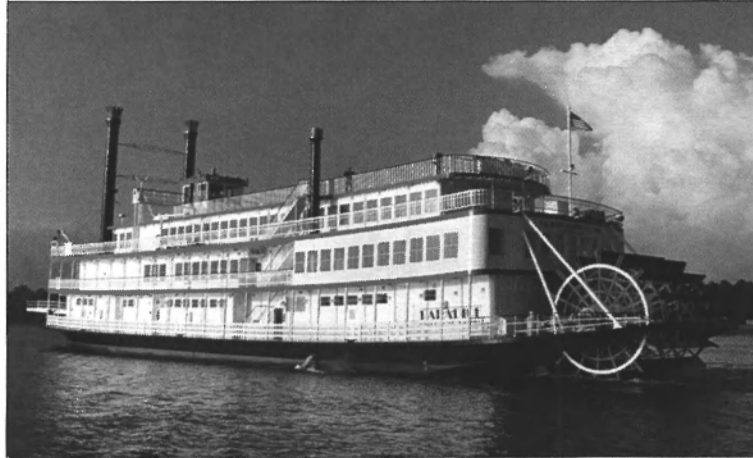
American Entertainment Corp. has reportedly received a certificate of preliminary approval to operate a gaming vessel at the Chalmette site from the Louisiana Riverboat Gaming Commission.

Circus Circus and American Entertainment will reportedly jointly own the facility, with Circus Circus managing it.

Maritime Reporter/Engineering News



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"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.

FastTrack
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.

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Circle 225 on Reader Service Card

Outstanding Passenger Vessels & Ferries '93

(Continued from page 33)

pumps with precharged 12-gallon expansion tanks are used for fresh water and seawater.

The electrical system includes two Northern Lights generators: a M-439D 36-kW and a M-843 12-kW.

For more information on Westport Shipyard, Inc.,

Circle 1 on Reader Service Card

KENAI EXPLORER II EQUIPMENT LIST

Main engines	Detroit Diesel
Silencers	Westport
Propellers	Michigan Wheel
Fuel filters	Triple Racor
Bow thruster	Wesmar
Steering	Jastram
Rudders	Westport
Roll stabilization	Naiad
Main generator	Northern Lights
Auxiliary generator	Northern Lights
Radar	Furuno
Receiver	Furuno
Loran	Furuno
Sounder	Furuno
Autopilot	Com-Nav
Electronics	Northern Electronics

Vessel: Captain Neal Burgess
Type: Ferry
Yard: Washburn & Doughty

Washburn & Doughty Associates of East Boothbay, Me. delivered the third in a series of ferries for the State of Maine Department of Transportation, *The Captain Neal Burgess*, in July 1993.

The Captain Neal Burgess provides year round service between Rockland and North Haven, Me.

The vessel is a twin screw 130-foot passenger/auto ferry accommodating 250 passengers and 17 vehicles each, built to U.S. Coast Guard Sub-Chapter H.

The Captain Neal Burgess was designed by Rodney E. Lay & Associates of Jacksonville, Fla.

The design is a double-chined hull with molded form forward and faired skeg aft for fuel efficient operation; a rounded stern for efficient displacement speed operation; and flaired bow form for smoother rough-water performance.

Two Caterpillar 3408 402-hp engines drive the boat at 12 knots. Three Detroit Diesel 3-53 30 kW generators provide power for the ferry.

For more information on Washburn & Doughty,

Circle 115 on Reader Service Card

THE CAPTAIN NEAL BURGESS EQUIPMENT LIST

Main engines	Caterpillar
Generators	Detroit Diesel
Reduction gear	Twin Disc

Vessel: Explorer
Type: Excursion boat
Yard: SeaArk Marine, Inc.

SeaArk Marine, Inc., Monticello, Ark., delivered the excursion boat *Explorer* to Captain Dick's Marina in Murrells Inlet, S.C. in June 1993.

The 54-foot *Explorer* seats 72 passengers but is U.S. Coast Guard certified to accommodate 90 people. Used for wildlife/nature tours, the

Explorer is powered by twin 150-hp outboards and attained 25 mph with crew onboard and 18.5 mph in a fully loaded condition. *Explorer's* hulls are constructed of 3/16-inch all-welded aluminum. The *Explorer* also features a removable bow ramp, 100 gallon fuel tank, 100 gallon fresh water system and twin marine sanitation systems. For more information on SeaArk Marine, Inc.

Circle 116 on Reader Service Card

MR/EN's Marine Newsletter Keeps You In Touch

Three times a month, 36 times a year, Maritime Reporter's Marine Newsletter keeps executives in touch with the latest activity in the maritime industry, including timely coverage of contracts and news particular to passenger vessel owners and builders. For subscription information, call (212) 477-6700.

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—Barry Fuller, General Manager of the Mass. Steamship Authority



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3 Series 700 Luxury Seating

4 Series 100 Weather Bench and Series 200 Table and Seats



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Circle 241 on Reader Service Card

Navy Spends \$425,000 On Battle Simulation Software

The U.S. Navy has issued a \$425,000 contract to Software Sorcery for the purchase of Naval Electronic Software Warfare System Emulation Trainers (NEWSET) for the ULQ-16 radar detection system.

These trainers combine a state-of-the-art authoring system with

playback software and a signature recognition card to create an environment that accurately simulates complex electronic warfare scenarios on a cost-effective PC platform.

By emulating equipment such as the AN/ALR-66, SLQ-32V, ULQ-16, APR-39, ALR-67 and other systems, the NEWSET Playback Program provides ultra-realistic representations of electronic warfare environments. The movements of aircraft, surface vessels, sub-surface vessels

and missiles are all depicted on a true-to-life radarscope display, along with associated data for the course, speed, range and bearing of targets.

Under a separate \$750,000 contract, NAVAIR has also purchased 140 Aviation Multifunction Electronic Warfare Trainers (AMEWT) from Software Sorcery.

For more information on Software Sorcery,

Circle 53 on Reader Service Card

Lifestream To Supply Watermakers For Navy's AGOR-24 Research Vessel

Lifestream Watersystems, Inc., Huntington Beach, Calif., has been selected to build two watermakers for AGOR-24, a 273-foot oceanographic ship being constructed at Halter Marine, Moss, Point, Miss., a division of Trinity Marine Group, to be delivered to Scripps Institute of Oceanography.

The watermakers will have a 4,000-gallon/day capacity and will be skid-mounted with media filter, cartridge filters, booster pump, seawater preheater, automatic backflush system and chemical cleaning system. They will be built to operate at capacity in water from -2 degrees C to 30 degrees C.

The machines will be a customized modification of the Lifestream SW line of continuous duty watermakers available in output from 400 to 8,000 gallons per day. The SW line has found applications on research vessels, in the commercial marine industry and for land based use.

For more information on Lifestream watermakers,

Circle 75 on Reader Service Card

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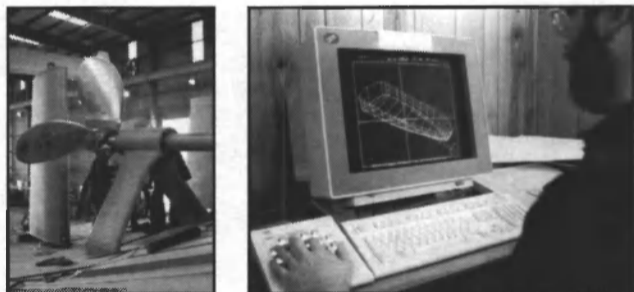
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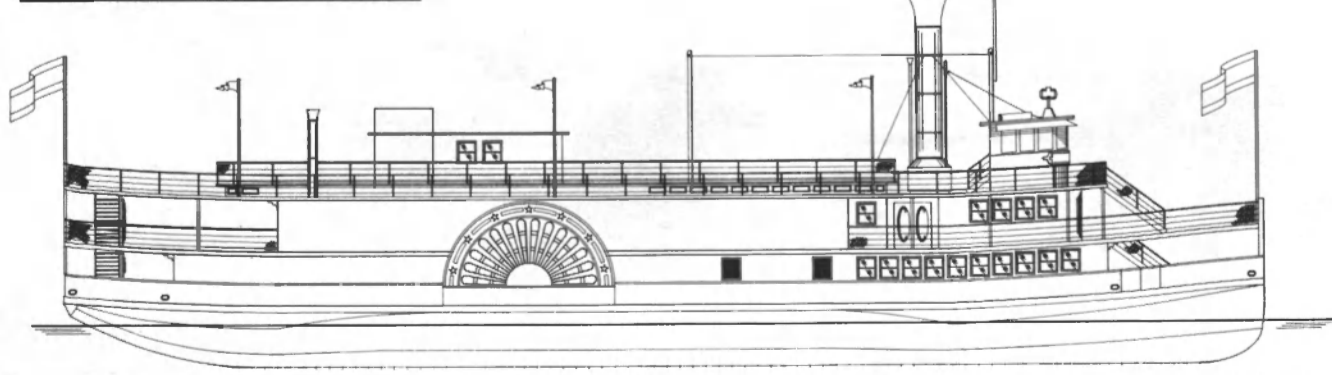
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ISOA Executive Committee Deals With Offshore Support Issues

At a recent meeting, the executive committee of the International Support Vessel Owners' Association (ISOA) discussed the medium- to long-term prospects of the offshore support vessel (OSV) industry and the implications of the fact that over 60 percent of the world's OSV fleet is now older than 11 years. "ISOA is concerned that in the long term (day rates) are still insufficient to permit any serious consideration of eventual fleet replacement," said ISOA President **Brian Butler**, who suggested that offshore operators should seek more co-operative, long-term arrangements with charterers for reasonable returns.

The meeting concluded that the tendering process for procuring services is unnecessarily complex, and that a simplified tendering process would save money and improve efficiency; the committee also confirmed its intention to establish an industry-wide database of accident figures to allow operators to gauge their performance against industry standards.

ISOA is the trade association of international support vessel owners, comprising 25 companies and most offshore operators, which collectively own over half the world's support vessel fleet.

For more information on ISOA,

Circle 76 on Reader Service Card

IBEX: A Congregation Of Boatbuilders

Marine professionals will converge on the Miami Radisson Centre this February 10-12 for the International Boatbuilders' Exhibition and Conference (IBEX), which provides an educational forum for marine professionals. **Bob Livingston**, CEO of Grand Banks Yacht/American Marine, praised the 1993 show for "the quality of speakers, the free interchange of ideas and technical staff manning the booths in the exhibit hall."

The 1994 version of IBEX combines proven elements from shows past with some interesting changes. Again it will showcase the latest equipment, materials, products and services available to the marine industry. Also featured are useful seminars for marine professionals, a total of 41 this year in five distinct

subject areas: Marine Systems and Accessories; New Construction; Design and Engineering; Survey and Repair; and Business Management and Marketing.

Differences for the 1994 IBEX are an expanded exhibition hall to accommodate an estimated 70 more booths than last year. "We have more exhibitors this year," said **Gina Amatruda**, group show director for CMC, the organization managing the convention. "This year's show is twice the size of the inaugural event two years ago." Aside from differences in sheer size, the lineup of seminars and special events this year foreshadow an event not to be missed by anyone in the boatbuilding trade. "Our seminars this year are more diverse," Ms. Amatruda continued. "We take into account business aspects (of boatbuilding) as well

as construction and design." The most important thing about this year's bigger event, she said, is that it will provide even more members of the boatbuilding community the opportunity to network with and learn from their peers, enhancing all their boatbuilding enterprises.

Highlights of the speaker sessions/seminars include the keynote forum, presided over by **Bob Gowen** of Mercury Marine and **Mike Kelsey** of Palmer Johnson. Entitled "Where Are We Headed, and How Do We Get There?", a look at the future of boatbuilding in America and beyond.

The conference program (please see chart below for complete program) features numerous helpful topics and noted speakers in each segment. Examples include "Engineering Stringers, Bulkheads, and

Transverse Frames" from the Design and Engineering session, presided over by naval architect **Rob Schofield** and **Mike Russell** of the Naval Surface Warfare Center, which will examine the kinds of internal stiffening appropriate to given laminates; and "Selecting the Right Propeller (and associated underwater gear)," given by **John Rose** of Rolla S.P. Propellers, **Lou Codega** of Atlantic Associates and **Bob Kress** of Attwood Corporation, which will deal with blade configuration, metallurgy, and matching propeller to purpose. The Systems and Accessories session will include "Fuel Tanks: the Good, the Bad, and the Ugly," given by **Ernie Braatz** of BOAT/U.S., **Tom Hale** of the American Boat and Yacht Council, **Bruce Pfund** of Professional Boatbuilder/Advance Process Technology, and

THURSDAY, February 10

Time	New Construction	Design & Engineering	Business Management	Systems & Accessories	Survey & Repair
8:30 - 10:00 a.m.	101 Keynote Forum: Where Are We Headed, and How Do We Get There?				
10:15-11:45 a.m.	201 Closed-Mold Processing Alternatives for Large and Small Parts	202 Rethinking Layouts for the Modern Power Cruiser	203 Controlling the Cost of Workers' Comp	204 Fuel Tanks — the Good, the Bad, and the Ugly	205 Transom Problems and Solutions
3:30-5:00 p.m.	301 Pre-production Testing of Composite Materials and Methods	302 Case Studies in CAD/CAM Capability	303 Rethinking Boatyard Management: A Case Study	304 Outboard Technology — From the Mechanic's Point of View	305 Cost-Effective Abrasives and Sanding Equipment

FRIDAY, February 11

8:30-10:00 a.m.	401 Real-World Quality Control (Part 1: Understanding How A Quality System Functions)	402 Designing Boats for Ease of Maintenance	403 Writing Effective Boat Warranties (And Backing Them Up)	404 Installing Diesels — Problems and Solutions (Part 1)	405 Prepping Boat Bottoms: A Tightening Regulatory Noose
10:15-11:45 a.m.	501 Real-World Quality Control (Part 2: Using Quality "Tools" To Make An Immediate Improvement)	502 Engineering Stringers, Bulkheads, and Transverse Frames	503 Regulatory Compliance: What's Headed Our Way?	504 Installing Diesels — Problems and Solutions (Part 2)	505 Boatyard Liability: Where Do You Stand in the Eyes of the Court?
3:30-5:00 p.m.	601 Cost-Efficient Vacuum Bagging	602 Ensuring Stability In Planing Small Craft	603 Reorganizing the Manufacturing Plant	604 Cathodic Corrosion Protection (Part 1:	605 Handling Hurricanes: What We Have (And Haven't) Learned

SATURDAY, February 12

8:30-10:00 a.m.	701 Handling Large Boat Construction Projects	702 Selecting the Right Propeller (And Associated Underwater Gear)	703 Starting a New Boat Company	704 Troubleshooting Pumps and Plumbing	705 Using and Troubleshooting HVLP Spray Equipment
10:15-11:45 a.m.	801 Boatbuilding with Thermoplastics: The technology of Fiberglass Replacement	802 Sound Reduction: The Search for Peace and Quiet	803 Cost-Accounting Strategies (Part One: Estimating and Tracking Costs)	804 Cathodic Corrosion Protection (Part 2: Impressed Current Systems)	805 A Surveyor's Perspective on Composite Failures
3:30-5:00 p.m.	901 Flow Coaters & Resin Rollers: More Efficient Laminating with Lower Emissions	902 Reducing Boat Weight — Inside and Out	903 Cost-Accounting Strategies (Part Two: Fine-tuning the System & Making It Work)	904 Choosing Engine Controls: Sorting Out the Alternatives	905 Coatings Roundtable: What Works & What Doesn't

Raleigh Wilson of Inca Molded Products, which will examine the problems surrounding fuel tank design, construction and installation; and also a two-part seminar on "Installing Diesels — Problems and Solutions," given by **David Brower** of Cummins Marine and his staff, focusing on diesel installation, what can go wrong and how to prevent it.

Aside from the sessions, there are also Free Exhibitor Workshops, from "MultiSurf 3-D Modeler," a demonstration of the MultiSurf three-dimensional design program for PCs by **Michael Shook** and **John Letcher** of AeroHydro, to "Respiratory Protection in the Workplace," given by **Mike Martinez** and **Bruce Penning** of 3M OH & ESD, an examination of the respiratory hazards of exposure to some boatbuilding materials dealing with what protective

measures should be employed and when.

Special IBEX events include an opening night reception in the exhibit hall, where complimentary cocktails and hors d'oeuvres will be served, and three luncheons, two sponsored by Interlux Yacht Finishes and the other by Cook Composites & Polymers.

IBEX 1994 has been endorsed by five well-known trade organizations: the American Boat and Yacht Council (ABYC), the Society of Boat and Yacht Designers (SBYD), the American Boat Builders and Repairers Association (ABBRA), the National Association of Marine Surveyors (NAMS), and the Composites Fabricators Association (CFA). Special group admission, hotel, airline and rental car rates are available for IBEX participants. For more information on IBEX, contact CMC at (203) 852-0500, ext. 295.

NORSHIPCO Completes Sovereign Of The Seas Work



The *Sovereign of the Seas* entered NORSHIPCO's floating drydock "Titan" for cleaning and painting of the underwater hull, a fin stabilizer overhaul, engine room repairs, sea valve repairs, propeller blade seal renewals and miscellaneous drydock repairs. The ship was in and out in seven days. For more information on the capabilities of NORSHIPCO,

Circle 91 on Reader Service Card

Allison Engine Provides High-Speed Propulsion

Allison Engine Co. has provided marine gas turbine propulsion engines since 1973 in a variety of applications including commercial and military hydrofoils, destroyers, corvettes and luxury yachts. The engines which have supplied these marine services are the 501-KF and the 570/571-KF.

The 501-KF has been uprated twice: first by increasing the engine firing temperature from 1,800° F to 1,860° F, and then by increasing the firing temperature to 1,935° F. The second uprated model is called the 501-KF5. Overall, the 501-KF upratings offer more power and higher fuel efficiencies with no increase in engine weight and a maximum number of common parts.

The 571-KF engine offers many improvements geared to increase life and reduce costs. The improvements include: newly designed annular combustion; improved turbine vane coatings; long-life hot gas path thermocouples; single crystal first turbine blades; strengthened compressor blades; and compressor variable vane schedule optimization.

For information on the 501-KF and/or the 570/571-KF from Allison Engine Co.,

Circle 42 on Reader Service Card

Bollinger To Build 145-Foot Utility/Supply Boat

Bollinger Machine Shop & Shipyard of Lockport, La. and Gilbert Cheramie Boats of Golden Meadow, La. agreed in principle on the construction of a 145-foot utility supply vessel. The boat, for service in the offshore marine industry, is scheduled for an October 1994 delivery. The contract provides an option for one additional vessel, to be delivered in March of 1995. The project will be managed by **Brian Cheramie** for the owner, and by

Charlie Hebert for the shipyard. Bollinger began operation in 1946 and is a full-service ship construction and repair company, with facilities in Algiers, Harvey, Larose and Lockport. For free information on the services of Bollinger,

Circle 43 on Reader Service Card

Intergraph Makes New CAD Package Available

Intergraph Corp. announced the availability of MicroStation Version 5 computer-aided design (CAD) software for Windows/DOS and Windows NT. "Along with added functionality and flexibility, the shipment of MicroStation Version 5 brings CAD users the most comprehensive drafting and design engine available," said **Lloyd Tarver**, executive director of MicroStation Product Center.

MicroStation Version 5 provides users with advanced usability tools such as custom linestyles and simplified menus. It also offers a large selection of new two-dimensional detailing and three-dimensional modeling features, as well as integrated photorealistic rendering. The new version is also able to read and write AutoCAD .dwg files, making its coexistence with other CAD packages easy. MicroStation is the graphics nucleus for more than 80 percent of Intergraph's leading application solutions. It is a popular stand-alone drafting/design product and CAD engine for Synergy third-party application software. For free information from Intergraph on the new MicroStation Version 5,

Circle 44 on Reader Service Card

Sulzer S20 Engines Now Offer Standardized Ratings

Sulzer S20 diesel engines are now offered at the same power and speed ratings for operation on both heavy fuel oil and marine diesel oil. Available with four, six, eight and nine cylinders, the S20 now has a maximum continuous output of 160 kW/cylinder (217.5 bhp/cylinder) at 1,000 rpm, regardless of the type of fuel used. It covers the power range from 460 to 1,440 kW (620-1,960 bhp) over a speed range of 720 to 1,000 rpm.

The standardized ratings give a 10 percent increase in output on heavy fuel oil to exactly the rating already employed for installation using marine diesel oil. With a 200mm cylinder bore and a 300mm piston stroke, the Sulzer S20 is purpose-designed for pier-to-pier continuous operation on heavy fuels. It has real 700 cSt heavy fuel capability, being able to accept fuels up to ISO class RMH55 in generating set applications. Along with the standardized ratings, the engine specification including the turbocharging match has been unified. For free information from Sulzer on the S20,

Circle 46 on Reader Service Card

Maritime Reporter/Engineering News

Exhibitor List (Partial)

3M Marine Trades	Jukova, Ltd.
ABI Inc.	King Plastic Corporation
ACCO Industrial Controls	Lantor, Inc.
AFI, Inc./Marinco	Lowrance Electronics, Inc.
AIREX Ltd.	Magnetek
ATC Chemical Corporation	Magnum Industries
Ad-Tech Plastic Systems Corp.	Marine Air Systems, Inc.
Advanced Textiles, Inc.	Marine East
AeroHydro, Inc.	Marine Management Resources, Inc.
Airtech International, Inc.	Meguiar's, Inc.
Alpha Resins Corporation	Moeller Manufacturing Co., Inc.
Alpha Systems/Pemco, Inc.	Mollicam
American Boat & Yacht Council (ABYC)	Mustang Marine Diesel Corp.
American Boatbuilders & Repairers Association (ABBRA)	National Association of Marine Surveyors (NAMS)
Ancor Marine	Newport Adhesives & Composites
Aristech Polyester Distribution	New Wave Systems, Inc.
Armstrong Nautical Products	Nicro Marine
Ashland Chemical, Inc.	Nida-Core Corporation
Atlantic Marine Products Corp.	Norac
Attwood Corporation	North End Marine
AutoSHIP Systems Corp.	Oceana Limited
BASF Corporation	Owens-Corning
Baltek Corporation	Pawnee Industries
Barracuda Technologies, Inc.	Performance Paint Yacht Refinishing
Beede Electrical Instrument Co., Inc.	Perko, Inc.
Binks Manufacturing Company	Plascore, Inc.
Brunswick Technologies, Inc.	Plum Creek
C. Cushions, Inc.	Polimex/ProBalsa
C.J.'s Inc.	PolyGard, Inc.
Charles A. Perry & Co.	Polyfoam Products, Inc.
Charles Industries	Precision Valve Corp.
Chemlease, Inc.	R.B. Grove, Inc.
Clark-Schwebel Distribution Corp.	Reichhold Chemicals, Inc.
ClickBond X-Serts	Reinforced Plastics/Elsevier
Coast-Line International Dist.	SETEC, Inc.
Composites Fabricators Association (CFA)	SP Systems, Inc.
Cook Composites & Polymers	SSS Marketing, Inc.
Dynabrade, Inc.	Shape Plastics Corporation
Dynatron/BondoCorp.	Shipyard/METCO
E.S. Ritchie & Sons, Inc.	Sika Corporation
ES Manufacturing, Inc.	Society of Boat & Yacht Designers (SBYD)
Electric Development Co., Inc.	Southco, Inc.
FRP Supply	Spirakut Products
Fein Power Tools, Inc.	SprayCore Composites, Inc.
Ferro Corporation	Starlite Industries, Inc.
Ferro Industries, Inc.	Structural Composites, Inc.
Fiber Glass Industries	Superior Fiberglass & Resins
FiberCote Industries, Inc.	T.R. Industries
Fiberglass Coatings, Inc.	Taco Metals, Inc.
Foam Supplies, Inc.	Taconic Process Materials Div.
Framco Environmental Technologies	Target Enterprises
Freesman Marine Equipment, Inc.	Teak Isle Mfg., Inc.
Frees, Inc.	Teakdecking Systems
GEM Products, Inc.	Tech Textiles USA
GLS Fiberglass	Teleflex, Inc.
GS Manufacturing	Temple Marketing
Georgia Pacific Corporation	Textile Technologies Industries, Inc.
Gibco Flex-Mold	The Dexter Corporation
Glas-Craft/RTM Systems	The Evolution Company
Gourgeon Brothers, Inc.	Tides Marine, Inc.
Gross Mechanical Laboratories, Inc.	Titeco
Hartco, Inc.	Transmatic, Inc.
Hawkeye Industries, Inc.	Tricel Corporation
Headhunter, Inc.	Trident Rubber, Inc.
Heritage Forest Products, Inc.	Triton Systems (TMCS Inc.)
Hexcel Corporation	U.S. Marine Marketing, Inc.
ITW Adhesive Systems	U.S. Paint Corp.
Interlux Yacht Finishes	Ultra Marine Products, Inc.
Interplastic Corporation	United Resin Corporation
Inventive Machine Corp.	Venus-Gusmer
Jamestown Boat Yard	Vetrotex Certain Teed Corporation
Johnson Pump	Vetus denOuden, Inc.
	Westwind Composites

International Ice Patrol 1994 Announces Services

In February or March of 1994, depending on iceberg conditions, the International Ice Patrol (IIP) will commence its annual service of monitoring and broadcasting the southeastern, southern and southwestern limits of icebergs in the vicinity of the Grand Banks of Newfoundland. Reports of ice in this area will originate from passing ships and IIP reconnaissance flights. During the ice season, IIP will broadcast two message bulletins each day and a daily radiofacsimile chart containing ice information to inform ships of the extent of the estimated limits of all known ice.

For information on the complete International Ice Patrol announcement of services, containing the updated broadcast times and stations, contact Commander, International Ice Patrol, 1082 Shennecosset Rd., Groton, Conn. 06340.

HHI Wins India Pipeline Contract

Hyundai Heavy Industries Co., Ltd. (HHI) has won a contract for laying the South Bassein-Hazira trunk pipeline, a crucial part of the multi-million-dollar gas flaring reduction project in India's western offshore area.

The trunk pipeline reportedly costs \$221 million. The pipeline will allow all of the natural gas produced in India's offshore basins to be transported to Hazira in Gujarat, eliminating wasteful flaring of a precious natural resource.

The project is expected to be completed before 1995.

Cleveland Gear's Fluid Strainers Reduce Maintenance Time

Cleveland Gear Co. offers a new brochure describing its series of manual and motorized Hellan Fluid Strainers that reduce operating and maintenance time from hours to seconds when compared with basket-type units. Service includes straining fuel oil, lube oil, fresh water, and sea water for cooling, process, waste treatment, fire prevention and general industrial applications. Instead of trapping solids in a basket which must then be removed for frequent clean-outs, the Hellan strainer removes the solids from the flow, without stopping the flow or disassembling the unit. Manual or automatic, clean-out reportedly takes about thirty seconds.

Hellan strainers are made in accordance with the codes and standards of: American Bureau of Shipping, Underwriters Laboratories, American Society of Mechanical Engineers, National Fire Sprinkler Association, and the Fluid Control Institute. For more information on obtaining the brochure,

Circle 25 on Reader Service Card

Shell Puts Saab TankRadar In Five New VLCCs

The Korean shipyard Daewoo has ordered Saab TankRadar level gauging systems for Shell's five new double-hull VLCCs. The tankers are to be delivered during 1994-1995.

Including these newbuildings, Shell now has 21 tankers equipped with Saab's radar level gauges.

For more information on Saab Marine Electronics,

Circle 65 on Reader Service Card

Ocean Vision Electronic Chart System Introduced

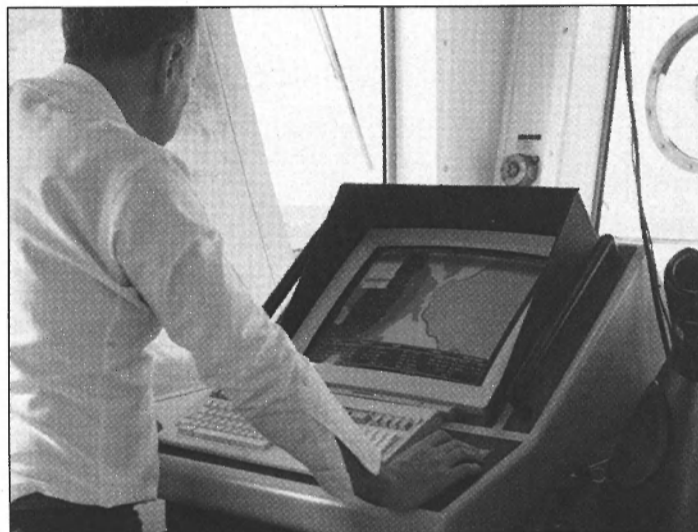
Ocean Vision Systems of Vancouver, Canada recently introduced the Ocean Vision Electronic Chart System, a system the manu-

facturer claims has taken the ECDIS technology a step forward. Ocean Vision Systems reportedly has the capacity to handle enormous amounts of information from a hard drive. The on-screen result: a seamless chart that can cover areas as large as the entire west coast of North America, reportedly with flexibility and speed.

For additional information on the system from the manufacturer,

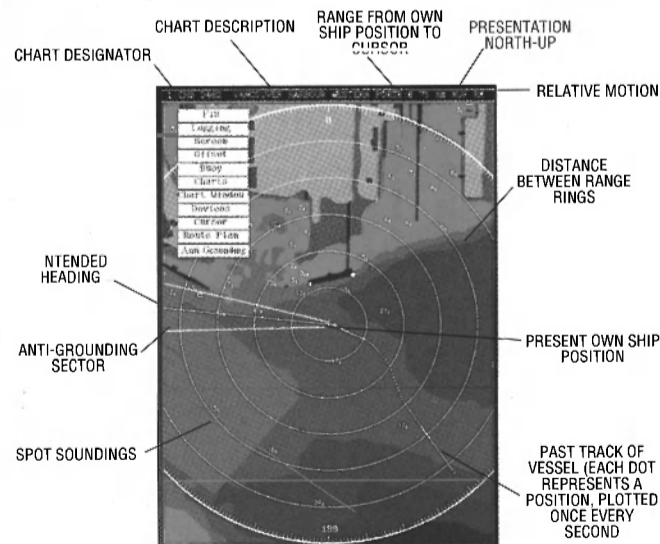
Circle 92 on Reader Service Card

Some are calling it the greatest advance in navigation safety since radar.



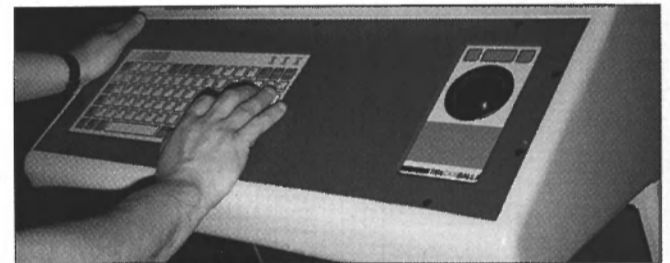
ECPINS

The **IMO compliant ECPINS (Electronic Chart / Precise Integrated Navigation System)** gives the navigator "own-ship" position twice a second, warns him of dangerous waters ahead and shows continuous information on all fixed and moving radar targets. With ECPINS, he can make the right decisions in stressful situations and navigate safely, particularly in confined waters, in extreme weather and under fog and ice conditions.



ELECTRONIC CHART / PRECISE INTEGRATED NAVIGATION SYSTEM

ECPINS intelligently combines information from a variety of navigational sensors (GPS/DGPS, gyro, log, depth sounder, etc.) and displays "own-ship" position with great clarity on an authorized electronic vector chart. Navigational radar data plus ARPA data from existing bridge radar can be superimposed on the electronic chart display.



ECPINS projects an Anti-Grounding Sector ahead of the ship. When the operator inputs a safe depth, both visual and audible alarms will sound in case of shallow waters, or if "above water" chart features, such as rocks, land, piers, etc. are within the sector.

Chart data can be viewed on multiple non-overlapping windows at different range scales and presentation modes. All vital navigation data are summarized in a NAV display window. The system is easily operated via trackball cursor and built-in keypad. A 24-hour log is kept showing all vital sensor data.

ECPINS complies with all IMO performance standards for ECDIS. The result of over 10 years of research, ECPINS is used by shipping companies, ferries, and the U.S. & Canadian Coast Guard and Navy.

osi offshore systems international inc.
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Port of Miami: Passengers Plus Cargo Equals \$6 Billion Impact

The Port of Miami reportedly had an economic impact upon South Florida's economy of nearly \$6 billion due to double-digit increases in cargo tonnage and cruise passenger handling approaching 3.2 million.

Milestones set by the Port of Miami during fiscal year 1992-1993 were a 13.1 percent increase in cargo tonnage, to a record 5,198,292 tons; cargo impact of \$998 million (up 17.6 percent from the previous fiscal year); cruise impact of nearly \$1.5 billion (up 6.7 percent) and total direct impact of more than \$2.6 billion (up 10 percent).

Total operating revenue rose 11.2 percent, to a new high of \$39,745,032. The port is keeping pace with its

gains in cargo tonnage by continuing to augment its container-handling equipment. Two mobile container cranes delivered in October 1993 and two additional 50-long-ton gantry cranes which arrived in December, are to supplement the six 40- and 50-long-ton fixed cranes currently in operation at the Lummus Island facility.

Also, the port completed the first phase of a \$100 million channel-deepening project, creating a con-

trolled depth of 42 feet in the port's south ship channel.

INTERTANKO Clears Up Misunderstandings About Oil In Combi Carriers

Misunderstandings about versatile vessels which can carry either dry or liquid bulk cargoes, called combination carriers (combi carriers), have been addressed in a recently published brochure by INTERTANKO, the International Association of Independent Tanker Owners.

INTERTANKO contends that the hesitations some oil charterers and terminal operators have regarding this type of vessel are based on wrong assumptions and lack of accurate information. The brochure lists some of these issues and makes relevant comments.

The brochure maintains that combination carriers have many advantages, including:

- optimal cargo ton/mile cost
- better cargo outturn
- more efficient cleaning of cargo spaces
- less oil residues
- easier tank maintenance
- reduced ballast voyages lead to reduced exhaust emissions.

Combination carriers meet the requirements of both OPA '90 and the latest rules adopted by the International Maritime Organization (IMO). To receive a copy of INTERTANKO's brochure, contact INTERTANKO, P.O. Box 7518 Skillebekk, Gange-Rolvs Gate 5, N-0205 Oslo, Norway, tel: 47 22 44 03 40; fax: 47 22 56 32 22.


Hammonds' HUM-Bug Detector Kits[®] For Fuel Purity

A trend toward preventative maintenance and improved fuel quality has led to a dramatic jump in the sales of HUM-Bug Detector[®] Kits, according to its manufacturer, Hammonds Fuel Additives, Inc., Houston.

The HUM-Bug Detector Kit is designed to provide early detection of Hydrocarbon Utilizing Microorganisms, or HUM-Bugs, that can grow rapidly and reproduce in hydrocarbon fuels, such as aviation jet fuels, kerosene, No. 1 and No. 2 diesel fuels, home heating oil, and marine diesel fuels. Their presence can clog fuel lines and filters, while their acid waste by-products corrode fuel tanks and related fuel systems. The kit will even distinguish between benign bacteria and HUM-Bugs, viable and dead cells, and detect the contamination in both salt and fresh water tank bottoms.

For more information about Hammonds' HUM-Bug Detector Kit,

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Maritime Reporter/Engineering News

BOATS AND BARGES



Hike Metal Products, which delivered this Volvo Penta-powered patrol vessel to the Ministry of Natural Resources, is building a similar vessel for the State of Vermont Police.

Hike Metal Products Designs, Builds Array Of Vessels

Hike Metal Products, a ship- and boatbuilding company located in southwestern Ontario on Lake Erie, builds a wide range of vessels for both the government and commercial sectors, as well as pleasure craft for private use.

Most recently Hike has delivered a 30.5-foot Fisheries Patrol Vessel; a similar vessel is currently under construction for the State of Vermont Police. The Lake Erie patrol vessel, built and designed by Hike Metal Products for the Ministry of Natural Resources of Ontario, Canada, is an all-welded, aluminum constructed boat powered by twin Volvo Penta AD41DP diesels. Built to be used for law enforcement of the commercial and angling fishing industry on the open waters of Lake Erie, the vessel has a top speed of 40 mph.

Hike Metal Products also delivered a 63-foot Ice Management Ves-

sel, a boat christened *Niagara Queen II* and delivered to Ontario Hydro. The vessel is powered by twin Caterpillar 3412TA diesels, which deliver 1,250 bhp at 1,800 rpm that allow the vessel to navigate through ice in the dangerous waters above Horse-shoe Falls.

The company builds vessels in steel, aluminum or a combination of both. Specific examples of the large craft it builds include: fishing vessels, patrol vessels, research vessels, self-propelled work barges, passenger boats, crew boats, tugs, off-shore supply boats, car ferries and many more. The company also sports an impressive selection of and experience in building smaller boats. Hike features an in-house design staff, or can build to owner-supplied drawings. For more information on the vessel building capabilities of Hike,

Circle 15 on Reader Service Card

ABB Turbocharger Repairs VTR..4 Turbine Blades

ABB Turbocharger Co. has extended its turbine blade remanufacturing program to include welding repairs of damaged VTR..4 series turbocharger turbine blades to original design specifications. The new technique was developed jointly with ABB Turbo Systems Ltd., Switzerland, and the service is performed by ABS-certified welders at the company's 13,000-sq.-ft. repair facility in New Jersey.

The remanufacturing of welding VTR..4 series turbine blades joins that of VTR..0 and 1 series blades, which has been performed by ABB Turbocharger Co. since 1985. Turbine blade remanufacturing must follow the latest ABB proprietary, factory-approved procedures.

"Two years were spent in the development and testing stages to assure that ABB Turbocharger's quality standards were satisfied, since welding of VTR..4 series blades requires a distinctly different technique," said **Mark Rothmann**, president. An earlier procedure developed by ABB included remanufacturing VTR..0 and 1 series turbocharger blades of forged steel alloy, subjected to pressures up to three bar during operation. VTR..4 series turbocharger blades are cast steel alloy, according to Mr. **Rothmann**, and are subjected to even greater operating pressures.

VTR..4 series turbine blades provide extra durability, but they are harder and more brittle compared to earlier designed blades. As a result, changes in weld material and tungsten inert gas (TIG) welding procedures were developed. Damaged and worn blades received for remanufacturing are cleaned and inspected for cracks and excessive wear, against ABB proprietary guidelines. Cracked and excessively worn or damaged blades are replaced by new ones. Repairable blades are TIG welded at low amperage, under an inert gas bath to guarantee a pure weld. All turbine blade weld-

ing is performed in a totally enclosed, environmentally-controlled "clean room." The weight is checked and marked on each blade, and a final check for cracks is performed before identification stamping. In keeping with the company's ISO 9002 Certification, "the utmost in quality, procedural documentation and service records are always maintained to guarantee customer satisfaction," said Mr. **Rothmann**.

Remanufactured turbine blades are covered by ABB Turbocharger's warranty. "The normal time to remanufacture a set of turbine blades for a main propulsion turbocharger is one week; however, the actual time can be substantially reduced if a customer's schedule is tight," said **Joseph Kersulic**, shop service manager. ABB Turbo-



charger is increasing its stock of complete sets of remanufactured turbine blades, which are available on an exchange basis, to further assist customers in an emergency. The turbine blade exchange program allows the company to completely overhaul a turbocharger rotor—including cleaning, blade replacement, shaft seals and balancing—in as little as 48 hours, said Mr. **Kersulic**. For more information on ABB Turbocharger,

Circle 69 on Reader Service Card

NEW TECHNOLOGY

Volvo Sponsors 40-Foot Concept Boat, Nautilus 3

The Nautilus 3 is a 40-foot award-winning design concept sponsored by Volvo Penta. The next generation, 10-ton sport cruiser is a hull of composite core with epoxy gel coat, reinforced with unidirectional Kevlar.

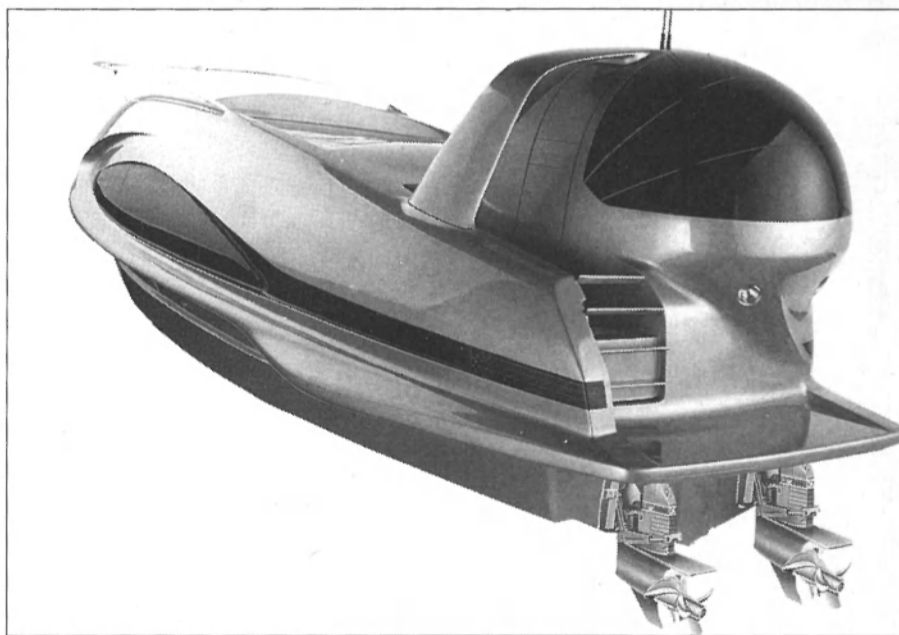
The boat, with inner and outer skins of glass fiber, is powered by two Volvo Penta KAD 42 diesel stern drive units, and is designed to travel 50 mph.

The vessel won the prestigious Giorgetto Giugiaro prize for Transport Innovation at the Royal College of Art, London, a reward traditionally reserved for automotive design. Volvo Penta was approached

by the designers—**Iain Robertson**, **Fran Cush** and **Nick Talbot**—to provide technical assistance with the engine configuration in the early stages of development. The engine-maker was reportedly so impressed with the depth of design and research that it agreed to sponsor the project.

The KAD 42/DPX is a 3.6 liter marine diesel developing 230 hp at 3,800 rpm. The engine features direct fuel injection, a freshwater cooling system and a charge air compressor. For more information on Volvo Penta,

Circle 85 on Reader Service Card



The Nautilus 3 award-winning boat design is sponsored by Volvo Penta.

NPBOA: Maintaining The Fight For 43 Years

When the National Party Boat Owners Alliance (N.P.B.O.A.) was first organized in 1951, its founder could not have envisioned that 43 years later the fight to save its segment of the maritime industry would have become an endless battle. Executive Director Capt. **George F. Glas** refers to N.P.B.O.A. as a "watch-dog" for the industry, and said "Any stand that we take has only the survival of our industry in mind. Our goal continues to be that of watching out for proposed laws or regulations that might be detrimental to our segment of the maritime industry."

N.P.B.O.A., comprised of U.S. Coast Guard (USCG)-licensed operators of party and charter fishing boats, sightseeing and excursion vessels, was formed in response to legislation being introduced by some overzealous congressmen in the wake of a series of disasters in the 1950's involving small passenger boats. If allowed to become law, their measures would virtually have wiped out marine passenger-for-hire small businesses, according to the N.P.B.O.A. The years of work by the organization's leadership in helping to promulgate regulations that would not only correct existing problems, but allow industry to survive,

resulted in Subchapter T, the "Boat Regs."

While the initial challenge had to do with the USCG, N.P.B.O.A. soon found itself embroiled in many other problems, which have run the gamut from FCC regulations to obtaining a 200-mile limit; from the decade-long user fee battle to the diesel fuel tax fiasco; from curbing illegal bareboat charters to challenging the misapplication of the ship departure tax.

According to the association, poorly-written legislation is many times the culprit it must battle. As an example, it cites Congress "ostensibly rectifying one mistake" by the repeal of the 10 percent luxury tax, but in its stead imposing a diesel fuel tax on non-commercial boats to make up the shortfall.

Even though the members of the N.P.B.O.A. are exempt from the tax, the association claims the way the bill is written is pushing some of the member operators back into the tax-up-front, file-for-refund situation.

For more information on the N.P.B.O.A. and its membership, contact: National Party Boat Owners Alliance, 181 Thames St., Groton, Conn. 06340.

BethShip Wins \$34 Million Contract

Bethlehem Steel Corporation's BethShip, Sparrows Point Yard, was awarded a contract by the Maritime Administration (MarAd) for work on three Ro/Ro vessels acquired to upgrade its Ready Reserve Fleet. The contract, worth approximately \$34 million, calls for activation, upgrades, modifications, repairs, sea trials and deactivation of the *Cape Rise*, *Cape Ray*, and *Cape Race*, formerly the *Saudi Riyadh*, *Saudi Makkah* and the *G&C Admiral*, respectively.

David Watson, president of the shipyard, explained that the vessels will be reflagged to U.S. flag, U.S. Coast Guard and American Bureau of Shipping (ABS) regulations. The contract also includes several options, which, if exercised, would increase the contract value to \$45 million.

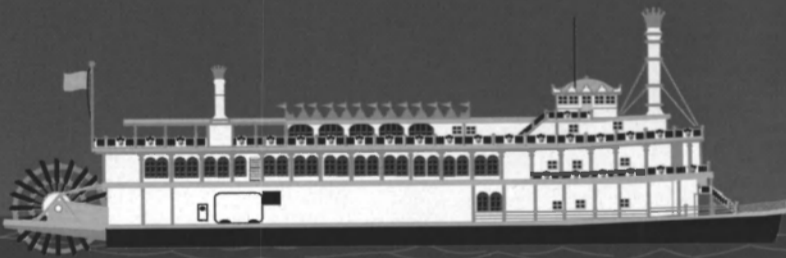
The yard is currently completing work on five vessels: two ready reserve vessels (RRF) - the *Cape Washington* and *Cape Wrath* - are undergoing reflagging and general repairs and refurbishments; a third RRF, the *G. T. S. Callaghan*, is undergoing general repairs; the Dolphin Lines' cruise ship *S.S. Seabreeze* and Union Carbide and Chemical Corporation's *Chemical Pioneer*, operated by Marine Transport Lines, are undergoing drydocking, general repairs and cargo-tank painting. For more information on Bethlehem Steel Corporation,

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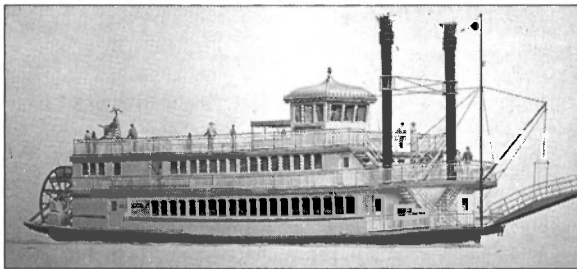
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Maritime Reporter/Engineering News

SkipperLiner Designs And Builds Authentic Sternwheeler

Travel Systems, Ltd. of Zephyr Cove, Nev., contacted SkipperLiner of LaCrosse, Wis. in search of a 600-passenger cruise vessel for operation on Lake Tahoe, Nev., to replace *M.S. Dixie*. The *M.S. Dixie II* is an authentic replica of a turn-of-the-century sternwheeler. The vessel has two complete types of propulsion: a functional hydraulic sternwheel and a twin screw system. In reality, the *M.S. Dixie II* has two types of propulsion, but three totally separate sources of propulsion. This is an important safety feature to the owner.

The vessel is operational on one or all systems, achieving a 14-knot speed under the Dual System. The vessel is 141 feet long with a beam of 33 feet and draft of 4.7 feet. Travel Systems owns and operates three vessels on Lake Mead, Nev.: *M/V Desert Princess*, *M/V Echo Princess* and *M/V Echo Four*, and will replace *M/S Dixie* on Lake Tahoe with *M/S Dixie II*.



Dixie II Equipment List

Sternwheel propulsion	Caterpillar
Generator	Caterpillar
Bow thruster	Westerbeke
Screws (propulsion)	Michigan Wheel
Marine gear	Twin Disc
Engine mounts	Lo-Rez
Propeller shaft coupler	Lo-Rez
Steering system	Skipper Hydraulics
Shifting (propulsion)	Mathers Micro Commander
Shifting (paddlewheel)	Mathers Micro Commander
VHF/FM marine radio	Icom
Depth sounder	Datamarine
Radar system	Furuno

BIW Engineer Receives Award

The Marine Machinery Association (MMA) presented this year's "Jack Flannigan Award" to **Roland O. Melcher**, chief engineer of Bath Iron Works (BIW). The MMA established the award several years ago to honor its founding chairman, the late **Jack Flannigan**. It is given to recognize and honor individuals connected with building Navy ships who have distinguished themselves by their technical abilities and ethical conduct. **David Choate**, an MMA director who, like Capt. **Melcher**, graduated from Maine Maritime Academy, presented the award at a luncheon.

Coltec Awarded \$19 Million Contract

The Fairbanks Morse Engine Div. of Coltec Industries Inc. received an order valued in excess of \$19 million to produce four engines and related equipment that will propel the first new ship in the nation's Sealift program, and options valued in excess of \$95 million to produce engines to propel five additional ships in the sealift fleet. The four engines for the first ship are scheduled to be delivered to Avondale Shipyards in 1995. For more information on Coltec's Engine Div.,

Circle 139 on Reader Service Card

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

Mjellem & Karlsen of Bergen, Norway has signed a contract worth about \$33 million to build a 312-foot aluminum fast passenger and vehicle ferry. 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 built for European Ferries Denmark AS of Copenhagen.

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. 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 more information on Mjellem & Karlsen,

Circle 126 on Reader Service Card

NASSCO To Participate In NSRP Standards Program

National Steel and Shipbuilding Co. (NASSCO) of San Diego has announced a project to evaluate foreign and international standards for acceptability in U.S.-flag vessel applications. Sponsored by the National Shipbuilding Research Program (NSRP), the project is designed to increase U.S. shipbuilding competitiveness by reducing the cost of foreign equipment procurement and approval by the U.S. Coast Guard (USCG). The project will first perform a survey to establish marine industry priorities for standards evaluations. Based upon these priorities, NASSCO and its subcontractor, Petrochem Marine Consultants (PMC), will then perform evaluations of foreign and international standards, including comparisons to recognized U.S. standards. Acceptable evaluations will then be submitted to the USCG for review and approval. All project data will be maintained in a database that will be made available to the industry and the USCG to expedite future foreign equipment and standards approvals. NASSCO urges the marine industry to support this project by responding to the survey and providing any known foreign equipment and standards approvals for the project database. For more information from NASSCO,

Circle 35 on Reader Service Card

Trinity Delivers Anchor-Handling/Tug Supply Boat



Artabaze, the first anchor handling/tug supply boat built in the U.S. in over a decade and the first of its type built by a U.S. company for a French one, was recently delivered by Halter Marine, Inc., the subsidiary of Trinity Marine Group that designed and built the vessel. The vessel is about 218 feet long with a 46-foot beam, a 20-foot deep hull and 17-foot design draft. It is the first of two nearly identical vessels by Trinity for SURF of Marseilles, France, and will work first off the coast of France and later near Gabon, West Africa.

It is powered by two Caterpillar 3608 diesel engines developing a total of 7,260 hp through Reintjes VAL-3640 reverse/reduction gears. Electrical power comes from one Caterpillar 3406 diesel driving one 250-kW generator and two Caterpillar 3408 diesels driving two 350-kW generators.

One Caterpillar 3304 diesel drives the 60-kW emergency generator. The second ship will be powered by Caterpillar 3612 diesels developing nearly 11,000 hp.

John Dane III, Trinity president, said *Artabaze* reflects tremendous advances in computer-driven systems and design/manufacturing techniques over vessels of its type produced more than a decade ago, citing *Artabaze's* Robertson dynamic positioning system, Bollard pull capacity in excess of 80 metric tons, 16.5-knot speed, and Ulstein steering rudders. Adding to the vessel's maneuverability and thrust are twin four-blade Berg cp propellers in Kort nozzles. A Schottel bowthruster driven by a Caterpillar 3412 diesel adds to maneuverability and station keeping.

For more information on Trinity Marine,

Circle 128 on Reader Service Card

Gold Coast Yachts Delivers 59-Foot Wave Piercing Ferry, *Edge*

Gold Coast Yachts recently delivered a GC 18WP wave piercer ferry, the *Edge*, to Pelican Watersports of St. Maarten. The 59-foot vessel will carry 49 passengers, operating as an excursion ferry in the 24-mile-wide open channel between St. Maarten and Saba. The wave piercer's design reportedly combines elements of the modern displacement power catamaran, which affords practical fuel efficiency, with the SWATH concept — for proven excellent seakeeping and motion characteristics.

Edge Equipment List

Main engines	Lugger
Propulsion	Hamilton jet
Engine controls	Morse
Jet controls	Jastram
Coatings	Awgrip
Compass	Danforth
Windows	American Marine
Safety Equipment	Cal June



The ferry will be powered by twin Lugger L6125 diesel engines which develop 400 hp through an Aqua Drive tubular axle system with torsional dampeners and intermediate support bearings, to a Hamilton 362 jet. Top speed is estimated at about 30 knots, with a 24-knot cruising speed at two-thirds payload. Construction is composite wood with unidirectional glass and epoxy. The vessel is Gold Coast's largest wave-piercer to date.

For more information on the services and abilities of Gold Coast Yachts,

Circle 129 on Reader Service Card

Raytheon Wins Navy Electronic Module Contracts For A Total Of \$4.1 Million

The U.S. Navy has awarded contracts to Raytheon Company to develop standard electronic modules for a variety of applications.

One is a \$3.6 million contract with the Naval Systems Weapon Center at Crane, Ind., for the development of a module foundry service. The 18-month effort will pro-

vide a service that will enable government contractors to design modules to be manufactured at a Raytheon facility. The module foundry service will feature an integrated computer-aided design (CAD) capability which will accelerate the manufacturing process.

The foundry will be instituted under the ARPA-sponsored Application-Specific Electronic Modules program which focuses on the rapidly emerging module technology. Raytheon will develop the capability to mount multi-chip electronic

modules on the company's standard electronic modules, thereby improving the company's competitive position with reference to future module programs.

Raytheon has also signed a \$500,000 contract with the Naval Avionics Weapons Center in Indianapolis to develop a high-density gold connector for use on the next generation of standard electronic modules. Raytheon led a Raytheon-Hughes Aircraft team that responded successfully to the Navy's request for a proposal. The work for

both programs will be performed at Raytheon's facility in Portsmouth, R.I.

Raytheon, headquartered in Lexington, Mass. is a \$9 billion international technology company.

For more information on Raytheon,

Circle 52 on Reader Service Card

Spanish Shipbuilder Becomes ISO 9001-Certified

Factorias Vulcano of Galicia, Spain has reportedly become the first privately-owned shipbuilder in Spain to qualify for ISO 9001 certification. The certificate has been issued by Det Norske Veritas after the Galician firm passed the various stages involved. Only two other Spanish shipbuilders have qualified, both state-owned.

The yard is currently building two large factory ships for Russia, part of an eight-ship order, as well as an ocean research and buoy vessel for Australia. All three ships are due for delivery by the second half of 1994.

For more information on the capabilities of Factorias Vulcano,

Circle 98 on Reader Service Card

Samsung Awards Shiplift System Contract To Bardex

Samsung Engineering & Construction Co., Ltd., under contract to the Republic of Korea (ROK) Navy, has contracted with Bardex Corporation of Goleta, Calif., for a dual mode shiplift and transfer system at the Pyungtaek Navy Base on the west coast of the Republic of Korea.

The Bardex shiplift system will have a lifting capacity in excess of 6,000 metric tons and will be used for general repair of small vessels as well as special larger vessels. The articulated ship elevator platform will consist of two sections: an inboard section 328 feet long and an inboard section 131 feet long. In dual mode operation, the outboard section will be separately operable and both sections will operate together. Shiplift operation will be controlled from a central control room.

The shipyard's transfer system will feature side and end transfer capability in servicing three berths. The wheeled transfer system will consist of a two-level, 400-foot-long side transfer carriage and modular end transfer cradles, the latter to accommodate vessels of various sizes up to 459 feet in length.

The Bardex systems will be designed for Lloyd's/ABS certification. The company's scope of supply includes commissioning and operations training. Delivery is scheduled for late 1995.

For more information on Bardex,

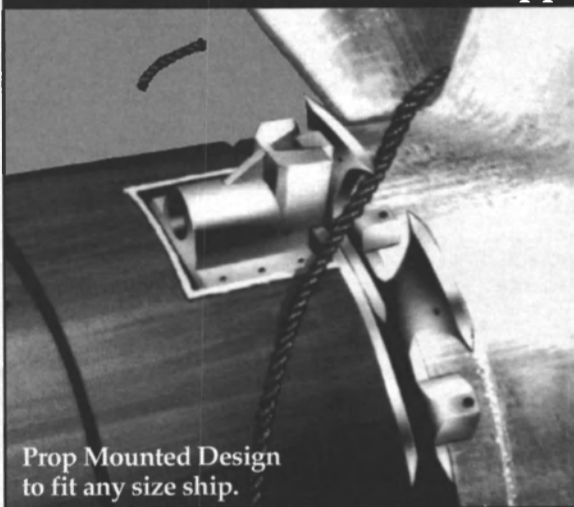
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For more information on Samsung,

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Maritime Reporter/Engineering News

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Furuno Wins Eight NMEA Awards For Excellence

Furuno, the international marine electronics company, was honored with eight prestigious awards from the National Marine Electronics Association's (NMEA) Award of Excellence for 1993. Furuno's awards were as follows: Furuno LP-1000, Best Navigation Plotter; Furuno 1731, Best Small Boat Radar; Furuno FR-8100D, Best Large Boat Radar; Furuno FCV-581, Best Depth Sounder (CRT based); and the Furuno CH-24, Best Sonar (CRT-based). The company also won top honors in three new categories, which recognize dealer support programs and activities, including: Best Manufacturer-Dealer Relationship; Best Dealer Training; and Best Cop Advertising Program. For more information on Furuno,

Circle 127 on Reader Service Card

ACCL To Expand With Arrival Of New Vessel

Luther H. Blount of Blount Industries, Inc. is building a new vessel for his cruise company American Canadian Caribbean Lines, Inc. (ACCL), to introduce America's cruisers to new water routes in mid-America. The *M/V Niagara Prince*, ready for an August 1994 delivery, will have an air draft of 16 feet and will reportedly be the first overnight ship in more than 100 years to transit the Erie Canal with passengers from Albany to Buffalo. It can also cruise Lake Champlain and the entire length of the Chicago River without raising a bridge. This is made possible due to the vessel's special construction, which features a convertible superstructure allowing the low profile to get under Erie Canal bridges. The *Niagara Prince* is classified U.S. Coast Guard subchapter T-L, but will also carry a full SOLAS 74 certificate for near coastal cruising.

Astilleros Espanoles Gets Order From MISC For Two Containerships

Spanish shipbuilder Astilleros Espanoles has won an order from Malaysian International Shipping Corporation (MISC) to build two 668-TEU containerships. Astilleros Espanoles won the contract in an international open tender called by the Malaysian government. The vessels will be fully cellular containerships, with double-hull and a tall and narrow superstructure at the extreme fore. The vessels are 440 feet long with a breadth of 68 feet and depth of 34 feet. The ships will be built by the Juliana shipyard of Astilleros Espanoles in Gijon. For more information on Astilleros Espanoles,

Circle 130 on Reader Service Card

ACR Appoints New Reps

ACR Electronics, Fort Lauderdale, Fla., has appointed several new representatives for the company's marine product line. **Ed Morris** of Ocean Southeast, Inc. has been selected to represent ACR in Florida, Georgia, Puerto Rico, Bahamas and the Virgin Islands. On the west coast, **Bruce Brown** of Bruce Brown & Associates has been

appointed to represent ACR in California and Hawaii along with associates **Allan Molho** and **Kirk Brown**.

Seamen's Church Meeting To Address Safety

The Seamen's Church Institute will hold its Safety-At-Sea Symposium Wednesday, January 26 in New York City. Panelists will be

led by keynote speaker the Hon. **William A. O'Neil**, secretary general of the International Maritime Organization (IMO). In addition to ship management and compliance, the symposium will address proposed changes to the 1978 International Convention on Standards of Training. Contact: **Andrea Laine**, The Seamen's Church Institute, 241 Water St., New York, N.Y. 10038; tel: (212) 349-9090; fax: (212) 349-8342.

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SS-50-S ** BJ-24 *

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SHOWROOMS IN PRINCIPAL CITIES WORLDWIDE

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Circle 297 on Reader Service Card

OSI: Helping To Chart The Future Of Navigation

As concern over navigational safety increases, so does interest in ECDIS (Electronic Chart Display Information System), which integrates information from various navigational and positioning systems (radar, sounder, gyrocompass, etc.) into an electronic chart system for a comprehensive graphic display. Offshore Systems International (OSI) Ltd., of Vancouver, B.C., is in the business of providing its ECDIS system, called ECPINS (Electronic Chart Precise Integrated Navigation System). Founded in 1977 to position oil rigs and assist restricted ship navigation in places like the Arctic, OSI was designing and installing ECDIS systems by the mid-eighties.

Business is fairly booming for OSI, having sold or installed more ECPINS systems in the past two years than in all the years since they began installing them. In fact, OSI's growth has resulted in a U.S. subsidiary, Offshore Systems International, Inc. in Seattle, Wash. All marketing activities for ECPINS products are run out of the Seattle office. The latest ECPINS to Clipper Cruise Line's *Yorktown Clipper* gave OSI a new challenge. "We will

deliver over 250 vector charts, covering the Pacific Coast, the Panama Canal and the Caribbean," said **Manfred Reimann**, vice president, marketing and sales. "This will open many sales opportunities for cruise ships, tankers and cargo vessels." OSI recently won a \$1.6 million contract to supply six ECPINS systems to the Canadian Hydrographic Service as part of what is reportedly the world's largest electronic chart plot project. Other OSI clients include the U.S. Coast Guard (USCG), which ordered a system for a 225-foot buoy tender with options for four more, and another for a 175-foot coastal buoy tender with options for 13 more. Canada Steamship Lines, Inc. decided to equip their entire fleet of 11 self-unloading bulk carriers with ECPINS, plus an option to buy 20 more units, and the Canadian Coast Guard ordered ECPINS for 12 coastal defense vessels. "The biggest demand for ECPINS is in newbuilds," said **Ken Deering**, OSI vice president and general manager. "But we believe that in 1994 companies will start saying okay, let's look at our fleets." In September 1993 IMO finalized the Performance Standards for ECDIS, which are slated for full



ECDIS systems integrate sensor data into an electronic chart display.

adoption in 1995 — whereupon owners may legally replace paper charts with ECDIS. OSI's ECPINS was used aboard the USCG cutter *Bittersweet* as a test-bed for IMO standards. OSI's test-bed involvement puts them about as close to the standard as possible — an important factor to shipowners who wish to avoid rehauling ECDIS systems for IMO compliance once the standard becomes a legal fact.

"All the studies that have been done recommend ECDIS as a key factor in preventing groundings,"

said **Helmut Lanziner**, president and CEO of OSI. With the IMO Performance Standard in place, Mr. **Lanziner** expects legislation which would mandate ECDIS on commercial vessels to be introduced into Congress soon. At an estimated \$70,000 per system, OSI's ECPINS may be an important tool that could help prevent multi-million-dollar groundings and protect the coastal environment. For more information on Offshore Systems International,

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EYE ON DESIGN: Gaming Vessel Interior Design

(Continued from page 51)

said Mr. Colie.

Shirley LaFollette, owner and design director of Interior Design International Inc. (IDI), a Seattle, Wash.-based design firm specializing in the hospitality and marine industry, sees lots of growth in the riverboat gaming market, especially internationally.

Petrochemical Services, Inc. (PSI), a full-service marine deck coverings company based in New Orleans, did about 22 percent of its business in riverboat gaming boats last year. **Jake Giardina**, general manager of flooring at PSI predicts that PSI's business will grow along with the market. And about 50 percent of this year's business for St. Louis-based Directions in Design (DID) was marine-related. About 90 percent of that marine business was in the riverboat gaming market. **Jeanine Bequette**, vice president, agrees that there will be tremendous growth in the riverboat gaming industry.

The Design Process

Ms. **Bequette** said owners are looking for a full range of designs for their riverboats—from understated to outrageous—depending on their target market. She cites a recent project DID completed, the *Players Riverboat Casino* at Merv Griffin's Landing in Lake Charles, La., which merged traditional and

contemporary themes. Most design firms agree, however, that owners are seeking "Las Vegas glitz" for their riverboat casino vessels. PSI delivered and installed all the deck coverings on the *Player's Riverboat Casino II*, built at Leevac Shipyard in Louisiana.

Many who come to IDI have their own themes in mind, but there are also many times when IDI's design team works with customers to develop a theme. For example, the owners of *Alton Belle Casino II* wanted a "Romanesque" theme from IDI. To get a feel for the theme, Ms. **LaFollette** went to Las Vegas to visit the casino "Caeser's Palace," but the actual design was much more intensive a task. IDI had to develop new lighting systems for the vessel and thousands of lights are incorporated into the design. The custom-designed lighting took a full three months to gain USCG approval: part of the challenge of working on a riverboat casino.

Riverboat Casinos: Design Challenges

A lot more time and energy has to be devoted to a riverboat casino when compared to a land-based operation. For IDI, the toughest tasks have to do with the ceiling work. "The ceilings in riverboats are like swiss cheese," says Ms. **LaFollette**. The lack of space between decks on the riverboats (six inches, as opposed to about two feet between floors in land-based casinos) as well as the air ducts, handlers and vents, and elaborate security systems and smoke cleaning systems (all of which the designers have to work around)

makes designing the ceilings and lights of a riverboat casino a trying task. "Designers are getting less and less space to design in, yet newer casinos are calling for more and more elaborate designs," says Ms. **LaFollette**. Another problem IDI encounters is the cash carts on riverboat casinos. The cash carts are reportedly very heavy - always banging into walls. Problems such as these limit the designers in terms of design elements. For example, a designer might avoid designing rooms with floor length mirrors because there is a strong possibility the mirrors would be damaged by the cash carts. It is not economical for an owner to have to delay a cruise to repair a design element. Another challenge is the lack of flat surfaces on the boats. The fact that most surfaces are not flat calls for special considerations when having to comply with the Americans with Disabilities Act (ADA). ADA calls for the installation of handicapped entrances and exits; ramps prove to be particularly difficult to build on non-flat surfaces. Decks fall away from entrances, meaning that workers, especially those working on flooring, have to float underlaying materials at those points. For example, on the *Players Riverboat Casino II* the slot machines are mounted to the floor. The studs from the mount penetrate the floor, while at the same time rising a little bit above it. When laying carpet in the riverboat casino, PSI had to work around those studs.

The Psychology Of Color

"In a casino you need to use color psychology," says Ms. **LaFollette**.

At IDI, the color marketing group, of which Ms. **LaFollette** is the international color consultant, picks 10 color directions for the year. These colors are what the company will base paints, floor coverings, furniture, and other elements of design on. When working in the marine industry, certain colors, like yellows and yellow-greens, are avoided because they are likely to cause seasickness. Casinos are often designed in purples, reds, oranges - any color in the red family. "Red colors excite people," says Ms. **LaFollette**. Ms. **Bequette** concurs, adding, "Red slows the passage of time." Red also reportedly brings vital signs up 18-20 percent. Blues, however, are not as widely used in casinos because of their calming effect. The lighting is dim in casinos - usually amber-colored - so the extreme brightness of the colors used in the casino is softened. The amount of people who frequent the riverboat casinos also has an impact on the design. For example, busy patterns are used for the carpeting to hide the signs of wear and tear from the immense traffic flow.

For more information on the firms mentioned, circle the appropriate Reader Service Card number.

Directions In Design 122

Interior Design International 121

James P. Colie and Assoc. 120

Petrochemical Services Inc. ... 123

Thordon Offers Extensive Performance Guarantees

The wearlife guarantee Thordon Bearings, Inc. offers for its SXL rudder bearings is reportedly the first and only extended rudder bearing guarantee in the world, the manufacturer said.

In newbuild applications, the SXL rudder bearings are guaranteed to meet Class Society wear specifications for 10 years or Thordon will supply new bearings. In repair applications, SXL rudder bearings are guaranteed to meet Class Society wear specifications for twice the life of the replaced competitive bearing, or Thordon will supply a new bearing. "All guarantees have terms and conditions," Mr. David Read, president, said. "But even that's clear and simple with our guarantee." The Thordon SXL rudder bearings are manufactured to the standards of the ISO 9002 quality systems standards. For more specifics on the guarantee from Thordon,

Circle 48 on Reader Service Card

Ross Engineering's DSC Setting New Standards In Communication

Ross Engineering Co. has developed and deployed a new technology, Digital Selective Calling (DSC), which has been incorporated as an FCC and ITU standard digital messaging and trunking system. The DSC system has applications in communication (clear voice, secure voice, data), automatic vehicle/vessel/aircraft locating, computer-aided dispatching, fleet management, emergency distress calling and much more. DSC is reportedly the only FCC-approved trunking system for use below 512 MHz, as it is a public standard and because it is interoperable with standard systems. The DSC system has been purchased and installed by GTE, and is currently in use in three of GTE's radiotelephone tower base stations in the Tampa Bay area. Ross Engineering is currently under contract to automate the vessel communications and traffic control system in the Harbor of Prince William Sound, Valdez, Alaska. Some other clients of the company include the U.S. Army, the U.S. Coast Guard, and some South American drug interdiction forces. For free information on DSC,

Circle 49 on Reader Service Card

Larry Hairston Joins Service Marine As Senior VP

Terry Frickey, president of Service Marine Industries, Inc. of Moran City, La., announced the appointment of Larry N. Hairston as senior vice president and marketing director. He will be responsible for overall strategic planning

and business development, marketing and sales associated with the construction, conversion and repair of marine products. Mr. Hairston has a career spanning 25 years in the shipbuilding community; most recently, he was director of marketing and sales for Mobile, Ala.-based Bender Shipbuilding & Repair Co. For additional information on Service Marine Industries, Inc.

Circle 51 on Reader Service Card

Del Gavio Ship Repair Opens

Anthony Del Gavio, president of Del Gavio Marine Hydraulics, Inc., announced the opening of Del Gavio Ship Repair, Inc., located at 2900 Main St., Bldg. #140 C, (formerly the Todd Shipyard facility), Alameda, Calif. 94510. Services offered include complete hydraulic

repairs on steering systems, anchor windlasses, hatch covers, cranes and deck machinery. Outside machine services are available in many areas such as fuel oil, lube oil, valves and all pneumatic systems. The facility has three active piers, two 500-foot long with 25-foot drafts, and a 1,500-foot long one with a 42-foot draft. For free information on the capabilities of Del Gavio Ship Repair,

Circle 54 on Reader Service Card



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For Further Information - Phone 203-622-4014 - Fax 203-622-1929

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CALENDAR

JANUARY

84th New York National Boat Show: January 7-16, Jacob Javits Convention Center, New York, N.Y. Contact: **Michael Duffy**, tel: (212) 922-9607.

Yacht Insurance Claims Seminar: January 20, Norfolk Waterside Marriott, Norfolk, Va. Contact: **Stephanie Sayre**, Knox Marine, tel: (804) 393-9788.

Safety-at-Sea Symposium: January 26, Bridgewater, 11 Fulton St., N.Y.

Contact: **Andrea Laine**, The Seamen's Church Institute, 241 Water St., New York, N.Y. 10038, tel: (212) 349-9090, ext. 230; fax: (212) 349-8347.

FEBRUARY

25th Dockmaster's Training Seminar: February 7-10, San Diego, Calif.

Contact: **Crandall Dry Dock Engineers, Inc.**, P.O. Box 505637, Chelsea, Mass., 02150, tel: (617) 884-8464; fax: (617) 884-8466.

Underwater Intervention '94: February 7-10, Town & Country Convention Center, San Diego, Calif.

Contact: **Underwater Intervention '94 Committee**, P.O. Box 261149, San Diego, Calif. 92196, tel: (619) 422-8918; fax: (619) 426-4421.

International Boatbuilders' Exhibition & Conference (IBEX) 1994: February 10-12, Miami Radisson Center, Miami, Fla. Contact: **Tina Sanderson**, tel: (203) 852-0500; fax: (203) 838-3710.

ASNE Naval Engineering for a Better Environment: February 23-24, Sheraton National Hotel, Arlington, Va.

Contact: **Margaret New** (exhibits) or **Melinda Sergent** (registration) at ASNE, tel: (703) 836-6727; fax: (703) 836-7491.

MARCH

Gulf Coast Business & Industry Expo '94: March 1-3, Mississippi Gulf Coast Convention Center, Mississippi

Contact: Tel: (601) 863-2933 or 1-800-999-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.

Sea Japan '94: March 9-13, Japan

Contact: The Events Dept., The Seatrade Organization, Seatrade House, 42-48 North Station Road, Colchester CO1 1RB, U.K., tel: +44 206 45121; fax: +44 206 45190.

Connecticut Maritime Academy (CMA) Shipping '94 - The Costs and Rewards of Quality Shipping: Shaping Shipping's Future: March 14-16, Sheraton Stamford Hotel & Towers, One First Stamford Place, 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: (0) 71 613 0087; fax: (0) 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.

SingaPort '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 Electro pneumatic Motion Control Technology: March 23-24, Anaheim Convention Center, Anaheim, Calif. Contact: **Karen Ertl**, Expositions Coordinator, tel: (414) 778-3349.

APRIL

4th International Offshore and Polar Engineering Conference: April 10-15, Osaka, Japan

Contact: **ISOPE-94 Osaka**, Technical Program Committee (attn: Prof. **Jin S. Chung**), ISOPE, P.O. Box 1107, Golden, Col. 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.

Newport News One Of Two Finalists For Sabine Double-Hull Refit Contracts

Sabine Transportation Co. of Groves, Texas has selected Newport News Shipbuilding as one of two yards in the final round of competition to retrofit double-hulled forebodies onto the the sterns of two existing ships. The ships, SS *Sabine* and SS *Neches*, currently have single hulls.

These will be the first ship conversions to comply with the double-hull rules of OPA 90. Newport News Shipbuilding has extensive experience in joining new cargo sections to existing ship sterns, having performed the process 33 times over the last few decades.

According to **Ed Waryas**, the shipyard's director of commercial marketing, "Newport News's financial strength and depth of engineer-

ing talent allow our yard to offer the most competitive design. Our design is tailored to Sabine's requirements, and we provide an attractive price and payment schedule to suit their business plans." The retrofitting contract is expected to be awarded in 1994. For more information on Newport News,

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Ed Waryas (center) of Newport News Shipbuilding, discusses a retrofitting contract with **Pat Johnson** (l.), vice president of Sabine's parent company, Kirby Corp., and **Dennis Buffo** (r.), vice president for maintenance of Sabine's Ship Div.

Furuno Introduces New Sounder/Fishing Plotter



Furuno's new FCV-1000 sounder displays 16 colors or multiple levels of amber.

Furuno has introduced a dual-frequency color video sounder with color video plotting capabilities, the FCV-1000. The FCV-1000 features a high-resolution 10-inch display with 16 different colors (eight for sounding picture, eight for plotter) or multi-level amber presentation. One, two or three kilowatt (RMS) output power can be selected by internal jumper settings. The user can choose a full-screen plotter display or split-screen plotter/echosounder, with plotter scales from one to 10 nautical miles.

For more on the FCV-1000,

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Sperry Marine Welcomes Sensation To Miami

Carnival Cruise Lines' new 70,000-ton superliner *Sensation* made her maiden voyage to the Port

of Miami recently. Sperry Marine Inc.'s Florida sales manager **Frank Christophersen** presented Captain **Raffaele Gavino** with a commemorative gift to mark the beginning of *Sensation's* service. The *Sensation* and her two sisterships are equipped with a Sperry Marine Integrated Bridge. For more information on the Sperry system,

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Simrad Robertson Receives Five NMEA Awards

Simrad Robertson products received five National Marine Electronics Association (NMEA) awards for superior craftsmanship and performance. Simrad Robertson products took the honors in three categories: "Small Boat Autopilot" for its model AP2500; "Large Boat Autopilot" for its AP300; "Instrumentation" for its Dataline Instruments "Radio Direction Finders" for its Taiyo TDL-1550; and "Gyrocompass" for its RGC 50 model. For more information on Simrad Robertson,

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KaMeWa Reaches Agreement With FF Jet

KaMeWa recently expanded an completed its waterjet production program with waterjet units in the 50-1,000-kW power range. The additions to KaMeWa's range are the result of an agreement with FF Jet enabling KaMeWa to market FF Jet's range of waterjets for smaller vessels through its worldwide subsidiary and distributor network. For more information on KaMeWa,

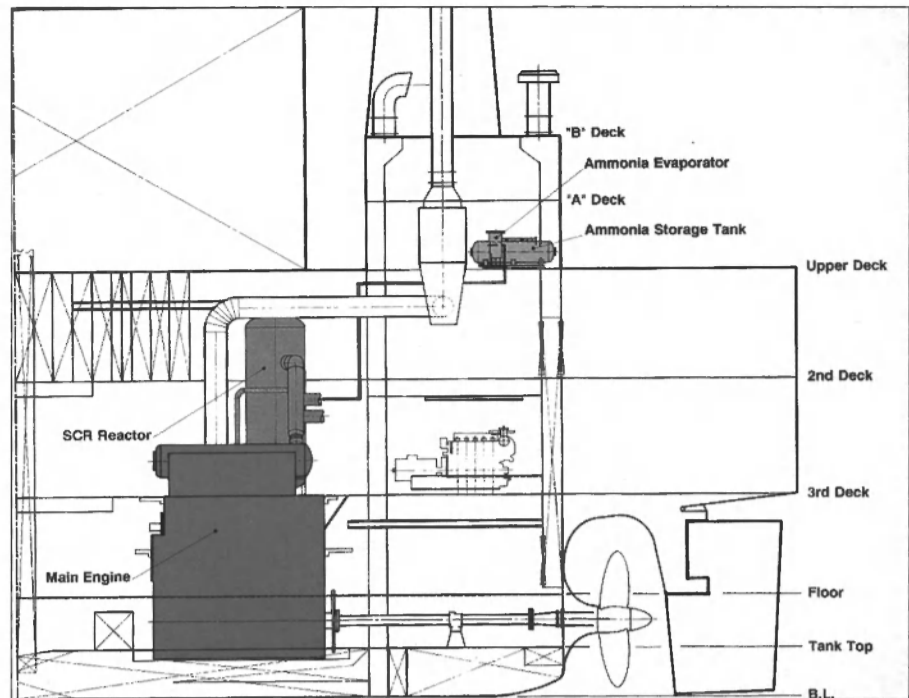
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Maritime Reporter/Engineering News

Haldor Topsoe A/S: A Leader In NO_x Reduction

Being a world leading catalyst manufacturer with more than 80 different catalyst types in the manufacturing program made it natural for Haldor Topsoe A/S to enter the field of selective catalytic reduction of nitrogen oxides (NO_x) in flue gas and exhaust gas from boilers and combustion engines. In 1983-84 Topsoe developed a proprietary selective catalytic reduction (SCR) DENOX catalyst type DNX for the SCR process. The first pilot plant testing of the DNX catalyst was performed on diesel exhaust from a two-stroke stationary diesel engine on the Faroe Islands. Testing of the DNX catalyst for general use in power plants started in December 1985, followed by an intensive testing program in other pilot plants. As a result, Haldor Topsoe A/S offers a wide variety of DNX catalyst for coal-fired boiler (high or low dust), and for gas-fired or oil-fired boiler, gas turbine and reciprocating engine applications. The catalyst for reciprocating engines is specially designed to withstand heavy exhaust pulsation and engine vi-

bration. The Topsoe DNX series of catalysts is based on a TiO₂ carrier made with a monolithic structure. The size of the channels (hydraulic diameter) depends on the exhaust gas particulate content and particulate characteristics. The main features of the DNX catalyst are high NO_x removal activity, high tolerance to contamination, low oxidation activity, low pressure drop and low weight. Although the DNX catalyst was initially developed for land-based operation, one of the first Topsoe SCR DENOX units for commercial use was ordered for installation on board the first of a series of four 37,000-dwt bulk carriers, bulk carriers which currently provide service between South Korea and San Francisco. The installation of such a unit was necessary because of stiff U.S. regulations regarding stack emissions. In order to meet the NO_x limits, the Topsoe system was installed in the exhaust gas system of the carriers' main engine, a two-stroke, six-cylinder MAN B&W diesel engine. The SCR DENOX system for the bulk carrier



Haldor Topsoe A/S SCR DENOX installation onboard a cargo vessel.

is designed for more than 92 percent reduction of NO_x and is installed between the exhaust receiver and the turbocharger on the large two-stroke diesel engine. This was made possible by the pioneering work of Haldor Topsoe A/S, in con-

junction with engine manufacturer MAN B&W and shipbuilder Hyundai Heavy Industries. For additional free information on the Haldor Topsoe A/S's NO_x emission reducing systems,

Circle 19 on Reader Service Card



Textron Delivers 50th LCAC To USN

John J. Kelly, president of Textron Marine Systems, presented Vice Admiral Kenneth C. Malley, Commander, Naval Sea Systems Command, the key to LCAC 65. The craft is the 50th such craft delivered by Textron to the U.S. Navy. The Navy has ordered a total of 91 LCACs, 76 of which were awarded to Textron. The last craft is scheduled for delivery in 1997.

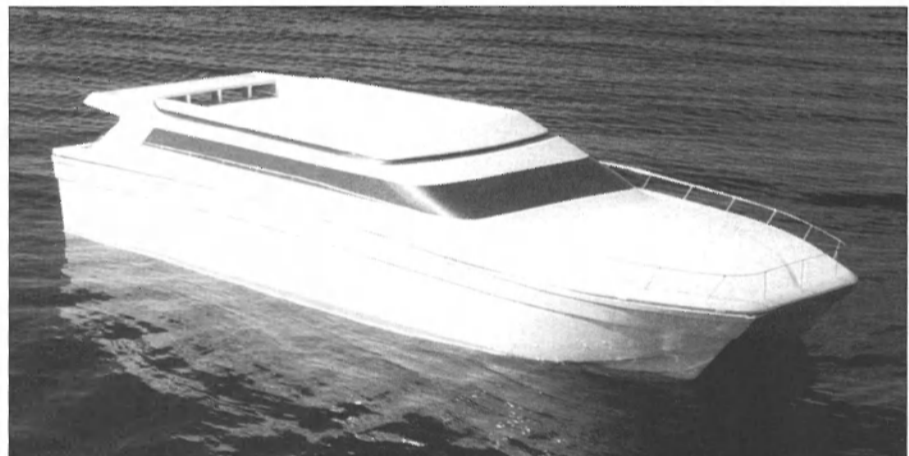
The theme of the event was "Textron Marine Systems Salutes the Customer, the Community and the Company." In talking about the craft itself, Adm. Malley said, "As the Navy gets smaller and military budgets decrease, these craft become ever more vital to our national defense. With their 40-plus-knot speed and high payload, coupled with their ability to cross the surf line and go onto the shore, these craft have opened a new era of capability." Admiral Malley went on to

cite tests in the Bering Sea last year demonstrating the hovercraft's versatility over Arctic ice, saying that the craft are deployed all over the world. While approximately 150 guests who attended the event looked on, LCAC 65 performed maneuvers in accordance with its scheduled test plan. In a surprise demonstration, Textron Marine Systems' 57-foot, high-speed air cushion vehicle made its debut. The craft is being manufactured for the Singapore Airport Authority, to be utilized for airport rescue and fire-fighting.

Textron Marine Systems, a division of Textron Inc., serves both military and commercial interests and maintains a significant commitment to independent research and development. For more information on the capabilities of Textron,

Circle 30 on Reader Service Card

Air Ride Craft Details SeaCoaster Boat Design At WorkBoat Show



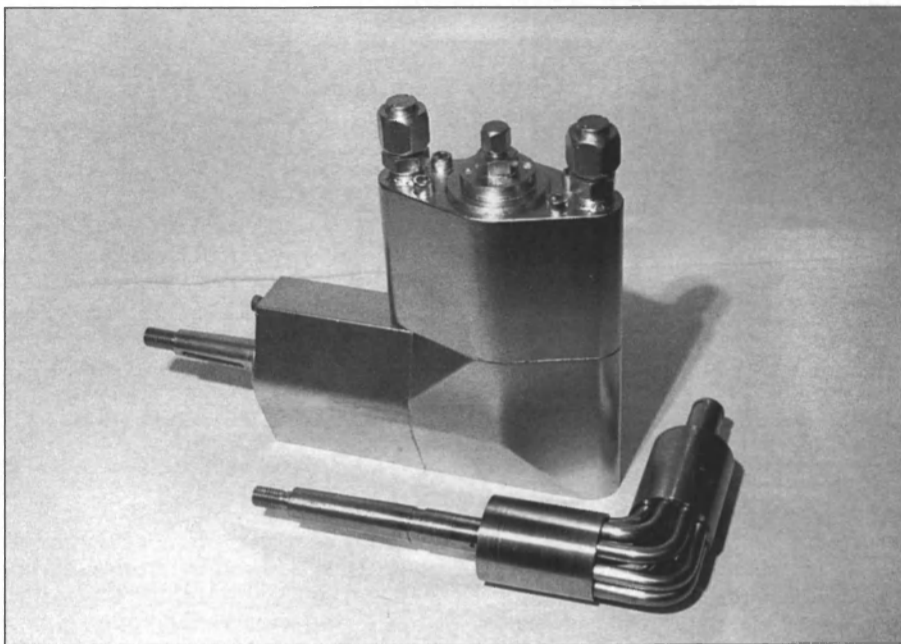
Air Ride Craft, Inc., naval architects, officially revealed details on its new SeaCoaster boat designs at the WorkBoat Show in New Orleans. The new internationally patented Air Ride SeaCoaster high speed marine craft combines the low cost simplicity of catamarans with Surface Effect Ship (SES) efficiency. SeaCoaster has the appearance of a catamaran from above the waterline, yet 85 percent of displacement is supported by blower-pressurized supporting air cushions. The supporting air cushions are disposed in recesses in each sidehull. There are no flexible seals connecting the sidehulls. As a result, SeaCoaster has twin widely separated high length-to-beam (L/B) air cushions that reportedly offer unique performance advantages. The twin high L/B air cushions have approximately 30-40 percent less hump drag than a similar length and weight SES. Also, the long and

fine catamaran-like sidehulls have very fine entry wave slicing bows that deflect waves from entering the air cushions. At present there are two SeaCoaster model test programs underway. The first is a model of a 180-foot 60-100 knot transoceanic hull. The second is model of an 85-foot motoryacht built and tested at Harley Boat Company, Bartow, Fla., which specializes in light weight advanced high strength composite hull construction. The SeaCoaster is suited for many applications including: fast passenger and passenger/vehicle ferries, patrol boats, high speed motoryachts, high speed fishing boats, crew/supply boats, large military combatants, Sealift ships, fast freighters, offshore gaming boats (where respectable cruising speeds and excellent on-station stability are required), and cruise liners. For more information on Air Ride Craft, Inc.,

Circle 36 on Reader Service Card

PROPULSION UPDATE

Gards Inc.'s New Gearless Drive: Low Noise With Gear-Like Flexibility



Gards Inc.'s new gearless hydraulic propulsion system eliminates the drive shaft, reducing noise.

Gards, Inc., of Bellevue, Wash. has introduced a new gearless hydraulic marine propulsion system it says reduces noise and load but gives operators the flexibility of a geared system: continuous stepless speed control, instant full power reversal, power steering and simple transfer from main propulsion to side thrusting. Gards says its interactive twin-rotor hydraulic motor overcomes the inefficiencies that hindered wide application of hydraulic propulsion, and was designed specifically for marine application where long hours of continuous operation under heavy conditions is common.

The propeller drive units consist of two interactive rotors connected by angular pistons which are pressurized simultaneously in both rotors, developing the "wedge effect" which then drives the rotors. Very high overall efficiency is reportedly achieved with this patented design. Gards says the few moving parts carrying the load under optimum distribution assure high operating reliability, low maintenance requirements and long life. Since all the moving components of the hydraulic pump and propeller drive unit are enclosed and submerged in hydraulic fluids, no additional lubrication is necessary - virtually eliminating mechanical failures due to corrosion or lack of lubrication. The propeller drive unit can be mounted steerable so the steering of the vessel becomes easier at any speed, even at standstill or during docking. Drive units from 50 to 400 hp are being developed.

Noise reduction is achieved in several ways: the engine can be positioned for optimum noise reduction, because the engine and the propeller shaft are connected

by flexible hoses instead of a drive shaft; anti-vibration engine mounting; axial water inflow to the propeller can be achieved, reducing vibrational levels of inclined shafts; and increased separation of the propeller from the hull. The final drive unit, having high torque output, can be operated at medium pressure without the need for a high-pressure hydraulic pump in combination with a gear drive, which are also sources of high-level noise. The elimination of the drive shaft and gear drives also means the engine can be positioned for optimum load distribution and balance, and overall weight is reduced.

The combination of a variable displacement hydraulic pump and a fixed displacement high torque hydraulic motor serves as an optimum speed/torque converter.

Energy in the form of pressurized fluids is transferred from the pump to the propeller drive, where it is converted back into mechanical energy.

The replacement of the mechanical transmission by hydraulic components provides stepless speed control from standstill to full speed, as well as instant reversal, reportedly assuring the availability of full power at any moment.

The high-efficiency hydraulic drive allows the distribution of power from a single power source to multiple propeller drives.

Having no mechanical connections between the engine-pump unit and the propeller drive units, the marine architect has complete freedom in positioning single or multiple propeller drives both on the bow and stern sections.

For more information on Gards Inc.'s new gearless hydraulic drive,

Circle 32 on Reader Service Card

High Speed Commuter Ferries To Service Orlando And Port Everglades

Atlantic Cash Express, Inc., Clifton, N.J. is reportedly in negotiations with a shipyard for plans to build two Surface Effect Ship (SES) "Dual Air" Catamaran Commuter Cruiser commercial passenger/vehicle ferries. Atlantic Cash Express will operate the ferries along the eastern seaboard domestic trade route between ports in Florida and the Northeastern U.S., beginning late 1995. Each ferry will accommodate 2,800 or more passengers and 200 automobiles, traveling at speeds of 60-70.6 knots. One ship will have its home port in Stapleton, Staten Island, N.Y., and will cruise in thirteen hours to Port Canaveral, Fla., the port for the greater Orlando

area. From there the ferry will sail in three hours to Port Everglades. The other SES Catamaran "Dual Air" Commuter Cruiser ferry will service the same ports, but will operate out of Port Everglades as its home port.

The catamaran-style ferries measure 415 feet long with a 140-foot beam, and **Richard Gugel**, president and CEO of Atlantic Cash Express, touts the ferries as the largest and fastest in the world. Each of the SES "Dual Air" Catamaran Commuter Cruiser ferries will be equipped with four Pratt & Whitney 33,000-hp turbo gas turbines, totaling 132,000-hp at a cruising speed of 60-70.6 knots, with a CODOG system using two MTU 20V1163TB-73 7,200-hp diesel engines totaling 14,400-hp with a cruising speed of 25 knots.

For more information, contact **Richard Gugel** at (201) 478-9009.

Westport Shipyards Building Two 100-Foot Ferries For Catalina Express

Catalina Express Lines of Southern California expects to put two new 100-foot passenger ferries into service on Catalina Island this Spring. The pair of fiberglass ferries are under construction at Westport Shipyard's plant in Washington.

The hulls are being built using Westport's new high speed "8500 series hull mold" that provides special propeller tunnels. **Randy Rust**, Westport president, said that the vessels will have a service speed of 32 knots.

Catalina Express Lines, with the bulk of its fleet built by Westport, carries passengers from San Pedro and Long Beach terminals to Avalon and Two Harbors on Catalina Island. The new vessels, with their 22-foot, eight-inch beam, will each accommodate 149 passengers.

The vessels were designed by Jack Sarin Naval Architects of Bainbridge Island, Wash., the firm that also developed the lines for the new hull form. Built of fiberglass

with Airex/PVC core and fire retardant resin, the vessel will meet U.S. Coast Guard requirements for certification for "coastwise service."

The vessels will utilize two 2,000-hp 16V149TIB DDEC Detroit Diesel engines with MGN4336V, 3:1 marine gears. A sophisticated integrated steering and stabilizer system was designed for the vessels by Maritime Dynamics of Lexington Park, Md. The system, which also includes the automatic pilot, uses active trim tabs and rudder control to reduce both rolling and pitching motions.

Wesmar is providing the 20-hp, dual prop bow thrusters with three-station controls. Two 30-kW Northern Lights generators with wet exhaust will provide service power. A baggage compartment will be fitted with storage racks and electric conveyor belts.

For more information on Westport Shipyards,

Circle 68 on Reader Service Card

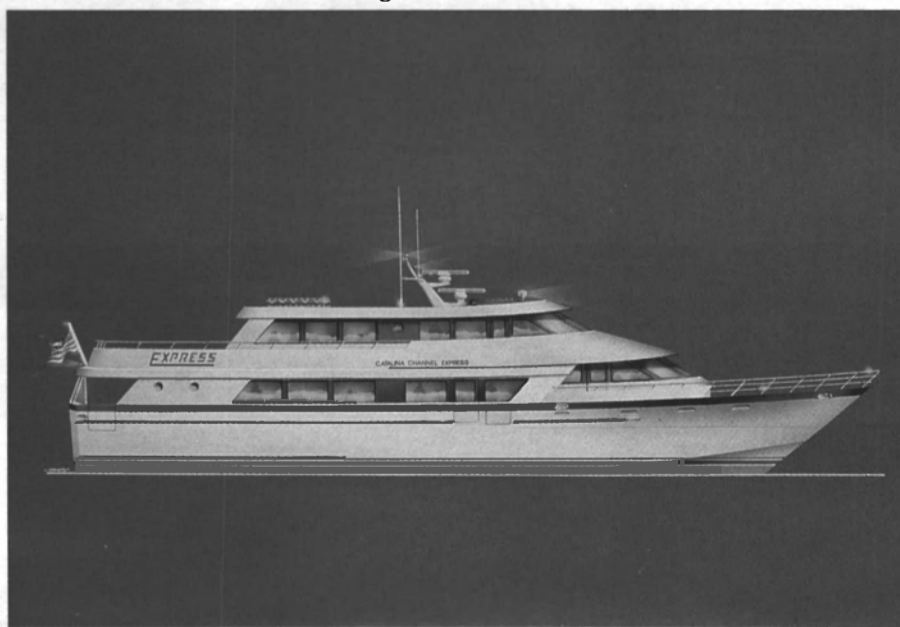


Illustration of 100-foot passenger ferry, two of which are being constructed at Westport Shipyards for Catalina Express Lines.

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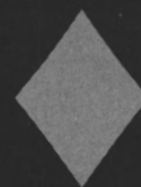
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Stan-Blast Abrasives, 3300 River Rd., P.O. Box 968, Harvey, LA 70059

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

AIR CONDITIONING AND REFRIGERATION—Repair & Installation

Adrick Marine, 141D Central Ave., Farmingdale, NY 11735
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001
Callenberg Engineering, 2010 North Miami Ave., FL 33127
Carrier Transicold, P.O. Box 4805, Syracuse, NY 13221
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031
Stal Refrigeration AB, Bulungsgatan 16, S-601 87 Norrköping, SWEDEN

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

McDonough Marine Service, 2300 Surekote Road, New Orleans, LA 70117
Zidell Marine Corp., 3121 SW Moody Ave., Portland OR 97201

BASKET STRAINERS

Beaird Industries, P.O. Box 31115, Shreveport, LA 71130

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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
Tanmat 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

BOAT STORAGE

Miracle Steel, Waterford Tower, Ste. 500, 503 N. Hwy 169, Minneapolis, MN 55441

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G.R. Bowler Co., 2701 Culver Rd., Ste. 200, Rochester, NY 14622

BOILER—Manufacturers

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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

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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

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Crowley Maritime, 155 Grand Ave., Oakland, CA 94612
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Crandall Dry Dock Engineers Inc./Marit Chain, 21 Pottery Lane, Dedham MA 32026
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston TX 77020
Washington Chain & Supply Inc., Box 3645, Seattle, WA 98124
G.J. Wortelboer Jr. B.V., Postbus 5003, 3008 AA Rotterdam, NETHERLANDS

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

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Drew Ameroid Marine, One Drew Plaza, Boonton, NJ 07005
Vecom USA, Inc., 236 St. George Avenue, Jefferson, LA 70121

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ZSI, 12749 Richfield Ct., Livonia, MI 48150

CLASSIFICATION SOCIETY

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A/S Vesta, Skudehavsvej 27, DK-2100 Copenhagen, DENMARK;
Sales Agents: American United Marine Corp., 5 Broadway, Rt 1, Saugus, MA 01906.

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

Autoship Systems Corp., #403, 611 Alexander St., Vancouver, BC, Canada V6A1E
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

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Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160
Wright Austin Co., 3250 Franklin St., Detroit MI 48207

CONTROL SYSTEM—Monitoring

ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND
American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IMO Industries, Gems Sensors Division, One Cowles Rd., Plainville CT 06062
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 Dr., Alpharetta, GA 30202
Teleflex Naval technologies, 205 Church Rd., North Wales, PA 19454

CONTROL SYSTEM—Steering

KGW Schweriner, Wisarsche 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

COUPLINGS

Lo-Rez Vibration Control Ltd., 156 West 8th Avenue, Vancouver, BC CANADA, V5Y1N2

American Vulkan, P.O. Drawer 673, Winter Haven, FL 33882

CRANE—HOIST—DERRICK—WHIRLIES

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., Carlsbad, 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 Travellift, 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
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Petitbone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883
Smatco Industries, P.O. Box 4036, Houma, LA 70361
Westmont Inds, 10805 Painter Ave, Santa Fe Springs, CA 90670
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

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New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Skookum/Rope Master, P.O. Box 280, Hubbard, OR 97032
Smatco Industries, P.O. Box 4036, Houma, LA 70361
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Willem Pol b.v., P. O. Box 29102, 3001 GC Rotterdam, The Netherlands

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Smatco Industries, P.O. Box 4036, Houma, LA 70361
Smith Berger Marine Inc., 516 South Chicago St., Seattle, WA 98108

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Rochem Separation Systems, Inc., 3904 Del Amo Blvd., Ste. 801, Torrance, CA 90503
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Coltec Industries Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI53511
Gearhard's Inc., P.O. Box 10161, Jefferson, LA 70181
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
Pow-R-Quik, 5518 Mitchelldale, Houston, TX 77092

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Alaska Diesel, 4420 14th Ave., NW, Seattle, WA 98107
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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
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, Watseka, IL 60970
Giro Engineering Ltd, Talisman, Duncan Road, Park Gate, South Hampton, S03 7BX ENGLAND

Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315

Gotten 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

Kim Hotstar Mfg Co., E 6724 Broadway Ave, P.O. Box 42, Spokane WA 99210

Klattenberg Marine, 17 Grandview Ave., W. Orange, NJ 07052

MAN B&W Diesel AG, Stadtbachstrasse 1, D-8900 Augsburg 1, GERMANY

MAN B&W Diesel, 17 State St., New York, NY 10004

MTU of North America, 10450 Corporate Dr., Houston, TX 77478

Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, GERMANY

Motor-Service AB, Box 2115, S-144 04 Ronninge, SWEDEN

National Maintenance & Repair, Foot of Hawthorne, Hartford, IL 62048

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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

Ullestein Bergen AS, PO Box 924, N5002 Bergen, NORWAY

Wartsila Diesel, 201 Defense Highway, Annapolis, MD 21401

DIVING & SALVAGE

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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

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Trenomat GmbH & KG, 5600 Wuppertal 11, Dornap, GERMANY

DRILLING & BLASTING

Marine Drilling & Blasting, PO Box 10455, Jacksonville, FL 32247-0455

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Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Curacao Drydock (USA), PO Box 3012, Curacao, Netherlands Antilles
Marine Design Services, P.O. Box 928, Bonita CA 92002
North Florida Shipyards, P.O. Box 3255, Jacksonville, FL 32206

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ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND
Bender Inc, 400 Gordon Dr, Bldg 501, Exton, PA 19341
Callenberg Engineering, 2010 North Miami Ave., Miami, FL 33127
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
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High Seas Technology, Inc., 2965 West State Rd., Fort Lauderdale, FL 33312
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New Orleans, LA 70126

EMERGENCY MEDICAL ASSISTANCE

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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 84167

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

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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
Ocean Technical Services, Inc., 634 Peters Road, Harvey, LA 70058

EVAPORATORS

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Beaird Industries Inc., P.O. Box 31115, Shreveport, LA 71130

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Ferry Industrial Fastener Co., 1470 St. Charles Ave., Lakewood, Ohio 44107
Hardware Specialties, 48-75 36th St., L.I.C., NY 11101
Jamestown Distributors, 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 0286

Okabe Co., Inc. 645 Forest Edge Drive, Vernon Hills IL 60061
Revcar Fasteners, P.O. Box 345, Roanoke, VA 24003
Robbins Manufacturing, 1200 Airport Rd., Fall River, MA 02722

FENDERING

BF Goodrich, 150 Division Drive, Wilmington, N.C. 28401

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Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston, TX 77020
Schuyler Mfg. Co., Inc., 16901 Woodinville-Redmond Rd., Woodinville, WA 98077

Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624
Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160
Ultra Poly Inc., 2926 South Steeple, Tacoma, WA 98409
Viking Fender Co., 50 Church Street, Sea Bright, NJ 07760

FIBERGLASS PIPE & FITTINGS

Ameron Fiberglass & Pipe, 61 Executive Ave., Edison, NJ 08817

FIBER OPTIC SYSTEMS

AT & T, Cables System/Fiber Optic Div., 111 Madison Ave., Morristown, NJ 07919

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U.S.A. Repts: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168

FIRE DETECTION SYSTEMS

Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY

FIRE STOP PRODUCTS

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FLAME CUTTING MACHINE

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Interior Design Int'l, 701 Dexter Ave. N., Ste. 307, Seattle, WA 98109

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JOINER—Waterlight Door—Paneling—Ceiling System—Decking
Branton Industries, Inc., 1101 Edwards Ave., Hanahan, LA 70123
GEC-Marconi Electronic Systems Corp., 550 S. Fulton Ave., Mt. Vernon, NJ 10550
IMAC AB, Berga Alle 1, S-252 55 Helsingborg, SWEDEN
U.S. Rep: Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
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 97031
Walz & Krenzer, Inc., 90 Forest Ave. Locust Valley N.Y. 11560

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The Walter Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307

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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
Fr. Fassmer GMBH & Co., D-2876 Berne 2, Wese, GERMANY
Norsafe AS, P.O. Box 115, N-4818 Faervik, Norway
Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806
Zodiac of North America, P.O. Box 400, Stevensville, MD 21666

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale FL 33310-5247
Archway Marine Lighting, 4501 Swan Ave., St. Louis, MO 63110
Fishermans Wholesale Marine Supply Co., Inc. 4504 B Downman Road New Orleans, LA 70126
Golten Marine, 160 Van Brunt St., Brooklyn, NY 11231
The L.C. Doane Co., P.O. Box 975, Essex, CT 06426
Julian A. McDermott, 1639 Stephen St., Ridgewood, NY 11385
Nautilus Equipment Ltd., P.O. Box 66, Station M, Halifax, Nova Scotia B3J 2L4, CANADA
Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearland, TX 77581
Phoenix Products, 6161 N 64th St., Milwaukee WI 53218

LINE BLINDS

Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474

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LIQUID OVERFILL PROTECTION SYSTEMS

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Selcor, 2 Dean St., Tenafly, NJ 07670

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QED, 4646 N. Witchduck Road, Virginia Beach, VA 23455

LUBRICANTS

Jel-Lube, Inc., 4849 Homestead Road, Houston, TX 77226
Pre-Lube, 13790 NW 4th St., Ste. 111, Ft. Lauderdale FL 33325
B P Marine Americas, 200 Westlake Park Blvd., Houston, TX 77079-2682

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Del Gaudio, 619 Industrial Rd., Carlstadt, NJ 07072
Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315
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MACHINERY MONITOR AND CONTROL SYSTEMS

Electronic Marine Systems, 800 Ferndale Pl., Elmhurst, NJ 07065

MACHINING—On Site Repair

Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315
In-Place Machining, 1929 N. Buffum Street, Milwaukee, WI 53212

MARINE ACCOMMODATIONS

Directions in Design Inc., 633 Emerson, Suite 100, St. Louis, MO 63141
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 97031

MARINE BATTERIES

Rae Storage Battery Mfg. Co. Inc., 51 Deming Rd., Berlin, CT 06037

MARINE CEILING

Hydro-Aluminium, Vik Verk, N-5880 VIK I SOGN, Norway

MARINE COATINGS

Vecom USA, 236 St. George Avenue, Jefferson, LA 70121

MARINE ELECTRONICS

High Seas Technology, Inc., 2965 West State Rd., Fort Lauderdale, FL 33312

MARINE 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 97031
Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA 98102

MARINE GEARS

Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227

MARINE RADAR COMPONENTS

EEV, Inc., 4 Westchester Plaza, Elmsford, NY 10523

MARINE SHIP MANAGEMENT

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 33431

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
Childs Engineering Corp., Box 333, Medfield, MA 02052
Crandall Dry Dock Engrs., Inc., 21 Pottery Ln., Dedham, MA 02026
Crane Consultants, 15301 First Ave S., Seattle WA 98148
C.R. Cushing, 18 Vesey St., New York, NY 10007
Arthur D. Darden, 3200 Ridgeland Dr., Suite 403, Metairie LA 70002
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320
Encon Mgmt. & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706
GHH Inc. (Incl. 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 Perla & Assoc., 4039 21st Ave., Ste. 300, Seattle, WA 98199
Morris Gurainick 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
JH 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., Sidel, LA 70460
MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John V. McCollum, Inc., 1199 Long Point Road, Mt. Pleasant, SC 29464
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxy, MS 39535-4454
John J. McMullen Associates, Inc., 1 World Trade Ctr., Ste 3000, N.Y. NY 10048
MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401
Marine Design & Operations, Inc., 226 Chestnut St., Roselle Park, NJ 07204
Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902
Marine Power Associates, 1010 Turquois St., Ste 217, San Diego, CA 92109
Manitech, 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
Northern Marine, P.O. Box 1169, Traverse City, MI 49685
Ogden Government Services, 3211 Jermantown Rd., Fairfax, VA 22030
Olson Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777
Omega Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1100, Houston TX 77079
QED Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 620 Folsom 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. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
TIMSCO, P.O. Box 91360, Mobile AL 36691

NAVAL BOAT BUILDERS

Atlantic Boat Group, Inc., 1850 Lake Park Dr., Ste. 216 Smyrna, GA 30080

NAVIGATION & COMMUNICATIONS EQUIPMENT

AT&T, High Seas Dept., 412 Kemble Ave., Room C380, Morristown, NJ 07960
Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
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., Annapolis, MD 21403
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065
Fairtide Enterprises, Inc., 2536 Sonata Dr., Columbus, OH 43209
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Hose McCann, 9 Smith St., Englewood, NJ 07631
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IDB Mobile Communications, 1828 L Street NW, Suite 660, Washington, D.C. 20036
Kenwood USA Corp., Marine Prod. Div., 2201 E. Dominquez St., Long Beach, CA 90810
Mackay Communications, 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
Nautronix, 15401 Vantage Pkwy W., Houston, TX 77032
Norwegian Telecom, P.O. Box 6701, Oslo 1, NORWAY
Novatech, 820 Cormorant St., Victoria, BC V8W 1R1, CANADA
Offshore Systems Int'l., 19015 36th Ave., W., Ste. BC, Bldg. F, Lynnwood, WA 98036
Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearland, TX 77581
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
World Communications Sys., 11834 Canon Blvd., Newport News, VA 23606

OIL—Marine—Additives

Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001
Shell Oil, P.O. Box 2463, Houston, TX 77252
Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

OIL/WATER SEPARATORS

ACS Industries, Inc., 14208 Industry Rd., Houston, TX 77053
Alfa-Laval Separation, Inc., 955 Mearns Rd., Warrminster, PA 18974-0556
Blohm & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY;
U.S.A. Reps: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168
Centrico, Inc. (Westfalla Separators), 100 Fairway Court, Northvale NJ 07647
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
MMC International, 60 Inip Dr., Inwood NY 11696
Nelson Industries, Highway 51 West, Stoughton, WI 53589

PAINT—COATING—CORROSION CONTROL

Amclean Coating Removal, 12920 S.W. 99 N. Ave., Miami, FL 33176
Ameron, 201 N. Berry St., Brea, CA 92622
The 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 Curie Avenue, Wallington, NJ 07057
International Paint, 6001 Antoine, Houston, TX 77292
Melvin Pierce Marine Coating, Inc., P.O. Box 93, Semmes, AL 36575
Microphor, Inc., Marine Div., 452 E. Hill Rd., P.O. Box 1460, 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

LTC Americas, 101 G. Executive Dr., Sterling, VA 22170

PIPE FITTINGS/CONNECTING SYSTEMS

Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248
Stanley G. Flagg Co., 1020 W. High St., Stowe, PA 19464

PORT SERVICES

Port of Portland, 5555 N. Channel Ave., Portland, OR 97217

PROJECT TRACKING, PLANNING & MANAGEMENT

Tracking Systems of America, 8789 San Jose Blvd., Jacksonville, FL 32217

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, Inc., Box 220, SF-26101, Rauma, FINLAND
Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081
Brunvoll A/S, P.O. Box 370, N-6401, Molde, Norway
CWF Hamilton & Co., Ltd., P.O. Box 709, Christchurch, NEW ZEALAND
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320
Coltec Industries (Fairbanks Morse Engine Div.), 701 Lawton Ave, Beloit, WI 53511
Electro-Motive, div. General Motors, 9301 W 55th St, La Grange, IL 60525
Fincantieri, diesel Engines Div.—GMT, Bagnoli della Rosandra 334, Trieste, ITALY
Fundiciones RICE, AV Rios Espinoza No.88, COL BENITO JUAREZ, Mazatlan, GEP
GE Naval & Drive Turbine Systems, 166 Boulder Dr., Fitchburg MA 01420
Harbormaster Marine, Inc., 31777 Industrial Road, Livonia, MI 48150
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Krupp MaK, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9
Kobelt Manufacturing, 11720 Horseshoe Way, Richmond, BC Canada V7A 4V5
Lohmann & Stolterfoht, P.O. Box 1860, D-58408 Witten, Germany
Mapeco Products Inc., 90 Forest Ave., Locust Valley, N.Y. 11560
Marine Gears, Inc., P.O. Box 689, Greenville MS 38707
Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY
MAN B&W Diesel, 17 State St., New York, NY 10004
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Holeby, DENMARK
MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15, DK-9900 Frederikshavn, DENMARK
MAN B&W Diesel GmbH, Stadtachstrasse 1, D-8900 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
New Sulzer Diesel, Ltd., CH-8401, Winterthur, SWITZERLAND
OmniThrust Inc., 9515 Sorensen Ave., P.O. Box 2144, Santa Fe Springs, CA 90670
Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND
Rolla SP Propellers USA, 4030 Mustang Road, Melbourne, FL 32934, USA
Karl Senner Inc., 25 W Third, Kenner LA 70062
Schottel-Werft, D.-#401 Spay, GERMANY
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 Abos Divisions, P.O. Box 244, SF65100 Vasa, FINLAND
Westech Gear Corp., 2600 E. Imperial Highway, Lynnwood, CA 90262

Westinghouse Marine Div., 401 E Hendy Ave, Sunnyvale, CA 94088

PROTECTION MATERIALS

Megafilm, Bone Lane Industrial Estate, Newbury, Berkshire RG14 5SH EENGLAND

PROTECTIVE WRAPS

FANA Film Applicators of North America), 1260 E Woodland Ave., Springfield PA 19064

PUMP—Repair—Drives

Coffin Turbo Pump, Inc., 326 S. Dean Street, Englewood, NJ 07631
Del Gaudio, 619 Industrial Rd., Carlstadt, NJ 07072
Gilkes, Inc., PO Box 628, Seabrook, TX 77586
Jim's Pump Repair, 48-55 36th St., Long Island City NY 11101
Leistrich Corporation, 165 Chestnut Street, Allentown, NJ 07401
Vita Motivator, 99 W Hawthorne Ave., Suite 622, Valley Stream NY 11580

REFRIGERATION EQUIPMENT/SERVICES

Adrick Marine, 141D, Central Ave., Farmingdale, NY 11735
Bailey Refrigeration Co., 2323 Randolph Ave., Avenel, NJ 07001

REMOTE VALVE OPERATORS

American United Marine Corp., 5 Broadway, Rt 1, Saugus, MA 01906
Teleflex, Inc., 771 First Ave., King of Prussia, PA 19406

ROPE—Manila—Nylon—Hawsers—Fibers

Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018
Dupont, Montgomery 403, 1011 Centre Road, Wilmington, DE 19805
United Ropeworks (USA), Inc., 151 Commerce Dr., Montgomeryville, PA 18936

RUDDER STOCK SEALS

Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168
John Crane Marine USA, 1536 Barclay Blvd., Buffalo Grove, IL 60089

SAFETY LIGHTING

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 19612

SANITATION DEVICE—Pollution Control

Eltech International Corp, 12850 Bournewood Dr, Sugarland TX 77478
Jered Brown Brothers, 56 South Squirrel Rd., Auburn Hills, MI 48326
Byrne, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
Microphor, Inc., 452 E. Hill Rd., P.O. Box 1460, Willis, CA 95490

SCALE MODELS

Markitect, PO Box 225, Oconomowoc, WI 53066
Scale Reproductions, 16346 County Road 13, Fairhope, AL 36532
Sturgeon Bay Model Shop, 187 N Ninth Ave., Sturgeon Bay WI 54235

SCUTTLES/MANHOLES

L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211

SHIPBOARD COMMUNICATIONS

Hose-McCann, 1241 West New Newport Center, Deerfield Beach, FL 33442

SHIPBUILDING EQUIPMENT

NEI Synrolift, Inc., 8970 S W 87th Ct., Miami FL 33176

SHIPBUILDING—Repairs, Maintenance, Drydocking

Astilleros Espanoles S.A., Padilla 17, 28006 Madrid, SPAIN
Atlantic Marine, Inc., P.O. Box 3202, Mobile, AL 36652
Atlantic Marine, Inc., 8500 Heckscher Dr., Jacksonville, FL 32226
Avondale Industries Inc., P.O. Box 50280, New Orleans, LA 70150
Baleh Marine Inc., P.O. Box 600, Lacombe, LA 70445
Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601
Bender Inc., 400 Gordon Drive, Bldg. 501, Exton, PA 19341
BethShip, Sparrows Point Yard, Sparrows Point MD 21219
Bisso Marine Co., P.O. Box 4113, New Orleans, LA 70178
Bollinger Lockport & Larose, P.O. Box 250, Lockport, LA 70374-0250
Boston Whaler, Inc., Commercial Products Div., 1149 Hingham St., Rockland, MA 02370
Bourg Drydock, P.O. Box 1852, Houma, LA 70361
Chris-Marine AB, P.O. Box 9025, S-2000 39, Malmo, SWEDEN
Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Curacao Drydock Inc., P.O. Box 3012, Curacao, Netherlands Antilles
Eastern, 505 North Sam Houston Pkwy. East, Ste. 150A, Houston, TX 77060
European Ship Repair, 120 NE 20th St., Miami, FL 33137
Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
G.M.D. Shipyard, PO Box 050221, Brooklyn, NY 11205
Gold Coast Yachts, Inc., Box 1980 Kingshill, St. Croix, U.S.V.I. 00851
G

TANK CLEANING EQUIPMENT
Setcor, 2 Dean St., Tenafly, NJ 07670
Polamarine, Alvsborgsgatan 37, 72 Gotteborg, SWEDEN S-414 72

TANK LEVELING INDICATORS
American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
Bergan Tank, 3409 Gulf Breeze Pkwy, Gulf Breeze, FL 32561
ERL Marine Products div, PO Box 1026, New Albany, IN 47151-1026
Ian-Conrad Bergan, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561
IMO Industries, Gems Sensors Division, One Cowles Rd, Plainville CT 06062
Metritape, PO Box 2366, Littleton, MA 01460-2366
MMC International, 60 Inip Dr, Inwood NY 11696
Saab Marine Electronics AB, P.O. Box 13045, S-40251 Goteborg SWEDEN

TELECOMMUNICATIONS
Mitel, 11911 Freedom Dr., Suite 700, Reston, VA 22090

TEMPORARY FLOOR & WALL PROTECTION SYSTEMS
Megafilm, Bone Lane Industrial Estate, Newbury, Berkshire RG145SH ENGLAND

TESTING SERVICES
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331
Wyle Laboratories, 7800 Govern's Dr. S.W., Huntsville, AL 35807

THERMAL INSULATION
The Claremont Co., Inc., 174 State St., Meriden, CT 06450
Vapor Corporation, 6420 West Howard, Niles, IL 60714

THICKNESS TESTING
Cygnus Instruments, P.O. Box 3127, Annapolis, MD 21403
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331

TOOLS
San Diego Marine Hardware, 1660 Logan Avenue, San Diego, CA 92113
Tri Tool Inc., 3806 Security Park Drive, Rancho Cordova, CA 95742-6990

TORSIONAL VIBRATION SPECIALISTS
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331
T.W. Spaetgens, 156 W. 8th Ave., Vancouver, BC, CANADA, V5Y 1N2
Vibranalysis Engineering Corp., 9300 Gamebird, Houston, TX 77034

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Baiehi Marine Inc., P.O. Box 600, Lacombe, LA 70445
Jack Faulkner, 2419 Caddy Lane, Flossmoor IL 60422

TURBOCHARGERS
ABB Turbocharger Co., 1460 Livingston Ave., North Brunswick, NJ 08902

ULTRASONIC TESTING
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331

VACUUM TOILET SYSTEM
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
Fast Systems, Inc., 3240 N. Broadway, St. Louis, MO 63147
Jered Brown Bros., 56 S. Squirrel Rd., Auburn Hills, MI 48326
Jets Vacuum Sewage System, P.O. Box 14, N-6060 Hareid, NORWAY.

VALVES AND FITTINGS
Circle Seal Controls, Brunswick Corporation, P.O. Box 3666, 1111 N. Brookhurst St., Anaheim, CA 92803
Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92663
Derbyshire Machine & Tool, 5100 Belfield Ave., Philadelphia, PA 19144-1788
Dolsey Ltd., 863 West 44th Street, Norfolk, VA 23508
ERL Marine Products Div., PO Box 1026, New Albany, IN 47151-1026
Hydra-Search Co Inc, 120 Admiral Cochrane Dr, Annapolis, MD 21401-7399
Leslie Controls, 1250 Telecom Dr., Tampa, FL 33637
Loeffler Machine, US #1 & Robbins Ave., Penndel PA 19047
MMC International, 60 Inip Dr, Inwood NY 11696
Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474
Stanley G. Flagg Co., 1020 West High St., Stowe, PA 19464
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

VAPOR RECOVERY CONTROLS
E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026

VIBRATION ANALYSIS
DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110
T.W. Spaetgens, 156 W 8th Ave., Vancouver BC CANADA V5Y 1N2
Vibranalysis Engineering Corp., 9300 Gamebird, Houston, TX 77034

VIDEO—Training
Walport U.S.A. Inc. (WUSA) 840 Bond Street, Elizabeth NJ 07201

WASTE SERVICES
Browning-Feris Industry, (Medical Waste Systems) 757 N. Eldridge, Houston, TX 77079

WASTE WATER TREATMENT
Envirovac, 1260 Turret Drive, Rockford, IL 61111
Exstar International Corp., 6502 Windmill Way, Wilmington, NC 28405

WATER PURIFIERS
Alfa-Laval, Desalt A/S, Stamholmen 93, DK-2650 Hvidovre, Copenhagen, DENMARK
Alfa-Laval Separation Inc., 955 Meams Rd., Warminster, PA 18974
Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
Exstar International, 6502 Windmill Way, Wilmington, NC 28405
Lifestream Water Purification Equip., P.O. Box 634, Huntington Beach, CA 92648
Matrix Desalination, Inc., 3295 SW 11th Ave, Fort Lauderdale, FL 33315
Sea Recovery Corp., P.O. Box 2560, Gardena, CA 90247-0560

WEATHER CHART RECORDERS
Alden Electronics, 40 Washington St., Westborough, MA 01581

WEATHER INSTRUMENTS
Andera Instruments, Fanaveien 13B, 5050 Nesttun, Bergen, Norway
Belfort Instruments, 727 S. Wolfe St., Baltimore, MD 21231

WELDING
Aitek Corp., 1023 Pineville Road, Chattanooga, TN 37405
Bug-O-Systems, 3003 W. Carson St., Pittsburg, PA 15204
Miller Electric Manufacturing, P.O. Box 1079, Appleton, WI 54912
Welding Consultants USA, 10399 Paradise Blvd. #101, St. Petersburg, FL 33706

WELDING AND REFRIGERANT PRODUCTS
Drew Ameroid Marine, One Drew Plaza, Boonton, NJ 07005

WINCHES AND FAIRLEADS
Braden Carco Gearmatic, P.O. Box 547, Broken Arrow, OK 74013
Halliday Products 6401 Edgewater Dr., Orlando, FL 32810
Jeamar Winches Ltd., 53 Maple Ave., Richmond Hill, Ontario L4C 6P3, CANADA
MMC International, 60 Inip Dr, Inwood NY 11696
Markey Machinery Co., 79 South Horton St., Seattle, WA 98134
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
NIM Group Ltd., Hockley Way, Alfreton Trading Estate, Alfreton, Derbyshire DE55 7FA, ENGLAND
Skookum/RopeMaster, P.O. Box 280, Hubbard, OR 97032
S-L-M Corporation, 1101 John Avenue, P.O. Box 39, Superior, WI 54880-0039
Smatco Industries, P.O. Box 4036, Houma, LA 70361
Smith Berger Marine Inc., 516 S. Chicago St., Seattle, WA 98108

WIND MONITORING SYSTEMS
Andera Instruments, Fanaveueb 13B, 5051 Bergen, NORWAY

WINDOWS—Windshield Wipers
GEC-Marconi Electronic Systems Corp., 550 S. Fulton Ave., Mt. Vernon, NY 10550
Hepworth Marine Int'l, Hepworth House-Brook St., Reditch Worcestershire Eng. B988NF
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Bludworth Bond Completes Major Rebuild For Export

Bludworth Bond Shipyard, Inc. completed a major rebuilding project on an all-aluminum, Norwegian build, high speed ferry for Mexican customer Cruceros Maritimos del Caribe. The vessel, named M/V *Mexico*, underwent normal dry-docking repairs, as well as an upgrade on all principal systems. The main engines were replaced using twin Detroit Diesels, each 2,000 hp. Without changing waterjet configuration, vessel speed was improved by six knots to 34 knots. For more information on Bludworth Bond,

Circle 133 on Reader Service Card

Alden Electronics Receives Two NMEA Awards

Alden Electronics was presented two awards for performance and reliability at the recent meeting of the National Marine Electronics Association. The awards were presented to Alden for its Marinefax weather chart recorder and for the first time for its AE-900 Navtex receiver. For more information on Alden Electronics products,

Circle 134 on Reader Service Card

Kobelt Debuts Integrated Electronic Engine Controls

Kobelt's 6535 electronic engine control regulates and synchronizes the operation of two throttles, two clutches, two trolling valves and two variable pitch propellers. Up to eight control stations can be integrated. The device incorporates variable timing for gear engage and throttle delay, as well as shaft brake or neutral safety switch operation. Optional 4-20 milliamp interfaces accommodate electronic governor and electric gear. A Motorola micro-processor at the heart of the unit allows future field upgrades. For more information on the new systems from Kobelt Manufacturing,

Circle 135 on Reader Service Card

Peterson Builders Completes Patrol Boat Contract

Peterson Builders (PBI) completed a contract for the construction of five 51-foot patrol boats. The aluminum-hulled boats will be distributed by the U.S. Navy through the Foreign Military Sales (FMS) office.

The vessels feature Detroit Diesel engines, driving Michigan Wheel propellers via Western Branch Metals shafting. Electronics onboard include Furuno radar and Hoffmann electrical panels and Raytheon electronics.

PBI is also constructing ten 42-foot patrol boats under the FMS

program. These aluminum-hulled vessels are water jet driven and will be completed in late 1994.

Options for additional craft, if exercised, could provide employment into 1995. For additional information on the boatbuilding capabilities of Peterson Builders in regards to patrol craft designs or any type of vessel,

Circle 136 on Reader Service Card

Microphor Appoints Tocco Regional Sales Director

Microphor, Inc. announced the appointment of **Art Tocco** as western regional sales director. His responsibilities include working with Microphor's representative and direct sales networks over four divisions, including marine. Prior to joining the company, Mr. Tocco has had extensive sales and manufacturing experi-

ence with the aerospace industry. Started in 1963, Microphor has been a leading manufacturer of ultra low flush toilets and sewage treatment systems. Marine products include sanitation devices, marine heads, oily water separators, oil content monitors and sump/pumps. For more information on the Microphor marine product line,

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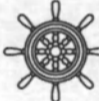
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*NOTE: Please include your name, address and phone # on bid. Bids must be received by 5:00PM CST January 28, 1994. Bids will be opened 1:00 PM CST January 31, 1994.

All parties interested in viewing the vessel or receiving information should contact: Joe Anzaldua, Sr., Anza, Inc., Tulsa, Oklahoma (918) 622-9020 or the attorney listed above

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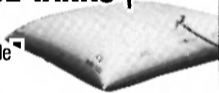
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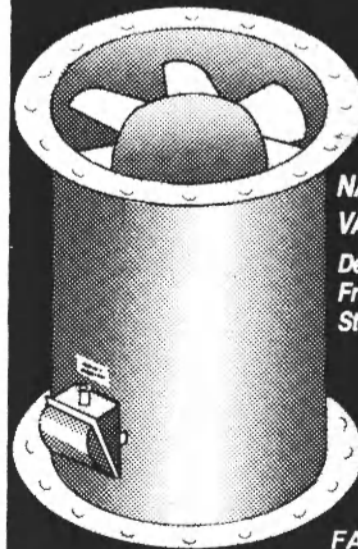
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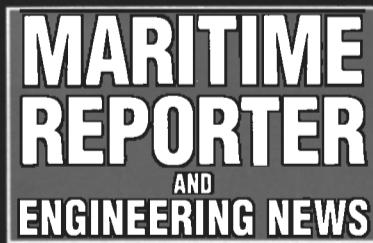
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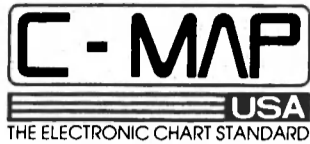
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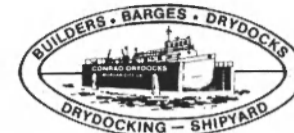
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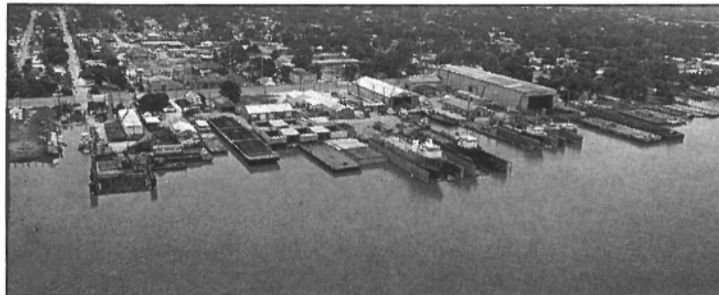
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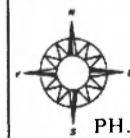
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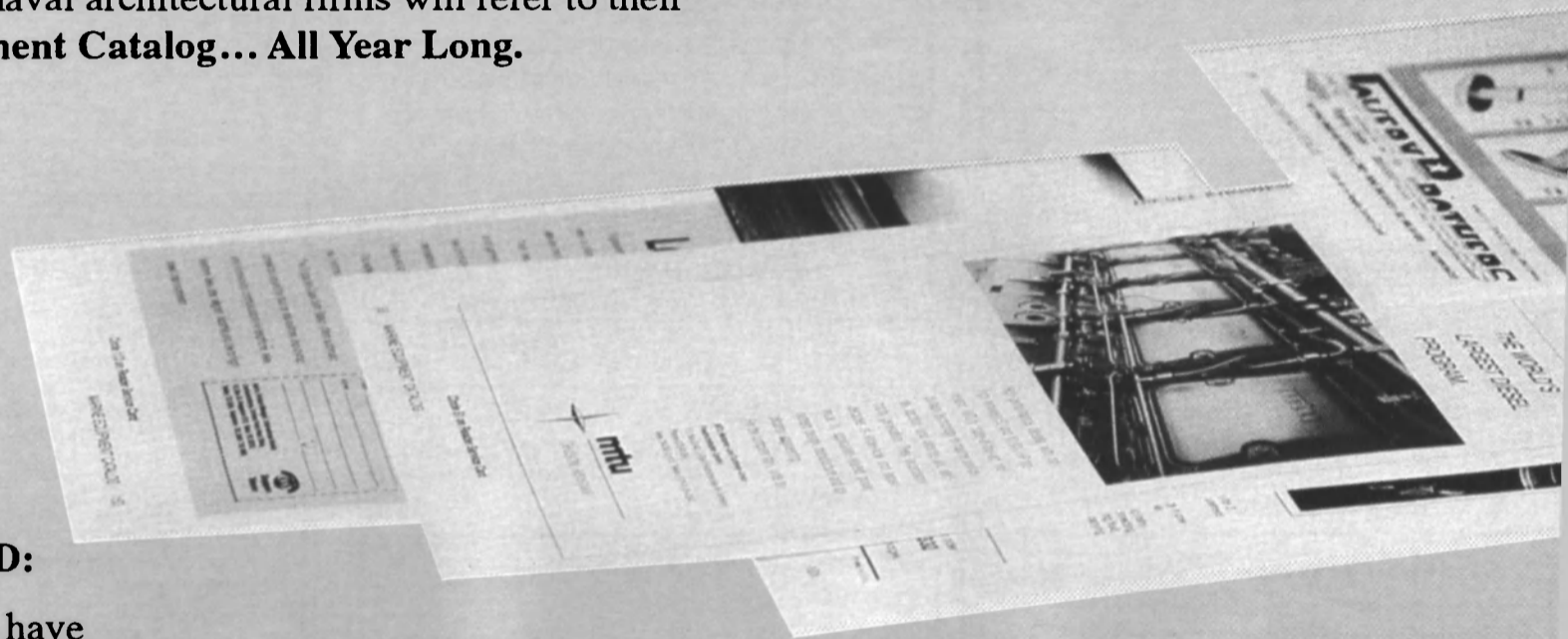
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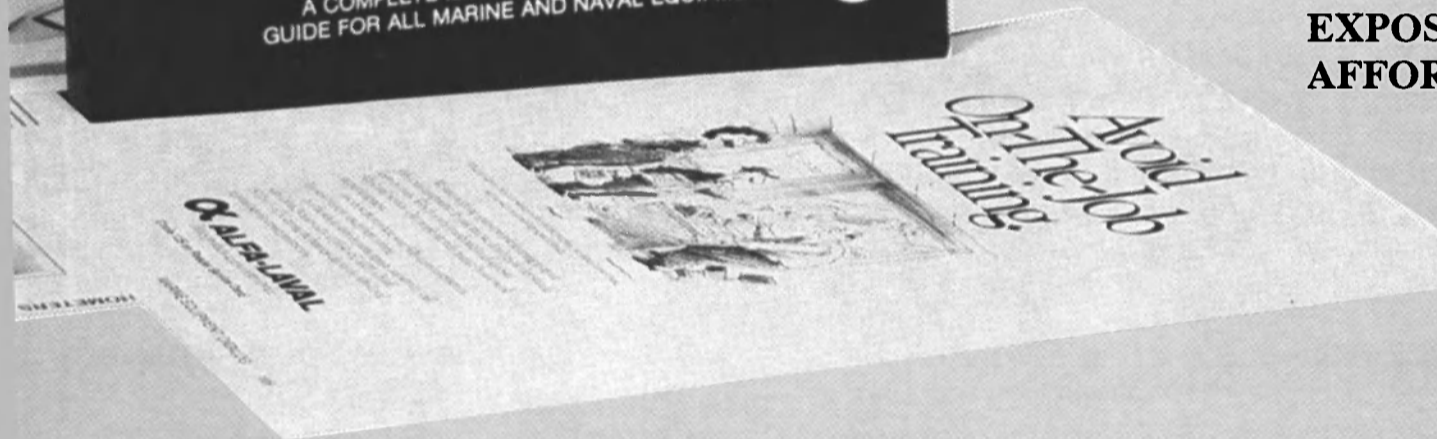
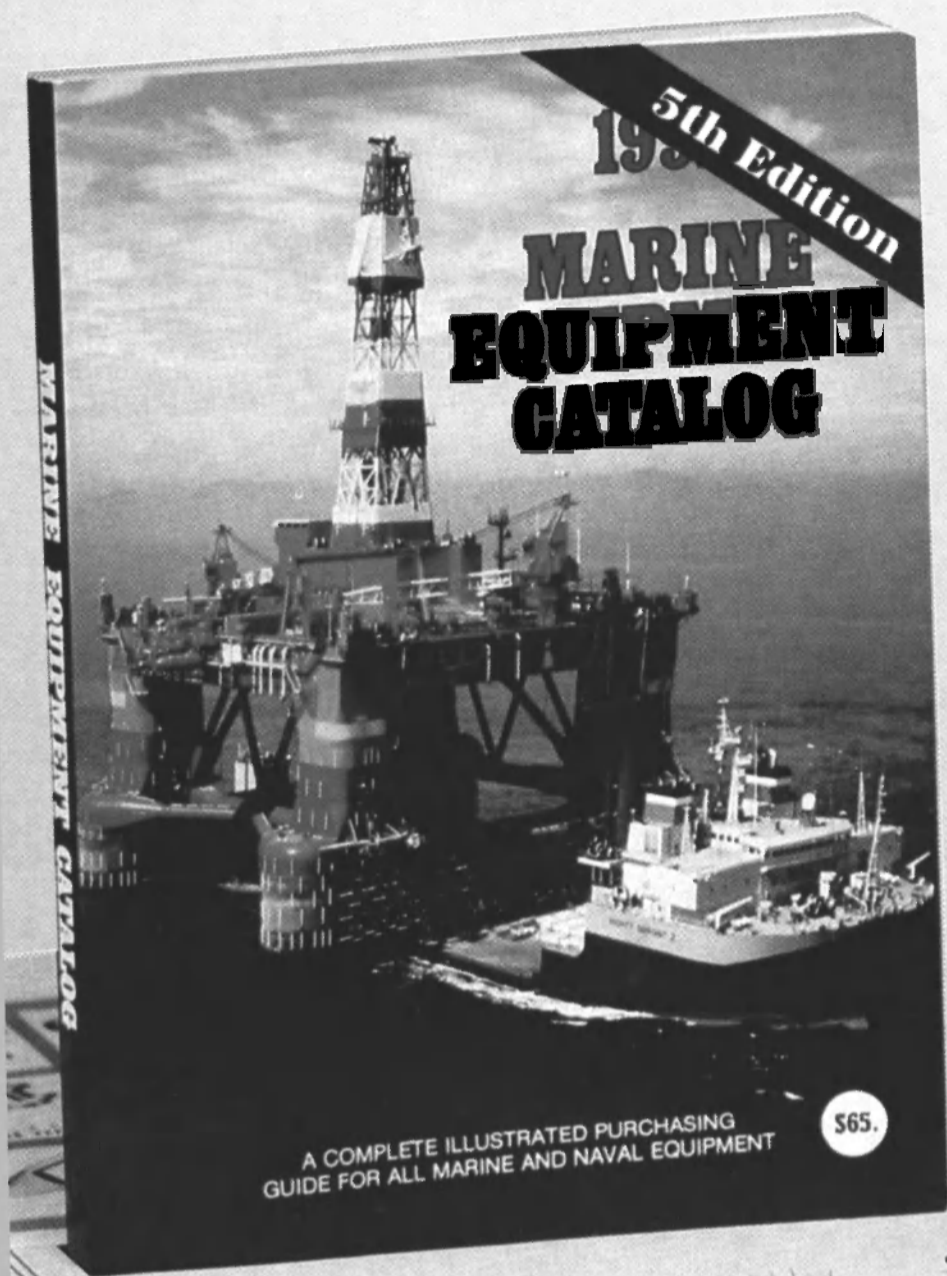
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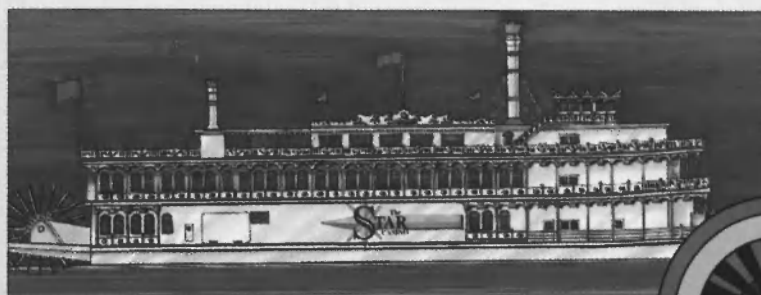
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