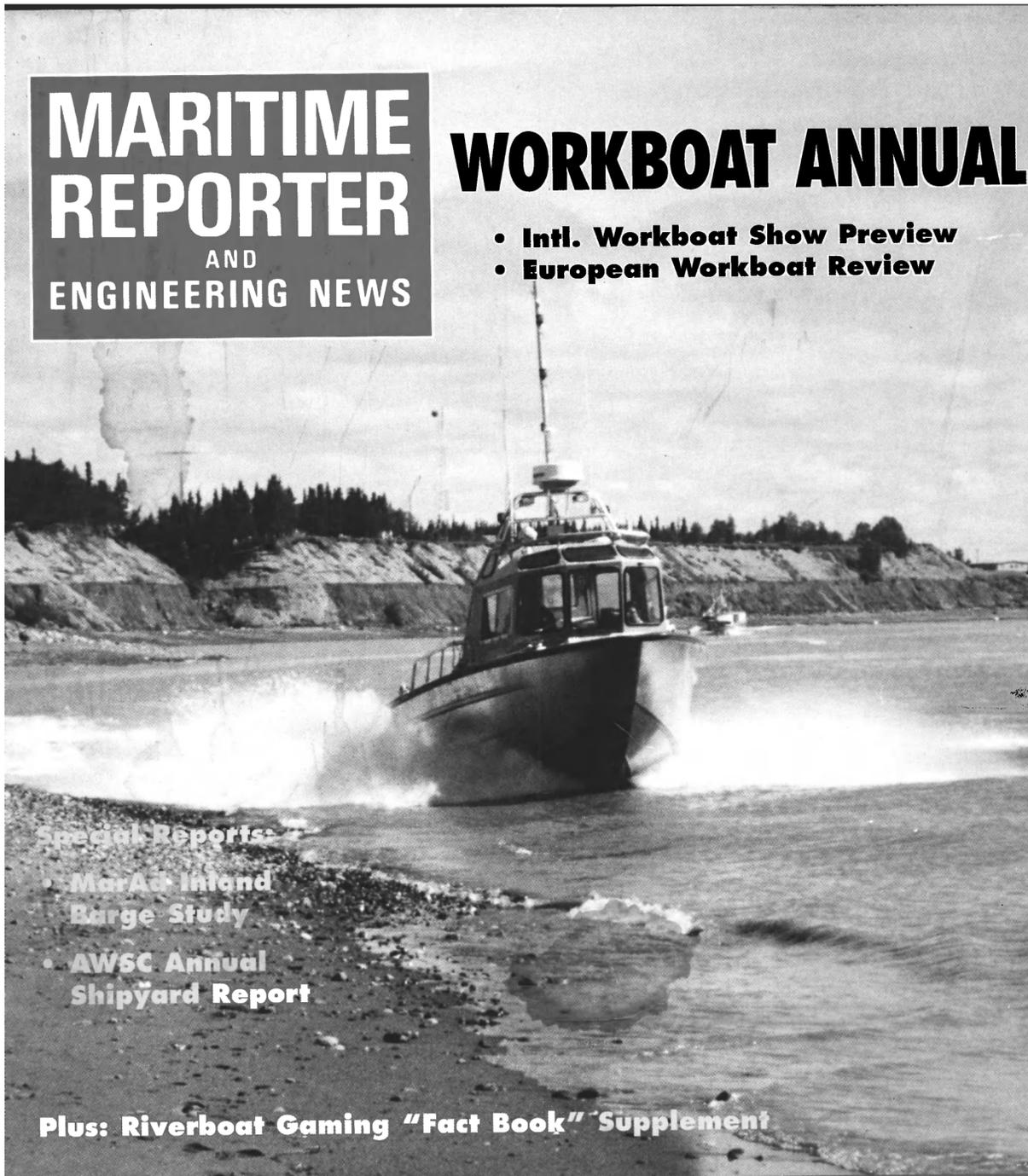


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- Intl. Workboat Show Preview
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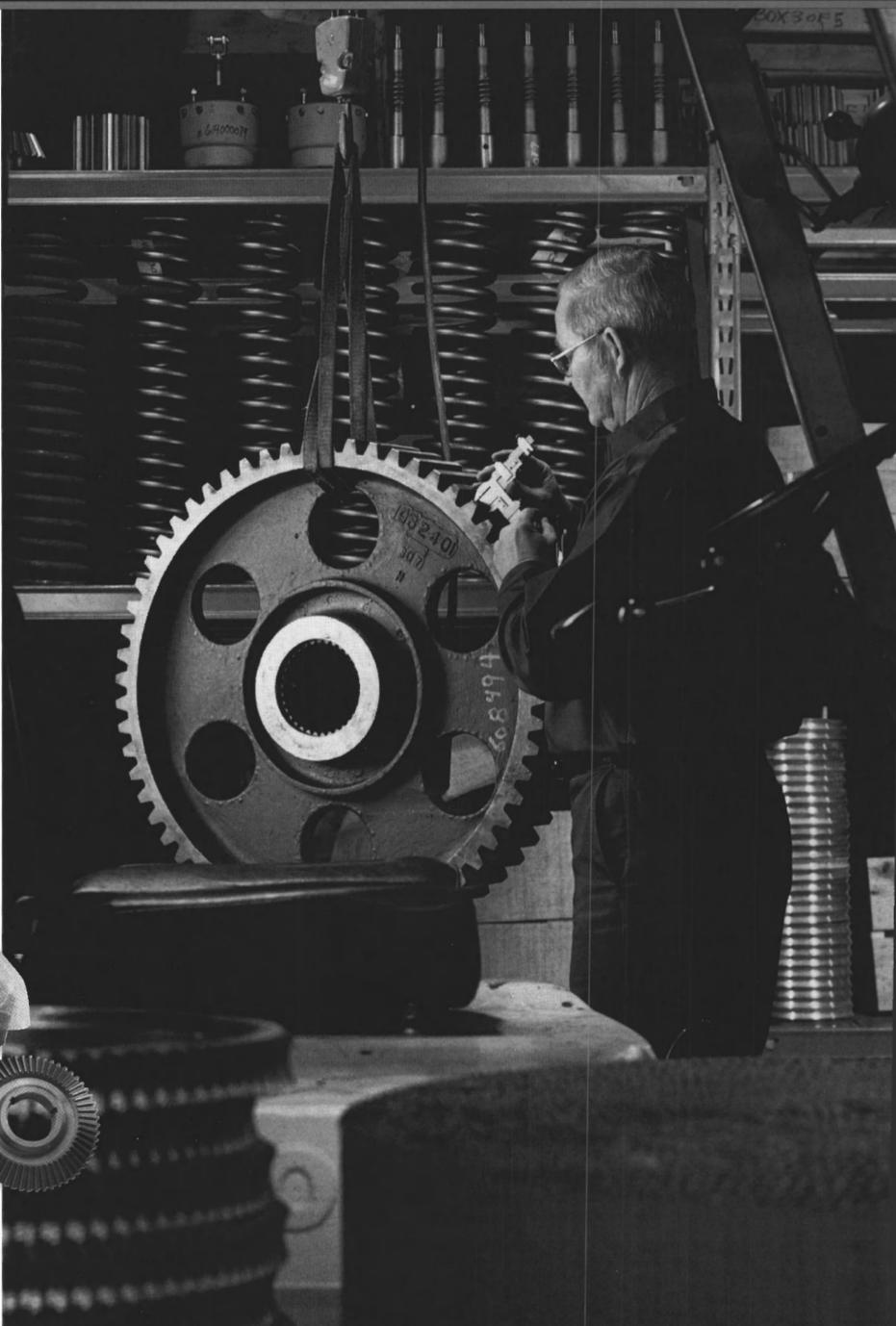
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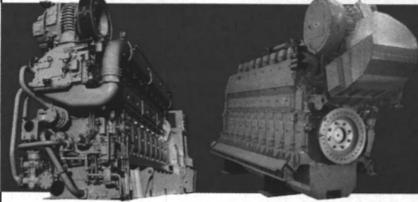
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ON THE COVER

Pictured on this month's cover is the Workboats Northwest-built "Near Shore" oil spill control vessel. The boat, built for Cook Inlet Spill Prevention and Response, Inc., is powered by a Caterpillar 3208TA diesel engine which operates at 435 hp at 2,800 rpm. The Caterpillar engine drives the vessel's waterjet through a ZF reduction gear. The engine is cooled by a Fernstrum keel cooler. For additional information, turn to page 22.

48 U.S. Ferry Business Boom
Ferry projects in Washington and Alaska have peaked the interest and hopes of builders and suppliers.



53 Navigation & Communication Technology
Safety & economy are just two of the driving forces behind electronic manufacturers' technological push.



PLUS: Navigation & Communication Equipment Buyer's Guide

65 Workboat Annual
Preview of the International Work Boat Show with exclusive "Buyer's Guide." Also: Full findings of recent MarAd, AWSC surveys.



Casino Boat "FACT BOOK"
This supplement for the Riverboat Gaming Congress & Expo features industry insights from Transportation Institute's **Larry Evans**, and industry statistics. * supplement starts after page 18.



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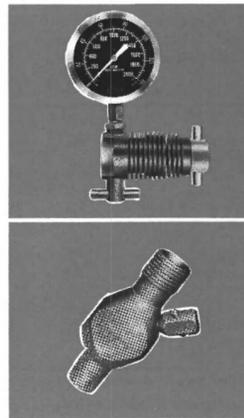
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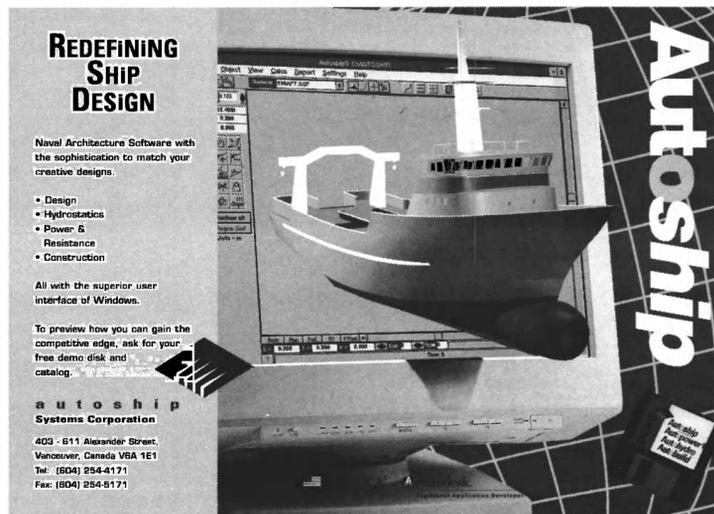
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5

Astilleros Espanoles To Convert Tanker To FPSO

Astilleros Espanoles signed a contract with Bluewater Terminal Systems for the conversion of the tanker *Dirch Maersk* into a floating, production, storage and offloading (FPSO) vessel to be called *Uisge Gorm*.

Once converted, the vessel will be operated in the Fife Field in the British area of the North Sea, used by Amerada Hess.

This is the fifth conversion performed by Astilleros Espanoles' Cadiz shipyard.

The Cadiz yard converted the *Ildefonso Fierro* and the *Sitala* for Shell, *FPSO VI* for Ashland Oil and *Alisa Craig* for Posco N.V.

In order to improve the productivity of the conversion works, it will be necessary to drydock the vessel three times in the Cadiz shipyard and to move it to the Puerto Real Shipyard for a short time to fit the heaviest equipment.

The conversion of the *Uisge Gorm*

entails: structure and fixed point mooring system; forward crude intake; module support structure on deck; service support structure and landing areas; flare stack for the gas remaining from the process plant; building and fitting of helicopter landing area; installation of two cranes on deck and their correspondent material stowage areas; modification of the accommodation spaces according to regulations in force and enlarging them in order to accommodate 54 people; installation of new lifeboats and davits; integral modification of the ballast and cargo systems; installation of a sternthruster; installation of a new turbo-alternator; modification of the fuel system for boilers in order to operate on dual fuel using gas coming from the process; modification of the firefighting system; extension of the electric and automation service which enables the feed and control of all ship activities; construction and fitting of a service and power module, consisting of one compartment to be installed which will stow five diesel motors fitted to two well water injection pumps and to three compressors for the reinjection of process gas.

Aside from conversion work, repairs and ship life extension work for the *Uisge Gorm* entail: checking and arrangement of all the piping, machinery and electricity services; structural steel surfaces treatment and coating, including tanks as well as decks and accommodation exteriors; cathodic protection installation; additional reinforcement of the structure in order to compensate the structural fatigue life for a period of at least 15 years.

The ship is due for delivery, after the conversion and repair work, on March 15, 1995.

For more information on Astilleros Espanoles
Circle 146 on Reader Service Card

SSE Secures Further Contract For Two Container Vessels

Singapore Shipbuilding & Engi-

neering Ltd. (SSE), the marine arm of Singapore Technologies, secured a further contract to build two 1,018-TEU type SS-700 container vessels for Singapore-based Regional Container Lines Pte. Ltd. (RCL).

The vessels are priced at about \$22.5 million each and will be delivered in the third and fourth quarters of 1996.

The SSE standard type SS-700 container vessels have a dwt of 12,700 and service speed of 17 knots.

SSE confirmed that the container vessels contracted earlier this year with RCL Bangkok will also be of the SSE type SS-700 design.

With this contract, SSE will have built 22 container vessels for clients worldwide.

Recent deliveries for Singapore Shipbuilding & Engineering include three 456-TEU vessels for Singapore's Neptune Orient Lines and two 400-TEU RoRo/LoLo vessels for U.S.-based Tropical Shipping and Construction Co. Ltd.

For more information on SSE
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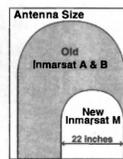


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Maritime Reporter/Engineering News

SeaArk Delivers Fire/Rescue Boat To Japanese Co.

The Morita Fire Pump Manufacturing Co. of Osaka, Japan took delivery of a 36-ft. (11-m) fire/rescue boat from SeaArk Marine, Inc. of Monticello, Ark.

Morita, a manufacturer of



firefighting trucks in Japan since 1907, purchased the boat for an Indonesian customer. The 36-footer will be used for fire/rescue work in the Coral Sea.

The fireboat is constructed of all-welded, heavy-duty aluminum and features a deep-V hull design which aids in the craft's speed and performance.

Morita's new boat features a 7-ft. by 7-ft. (2-m by 2-m) all-welded cabin

which is insulated to reduce heat and noise. Power is provided by twin Cummins in-line six cylinder 6BTA5.9M2, 300-hp diesel engines coupled to twin 273 Hamilton waterjets.

The fire system consists of a Hale 50 FB single stage fire pump driven by a heat exchanger-cooled Cummins model 4BT3.9 diesel engine with a pumping capacity of 1,000 gpm at 150 PSI.

MARITECH Project To Explore U.S. Cruise Ship Building Feasibility

The Maritime Administration (MarAd) and Ingalls Shipbuilding, Inc., Pascagoula, Miss., have entered into a cooperative agreement to explore the feasibility of building cruise ships in the U.S.

The project includes developing a preliminary design and shipyard manufacturing plan, as well as a market analysis to determine sales potential.

The cooperative agreement, awarded on a competitive basis, is part of MARITECH, a program designed to enhance the competitiveness of U.S. shipyards. Participation in the MARITECH program is one element of the President's plan to strengthen America's shipbuilding industry as it re-enters the international commercial marketplace.

MarAd, an agency for the U.S. Department of Transportation, is acting as agent for the Department of Defense's Advanced Research Projects Agency (ARPA).

Ingalls is a major U.S. shipyard with existing facilities and experience in constructing large naval vessels. Its location on the Gulf of Mexico is well suited to support cruise ships because 40 percent of all cruise ship operators are based in Florida.

The total value of the agreement is \$2.1 million with half the funding provided by the government over a 16-month period. Ingalls will contribute an equal amount in cash and services.

For more information on Ingalls
Circle 148 on Reader Service Card

Perkins To Form Joint Venture With ISM To Produce Engines

Perkins of the U.K., is to create a joint venture with its Japanese partner Ishikawajima-Shibaura Machinery Co. (ISM), to develop and build low-emission diesel engines in the U.K.

The companies will build up to 50,000 engines a year by the year 2000. The joint venture company, in which Perkins will be the majority shareholder, will build the first engines, marketed as the 100 Series, in early 1996.

The engines will be used primarily in marine applications, compressors, generating sets, and refrigeration equipment.

October, 1994

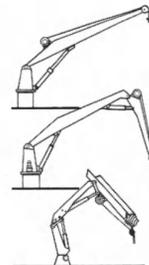


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Det Norske Veritas, USCG In Passenger Ship Control Agreements

The president of Det Norske Veritas Classification (DNV), **Tor Christian Mathiesen**, signed two agreements on passenger ship control verification with the U.S. Coast Guard's (USCG) Chief of Marine

Safety, Security and Environmental Protection, RAdm. **J.C. Card**.

The "Outlines of Cooperation" will permit DNV to ensure that the applicable USCG standards are complied with during the design, construction or modification of any non-U.S.-flag passenger vessel classed by DNV.

This will be accomplished through full cooperation between the two entities and by DNV conducting ap-

proval of basic design, conferring with the USCG on interpretive matters, and providing the USCG with DNV-approved plans and related information. In addition, there will be oversight visits by the USCG at DNV offices.

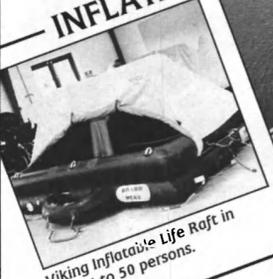
The benefits of this additional service are that the owner can be better assured that any problems will be identified and resolved at an early stage of the project; the agree-

ment will likely reduce or limit the amount of time the USCG needs to spend aboard the vessel both at the construction site as well as at the first U.S. port of call; and it is expected that the agreement, coupled with DNV's experience of working with the USCG, will further help minimize unforeseen difficulties and facilitate satisfactory USCG final acceptance of the ship upon its arrival in the U.S. port of entry.

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Kvaerner Wins Series Of Orders For Almost \$160 Million

Two Chemical Carriers For \$148.2 Million

The Kvaerner Floro unit of Kvaerner Industrier AS won a \$148.2-million order for two 37,500-ton chemical carriers from Norwegian shipowner Skibsaksjeselskapet Storli. The order for the ships is an exercise of two options taken by Storli last November. Storli also has options for two more the same ships.

Cat Orders From India, Hong Kong

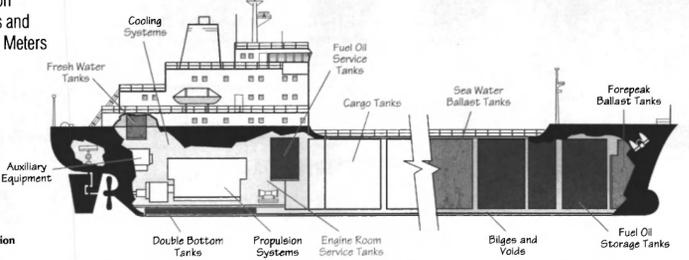
Kvaerner Industrier AS said its Kvaerner Fjellstrand unit in Singapore won a contract worth approximately \$5.9 million to supply a catamaran ferry to Damania Airways Ltd. of Bombay, India. The vessel will be used on the Bombay-Goa route. Also, the company said, Kvaerner Fjellstrand won a contract for another catamaran ferry for approximately \$5.2 million, this one for Hong Kong (Holdings) Co. Ltd. The ferry company also took an option for a second vessel from Kvaerner.

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Sale Of Global Star Boosts Global Ocean Carriers' Cash Reserve

Global Ocean Carriers Ltd. reports that the sale of the *Global Star* resulted in a loss for the quarter, but has boosted Global's cash reserves. The company claims the sale of *Global Star* was necessary in accordance with the company's policy of fleet renewal, and also had the effect of reducing the ship's monthly depreciation charge, and drydocking and special survey costs.

Since the freight market has improved this year, Global's dry bulk vessels have been refixed at higher rates, and the contribution from two new container vessels is expected to bring the company's profits back in line.

Global Ocean Carriers is reportedly pursuing either second-hand vessel acquisitions or newbuildings, which will probably lead to the disposal of some of the older ships in its fleet.

Global Ocean Carriers has a current fleet of seven vessels.

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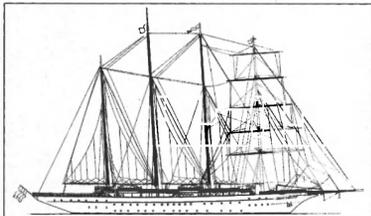
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**McNeece To Design Royal Clipper's
4-Masted Barquentines**



U.K. passenger ship interior design specialist McNeece Ltd. secured the contract to carry out the complete interior and exterior public area design of two four-masted Barquentine passenger sail cruise liners to be built in Europe for Royal Clippers of Antwerp, Belgium. McNeece's contract calls for the full design of the vessels' interiors and supervision during outfitting.

This is the first time that McNeece has been involved with sailing vessels.

The company has a proven track record from working on passenger cruise vessels; passenger ferries, passenger cruise liners and high speed ferries.

The 397-ft. (121-m) Royal Clipper vessels, with a mast height of 233 ft. (71 m) and a sail area of 3,410-sq.-m., will reportedly be the largest "classic" design sail cruise vessels in the world.

Designed for operation worldwide, the Barquentine's shallow draft (19 ft. [5.73 m] maximum) will enable them to enter ports and harbors not normally accessible by larger cruise vessels.

Both vessels will initially operate in the West Indies. The vessel will be modeled after the large sailing yachts of the early 1900s. The hull will be steel throughout. Each vessel will accommodate about 150 passengers, and will be of a style of rounded section with a bold flair, Clipper bow, a long counter stern and little or no parallel mid-body.

Delivery of the first vessel is set for April 1996, with the second following a year later.

**Carnival Returns *FiestaMarina* To
Epirotiki**

Carnival Corporation said its charter of the cruise ship *FiestaMarina* has been terminated and the ship has been returned to its owner, Epirotiki Cruise Lines, in which Carnival Corporation holds a 43 percent interest.

The *FiestaMarina* sailed from the port of Miami destined for Piraeus, Greece. Following a refurbishment there, it is to be renamed to the MTS *Olympic* and, on April 7, 1995, begin operating on Epirotiki's Aegean/Greek Isles Golden Fleece itinerary — a seven-day cruise calling at Istanbul, Kusadasi, Rhodes, Heraklion/Santorini, Patmos and Mykonos. At 27,250-grt and carrying 950 passengers, the *Olympic* will be the largest vessel in the Epirotiki fleet.

FiestaMarina Cruises was launched late last year as a division of Carnival, and was the first cruise operation aimed exclusively at the Latin American and Hispanic markets.

Athens, Greece-based Epirotiki Lines operates 11 ships, primarily in the Aegean and Mediterranean.

Carnival Corporation is comprised of Carnival Cruise Line, reportedly the largest in the world; Holland America Line; Windstar Cruises; and Seabourn Cruise Line (25 percent owned); all of which combined operate 21 ships.

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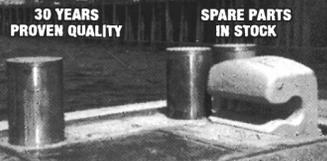
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Major Lines And Vessels Honored For Safety And Heroism

Two sets of awards honoring maritime safety achievement, the Jones F. Devlin Awards and Ship Safety Achievement Awards, were presented at the Doubletree Hotel, Houston. The purpose of the awards, jointly presented by the American Institute of Merchant Shipping (AIMS) and the Marine Section of the National Safety Council (NSC), is to publicly recognize and encourage accident reduction efforts by the various maritime industry segments.

Jones F. Devlin Awards, sponsored by AIMS, are conferred on self-propelled U.S.-flag vessels which, at the end of any calendar year, have operated for two full years or more with a full crew without a crew member losing a full turn at watch because of an occupational injury. The different categories recognized are for two years, four years, and annually after five years of accident-free operation.

The 1993 Jones F. Devlin awards were presented to 114 U.S.-flag vessels, representing 25 U.S. shipping companies. Of particular note were the awards to the *Exxon Bayou State* and the *Exxon Brownsville*, both honored for 18 consecutive years of accident-free operation.

Other Devlin recipients included:

American Commercial Barge Lines
Coastwise Trading (of Amoco Transport)
B&H Towing
Brent Transportation
Canal Barge
Chevron Shipping
Cleveland Tankers Ship Management
Dixie Carriers
Gulfcoast Transit (of Teco Transport and Trade)
Interocean Management
Keystone Shipping
Matson Navigation
Maritran Operating Partners L.P.
Mid-South Towing (of Teco Transport and Trade)
Mobil Oil
Moran Towing of Maryland
Moran Towing & Transportation
Ole Man River Transportation
Sabine Transportation
Scott Paper
SeaRiver Maritime
Sun Transport
Texaco Marine Services
Western Kentucky Navigation
Western Towing

Ship Safety Awards are cosponsored by AIMS and the Marine Section of NSC, and are conferred to vessels that have performed outstanding feats of heroism, rescue at sea, or seamanship illustrative of the high safety standards of the U.S. fleet.

Recipients of Top Honors for 1993 were:

Company	Vessel
Scott Paper	M/V <i>Scott Pride</i>
Scott Paper	M/V <i>Mate</i>
Scott Paper	M/V <i>Judson</i>
Scott Paper	<i>Silver Streak</i>

The vessels receiving citations of merit were:

Company /Org.	Vessel
American Commercial Barge Lines	M/V <i>Rusty Flowers</i>
American President Lines	SS <i>President Jefferson</i>
Chevron Shipping	<i>Chevron Louisiana</i>
Coastal Tankships USA	SS <i>Coastal Manatee</i>
Coastwise Trading	<i>Tallahassee Bay</i>
Crowley Marine Services	Tug <i>Sea Viking</i> /Barge 101
Dixie Carriers	<i>Dixie Avenger</i>
Gulfcoast Transit	M/V <i>Gulfcoast</i>
Interlake Steamship Co.	SS <i>Herbert C. Jackson</i>
Matson Navigation	SS <i>Manulani</i>
Mid-South Towing	M/V <i>Anne Peters</i> /M/V <i>Anne B</i>
Military Sealift Command	USNS <i>Powhatan T-ATF 166</i>
Morania Oil Tanker Corp.	<i>Morania No. 2/ Morania No. 450</i>
Penn Maritime	<i>Tarpon/Palomac</i>
Sea-Land Service	<i>Sea-Land Quality</i>
SeaRiver Maritime	S/Rs <i>Bayou State, Nashville, Memphis, Wilmington</i>
Sun Transport	S/T <i>Texas Sun</i>
Texaco Refining and Marketing	<i>Star Massachusetts</i>

AIMS is a national trade association representing 23 U.S.-flag carriers which own or operate approximately 11 million dwt of tankers, dry bulk carriers, containerships and other oceangoing vessels engaged in the domestic and international trades of the U.S. The NSC Marine Section is one of 28 separate industrial components comprising the NSC.

Portland, Vancouver & Army Corps Place Mooring Buoys In Columbia River

An intergovernmental cost-sharing agreement between the U.S. Army Corps of Engineers and the ports of Portland and Vancouver has resulted in the placement of two mooring anchorage buoys this week in the Columbia River near Hayden Island. The anchor buoys enhance navigation safety, particularly in inclement weather, by permitting large, oceangoing vessels to anchor their sterns to one of the buoys.

Ships using only bow anchors to keep them in place while temporarily moored in the river sometimes move in ways that create a risk of collision with other ships or inadvertent grounding. The three partners' cooperation makes this the first bi-state, cost-sharing agreement in the nation under the 1986 Water Resource Development Act.

Initial funding for the approximately \$360,000 project was approved by the two participating ports in December 1993, and

by the Corps the following month. Under the cost-sharing provisions of the Act, the two sponsoring ports were required to share 35 percent of the project's cost, or \$126,000. The Corps' share was 65 percent, or \$234,000.

The Corps has estimated that installing the two buoys will save the shipping community about \$380,000 a year in costs associated with standby tugs, anchor barges and lay berthing. The project can also be considered a precedent-setting step toward sharing the nonfederal cost of the channel deepening feasibility study among the lower river's ports. The five-year, \$6.1 million feasibility study officially kicked off last week at an event attended by more than 200 Oregon and Washington business, government and trade leaders. Senators **Mark Hatfield** (R-Ore.) and **Slade Gorton** (R-Wash.), together with congressional representatives **Elizabeth Furse** (D-Ore.) and **Jolene Unsoeld** (D-Wash.) were among those who spoke for the project's benefits to the region.

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Circle 226 on Reader Service Card
Maritime Reporter/Engineering News

JOHN DEERE ENGINES ARE COMIN' ON STRONG

IN CRUISE BOATS.

Why are more and more cruise boats being outfitted with John Deere engines? We asked Captain Bill Davis, operating the 85' Crystal Queen out of Morehead City, NC.

"They're smooth throughout the power range."

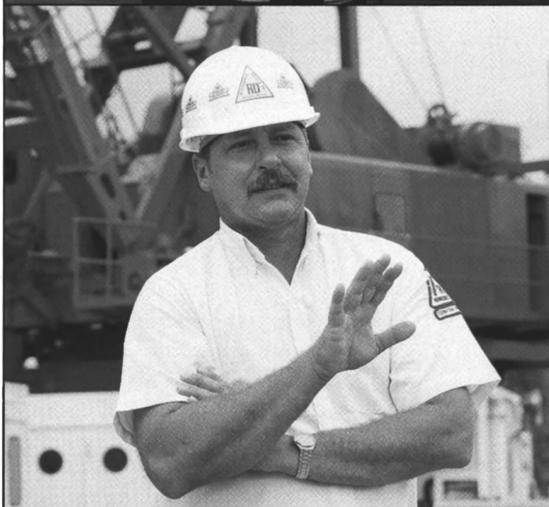
According to Captain Davis, "Those 4-stroke Deere engines are very smooth throughout the RPM range. Low end torque and throttle response is excellent."

"Engine noise is minimal."

Quiet operation is important on boats operating in tourist areas. "The John Deere engine is much quieter than a comparable 2-stroke engine, I really like the way they sound."

"Very low fuel consumption."

"They're a wonderful running engine, said Davis. "They don't burn a lot of fuel and top speed on the vessel is about 5 knots faster than we had anticipated."



Why are more and more crane barges being outfitted with John Deere engines? We asked Joel Smith, of R&D Maintenance Service. Smith is supervising a project near Columbus, Mississippi for the Corps of Engineers.

"Very little maintenance."

Smith operates a new 54' x 160' crane barge with two Deere genset engines. He also uses two Deere powered compressors elsewhere in the project. "To my knowledge we haven't had to do anything but routine service on any of them."

"Seven years old and the engines run with no problems."

Smith likes the way even older Deere engines keep delivering the performance he needs. "The compressor engines have been in service for 7 years now, and they still work like the new ones."

"Just plain dependable."

"They just keep running...doing the job with no problems," said Smith. "They give us the dependability we need on projects like ours."

IN CRANE BARGES.



COMIN' ON STRONG.

Dependable, fuel efficient, high torque, smooth-running John Deere engines in the 70-300 hp (52-224 kW) range are being used on more workboats of all kinds every day. Talk to the people who use them and find out why.

Circle 22 on Reader Service Card

EUROPEAN WORKBOAT MARKET

European Workboat Market: Competition Heats With Rise Of Spanish Builders

by
Carol Fulford & Andy Smith,
international editors

Europe extends from well within the Arctic Circle to the sub-tropical regions of Spain, Greece and Italy and comprises some 40 countries with a total population of approximately 650 million. These diverse cultures, climates and geographical features have influenced the European workboat industry — where the term workboat is generally deemed to embrace virtually any vessel under around 120 ft. (36 m) not used for pleasure.

Norway's many islands and fjord-indented coastline created the demand for the fast ferry, a genre in which this sparsely populated country has now gained an international reputation. Claiming to be the first to employ fiberglass as a boat building material, the U.K. maintains an almost dominant role in the 30- to 50-ft. (10- to 15-m) performance work/patrol/pilot boat hull form with excellent designs from a number of builders.

Tug construction has long been one of Holland's prime strengths with the giant Damen having built its formidable reputation on the needs of the local inland waterway network.

And, of course, the Italians have always loved speed on water, and are at the forefront of the fast ferry boom.

Spain is fast growing as a major international force in the workboat building business. The country has always had an extensive fishing fleet, but fishing boat construction is no longer the way for a yard to thrive.

As the deep sea steel trawler is such a close technical cousin to the tug, the Spanish yards, with the benefit of a cheaper labor force, are quickly building an orderbook in this arena.



Dalmeny is one of two new tugs now in operation at BP's Grangemouth refinery in Scottish waters.



Holyhead's twin screw multi-purpose coastal tug/workboat is similar in design to Damen's Multi Cat.

Amsterdam-based towage company Goedkoop Havensleepdiensten (part of the Wijsmuller Group) started the current ball rolling by ordering two new 98.4-ft. x 31-ft. (30-m x 9.5-m) tugs from Construcciones Navales Santo Domingo based in Spain's premier Atlantic fishing port of Vigo.

The new vessels were designed by Wijsmuller Engineering for work in the Amsterdam/North Sea Canal area where there is a need for more power, even though the number of movements has not increased. Boasting a 50-ton bollard pull and a 12.8-knot free running speed, *Titan* and *Simson* are each powered by a pair of 1,590-kW ABC type 8DZC-900 diesels driving Aquamaster US2001 propulsion units via Twin Disc MCD 3000 marine control drive clutches.

A Brunvoll bowthruster is fitted for even greater maneuverability. Two Ulstein Bratvaag 35-ton winches sit fore and aft of the wheelhouse, which is equipped with Furuno radar navigator and echosounder and Skanti VHF. The vessels have four single berth cabins, one three berth cabin, galley and mess-room.

British Petroleum ordered its two new tugs, *Cramond* and *Dalmeny*, for the Grangemouth refinery in Scotland from Astilleros Balenciaga located in the small port of Zumaia on the northern coast of Spain, towards the French border. Again designed by Wijsmuller Engineering, these larger vessels at 112.5-ft. x 34.5-ft. (34.3-m x 10.5-

m) are escort tugs with a high fire-fighting capability and oil recovery equipment.

The two identical vessels each have Ulstein azimuthing propeller systems driven by a pair of 2,400 bhp ABC type 8DZC-1000 diesels to produce a bollard pull of 62 tons.

In common with the Goedkoop vessels, Bratvaag winches and Brunvoll bowthrusters



Small but versatile, Griffon's 375TD is proving to be an ideal crash rescue tender.

re fitted but an important difference is the extensive fire-fighting capability provided by three Skumire monitors, two for water and one for water/foam, fed by Hidrotecar pumps.

The wheelhouse is equipped with two Racal Decca radars, Scan gyrocompass, Robertson autopilot, Marconi Seachart echosounder and shipmate GPS.

It is understood that a dozen or more other leading European builders tendered for the BP contract and that price was the major factor in the Spanish yard winning the contract.

Such competitiveness, however, did not affect quality — BP is reported to be exceptionally pleased with its new acquisitions and the Lloyd's surveyors experienced few problems.

Pedro Anduena, Balenciaga's commercial director, explained to *Maritime Reporter* that considerable sums have and are being invested in upgrading the production and quality control methods and systems at the yard, which was established in 1921.

Meanwhile, back in Vigo, the renowned fishing boat builder, Factorias Vulcano, has been busy with arguably one of the most unusual enterprises of all, having secured the contract to build *Cape Grafton*, a 244-ft. (74.4-m) lightstation tender vessel equipped to carry out a variety of construction, scientific, diving, research and oceanographic functions.

With a considerable navaid construction program to undertake on the Great Barrier Reef, the Australian Maritime Safety Authority required a replacement for the aging *Cape Moreton* and in 1992 began an extensive international search for a suitable bareboat charter, the initial idea being that this would be the most economic way forward.

However, in the course of this exercise, the Authority received two unsolicited offers to purchase partly constructed bankrupt stock vessels. Both were inspected and the fishing boat hull discovered at Factorias Vulcano was considered ideal for the purpose.

A price was negotiated for completing the vessel to the new requirements and the contract signed at under \$15 million following assurances from four major Australian yards that they could not compete on either price or delivery.

The need for large reserves of electrical power to supply scientific and other equipment led to the installation of an unusual propulsion system.

Three 930-kW Caterpillar diesel alternator sets, coupled to two 800-kW AC constant speed electric motors drive the KaMeWa CP propeller inside a nozzle through Twin Disc type MCD 3000-3-HD modulated clutches. Precise propeller control even at slow speeds combined with a triple bladed rudder aft of the nozzle and two KaMeWa trans-

verse thrusters reportedly ensure high maneuverability. Fully laden, the vessel can achieve 12 knots with a range of 14,000 miles.

Cape Grafton is equipped with chemical, geological and photographic laboratories, deep sea sampling equipment, buoy recovery and

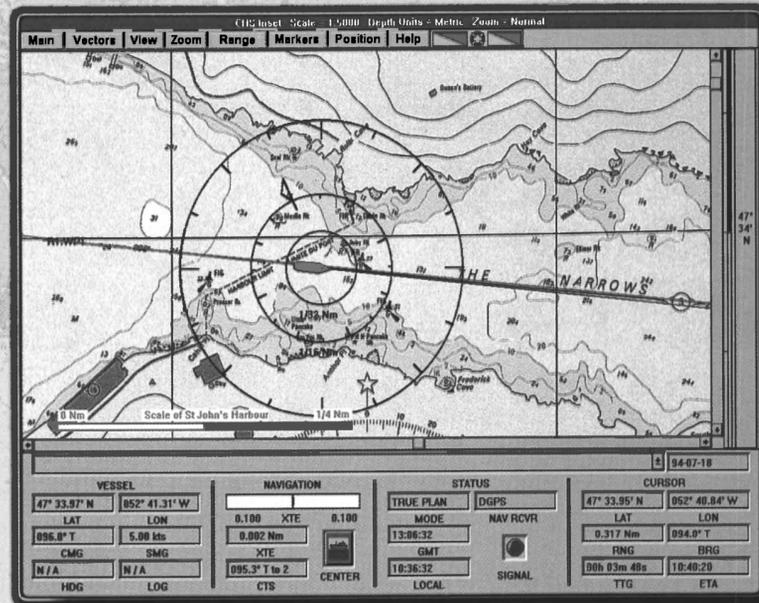
repair facilities and a fully comprehensive complement of navigational electronics — mostly from the Furuno stable.

Air conditioned accommodation is provided for 47 persons, mainly in two berth cabins with individual washrooms, although the vessel's

standard crew is 16 in number.

Factorias Vulcano fully emphasizes its quality credentials, boasting an ISO 9001 quality assurance standard certificate and details of a three-year modernization plan currently taking place at the 75-year-old yard.

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Circle 275 on Reader Service Card

EUROPEAN WORKBOAT MARKET

Dutch influence evident in U.K. newbuilds

Richard Dunston (Hessle) Ltd., one of the U.K.'s leading steel workboat builders, has recently completed a 487-grt tug/workboat in an interesting joint venture with

parent company Damen Shipbuilders. A standard Damen hull was constructed in Holland, towed across the North Sea to the U.K. where it was lengthened by 26 ft. (8 m) to a

length overall of 132 ft. (40.3 m) with a beam of 31 ft. (9.5 m). Designed for versatile offshore operations, *Annelies*, as the vessel has been named, is currently helping Elf's exploration activities in Gabon, West Africa.

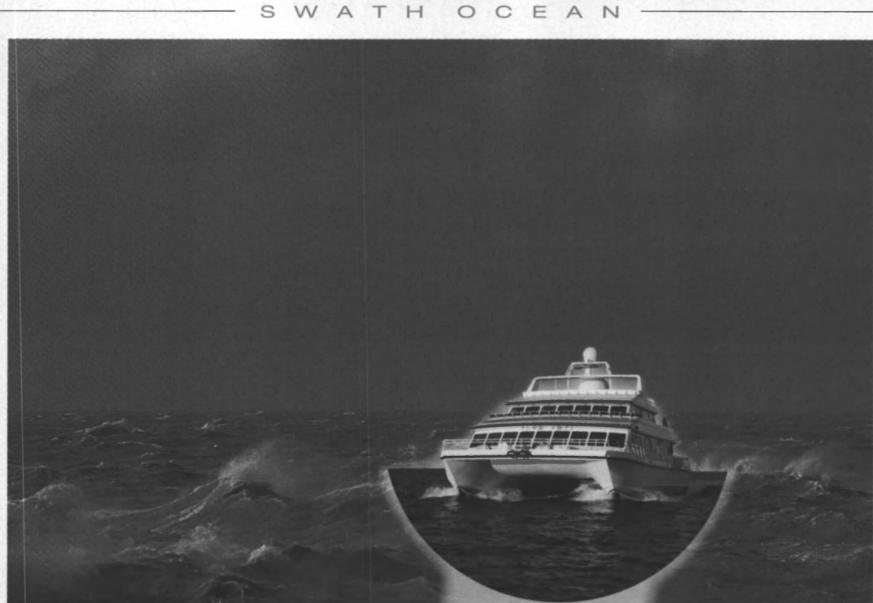
With a main propulsion system of two Caterpillar 3516 DITA diesels, driving 92.5-in. (2,350 mm) three-

bladed fixed pitch propellers inside fixed Van der Giessen nozzles through Reintjes gearboxes *Annelies* achieved a bollard pull of 44 tons and a free running speed of 12 knots during trials off the English north east coast.

Her wheelhouse is fitted out with electronics and engine controls are provided at four positions — fore, aft, port and starboard. The wheelhouse roof has two manually controlled Ajax de Boer foam/water monitors fed by a 600-cu.-m/hr. firefighting pump. The vessel has capacity for 189 tons of fresh water, 10 tons of dispersant and 28 tons of foam.

If imitation is truly the sincerest form of flattery, Damen should feel

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Circle 319 on Reader Service Card



Built in Spain to a Dutch design, both *Titan* and *Simson* are now on towage duties in the Amsterdam/North Sea Canal area.

complimented by a twin screw multi-purpose coastal tug/workboat of considerable versatility built by Holyhead Marine Services Ltd. in North Wales for its associated company, Holyhead Towing. The company admits that *Llanddwyn Island*, named after a local landmark, follows closely the format of the Dutch company's Multi Cat design.

Measuring 70.5 ft. x 25.5 ft. (21.5 m x 7.8 m), most of the rectangular vessel is available as working deck due to a raised offset wheelhouse, which also doubles as crew messroom and galley, supported on one side by a small four-person accommodation unit and two vertical struts on the other. The covered space so formed at main deck level houses a 30-ton North Sea anchor handling winch and the support struts act as ducts for electrical, steering and engine control cabling.

On the forward deck, just aft of the substantial push bows, is a 44-ton/m Effer knuckleboom crane. The forward working deck is protected by hardwood and centrally located on the large aft deck is a 15-ton Britannia quick release towing hook.

The hull space below the main deck is divided into five main areas connected by watertight doors. A forepeak with chain locker, store with hatch access to the main deck,

ump room, spacious engine room with stair access from the accommodation unit lobby and a separate large steering gear compartment are all incorporated.

The vessel achieves a healthy 14-on bollard pull and a free running speed of nine knots from a pair of water-cooled Cummins KT19-M diesels, each developing 470 bhp at 1,800 rpm, driving 51-in. (1,300 mm) diameter four-bladed propellers inside fixed Kort nozzles through Twin Disc gears. A dual manual and power/hydraulic steering arrangement is incorporated with power derived from one of the Cummins main engines. Steering is principally by jog lever with a conventional wheel as manual back-up. The entire steering system is extremely heavy duty and features a special rudder feedback unit incorporating limit switches to prevent the steering gear running full against the "stops."

The spacious wheelhouse is accessed from a bridge deck level walkway on the port side connected to the main deck by stairs both fore and aft. Electronics include two daylight viewing radars (by Raytheon and JRC), Raytheon color fishfinder, echosounder and GPS, Navtex receiver and Robertson AP45 dual mode autopilot.

Hover RIB For Venice Lagoon

Proving that building at the very smallest end of the workboat market is far less restrictive than would first appear, is U.K.-based Griffon Hovercraft, with its latest design — a 19.5-ft. (6-m) diesel engine hovercraft, which the company believes to be the first ever built on RIB lines (see picture, pg. 14).

Of open deck design, capable of carrying five people or an 825-lb. (375-kg) payload, the 375TD is of small conventional workboat size but, as Sales Manager **Graham Gifford** said, "will do virtually everything a small fast boat will do but will reach the parts other boats cannot reach, operating well over deep or shallow water, over land, mudflats, sandbars, ice or rapids."

This is the standard sales talk one would expect, but, nevertheless, the 375TD is worthy of a second look, partly because it is diesel powered when many competitive models at the smaller end rely on gas, and also because it has been specifically designed for swift transportation with an optional hover-on/hover-off road trailer which can be towed behind a Land Rover or similar vehicle. So far, the design has impressed a wealth of potential customers such as hydrographic and survey companies, police and customs authorities, civil engineering companies and crash rescue organizations with the first model already in operation by Vigili del Fuoco (the Italian Fire Service) for crash rescue work in the shallow lagoon of Venice. Equipped with VHF radio, radar, spotlights, siren and flashing beacon, the craft operates with ease

over very shallow water, reeds and swamp in the lagoon. Most important, however, is that unlike conventional craft operating in Venice it can take the most direct line from its base to the scene of the accident, thus arguably proving to be the most efficient craft in the rescue fleet. The propulsion option — a Land

Rover 300 Tdi 83-kW (111-hp) diesel — has proved an equal success with no electrics to risk in a salt spray, muddy, weedy environment and a greatly reduced risk of fire in rescue situations. The 375TD is the smallest craft in the Griffon range but not by any means the first to be sold for crash rescue duties. Larger

versions, capable of carrying payloads of between one and six tons have to date carved Griffon a comfortable market niche but it would be a mistake to see the baby of the fleet merely as a five-person rescue boat; with three 69-passenger aircraft-type liferafts aboard, it is capable of rescuing over 200 people.

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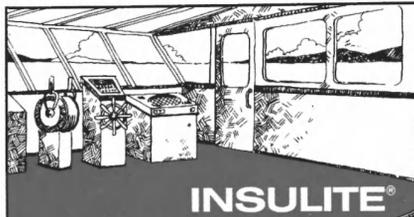


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Hyde Products Delivers 16 Oil/Water Separators To Mexican Navy

Hyde Products delivered 16 Hyde model MSS-022 oil/water separators to the Mexican Navy for installation aboard the naval minesweeping vessels of the Admirable class, part of the navy's extensive modernization and overhaul

program. Hyde Products has a long history of sales of marine oil/water separators for processing bilge water and other oily waste waters. Hyde offers a full range of oil/water separators from 1.5 gpm to 20 gpm. The Hyde separator operates on the principle of gravity flow through a fixed porous media bed. There are no moving parts, no chemicals and no replaceable filters or cartridges. The results, according to Hyde, are minimal operating costs and a low initial

capital outlay. All of Hyde's marine separators are U.S. Coast Guard approved to 46 CFR 162.050 and to IMO resolution A393 (x). Effluent discharge is monitored through the use of an oil content monitor. Hyde separators guarantee discharged oil contents of less than 15 ppm; a three-way diverter valve is employed to route unacceptable oil levels back to the bilge.

For more information on Hyde
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Bollinger Holds Triple Christening

For the first time in the company's 48-year history, Bollinger Machine Shop and Shipyard, Inc. hosted a triple christening ceremony at the corporate headquarters in Lockport, La. The 170-ft. coastal patrol (Cyclone class) ships for the U.S. Navy — (PC 10) *Firebolt* and (PC-11) *Whirlwind* are part of a 13-ship contract. Cyclone class ships were instrumental in the blockade of Haiti. *Firebolt* will be homeported in Norfolk, Va. where it will join four other sisterships that make up Squadron Two. *Whirlwind* will join three other Cyclone class ships that make up Squadron One in San Diego, Calif.

A new 145-ft. supply vessel, M/V *Mickey Gilbert* — the first vessel of a two-vessel contract for Gilbert Chermie Boats, Inc. of Golden Meadow, La. — shared the spotlight with *Firebolt* and *Whirlwind* on September 24, 1994.

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L.A. Awards \$65.3 Million For APL Terminal Work

A \$65.3-million contract was awarded by the Los Angeles Board of Harbor Commissioners for the construction of a 4,000-ft.-long container wharf at Berths 302-305, the future site of the American President Lines (APL) Terminal. The joint venture of General-Kiewit of Seattle was awarded the contract as the lowest, regular responsible bidder.

The contract includes dredging, rock placement and the installation of pilings, concrete wharf deck, crane fittings and fendering systems. Also included is the extension of a sewage treatment plant outfall. The project is to be completed in 700 calendar days. During the peak of construction, approximately 688 direct and spin-off jobs will be created in a five-county region by this project. When completed in 1997, the APL Terminal will be the largest dedicated container terminal in the U.S. and a key component of the Port's Pier 300/400 Implementation Program.

U.S. & Canadian Execs Visit Sweden, Finland

Twelve executives from U.S. and Canadian trade, shipping and maritime organizations visited Finland from Sept. 17 - 23 as part of a St. Lawrence Seaway trade mission.

Led by Saint Lawrence Seaway Development Corporation Administrator **Stanford E. Parris**, this will be the Corporation's 14th mission to port cities and trade capitals worldwide since 1985, and the second trade mission to both Helsinki and Stockholm. The Corporation conducted trade missions to Helsinki in 1992 and Stockholm in 1991.

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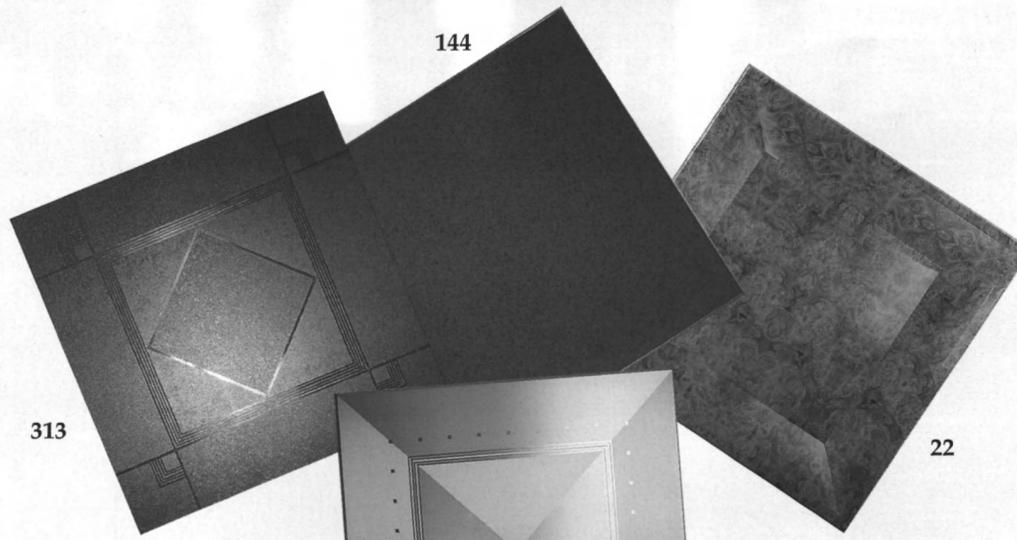


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by Larry Evans, Transportation Institute
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- **Riverboat Casino Vessel Yard Review**

Special Supplement — October 1994 Edition

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

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Waterborne Gaming In The U.S.: What Lies Ahead?

by
Larry Evans
Transportation Institute

The blending of the marine and gaming industries has come a long way since April 1991 when there were no gaming boats licensed in state waters and cruise-to-nowhere trades were the sole domain of flag-of-convenience ships sailing in and out of a cabotage loophole.

While some impediments remain, supports of U.S. marine industries have seen steady progress on the federal level in addressing obstacles which inhibited the emergence of a U.S. fleet offering gaming in offshore trades.

Gaming on vessels licensed in various states has evolved rapidly and sometimes taken a hybrid form such as the non-propelled "gambling barge" phenomenon, limited cruising and fully equipped/maintained, U.S. Coast Guard (USCG)-certified vessels operating dockside without cruising. Unexpected legal complication in several states has slowed the rapid expansion of gaming activity and sent ripples through gaming stocks.

What has happened and what lies ahead are increasingly not only questions of legislative content, but also the state of the economy and changing public perceptions of this growing industry. The horizon is not as clear as it was only a year ago, and the reasons need to be discussed and better understood by marine interests.

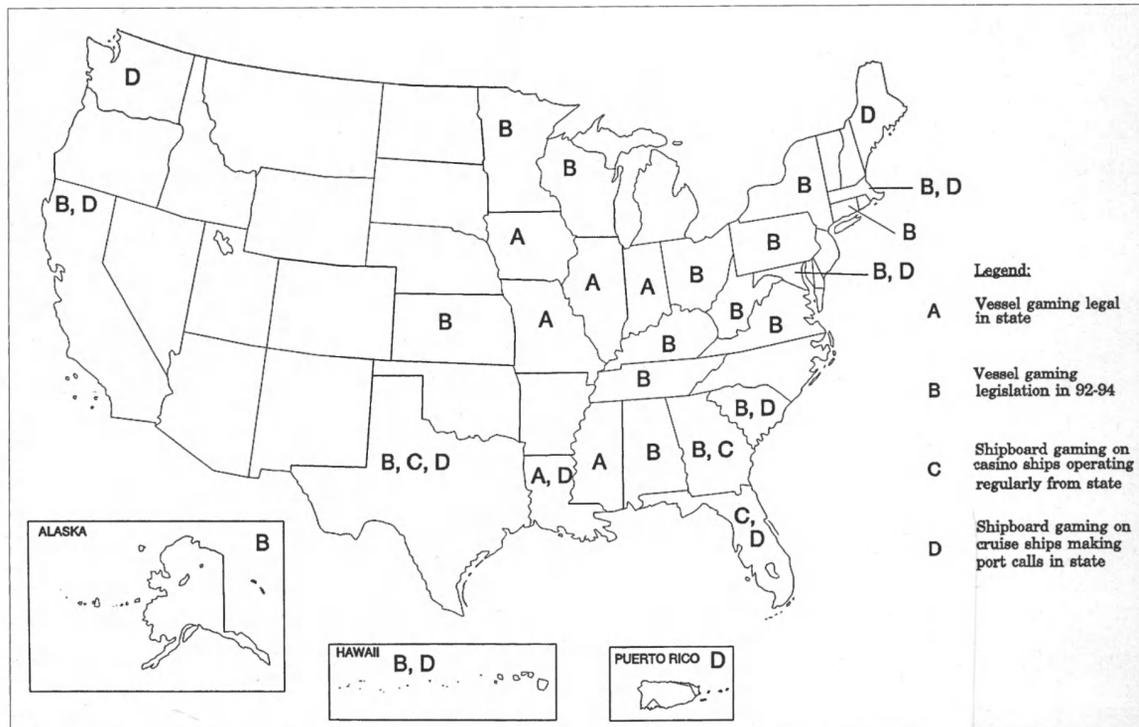
Positive Developments In Federal Policy

It has been less than three years since it again became legal to transport gaming devices on U.S.-flag ships and less than three months since many of the unwarranted gaming revenue restrictions on existing or potential U.S.-flag operators have been eliminated.

For more than 40 years, two laws, the Gambling Ship Act (GSA) and the Gambling Devices (Johnston) Act (GDA), governed and essentially forbade casinos on U.S.-flag passenger ships. The GDA essentially disallowed the possession

or use of mechanical gaming devices (slots, roulette, etc.) on U.S.-flag ships. The GSA prohibited a U.S.-owned, operated or flagged vessel from being used "principally" for the purpose of gaming or from offering "large scale commercial gambling" activities. The laws were enacted in a time when law enforcement needed such tools to monitor and prosecute potential criminal elements.

The gaming industry evolved into a highly regulated environment as controls in Nevada, and later New Jersey, caught up with the growing business. With respect to passenger vessel gaming, however, federal law remained in a time warp which did not recognize the economic potential of the market for day/short cruising and extended overnight cruises and the importance of gaming to the successful development of those markets. In the early 80s, serious efforts were made in Congress to change U.S. law and allow U.S.-flag shipboard gaming, while still maintaining adequate law enforcement controls. Those efforts



IDI Expanding To South American, European Casino Vossoi Markets

Interior Design International, Inc. (IDI), a casino interior design firm based in the U.S., has designed many popular riverboat casinos, as well as many land-side casino hotels. IDI is schooled designing cruise ships, dinner vessels, and excursion boats, as well as floating casinos. Its work has now expanded to South America and Europe. Shirley LaFollette, president of IDI, has joined with U.S. shipbuilder of gaming vessels, Atlantic Marine, Inc. of Jacksonville, Fla., to build and deliver casino vessels for foreign ports. These boats would be turnkey and built to international SOLAS regulations.

In the U.S., IDI has finished work on the interior of the Alabama Shipyard-built Argosy Riverside Casino boat, a turn-of-the-century side-wheeler design. The design was based on the early 1900s, with the opulence of the late Victorian era sharing stage with the new conventions

of the "Roaring 20s". Elaborate ceilings are made from large moldings and coffered burlwood panels. These moldings are hand painted in bronze, greens and rust tones with gold leaf highlighting. Tapestries adorn the walls, along with custom iron furnishings and hand-carved mirrors. A Victorian garden vignette has been placed on stair landings. The second deck of the Riverside Casino is reminiscent of a grand ballroom, with four crystal chandeliers, each seven feet in diameter with 600 pounds of Italian crystal. There is a "starry night" ceiling overhead, and wallcoverings are period-embossed designs with gold metallic backgrounds. The third deck boasts a ceiling mural and a wall mural that simulate Tiffany stained glass. Riverside Casino's grand opening was September 8.

For more information on IDI
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met stiff bureaucratic and key political resistance emanating from confusion about the scope and intent of the reform legislation. For nearly a decade nothing else was done to solve the problem. Without the ability to offer shipboard gaming, U.S.-flag operators and shipyards were effectively locked out of the lucrative cruise industry which simultaneously grew up in U.S. ports.

In 1990/91 renewed efforts to equip U.S. marine interests with the tools to compete in the modern cruise industry began. Rep. Gene Taylor of Mississippi introduced legislation to legalize U.S.-flag shipboard gaming and attitudes had changed as Congress realized that a great

opportunity had been lost in the cruise sector. The Department of Justice (DOJ), the agency charged with enforcement of the Gambling Devices and the Gambling Ships Acts, agreed to a change in the former which effectively allowed gaming on U.S.-flag vessels engaged in international or interstate commerce while in international waters. Congress did specify that U.S.-flag ships were to be granted all privileges accorded to foreign-flag vessels with respect to shipboard gaming. This was a clear victory, yet substantial areas of confusion about what activities were allowed remained. An initial burst of new U.S.-flag cruises to nowhere took place with some foreign operators even setting up U.S.-flag

affiliates. These changes went into effect with the signing of P.L. 102-251 on March 9, 1992.

Two problem areas were the question of Gambling Devices Act coverage on the Great Lakes where there is possible overlapping of federal and state jurisdiction and no real international waters. With the advent of state-authorized gaming in the region, this question is being examined by legal authorities in the states and in the federal government.

The more serious problem, however, was the continued application of the Gambling Ship Act and the refusal of law enforcement agencies to seriously clarify what the law covered. Existing companies licensed in the principal gaming jurisdictions, who were the most likely to pursue larger, well-appointed U.S. newbuilding projects were loath to risk their holding by an unintentional violation of the vague provision of the Gambling Ship Act. Many of these problems have been alleviated by the recent passage of the Crime Bill, which contains language substantially narrowing the scope of the Act.

The bill contains an amendment to the GSA where by the term "gambling ship" as it is defined in the Act, would no longer apply to ships operating beyond the territorial waters of the U.S. on voyages covered by section 4472 of the Internal Revenue Code of 1986 (26 U.S.C. 4472). For purposes of 26 U.S.C. 4472, the term "covered voyage" refers to:

- the voyage of a commercial passenger vessel which extends over one or more nights; or
- the voyage of a commercial vessel transporting passengers engaged in gambling aboard the vessel beyond the territorial waters of the U.S., during which passengers embark or disembark the vessel in the U.S. The term "passenger vessel" means any vessel having berth or stateroom accommodations for more than 16 passengers.

Under the proposed amendment, the Act would no longer apply, for example, to gaming cruises to nowhere.

However, ships sailing between two U.S. ports on voyages of less than 12 hours are excluded from coverage under 26 U.S.C. 4472, meaning that U.S.-flag passenger vessels on domestic port-to-port voyages of less than 12 hours would remain subject to the Act under the amendment.

Essentially, what the change means is that cruises-to-nowhere can now offer gaming without concern that the amount of revenues earned, or the type of advertising used, etc., would constitute a violation of the "principal purpose" language of the Gambling Ship Act.

Problems with the scope of coverage, while fewer, still persist and more to the point apply only to U.S.-flag operators. Fundamentally, the section of the Internal Revenue Code referenced defines a covered voyage (i.e. type of operation) as those which are currently assessed a passenger fee. Voyages between U.S. ports of 12 hours or less are not assessed the fee. As a result, the coverage could inhibit some potential operation from developing certain itineraries.

Would, for instance, a U.S.-flag vessel traveling from New York to any east coast destination within twelve hours sailing constitute a GSA violation? Would the fact that one-way or round-trip transportation is being provided indicate that gaming as a "principal purpose" would not be considered?

Clearly, Congress has repeatedly shown its intention that laws enacted in the early 50s, designed to deal with a problem that no longer exists, should not prevent the expansion of a U.S.-flag passenger vessel industry in the 1990s.

Coupled with changes in federal gaming law are related marine policy developments which may further enhance the U.S.-flag potential in this sector. The renewed availability of Title XI loan guarantees to assist in construction of U.S.-built vessels is a hopeful sign. The possibility of

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Hollywood Casino's facility in Aurora, Ill. (vessel designed by Dejong & Lebet; powered by Cummins).

underwriting U.S.-flag cruises-to-nowhere and state-sanctioned gaming vessels did not exist the last time loan guarantees were widely available in the 1980s. Consequently, the appropriate policy for vessels of these types will likely be determined by MarAd in light of recent changes. Other positive developments are indicated by serious Congressional and Administration efforts to reform USCG regulation, and thus lower U.S. operating costs, formulate a coherent and reasonable tax regime for U.S. operators and modernize U.S. shipyards.

While much remains to be done, especially with regard to developing a U.S.-flag, deep-sea cruise fleet, recent policy changes in Washington have been positive and the future holds great promise.

State Developments

In 1994 development of waterborne gaming in the states has been characterized as much by glitches, delays and confusion as by

expanding opportunities. Court decisions, related to constitutional interpretations of certain elements of enacted gaming legislation, slowed efforts in Missouri and Indiana. In the former, a portion of the legislation which allowed slots, etc. was overturned and a poorly timed referendum to reauthorize slots failed to pass in August. A new referendum on the November ballot is, to some degree, held hostage to statewide electoral politics and the validity of the petitions authorizing the vote is under challenge.

In Indiana, a different interpretation of the state constitution was again invoked to challenge the formula for defining which jurisdictions could hold local referendums to authorize gaming operations. Both efforts were driven in part by competition between prospective license applicants or existing operators seeking to retain dominance in their own markets. Some observers have referred to this as the "sore loser clause." One can anticipate similar future situations in other

Jamestown Finds Niche In Emerging Gaming Market

Boca Raton-based Jamestown Metal Marine Metal Sales, Inc. has found outfitting riverboat gaming vessels a lucrative niche market. Founded in 1962, the company designs and installs interior accommodations and joiner packages for all types of vessels.

Early on, Jamestown worked on Louisiana's first licensed casino riverboat, the Bender-built *Star Casino*. From the bulkheads to the wall and deck coverings, Jamestown provided and installed the decorative ceilings, doors and hardware, bar equipment, bathroom outfitting, stair railings and a variety of other furnishings.

Jamestown is also signed on to furnish and install the complete insulation package and interior of

another Bender-built vessel, the *Treasure Chest*.

Yet another Bender-built boat, the *Casino Rouge*, will be outfitted by Jamestown, including decorative ceilings, doors and hardware, deck coverings, stair treatments, bathroom outfitting and the entire millwork package.

The company was also involved in the Avondale Shipyard-built *Catfish Queen*; the company provided engineering services as well as a complete materials and the installation package for the 266-ft. (81-m) paddlewheel casino vessel. Jamestown also teamed with Avondale on the *Boomtown Belle*.

For more information on Jamestown
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locales, thereby underscoring the need for responsible public officials to look at all the angles when drafting both law and regulation in order to avoid a similar experience.

The views of each state's chief executive can't ever be underestimated. Well-known gubernatorial opposition to gaming of any kind in Connecticut, Pennsylvania and

Florida has either effectively stopped any effort, or in the case of the latter, erected another obstacle to a successful voter referendum in November. What the fall elections around the country hold in terms of executive support for gaming is anybody's guess, but with new governors and legislators, several states can be expected to seriously examine gaming

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in 1995.

The economy in each of those states will also have an impact on gaming developments. The job and public revenue generation and economic development potential of gaming has been a prime reason to establish this industry in a given area. As economic conditions improve, enthusiasm for authorizing legislation may not be so great as in the past. Conversely, some states are more affected by reductions in federal spending and consequently eager for viable alternatives. Virginia, for example, could derive substantial benefit for its critical shipbuilding industry through the construction of gaming vessels, which would not only help to maintain employment but assist in the conversion from defense to commercial construction.

The growing array of competing proposals is also scaring and confusing voters and increasing the industry's negatives. Conflicting claims about which form of gaming is best suited to a state, from operating riverboats to mega landside casinos, the day market versus destination market argument, the role of existing pari-mutuals and how Indian gaming fits into the scheme, etc. all serve to fog the horizon.

Do these new variables, and others not discussed, mean that waterborne gaming expansion has stopped? Certainly not, but we can be sure that the claims of proponents and the experiences of existing gaming jurisdictions will be even more closely examined by supporters and opponents alike. We can also be sure that developing this industry will be viewed as a useful economic tool in at least some cases, and that further evolution of gaming will take place. Marine interests are well advised to stand united to ensure that our industry is well-represented in this evolutionary process.

U.S. Games Offers Technology-Based Games

U.S. Games, Inc. is an Atlanta-based designer and manufacturer of video games and systems for the coin-operated amusements, VLT and casino industry. U.S. Games has distributed more than 40,000 games in the U.S., as well as throughout Europe, Canada, the Caribbean and South America.

According to the company, customer response to its products has increased sales at a 30 percent rate for the last five years.

U.S. Games provides Pot-O-Gold gaming machines.

Some of the features of Pot-O-Gold machines are touch screen technology, multiple games, on-line linked intermachine communications, integrated progressive central site data collection, and customization capabilities.

The core coin-operated amusement-only product for U.S. Games is Countertop Champion.

Initially manufactured as Little Casino, and then as Bar Brain Bar Top, today's models offer up to 50 operator and player-selectable amusement games in a countertop cabinet particularly suited for bar top placement.

U.S. Games' goals are to: design and manufacture video gaming equipment and proprietary software for computerized wide-area game monitoring systems; offer a broad line of gaming equipment; offer high player appeal through innovative engineering; and invest in research and development to maintain innovative products.

For more information on U.S. Games
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Gasser Chair Co. has more than 47 years of experience in manufacturing commercial contract seating.

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The company's complete range of furniture includes armchairs, sidechairs, barstools, set-

tees and stackable chairs, offered in several hundred styles, and also with the capability to be custom designed to client specs.

Quick-Release is a patented gaming seating system by Gasser Chair that is now in use in casinos around the world. The growing popularity of the system is due, in part, to the company's ability to manufacture custom seat and back styles, as well as custom-designed bases to accommodate a particular requirement. Its greatest feature, perhaps, is its ability to be easily removed to allow access to gaming machines for repositioning, housekeeping, coin-drop pickup and maintenance.

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Riverboat Market Segment**

The Gage Corp. Intl. of Sparta, Wis. is recognized as a creative force in decorative aluminum ceilings. Calling the company's ceilings a merger of art and technology, **John Lillejord**, general manager, explains: "Gage is working with aluminum ... adding highly selective measures of proprietary burnishing, printing, coating and forming techniques to create unique interior surfaces."

Gage offers a number of standard designs from which to choose, including Italian marble, granites, woods, and textured and metallic patterns; but also develops custom designs on spec, and has found thematic ceilings a hot trend in the gaming industry. Gage has recently completed a number of custom developments with many of the industry's noted design firms.

Gage combines the aesthetic qualities of its products with functional aspects, such as lightweight (1/2-lb. per sq. ft.), fire and corrosion resistance.

For more information on Gage
Circle 126 on Reader Service Card

**Shelby Williams Adds
Classic Design To Riverboat**

Features on the traditional design blackjack stool from Shelby Williams include hand-carved, fluted leg detail and solid brass footrests on all four sides. The flame retardant Pyroguard II foam padded spring seat is designed to ensure maximum long-term sitting comfort for blackjack players. The hardwood frame is available in a large selection of standard and premium Shelby Williams finishes, and a wide selection of in-stock fabrics.

In addition to blackjack stools, Shelby Williams offers a complete selection of chairs for every gaming area of the casino including baccarat, keno, poker, roulette and slot machine stools equipped with permanent mount or with a special, patented, quick-release base. The outside back of most casino chairs are available in a variety of abstract or custom designs.

For information on Shelby Williams
Circle 127 on Reader Service Card

**Walter Machine Provides
Casino Vessels With Top
Keel Coolers**

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

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

ing systems.

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

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

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

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

Walter offers keel coolers for propulsion and auxiliary engines from

10 to 5,000 hp, including Caterpillar, Cummins, Detroit Diesel, Volvo Penta, MAN, GM EMD, John Deere, Luggar and more.

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

For more information on Walter Machine
Circle 128 on Reader Service Card



Isle of Capri, Biloxi, MS

Circle 240 on Reader Service Card

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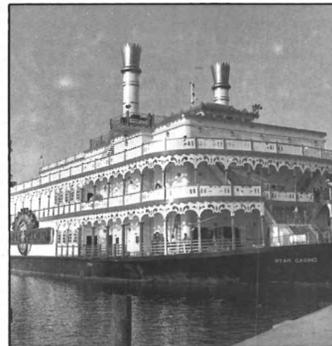
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Riverboat Casino Vessel Construction Survey

Despite recent legislative slow-downs and setbacks, casino vessel newbuilding continues in many yards. Here's a look at casino vessel newbuilding activity in select yards.

Yard/ Vessel Name	Dimensions (L x W x D)	Main Engine	Owner	Delivery Date
Atlantic Marine For more information Circle 72 on Reader Service Card				
Par-A-Dice	240 x 66	Caterpillar	Greater Peoria Riverboat	5/94
Empress III	280 x 74	Caterpillar	Empress River Casino Corp.	10/94
Avondale For more information Circle 64 on Reader Service Card				
Boomtown Belle	250 x 72	Caterpillar	Boomtown Westbank	7/94
Belle of Baton Rouge	266 x 77	Detroit Diesel	Argosy	9/94
Belle of Orleans	350 x 83	Caterpillar	Bally's	1995
Bender Shipbuilding For more information Circle 123 on Reader Service Card				
Treasure Chest	260 x 78 x 14	Caterpillar	Treasure Chest	8/94
Casino Rouge	260 x 78 x 14	Caterpillar	Louisiana Casino Cruises	9/94
Uncantena (Conversion)	202 x 36.6	Caterpillar	CSL Development	10/94
Lucky 7	232 x 78 x 14	Caterpillar	Randolph Riverboat	10/94
Grand Victoria	400 x 114 x 14	Caterpillar	Elgin Riverboat	10/94
Crescent City Queen	360 x 99 x 14	Caterpillar	Capital Gaming	1/95
Grand Palais	360 x 99 x 14	Caterpillar	Grand Palais	1/95
Chinook (Conversion)	328 x 66 x 20	Cleveland	Dunes Marina Casino & Resort	3/95
Jeffboat For more information Circle 65 on Reader Service Card				
City of Caruthersville	136 x 44 x 7	Cummins	Aztar	10/94
City of Evansville	310 x 70 x 14.5	Caterpillar	Aztar	6/95
Service Marine For more information Circle 66 on Reader Service Card				
Unnamed	254	—	Harrah's	8/94
Unnamed	254	—	Boyd Gaming Corp.	11/94
Unnamed	254	—	Boyd Gaming Corp.	12/94
Unnamed	254	—	Lady Luck Casino	3/95
Trinity Marine Group For more information Circle 67 on Reader Service Card				
Queen of New Orleans	245 x 62 x 12	Cummins	Hilton/N.O. Paddlewheel	2/94
Flamingo Hilton	245 x 62 x 12	Cummins	Hilton	pending
Flamingo Casino	322 x 90 x 14	Caterpillar	Hilton/N.O. Paddlewheel	11/94

MR/EN

Riverboat Gaming Congress & Expo

Fenco Provides Cash Handling Equipment

Fenco designs and manufactures steel cash handling pedestals for riverboat casino cashier cages and redemption centers. Fenco has enjoyed much success from the casino vessel boom, having equipment installed on the *Alton Belle II* and *Horseshoe*.

For more information on Fenco
Circle 131 on Reader Service Card

AMFELS: Yard Waits For Tide To Turn In Texas

AMFELS, established in 1987, is an independent subsidiary of Far East Levingston Shipbuilding Ltd. The yard has the design and construction capability to deliver any type of floating dockside or self-propelled casino vessel. An added attraction to time-conscious casino vessel owner/operators is the yard's space: AMFELS has more than 150

acres available, and can start construction immediately with delivery to any point along the Gulf Coast, as well as the Mississippi River and tributaries.

For more information on AMFELS
Circle 132 on Reader Service Card

Guido Perla Designs Top Riverboat Casinos

Guido Perla & Associates, a naval architecture firm based in Seattle, is a full-service engineering firm serving the marine industry since 1979. The organization offers a wide variety of services, including: computer-aided design, product engineering, computer lofting, technical consulting for all types of vessels, regulatory agency liaison, preventative maintenance programs, mechanical, electrical and structural analysis and stability analysis.

For more information on Guido Perla
Circle 133 on Reader Service Card



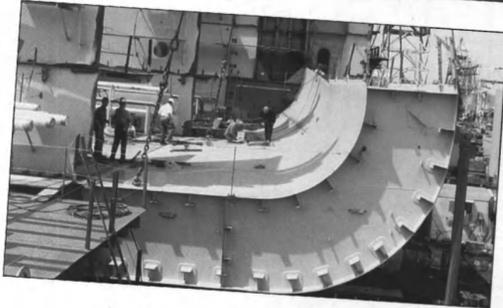
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- PTO - Siemens
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- Dimensions - 677.5' x 97.5' x 50'
- Tonnage - 20,706 GRT
- Deadweight - 24,825.5
- Engines - 2 Colt PC4.2V

Specifications:

- Propellers - 2 Controllable Pitch
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- Liquid cargo capacity - 29,820m³

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Avondale Boat Division Delivers Belle Of Baton Rouge

The Boat Division of Avondale Industries delivered the *Belle of Baton Rouge* (which is pictured on the cover of this supplement) to Argosy Gaming.

The *Belle of Baton Rouge*, a 266-ft. by 77-ft. (81-m by 23-m) paddlewheeler owned and operated by Argosy Gaming of Louisiana, arrived at Jazz Enterprises' site at Catfish Town, a commercial development on the Baton Rouge riverfront.

The *Belle of Baton Rouge* began

operations after U.S. Coast Guard and State Police inspections were completed.

The new vessel has approximately 29,000-sq.-ft. of public area on three casino decks.

The 19th Century style of the boat was designed by Rodney Lay and Associates and will feature 843 gaming positions, which include approximately 37 table games and 550 slot machines.

The interior design is by **Grace Bauer** of Bauer Interiors and fea-

tures a "Plantation Motif," complete with parlors, custom chandeliers, the owner's collection of Victorian porcelains and collectibles, and Victorian window treatments with a plantation garden scene mural.

Main propulsion for the *Belle of Baton Rouge* is supplied by a combination of two propellers and a paddlewheel. The two 54-in. Padgett Swan five-blade propellers are driven by two Detroit Diesel model 16V 92TA/DDEC, 865 hp at 1,800 rpm engines coupled to two

Twin Disc MG540 3.91:1 gears. The paddlewheel is powered by two 250-hp Sumitomo AC electric drive systems.

Ship service power is supplied by three Detroit Diesel 16V 92TA/MUI 725-kW, 460-volt, three phase generator sets. Alarms and steering systems are provided by EMI (Engine Monitor Inc.). For additional maneuverability and safety, the *Belle of Baton Rouge* features a 400-hp electric motor-driven Schottel thruster.

Hollywood Opens Dockside Casino In Tunica

Hollywood Casino Corp. opened its new dockside casino in northern Tunica County, Miss. The facility, Hollywood Casino-Tunica, is located at Commerce Landing in the city of Robinsonville.

Hollywood Casino-Tunica offers a 54,000-sq.-ft. gaming area with more than 1,300 slot machines and 64 table games. This facility is reportedly the largest single-level casino in the Tunica County market.

Insulations Inc. Helps Build Within

Insulations Inc., a Harahan, La.-based joiner contractor, provides interior buildouts in a timely, cost-conscious manner.

For more information on Insulations Inc. Circle 135 on Reader Service Card

Jeffreys Steel Ensures Casino Boats Are Ship Shape

Jeffreys Steel is dedicated to providing its customers the perfect form. As a complete steel service center, the company is dedicated to providing the marine industry with a wide variety of steel components, with equipment designed especially to burn, shear, paint, cut form and roll

steel, in one location.

For more information on Jeffreys Steel Circle 136 on Reader Service Card

Walter Machine Outfits Casino Vessels With Keel Coolers

Walter Machine Co. of Jersey City, N.J. supplied Walter Keel Coolers on the first gaming vessel to open in Louisiana, the Bender-built *Star Casino*. Walter Keel coolers have been used on other gaming vessels to cool propulsion engines, auxiliary engines and air-conditioning systems. Keel coolers are a proven form of marine engine cooling, since their closed-loop cooling system eliminates the possibility of clogged sea strainers and raw water pump failures in dirty or ice-laden water.

For more on Walter Machine Circle 137 on Reader Service Card

Southern Belle Casino Moving To Biloxi

The \$67-million *Southern Belle* casino, owned by Belle Casinos Inc., closed in Tunica County and will be moved to Biloxi.

There are now nine casinos open in Tunica County. Previous closings this year were *Lady Luck* in April and *President* in July. Biloxi is reportedly considering

selling the casino, but will presently concentrate on moving it. Biloxi also owns the *Biloxi Belle* on the Mississippi Gulf Coast.

Pauluhn Electric Helps Casino Riverboats Light Up The Waterways

Pauluhn Electric Manufacturing Co., Inc., based in Pearland, Texas, offers a wide variety of lighting products and accessories for the casino vessel market and a host of other marine applications.

For more information on Pauluhn Circle 134 on Reader Service Card

Hilton Gets Approval From Kansas City Council

The City Council of Kansas City approved Hilton Hotel Corp.'s plans for a single floating casino at the Paseo Bridge site on the Missouri River. Hilton is now able to proceed with development of a facility featuring 25,000-sq.-ft. of casino space (with an option to expand up to 50,000-sq.-ft.) and 1,000 gam-

ing positions. Hilton is reportedly investing \$70 million in its Kansas City riverboat casino site.

Hilton is reportedly the only company with multiple casino operations in both domestic and international jurisdictions. Hilton has casinos operating in Las Vegas, Reno and Laughlin, Nev.; New Orleans; Gold Coast, Australia; Istanbul, Turkey; and Windsor, Canada. Casinos are in development in Brisbane, Australia; Punta del Este, Uruguay; and Cairo, Egypt.

Directions In Design Interiors Attract Crowds

Directions In Design (DID) is a land-based and marine interior design specialist touted for its knowledge (of U.S. Coast Guard code); creativity; innovative planning and design; and commitment.

For more information on DID Circle 138 on Reader Service Card

Jeffboat Awards Casino Vessel Design To R.A. Stearn

R.A. Stearn, a full service naval architecture and marine engineering firm located in Sturgeon Bay, Wis., has been retained by Jeffboat to provide concept and detail design services for construction of a 310-ft. by 70-ft. (94-m by 21-m) casino vessel. Jeffboat is under contract with Aztar Corp. for construction of the vessel.

The *City of Evansville* is modeled after the 1800s vintage steamboat *Robert E. Lee*, a 310-ft. (94-m) sidewheel steamer and will be delivered in April 1995.

The *Evansville* has been designed to carry 2,500 passengers and crew and has approximately 47,900-sq.-ft. of gaming space with a

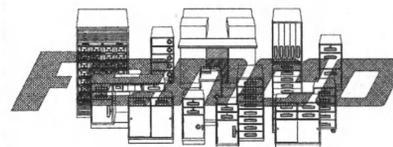
2,400-sq.-ft. separate special events area. Plans call for the installation of approximately 1,300 slot machines and 70 gaming tables.

Main propulsion will be provided by two Caterpillar 3512TA, 1,280-hp engines and ship's service power will utilize three Caterpillar 3512TA, 1,070 kW gensets.

In addition to this project, R.A. Stearn is also in the process of developing casino vessel designs for Monarch Casino & Resort, Showboat and Atwater Development Corp.

For more information on R.A. Stearn Circle 74 on Reader Service Card

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Lonseal Introduces New Matting/Decking

Lonseal, Inc., manufacturer of PVC matting/decking for marine application, introduced its new Londia Lunar series of matting/decking to the marine industry. Londia Lunar incorporates the classic playing-card diamond pattern on a coordinated background.

Deeply embossed, this new pattern provides a slip-resistant deck which is reportedly easy to install and maintain, durable and long-wearing. The stippled raised diamond surface reflects light, while the base pattern offers a lineal dimension to the overall design. Londia Lunar is available in eight colors and is suitable for installation in various spaces.

For more information on Lonseal Circle 80 on Reader Service Card

Architectural Company Stocks Wallcoverings From Europe

Architectural Products by Outwater, L.L.C. of Wood Ridge, N.J., stocks Anaglypta and Lincrusta wallcoverings and borders from England. They are reportedly light enough to add an ornate finish to ceilings previously

unadorned, yet durable enough to withstand wear and tear.

The Anaglypta wallcoverings are very durable, according to the company. The addition of cotton fibers during manufacturing reportedly gives them the resilience to withstand harsh treatment in high traffic areas, while still retaining their beauty.

For more information on Architectural Products by Outwater, L.L.C. Circle 81 on Reader Service Card

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Sahara Gaming Pursues Site Despite Legislation Setback

The referendum to approve gaming in Parkville (Kansas City), Mo. was narrowly defeated by local voters from the City of Parkville.

Sahara Gaming, however, is continuing to pursue approval to develop a riverboat casino along the Missouri River in the City of Parkville. The development in Parkville requires local voter approval as well as state and local regulatory approvals, including approvals of Mississippi gaming authorities. Sahara is mulling over many factors because it is considering continuation of the project in the Parkville area, including revisions to the scope of the project and additional financing required to fund increased costs due to construction delays.

Louisiana Casino Cruises Gets Baton Rouge Casino License

Louisiana Casino Cruises received a license to operate its planned riverboat casino on the Mississippi River in Baton Rouge, La.

The company hopes to open its \$61 million, 47,000-sq.-ft. casino by the third quarter in 1994. The casino will offer 28,000-sq.-ft. of gaming space with 1,500 gaming positions.

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Illinois Riverboats Receipts Total \$88 Million For July

Illinois riverboat casinos generated adjusted gross receipts of \$88.4 million during July 1994, which is the first month of Fiscal 1995. Admissions for the month totaled \$2 million. July's adjusted gross receipts were 15.2 percent ahead of June; admissions were 24.1 percent ahead. Significant adjusted gross receipts for July 1994 are:

Empress River Casino	\$19 million
Harrah's North/South Star	\$15 million
City of Lights I & II	\$12 million
Casino Queen	\$11 million

Significant admissions for July 1994 are:

Casino Queen	413,076
Empress River	314,442
Harrah's North/South Star	267,041
Alton Belle Casino	256,772

**Barataria Delivers Hull
Lofting For Belle Of Orleans**

Barataria Lofting Co., Inc. delivered services to Avondale Industries, Boat Division on the 350-ft. by 83-ft. by 14-ft. (107-m by 25-m by 4-m) gaming vessel *Belle of Orleans*. This is the second vessel on which Barataria has performed lofting for Avondale.

The job for Barataria entailed lines fairing, offset generation, shell plate development, part generation and burning machine code for the structural plate steel comprising the hull. To date, Barataria has lofted three casino hull forms, from which six vessels have been constructed.

For more information on Barataria Lofting
Circle 75 on Reader Service Card

**Bally Gaming To
Manufacture & Market
New Table Game**

Bally Gaming, Inc. and Shuffle Master, Inc. have entered into an agreement to manufacture and market a casino video version of Shuffle Master's "Let It Ride" table game.

According to Bally Gaming executives, the game will be available as a model in its new "Game Maker" multi-game touch screen machine, which allows casino operators to feature up to 10 casino games on each machine.

In conjunction with the agreement, Bally Gaming will design and manufacture several versions of video "Let It Ride" for Shuffle Master and will receive certain exclusive rights to the game for its new Game Maker machine.

Both companies unveiled the new products at the World Gaming Congress and Expo in Las Vegas.

For more information on Bally Gaming
Circle 78 on Reader Service Card

**Chipco's New Las Vegas
Sales Office Headed By
Forbes**



Bill Forbes

Chipco International Ltd. of Windham, Me., a supplier of chips and tokens to the casino industry, opened a regional sales office in Las Vegas, Nevada. **Bill Forbes** has moved from Maine to Las Vegas to

assume responsibility for the new southwest sales territory. Mr. **Forbes** has been in sales with Chipco for more than four years.

For more information on Chipco
Circle 79 on Reader Service Card

**Harveys Gets Approval For
Mo. River Gaming Project**

Harveys Casino Resorts obtained

approval for acquisition of a 64-acre tract of city-owned land along the Missouri River for development as a hotel, convention center and riverboat site.

Harveys will pay \$1.5 million cash and additional contribution of \$1.5 million to the city to fund construction of a multiplex softball and soccer facility.

While the entire 64-acre site will be sold to Harveys for riverfront development, a portion that includes

a nine-hole golf course will be leased back to the city of Council Bluffs for five years.

Harveys was also granted a license to operate its planned 40,000-sq.-ft. Central City, Col. casino by the Colorado Limited Gaming Control Commission.

Pending the grant of employee licenses, the 117-room hotel and casino will have met all licensing requirements to allow a planned opening by the end of 1994.

*Casino Seating
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BJ-60



BJ-33



SS-58

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BOATS & BARGES

Nichols Bros., Elliott Bay Deliver M/V *Christine Anderson* Car Ferry

The M/V *Christine Anderson*, a new 54-car, 250-passenger car ferry, has entered service for the Pierce County Department of Public Works in Washington State. The vessel, which was built by Nichols Bros. Boat Builders of Freeland, Wash. and designed by Elliott Bay Design Group of Seattle, provides service to Anderson and Ketron Islands from the mainland terminal at Steilacoom, located between Seattle and Tacoma.

The new ferry replaces an older, 26-car ferry. The *Christine Anderson*, designed to fit existing dock facilities, almost doubled the car-carrying capacity of its predecessor,

M/V *Steilacoom*.

The all-steel double-ender is 213 ft. (65 m) long, with a beam of 66 ft. (20 m) and a draft of 10 ft. (3 m). The Subchapter-T passenger vessel is powered by a pair of 960-bhp Caterpillar 3508 diesels, providing a service speed (full load, 2/3 power) in excess of 11 knots. The Cat 3508s operate at 1,800 rpm and drive twin propellers through ZF BW451, 5.037:1 marine gears. Propellers are 72 x 56-in., four-bladed CF-3 Columbian, hydrosonic-style. Two Caterpillar 3304 generators each provide 65 watts of service power.

Other Nichols projects include a 245-ft. (74.7-m), split-hull hopper barge for Manson Construction Company of Seattle, construction of which is now underway at Nichols



The M/V *Christine Anderson*, designed by Elliott Bay and built by Nichols Brothers, was delivered to the Pierce County Department of Public Works in Washington State.

Marine Ways in Portland, Ore. Work in Nichols' Freeland yard includes a 122-ft. (37.2-m) 384-passenger, turbine-powered SWATH vessel for a Florida route named *Cloud X*. The 100-ft. (30.4-m) *Palau Aggressor* is also under construction for use as a "live aboard" dive boat for use at Palau in the South Pacific, and Nichols has announced

that the yard will build a 230 x 46 x 3.5-ft. (70.1 x 14 x 1-m) sternwheeler with accommodations for 149 overnight passengers.

For more information on Nichols Bros. Circle 15 on Reader Service Card

For information on Elliott Bay Design Circle 16 on Reader Service Card

Christine Anderson Equipment List

Main engines	Caterpillar
Gears	ZF
Generators	Caterpillar
Hot start jacket water heaters	KIM
Pumps	Reliance, Ingersoll-Rand
Propulsion controls	Mathers
Battery chargers	Ratalco
Radar	Furuno
Steering system/controls	Jastram
Compass	Richie
VHF	ICOM
Speed/depth indicator	Robertson

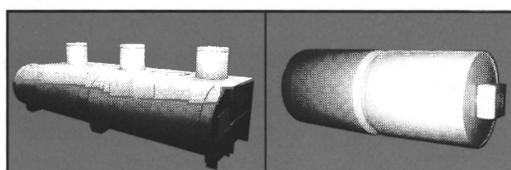
Pan-United Wins Two Conversion Contracts

Pan-United Shipyard Pte Ltd., a subsidiary of Singapore-based industrial group Pan-United Corp. Ltd., won two major ship conversion contracts totalling more than \$8 million from the Philippines and Australia. The first contract calls for the jumboization of the inter-island passenger ferry vessel *Sugbu* by 66 ft. (20 m). The *Sugbu*, owned by Cebu-based William Lines, will

be lengthened to 515 ft. (157 m) to allow it to ferry up to 3,500 passengers, as compared to the 2,600 it can presently carry. The work involves fabricating and inserting a 570-ton section into the middle portion of the vessel. Other enhancements include extending the navigational bridge section and expanding passenger accommodation space, which will take up another 170 tons of steel. Major engine works will be done to replace the two existing Pielstick engines with two higher-capacity Wartsila Vasa 9R46 en-

gines. The other contract involves the conversion of the car carrier *Don Carlos* to a "super" livestock carrier to carry more than 100,000 sheep. Both projects are targeted for completion by the end of 1994. The *Don Carlos* project was awarded by the Rachid Fares Group.

The work on the 656-ft.-long (200-m) *Don Carlos* will involve installing systems for ventilation, water, feeding and waste disposal. Upon delivery, the *Don Carlos* will operate on the Australia-Middle East-Europe-South America routes.



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Vanuatu Removed From USCG List Of Targeted Flags

Vanuatu has been removed from the U.S. Coast Guard's list targeting certain countries for increased safety inspections in U.S. waters. The basis for the targeting was an intervention rate which exceeded a three year average intervention rate of 0.5 percent for all ships entering the U.S.

Vanuatu's intervention rate was 0.9 percent resulting from two interventions for 214 inspections.

Vanuatu appealed to the USCG that the two interventions lacked merit and should be eliminated. The USCG rescinded one of the two interventions, changing Vanuatu's intervention rate to 0.47 percent and effectively removing Vanuatu from the list of targeted countries.

Ocean Vessel Transits Through Seaway Up From Last Year

Commercial ocean vessel transits through the Montreal-Lake Ontario section of the St. Lawrence Seaway are 41 percent ahead of last year's level at the halfway mark of the 1994 navigation season, according to the U.S. Saint Lawrence Seaway Development Corp.

As of Aug. 14, there had been 551 ocean vessel transits through the bi-national waterway, an increase of 161. In addition, overall vessel transits were ahead of last year's level by 16 percent at 1,290.

Saint Lawrence Seaway Development Corp. Administrator **Stanford E. Parris** noted that the increase in vessel transits, especially ocean vessel transits, is a direct benefit of the aggressive international marketing and sailing improvements initiated by the Corporation.

In addition to the increase in vessel transits, com-

mercial tonnage is ahead of last year's level by 12 percent, at 16.5 million metric tons.

Specific cargoes which registered increases were:

Product	% Increased	Total New (Metric Tons)
Iron ore	14%	5.4 million
Iron and steel	74%	2 million
Steel slabs	74%	899,000
Petroleum products	54%	756,000
Stone	29%	441,000
Coke	29%	374,000
Gypsum	29%	198,000
Coal	66%	173,000

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Chevron Testing New Offshore Gas Well

Chevron U.S.A. Production Company and Stone Energy Corporation have successfully drilled and completed the OCS-G-2050 No. A well at East Cameron Block 281 in federal waters offshore Louisiana. The well tested at a daily rate of 22.8 million-cu.-ft. of gas at 1,800 lbs. of flowing tubing pressure on a 43/64-in. choke. Chevron owns a 50 percent interest in the block, with Stone and other limited partnerships managed by Stone owning the other 50 percent. Future work in the block will include drilling another well. Stone will serve as operator for drilling and Chevron will serve as operator for production.

Texaco Completes Horizontal Oil Well In South Louisiana

Texaco completed its first successful horizontal oil well in South Louisiana.

The well is located in the Bay de Chene Field. Texaco's previous horizontal successes have been in the Gulf of Mexico and the Austin Chalk. The well utilizes Texaco's horizontal well technology to recover additional reserves from mature water drive reservoirs. The well is currently producing 1,100 barrels per day of 29 gravity crude oil and no water. The completed well has a 517-ft. (157.5-m) single lateral with a measured depth of 6,260 ft. (1,908 m) and a vertical depth of 5,080 ft. (1,548 m).

Agreement Finalized For Purchase And Cleanup Of Seattle Waterfront Property

The Washington State Department of Ecology finalized the first prospective purchaser agreement under new amendments to the state's Superfund law, with Northlake Shipyard, Inc., a Seattle-based marine company. The agreement was the last hurdle before Northlake Shipyard could reopen a bankrupt shipyard along Seattle's Lake Union, the former United Marine, Inc. site.

This is also reportedly the first prospective purchaser agreement in the nation to involve a profit-sharing arrangement between a private company and a government agency. Northlake Shipyard will contribute a portion of its profits each year into a fund capped at \$1.1 million to clean up the property.

In a consent decree with Ecology, Northlake Shipyard will pay \$400,000 at

Maritime Reporter/Engineering News

purchase time into a cleanup fund and will contribute a portion of its profits into the fund for up to 15 years. Over 15 years, the fund is expected to accumulate \$1.1 million, which is the estimated cost for cleaning up the contamination caused by past operations at the property. In return, Ecology will not hold Northlake Shipyard liable for any other cleanup costs, unless Northlake Shipyard causes further contamination. Northlake also has the option of using the funds to clean up the site under Ecology's supervision.

Northlake Shipyard will restore ship repair operations on the site, which was most recently owned by United Marine International, Inc. This is reportedly one of only two shipyards in the Seattle area capable of large repair work required on military craft.

Cummins Introduces New C Series Engine

Cummins Marine has released a new 350-hp rating for its C series engine that's designed for a broad range of commercial marine applications, and use in some sportfishing boats.

The turbocharged 350C is built with a host of performance features, including a sea water aftercooler, which generates cooler, denser air for more efficient combustion and less internal stress for longer life. The engine's crankshaft is made of hardened cast iron for increased wear resistance and durability.

The rated speed of the engine is 3,000 rpm. At rated speed, the fuel consumption is 18.9 S. gallons/hour. The 350C is backed by a new one-year, 1,500-hour warranty for intermittent ratings. The 350C will be built at Rocky Mount, N.C.

Celebrating its 75th year of service to the marine industry, Cummins Marine, based in Columbus, S.C., is responsible for design, manufacturing and providing after-sales support worldwide for the company and its products in the marine engine marketplace. Cummins Marine offers a broad application range with ratings from 1,385 bhp (47 - 1,073 kW). For more information on Cummins, call 122 on Reader Service Card.

Al Ships, Oceanfast Constructing Ferry For Sea Containers Ltd.

Designed for operation in North America, the largest commercial ferry ever to be built in Western Australia is being constructed at Perth-based Austal Ships' new plant complex, under the banner of Ferries Australia.

Ferries Australia, the joint venture between Western Australian shipbuilders Austal Ships and Oceanfast, entered into the agreement to build the first of a possible new series of vehicle-passenger ferries for international ferry

operator Sea Containers Ltd. earlier this year.

Named the *Super SeaCat*, construction of the aluminum vessel will take about a year to complete, from inception to delivery, with a scheduled delivery to the U.K. in May 1995.

Utilizing the latest in computer-aided manufacturing, the "ship-shaped" components are automatically generated by a numerically controlled plasma cutting machine,

ensuring accuracy and quality of construction. More than 100 aluminum fabricators are working on the vessel. Managing Director of Ferries Australia, **Chris Norman**, described the vessel as being bigger than a jumbo jet, being six stories high and eight lanes wide.

The vessel will be able to carry 600 passengers and 184 cars. The structural fire protection on the vessel will be a new ceramic material, and a new flexible carbon fiber ma-

terial is expected to be used for the waterjet shafting, from each main engine to each of four waterjets transmitting 5,500 kW of power.

The vessel will be fitted with an Ocean Leveller stabilizing system and four Ruston diesel engines driving KaMeWa waterjets through Reintjes gearboxes, ensuring a maximum speed of 38 knots. The vessel is 259 ft. (79 m) long, with a molded beam of 75 ft. (23 m), depth of 23 ft. (7 m) and draft of 8 ft. (2.4 m).



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OTECH Wins USCG Contract

Ocean Technical Services, Inc. (OTECH) won a \$4.5 million award from the U.S. Coast Guard (USCG) to construct 45 26-ft. (8-m) heavy-duty fiberglass Motor Surf Boats with an option for 10 additional vessels. These craft are utilized by large Coast Guard Cutters to con-

duct boardings, prosecute search and rescue cases, and for marine law enforcement. OTECH is assembling a new GRP facility at the old McDermott site located at 1150 Peters Road in Harvey, La. The existing repair and conversion yard will remain at 634 Peters Road. The corporate offices located at that same address are scheduled to relocate to 1150 Peters Road effective December 1994.

Workboats Northwest Builds USCG-Certified "Near Shore" Oil Spill Control Vessel

Workboats Northwest, Inc. of Seattle designed a fast, shallow draft boat for Cook Inlet Spill Prevention and Response Inc. The Cook Inlet Capable (CIC) is reportedly the first USCG-documented Oil Spill Response Vessel (OSRV) towboat under OPA '90. The CIC vessel can make a 180-degree turn at full speed in a 20-ft. radius, and can turn 360 degrees at its full speed of 30 knots. Draft of the hull with skegs is just 16 in. at rest. The vessel develops

3,800 lbs. of bollard pull with a Caterpillar 3208TA diesel engine that puts out 435 hp at 2,800 rpm. This power plant drives a Doen DJ140 waterjet through a ZF reduction gear. The engine is cooled by a Fernstrum keel cooler and is served by a Harco dry exhaust system. Workboats Northwest designed the boat last year for the Cook Inlet pollution control cooperative.

For more information on the boat
Circle 43 on Reader Service Card

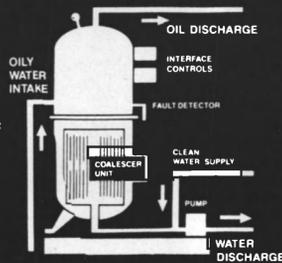


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Circle 288 on Reader Service Card

Sunrider Completes Soy-Powered Voyage Around The World

The biodiesel-powered *Sunrider* arrived September 8 at San Francisco Bay, ending an around-the-world journey to raise awareness of alternative energy sources.

The *Sunrider* Expedition, sponsored by the United Soybean Producers through the national soybean campaign, covered almost 40,000 miles, visiting close to 100 port cities in 100 countries.

The *Sunrider* is a 24-ft. Zodiac Hurricane rigid-inflatable rescue boat with a rigid deep- and an inflatable collar. The hull is lined with flotation chambers.

Throughout the two-and-a-half-year journey, the *Sunrider's* energy sources were soybean fuel and sunshine. The *Sunrider's* unmodified 180-hp MerCruiser sterndrive is fueled by 100 percent soy-based biodiesel, a fuel from natural, renewable sources such as vegetable oil.

Solar panels, plus the alternator, charge the batteries that drive the *Sunrider's* on-board electronics. A 27-hp Yanmar diesel engine provided backup power.

Maritime Reporter/Engineer

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Circle 206 on Reader Service Card

**Trinity Marine To Build Towboat,
12 Barges For Operations In S.A.**



Trinity Marine Group (TMG) has been awarded a contract from Otto Candies, Inc. to build a 140-ft (43-m), triple-screw, 4,500-hp towboat and 12 hopper barges, with options for 18 additional rake barges. The towboat will be built at Trinity's Halter Marine, Inc., Lockport, La., and the barges will be built at Trinity-Madisonville, La.

The Trinity Marine Group (TMG) has been awarded a contract from Otto Candies, Inc. to build a 140-ft (43-m), triple-screw, 4,500-hp towboat and 12 hopper barges, with options for 18 additional rake barges. The towboat will be built at Trinity's Halter Marine, Inc., Lockport, La., and the barges will be built at Trinity-Madisonville, La.

Otto Candies, Inc., Des Allemandes, La., owns and operates a large fleet of tugs, towboats and other vessels serving worldwide offshore energy industries and inland waterways. Candies will lease the new vessels to Compania Paraguaya de Transporte Fluvial S.A. of Asuncion, Paraguay to transport grain cargoes exclusively for Cargill Agropecuaria S.A.C.I. on waterways through Paraguay, Brazil, Argentina, Bolivia and Uruguay. The lease of the barges and pushboat was arranged by KRS Corp. of Jackson, Miss.

John Dane III, president of TMG, said, "This is an especially significant contract because while we have built numerous towboats for government use, this is our first one for commercial use in nearly two decades."

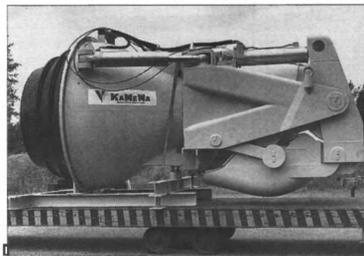
Construction of the new towboat has begun with delivery planned for the first quarter of 1995. Barge construction will begin in the fourth quarter of 1994, and all are expected to be delivered by the first quarter of 1995.

The new towboat will have a 47-ft (14-m) beam and 10-ft (3-m) depth. It will be powered by three General Motors EMD-B1 diesel engines, rebuilt by Stewart & Stevenson Services, Inc. They will develop a total of 4,500 hp driving through Lufkin RS2118 reverse/reduction gears with a ratio of 3.71:1.

The 12 barges will consist of six rake and six box barges. The box barges will be 200 ft (61 m) long, with a 52.5-ft (16-m) beam and 11-ft (3-m) draft. The rake barges will be almost identical, but 195 ft (59 m) long. All will have four-ft (1.2-m) coamings and will be outfitted with fiberglass (FRP) lift covers.

For more information on TMG
Circle 84 on Reader Service Card

**KaMeWa Waterjets For Stena
High-Speed Ferry**



Four KaMeWa size 160 waterjet units are being installed in Stena's high-speed sea service ferry. With an output of 16,354 kW each, these units are reportedly the most powerful waterjets with steering and reversing gear built in the world to date.

The new ferry will have a service speed in the 40-knot range and accommodation for 1,500 passengers and 375 cars. Scheduled for delivery in 1995, the vessel will operate in the Irish Sea.

For more information on KaMeWa
Circle 14 on Reader Service Card

**Evac To Supply Sanitation System To
Polish Ferry Building In Norway**



Finland's Evac Oy, supplier of vacuum toilet systems to the shipping industry, won a contract in Norway for the design and supply of the marine sanitation system to the Polish ferry building at Norwegian west coast shipyard Langsten Slip & Batbyggeri AS, in Tomrefjord.

Evac's contract calls for the supply of 262 Evac 90 Anlara bulkhead mounted toilets and 28 Evac 90 Anlara deck mounted units. Also included in the order are four ejector collecting units: two mounted in the ferry's hull structure collecting tank, and two ejector units integrated into the vessel's sewage treatment plant.

For more information on Evac
Circle 89 on Reader Service Card

**Volvo Penta Power For Port Of London
Authority OSRV**



Twin Volvo Penta TAMD 122D turbocharged and aftercooled diesels provide the propulsion power for *Recover*. *Recover* is the Protector 54-based oil spill recovery vessel (OSRV) completed by Prout Catamarans for Thames Oil Spill Clearance Association (TOSCA), and operated on its behalf by the Port of London Authority (PLA).

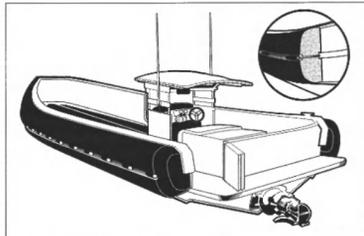
The twin Volvo Penta TAMD 122D diesels, each rated at 480 hp at 2,050 rpm, operate through hydraulically-controlled PP170 waterjet drives. The diesels enable the vessel to work in a polluted area while causing minimal disturbance of the oil slick.

Recover — TOSCA's main recovery vessel — is a custom-built variant of the Prout Protector 61 catamaran.

With a length of 54 ft. (16.5 m), beam of 21 ft. (7 m) and draft of 3 ft. (1 m), *Recover* retains the prime design criteria of the larger Protector 61. *Recover* has a light load speed of more than 20 knots and a carrying capacity of 8 tons.

For more information on Volvo Penta
Circle 20 on Reader Service Card

**American Eagle Mfg. Designs New
Concept For Rigid Bottom Inflatables**



Long-time commercial boat builder American Eagle Manufacturing of La Conner, Wash. has come up with an alternative to the rigid bottom inflatable.

Named SAFE boats, this family of workboats from 17 ft. to 45 ft. (5 m to 14 m) combines a commercial grade welded aluminum hull with a bolted-on closed cell foam collar in place of the typical inflatable tube. By using this flotation system, SAFE boats reportedly have the same load carrying capacity and inherent stability of rigid bottom inflatables. Another feature of the foam collar is the D-shaped design that American Eagle claims adds strength to the boat and allows more room for people and cargo.

Designed to stand up to hard use, the SAFE flotation system is made of a material originally developed to insulate oil pipelines. This material is reportedly resilient and buoyant and is coated with an abrasion-resistant polyethylene skin that results in a rugged foam collar that resists the effects of petroleum products, ultraviolet light or sub-zero temperatures.

For more information on
American Eagle Manufacturing
Circle 21 on Reader Service Card



The need to deepen the Columbia River navigation channel was reinforced August 12 when Evergreen Line's *Ever Renown* discharged and loaded 1,847 containers for a new record at the Port of Portland's Terminal 6. This was a 25 percent increase over the previous Portland container record set only a few months ago by another Evergreen R-class vessel. Deepening of the Columbia River channel from 40 ft. to 43 ft. (12 m to 13 m) is in feasibility study stage by the U.S. Army Corps of Engineers. Local sponsors of the project include the seven lower Columbia River ports of Portland, St. Helens and Astoria, Oregon; and Longview, Kalama, Woodland and Vancouver, Washington.

Hitachi Zosen Delivers Apollon, Foil-Assisted Catamaran



Hitachi Zosen completed the *Apollon*, a foil-assisted catamaran in its Superjet-30 series, at its Kanagawa Works and delivered the vessel to its owner, Fuke Kaiun Co., Ltd. in Osaka. The vessel, the last of seven constructed consecutively by Hitachi Zosen, was commissioned in

the passenger transport service between Sumoto and Tsuna, Hyogo Prefecture, and New Kansai International Airport, which opened on September 4.

The high-speed passenger vessel is the third vessel delivered to the same owner, following the *Trident Ace* and the *Artemis*.

The *Apollon* is a hybrid-type vessel, one that has twin hulls equipped with submerged hydrofoils fore and aft.

The weight of the vessel is supported both by the buoyancy of the two hulls and the lift of the two hydrofoils. Two diesel engines and two waterjets, manufactured by Niigata Engineering Co., Ltd., reportedly minimize noise and vibration.

The *Apollon* is 101 ft. (31 m) long, with a breadth of 33 ft. (10 m), depth of 11 ft. (3.5 m) and draft of 6.5 ft. (2 m).

For more information on Hitachi Zosen
Circle 82 on Reader Service Card

Workskiff 23 Now Available To GSA Buyers



The new 23-ft. version of the Workskiff, Inc. craft sports a "walk-through" pilothouse that gives access to both the aft and fore parts of the vessel. Workskiff 23s have recently been approved for government agency purchase through the Government Services Administration.

The Workskiff 23 heavy aluminum boat can now be ordered by Government Services Administration (GSA) buyers. GSA approval makes the boats available to U.S. government operators.

A number of Workskiff boats have been sold to government agencies for use as research, survey, and patrol vessels. The strength of the boats is based on monocoque engineering, which carries the stress out to the thick, high-strength marine aluminum plating instead of internal structures.

For more information on Workskiff, Inc.
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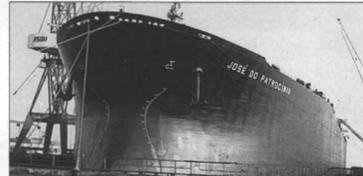
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Anthony Del Gavio
President

Petrobras Block Booking For ASRY



One of the three VLCCs owned by Petrobras of Brazil scheduled for work at ASRY in a block booking, the *Jose Do Patrocinio*, shown in drydock at ASRY in August 1989 during an earlier repair.

Tanker owner Petrobras of Brazil has awarded Arab Ship Repair Yard (ASRY) a block booking for three of its VLCCs, two of which, the *Jose Do Patrocinio*, 279,913 dwt, and *Felipe Camarao*, 279,688 dwt, will carry out their third Special Survey at ASRY, while the *Vidal De Negreiros*, 292,823 dwt, will undergo an intermediate survey prior to its fourth Special Survey in 1997.

Taken together, repairs to the three vessels are expected to total 126 days, of which 30 days are scheduled for repairs in ASRY's 500,000-dwt graving dock.

The *Jose Do Patrocinio* was the first vessel to dock and arrived in the yard in August, followed by the second vessel in September. The third vessel will arrive in December.

Blasting and painting of the main deck, cargo slop and ballast tanks is expected to total 31,000-sq.-m per ship and dock work will include the renewal of rudder bushes, tailshaft survey and propeller polishing.

Other items will include overhaul of valves, renewal of piping (including hydraulic lines), overhaul of main turbine, main boiler, cargo pumps, generator turbine, coolers, heaters, compressors and other machinery. Electrical repairs include overhauls to alternators, motors, transformers, switchboards, and engine room fans, and lighting circuits will be tested. Major repairs, renewals and overhaul will be carried out to the automatic boiler and other automation systems. Attention will also be given to servicing and repairs to radar, radio equipment, and the fire detection system.

For more information on ASRY
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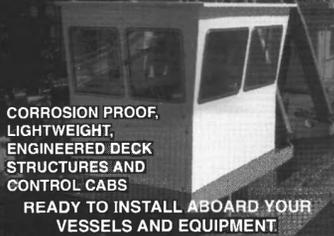
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Maritime Reporter/Engineering News

COMSAT Drives Information Highway Across Seven Seas ... And Beyond

When yachters pushed off from Charleston, S.C. on September 17th to start the world's longest and reportedly the most dangerous around-the-world race, they relied on telephone and data services being provided by COMSAT to keep in touch with people back on shore.

The race is being sponsored by The BOC Group, a British multinational gas and health care company, and other companies, among them COMSAT and IBM. Known as the BOC Challenge, it is a test of single-handed sailing skills, endurance, and survival instincts, measuring about 27,000 miles long and taking competitors nine months to complete.

COMSAT-developed mobile digital technology allows the production of smaller and smaller satellite terminals. Such terminals now allow recreational yachts as small as 35 ft. long to be equipped for satellite telephone and data communications services. In the BOC race, yachters will be able to telephone their sponsors on-shore, race officials at headquarters, and their families and friends, wherever they are on the high-seas, seven days a week, 24 hours a day.

COMSAT is also making a tracking service available for interested race watchers on shore. Dialing a fax machine will enable them to access up-to-the-minute positions of the racers and other news and information.

As reportedly the largest owner and operator of the international Inmarsat organization, which operates a geostationary satellite system orbiting the earth, COMSAT claims it now regularly provides global communications services to and from anywhere in the world.

COMSAT claims its transoceanic satellite communications services are unhampered by weather, range, and non-existent telephone infrastructure. Next on the horizon for COMSAT is everything from enhanced access to the Internet by users on the high seas to new information services that can be obtained matter where you are on earth.

or more information on COMSAT
Circle 9 on Reader Service Card

v Cruise Ferry, RoRo Service Between Panama Colombia

Promotora de Navigacion of Panama, S.A., a wholly-owned subsidiary of Flota Mercante Colombiana, is in an agreement with Color Line A/S of Oslo, Norway to bareboat charter its passenger ferry *M/V Jupiter* for a period of three years beginning in 1994. The agreement also includes a purchase option.

Jupiter will be renamed *Express* under Bahamian flag after a short refit in Nor-

way to better suit it for trading in the Caribbean, will commence a regular cruise ferry service between Cristobal, Panama and Cartagena, Colombia under the banner of Crucero Express, S.A., a new company which is being established by Promotora de Navigacion to market and operate this trade.

M/V Jupiter is 14,264 grt, certified to carry 1,600 passengers. The service will commence in December 1994 with the first sailing from Cartagena.

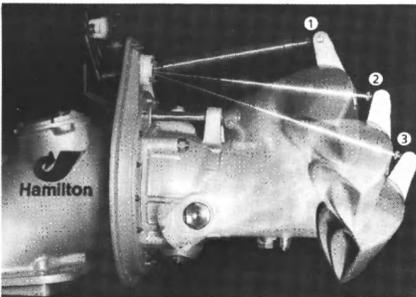
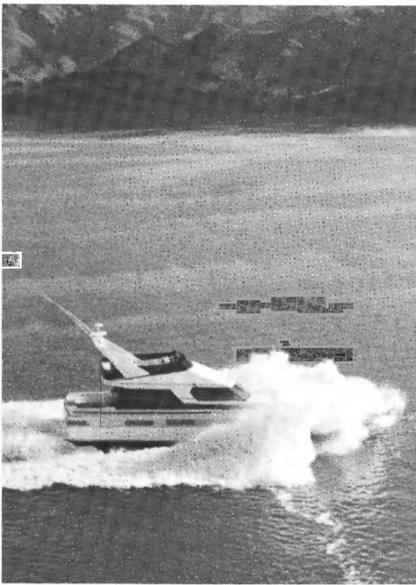
Litton Wins \$18 Million Navy Navigators Contract

The Guidance & Control Systems division of Litton won an \$18 million contract from the U.S. Navy for production of 22 surface combat ship navigation systems and spares.

The sets, called AN/WSN-5 Inertial Navigation Sets, are installed two to a ship and provide position, velocity, heading and roll and pitch information to a variety of vital ship

functions. WSN-5 systems are also linked to the GPS space satellite network.

The systems provide data to Tomahawk cruise missiles for pre-launch alignment of Litton-built guidance and navigation systems in the missiles. In addition, the WSN-5s provide data to the Aegis combat systems installed on the Navy's Ticonderoga (CG-47)-class guided missile cruisers and new Arleigh Burke (DDG-51)-class guided missile destroyers.



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Circle 245 on Reader Service Card

Krupp Fordertechnik To Build Ship Loader For Los Angeles

Krupp Robins Inc., Denver, Colo., a subsidiary of Duisburg, Germany-based Krupp Fordertechnik GmbH, has been commissioned by Los Angeles Export Terminal Inc. to build a ship loader for the port of Los Angeles. Capable of loading 9,000 tons of

coal and coke per hour onto ocean-going vessels of up to 200,000 dwt, the facility is scheduled to go into operation in 1996. The order is worth approximately \$10 million.

August Brings 31 Ship Orders For Japan

The Japanese government reports that new orders totaled 752,000 gt (31 vessels) in August 1994.

August's figure is 67.7 percent lower (1,575,000 gt, 15 vessels less) than July 1994's figure. August's figure is 0.4 percent lower than that achieved in the same month in FY '93. The types of ships ordered were 10 bulk carriers; six cargo ships; four oil tankers; three chemical carriers; two LPG vessels; and six container vessels. New orders for Japan in this fiscal year total 5,084,603 gt. This is a 137.6 percent increase on the same period in FY '93.

Detroit Diesel, MTU Enter Into Engine Agreement

Detroit Diesel Corp. of Detroit, Mich. and MTU Motoren-und Turbinen-Union Friedrichshafen GmbH, of Friedrichshafen, Germany, announced they have reached an agreement on contracts concerning the development, production and distribution of two families of heavy-duty diesel engines in the 400- to 3,650-hp range for non-highway markets.

The new engine families will be direct-injected, four stroke, water-cooled diesel engines produced in six, eight, 12 and 16 cylinder versions. Both of these new engine families — the 2000 Series displacing two liters per cylinder and the 400 Series displacing four liters per cylinder — will make use of state-of-the-art fuel injection systems incorporating electronic controls based on the Detroit Diesel Electronic Controls (DDEC) and the MTU electronic control system. The parties will make use of design and of components manufactured by Detroit Diesel, MTU and Mercedes Benz AG. Field testing of engines will start in late 1995, with production to begin one year later.

For more information on Detroit Diesel Circle 117 on Reader Service Card

For more information on MTU Circle 118 on Reader Service Card

NASSCO Announces New Standards Project

National Steel and Shipbuilding Company (NASSCO) announced the beginning of a follow-on standardization project designed to reduce the cost of U.S. shipbuilding through increased usage of product procurement and design and engineering standards, sponsored by the National Shipbuilding Research Project (NSRP), and titled "World Class Shipbuilding Standards".

The project will promote U.S. shipbuilding industry standardization through a three-pronged approach: current efforts to establish procedures for the submittal of equipment standards to the U.S. Coast Guard, earlier NSRP project, will be continued; research will be performed to determine the foreign commercial shipbuilding standards for engineering methods, processes and designs that are available and desired by the U.S. shipbuilding community; and requirements for development of complete sets of procurement standards will be developed for those ship types for the U.S. shipbuilding industry most likely to compete in the market. Three other U.S. shipbuilders will assist NASSCO: Bat Works Corp., McDermott Shipbuilding, Inc. and Avondale Industries. CDI Marine Co. of Jacksonville, Fla. and Petrochem Marine Consultants of San Rafael, Calif. are assisting with technical studies. The project is scheduled to be completed in January 1996.

For more information on NASSCO Circle 119 on Reader Service Card

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A model 300 BFM mobile hoist rated at 600,000 lbs. shown at Fairhaven Shipyard, Fairhaven, MA.

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compartment • Full instrumentation • Heavy-duty slings with chine and keel pads • 90° Pivot steering • Easy maintenance • Handle boats with beams to 30 ft. (9.1 m) • Direct chain drive, eight wheel stance.

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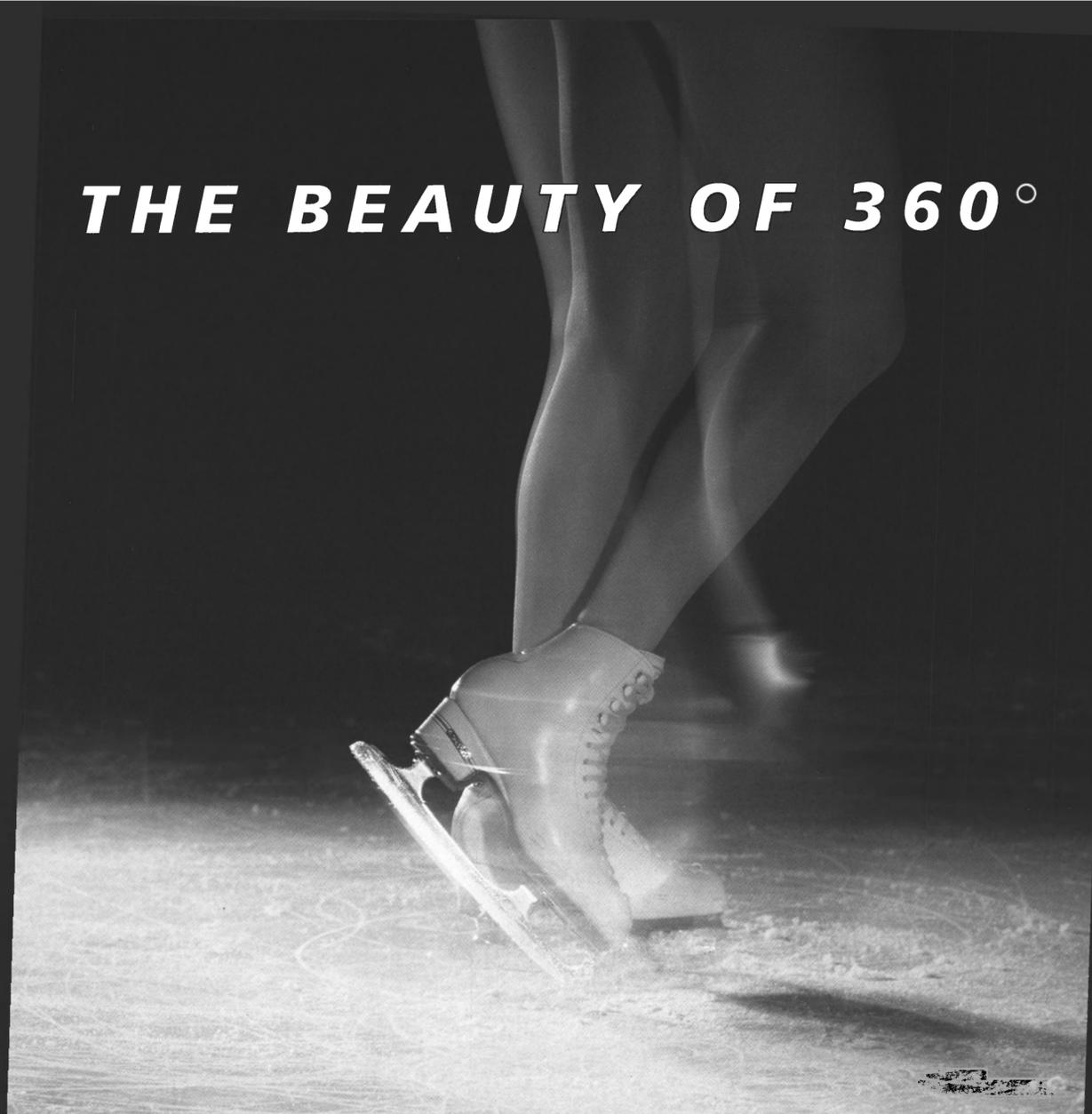


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Lisnave Reports Upbeat Quarter; Discusses Future Plans



The 48,621-gt *Crystal Harmony*, built by Mitsubishi Heavy Industries and owned by Nippon Yusen Kaisha, both of Japan, in Lisnave's drydock No. 12. Lisnave has been the site of an increasing number of cruise ship drydockings.

Lisnave, Portugal is a large shiprepair organization with three yards in Portugal. From the facilities at the heart of the Port of Lisbon at Lisnave's North Yard in Rocha and South Yard in Margueira, to the extensive capabilities of the Mitrena Yard, Setubal, Lisnave reports its full range of repair and ancillary services are being used more widely by operators as more and more ships call the Port of Lisbon.

Increased Vessel Repairs

One of the most interesting repairs of the quarter was carried out on the 22,697-dwt motor tanker *Esso Parentis*, owned by Esso Francaise. The vessel arrived in Lisbon with its hull in a "hog" condition, which causes the vessel to arch up or "hog" amidships.

Before the vessel was allowed to enter the drydock for a damage assessment, it was cleaned and gasfreed. After drydocking, it was decided with the owner's representatives and its classification society, Bureau Veritas, that a midship section — 29.5 ft. (9 m) in length and involving 200 tons of steel — would have to be renewed. While this section was prefabricated in the shop, the vessel was cut into two parts and separated to allow the preparation of the aft and forward sections for the introduction of the new midsection.

The vessel arrived in the river Tagus on March 4, 1994 and was drydocked after cleaning on March 17, 1994. Repairs were carried out in 44 days. The vessel sailed to the owner's and the classification society's satisfaction on April 30, 1994.

Lisnave yards have recently repaired tankers such as the *R. Hal Dean*, owned by Chevron; *Star Wilmington*, owned by Texaco; and dozens more. Lisnave has also been active in repairing passenger vessels, and has been host to vessels owned by, among others, Nippon Yusen Kaisha, Holland America Line, Royal Caribbean Cruise Line, and Diamond Cruises.

Project Management System

The *Esso Parentis* repair was carried out under Lisnave's new Project Management System, an extensive program designed to enhance Lisnave's competitive advantages even beyond the Total Quality Management system it implemented in 1991. The goal: working closely with the customer for lower costs and better delivery times. The Project Management Team comprises a project manager, whose job it is to keep to or improve upon the quoted delivery date, minimize costs and keep the owner informed; assistants for day and night shifts; trade managers for specialized areas; foremen; and work preparers. In the new system, the client enjoys complete control and feedback on costs.

Another aspect of the Project Management System examines each unit of work performed for ways to improve efficiency, including the implementation of new methods and technologies, providing for steadily increasing efficiency over the long term.

Restructuring

A more literal restructuring is also taking place at Lisnave: an agreement between the company, the Portuguese government and a group of banks will result in an extensive restructuring of the company's operations. The main repair yard in Lisbon, or the Margueira yard, will be deactivated and its activities transferred to a yard of equivalent capacity in Setubal.

The state, which now owns the land upon which the Margueira yard is built, will compensate Lisnave with approximately \$255 million, funds which will be applied to the financial restructuring of Lisnave. The Mitrena yard in Setubal will be bought by Lisnave, and the facilities there will be enhanced with one or two more 872.7 x 151 ft. (266 x 46 m) drydocks and equipment for the repair of offshore equipment. Workshops, repair jetties and lifting equipment will be upgraded. On the financial end, Lisnave capital will be increased by \$117.6 million, the banks participating in the restructuring will take \$42 million in shares to be sold to the public, and the shareholders will take \$36 million (which subscription is granted by the Mello Group). By the time the Margueira yard is fully closed down in early 1996, the Mitrena yard in Setubal is expected to be operational with one new dock and the ability to repair 180 vessels a year — to effect a smooth transition with no interruption in service.

For more information on Lisnave
Circle 77 on Reader Service Card

Texaco's *Star Westminster*, another ship which has been served by Lisnave's shiprepair facilities.



Ship Repair & Conversion '94

Olympia 2, London, November 8-9

Ship Repair & Conversion '94 — the third event in the series — promises to be a successful meeting for the international shiprepair, conversion and maintenance industry.

Worldwide shipyard representation, one of the main features of the previous events, will be even stronger in 1994.

More than 80 shipyards took part last year, and more are expected this year.

Plans are underway for National Pavilions from Finland, Singapore, Sweden and Turkey, pavilions where shipyards will be joined by equip-

ment and service suppliers covering every aspect of shiprepair and maintenance expertise.

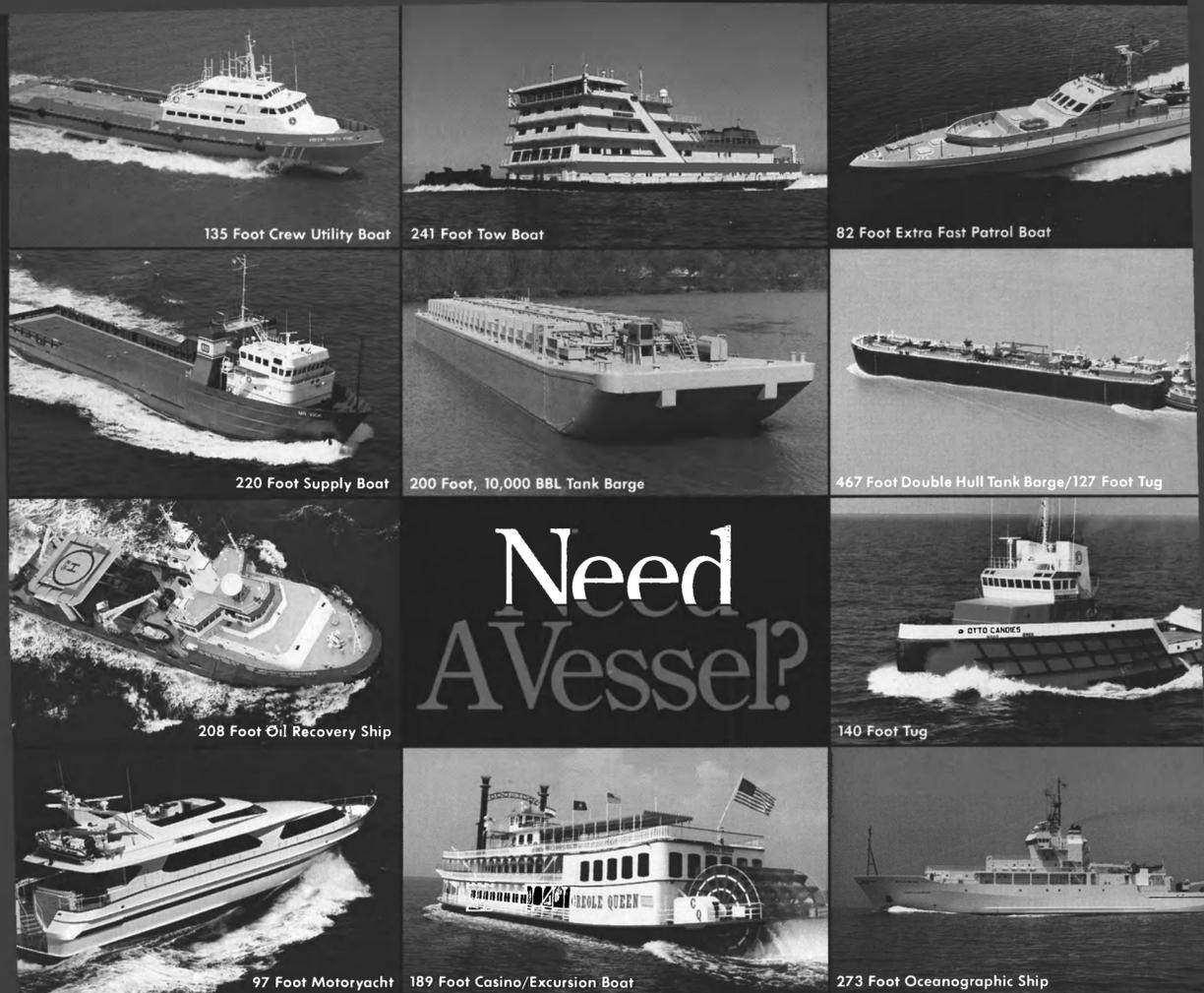
With the worldwide shiprepair industry poised to benefit from a substantial upturn in business, the '94 exhibition is expected to be a showcase of shipyard capability and product/services developments. Factors pointing to a significant improvement in the shiprepair market include:

- The average age of the world's merchant fleet is more than 16 years and increasing. The forecasted expansion of world trade is expected to lead to demands that existing tonnage is

repaired, not scrapped;

- Shipping forecasts point to an increase in freight rates in virtually all sectors, giving operators higher returns on repair investment;
- Tough rules beginning to be enforced by the classification societies will lead to more shipowners investing in higher value contracts when considering repair operations;
- Stronger focus on environmental and safety issues will mean more owners improving standards on existing ships;
- Escalating costs and long delivery times for newbuildings points to growth in the conversion industry.

For more information on Ship Repair & Conversion '94, contact **John Gwynn-Jones**, Secretariat: BML Business Meetings Ltd., 2 Station Rd., Rickmansworth, Herts WD3 1QP, England, tel: +44 923 776363; fax: +44 923 777206.



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deliveries, we have built vessels for 27 foreign nations, scores of private customers, and the U.S. Navy, Army, Air Force and Coast Guard. We also have five dry docks for ship repair, overhaul and conversion. No other shipbuilder can match Trinity's experience in building such a wide variety of vessels in steel, aluminum and GRP. We can, and want to build your next vessel.



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Circle 324 on Reader Service Card

A Commonly Asked Question From Our Readers



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

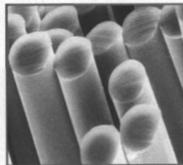


A. *Dacron is nothing more than a trademark indicating the source for that polyester material.*



Technically, all polyester (including Dacron polyester) is made from the polymerization of a dicarboxylic acid ester with ethylene glycol, a dihydroxy alcohol.

The key difference is in the engineering of the fiber for the



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

At AlliedSignal Fibers, we pride ourselves on a history of supplying solutions to a customer's specific application. Our polyester for ropes and cordage is engineered to be cost-effective and provide the

optimal properties required for the wet environment. And, our revolutionary SeaGard® overfinish ensures the ultimate performance and protection against wet abrasion for polyester, as well as nylon.



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

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

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FIBERS

Circle 10 on Reader Service Card

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Hyde Debuts Kvaerner Eureka Firefighting Systems At WorkBoat Show

Hyde Products will introduce Kvaerner Eureka firefighting (Fi-Fi) systems at the 1994 International WorkBoat Show. Kvaerner Eureka is a leader in large, modern Fi-Fi systems.

Kvaerner Eureka has installed more than 200 systems on vessels throughout the world. Recent Fi-Fi deliveries include units placed aboard two new Foss tugs to be operated in Puget Sound.

Water monitors are available with capacities from 5,280 gpm to 15,840 gpm and with throw heights/lengths of 295 ft./595 ft. (90 m/181.4 m) to 427 ft./755 ft. (130.2 m/230.1 m). These monitors feature optimum jet performance and hydraulic or electric remote control. Kvaerner offers an aspirating type, foam shaper barrel with a built-in agitator for use in instances when only foam will do. The foam monitor has a capacity of 3,520 gpm. Remotely operated butterfly valves control the flow between the water barrel and the foam shaper.

Other Hyde products include a wide array of oil spill response equipment and deck machinery. Hyde Products will be at booth 815 at the New Orleans International WorkBoat Show November 3-5.

For more information on Hyde
Circle 17 on Reader Service Card

MAN B&W Updates Information On MC Engine

MAN B&W offers an updated, second-edition folder of information on its two-stroke MC engine program for 1994. The amendments over the first edition published in January include:

- The lower speed range for the S90MC-T has been reduced from 64 to 56 rpm
- The data given for the K90MC and K90MC-C engines applies to the Mark VI versions only
- The S42MC Mark VI engine has been introduced
- The L42MC, Mark VI engine has been extended to include nine, 10, 11 and 12 cylinder versions
- The cylinder lubricating oil consumption data has been updated.

For information on receiving the updated folder
Circle 18 on Reader Service Card

Tri Tool Fixturing Machines Weld Preps On Fittings

Tri Tool Inc. is now offering the Model 530 Fitting Machine. This bench unit simultaneously bevels, faces and counterbores one- to four-in. elbows, crosses, tees, and reducing fittings with positive repeatable positioning. The unit is useful for re-piping or modifying end prep bevel angles, land thicknesses and counterbores. It is also reportedly beneficial for providing a quick and

October, 1994

economical way to salvage used fittings. Features include a rotary indexing table for accurate angular relationships, the capability to center and square fittings without disturbing tool bit settings, XYZ positioning with locks at all adjustments, Y-axis depth stop, and electric pneumatic power options. A dial indicator can be used for extra precision.

For more information on Tri Tool
Circle 97 on Reader Service Card

Tolo's GridLock™ For Strength And Light Weight

Tolo Inc. offers a structural technology known as GridLock™ that reportedly offers great specific strength and stiffness, corrosion resistance, damage tolerance, plus low weight and life-cycle costs. According to Tolo, the structures can be redesigned for special structural

characteristics such as harmonic tuning or biased weight requirements. The technology employs a skin with an integral grid of vertical elements that interlock with grooves on the interior face of an opposing skin, using engineering materials from aluminum and titanium to composites, for use as doors, bulkheads, gates, decks and other applications.

For more information on Tolo Inc.
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Circle 260 on Reader Service Card

Orange Shipbuilding Updates Shipbuilding Contracts

Orange Shipbuilding Co., Inc., Orange, Texas, has updated information on recent and existing contracts.

Qty.	Ship Class	Owner	\$ Million	Dimen. (ft.)	Del.
2	Towboats	U.S. Army	1.85	59 x 22 x 8.5	2/95
1	Towboat	U.S. Army	1.95	75 X 30 X 8.5	1/96
2	YONs	U.S. Navy	5.0	240 x 45 x 17	3/96
1	Towboat	U.S. Army	2.4	83 x 34 x 10	6/96
6	LSQ/Cs	N/A	N/A	N/A	8/96
22	YCs	U.S. Navy	7.6	110 x 32 x 9	12/96

Finnish Company Launches New Version Of Level Gauging System

The Finnish company SF-Control Oy of Helsinki has introduced a new version of its tank level gauging system, LevelDatic, a system that has been installed on more than 200 ships worldwide. The new version, LevelDatic 100S, was shown at SMM '94 in Hamburg. LevelDatic 100S is based on the same sensor technology as the previous model. The processing of the signals in the new version, however, is reportedly more flexible, which allows numerous possibilities for connecting the system

through serial signal RS485 and/or analog 4-20mA to the engine and cargo control systems, a cargo calculator, or a separate PC computer with individual display.

For more information from SF-Control
Circle 130 on Reader Service Card

Ferro Ceramics Help Reduce Downtime On Dredge Pumps

The Ferro Diamonite plant, a manufacturer of technical ceramics, working closely with engineers from a dredging company headquartered in Holland, was able to recommend an alternative to welding for repairing dredge pumps. Aluma-Plate[®], a 70 percent ceramic beaded compound

in an epoxy resin, was specified for testing because of its abrasion and corrosion resistance. The ceramic beads in Aluma-Plate reportedly possess a diamond-like hardness which the company claims resists wear. The epoxy resin reportedly makes the coating easy to spread and helps provide a strong adherence. The product has been used in environments up to 225 degrees F. Testing of Aluma-Plate led to the product being specified for all the Holland-based company's abrasive repairs to dredge wearplates and pump housings, eliminating the need for hardface welding.

For more information from
Ferro Diamonite
Circle 129 on Reader Service Card

Stolt Parcel Tankers Acquires 90.5% Of Stolt Partner S.A.

As a result of the public offering of shares in Stolt Partner S.A. (SPSA) in July 1994 and ending September 1994, Stolt Parcel Tankers Inc. (SPTI) acquired 90.5 percent of the shares of SPSA.

SPSA has completed the purchase of five parcel tankers from SPTI at a total cost of \$121 million, increasing the size of the fleet 11 parcel tankers, representing 21 percent in terms of dwt capacity, of the Stolt Tankers Joint Service.

In addition, SPSA will acquire the two newbuilding contracts, scheduled for delivery in February 1996 and 1997, respectively.

Icebreaker Returns To U.S. After Trip Across Arctic

The U.S. Coast Guard (USCG) announced that the USCG Icebreaker *Polar Sea*, which was the first U.S. surface ship to reach the North Pole, began its return trip by navigating the Arctic ocean ice pack from the Pacific to the Atlantic. This made it the first U.S. surface ship to make such a journey. The *Polar Sea* arrived in Boston on September 11. The *Polar Sea*, a 399-ft. (121.6-m) icebreaker from Seattle, Wash., and the Canadian icebreaker *Louis S. St. Laurent*, a 396-ft. (120.7-m) ship from Halifax, Nova Scotia, were participating in a joint science project, Arctic Ocean Section 1994. During the expedition scientists on both vessels were provided with an opportunity to conduct scientific studies in the Arctic Ocean, the least studied of all the oceans.

Measurements of physical water properties, especially temperature, revealed that a previously unknown quantity of Atlantic Ocean water is flowing into the Arctic Ocean at a depth, affecting the circulation within the Arctic basin.

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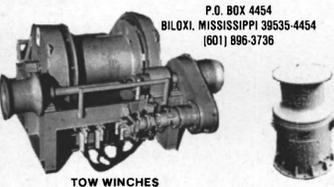


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AMERICAN SHIP MANAGEMENT, INC.

On July 14, 1994, **AMERICAN SHIP MANAGEMENT** inaugurated combination breakbulk/container service between Antwerp, Belgium and Norfolk, VA using the 13,600 DWT vessel M.S. SPICA. ASM is at present offering sailings every 28 days with voyage 004 scheduled to depart Norfolk on/about October 21st. Because the nature of the service has been primarily an import operation, ASM is offering very attractive rates in both breakbulk and containerized service for export loads. For rate or booking information please contact:

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Circle 233 on Reader Service Card



First Windows™ -Based Loadmaster Installed On Stena Ferry

The first new Windows™ version of Loadmaster — a system designed to check the condition of a laden ship for stability and strength by Kockumation AB of Malmo, Sweden — was installed on the 15,900-grt RoRo passenger ferry *Stena Jutlandica*. The vessel is owned by Stena Line, which has already placed an order for the installation of six systems.

Developed for Windows 3.11, the Windows Loadmaster system is operated on type-approved Kockumation PC486 computers. It includes all the facilities of the previous UNIX-based Loadmaster.

Loadmaster has an on-line connection to a tank gauging system. Officers enter cargo information on vehicles as the cargo comes aboard using handheld terminals that transfer data to the Loadmaster via radio modems. When loading is completed, the officers verify the entered condition to measured drafts. At departure, a warning is issued if the results of the arrival condition are not within set limits. The arrival condition is calculated based on the ship's departure condition, speed and length of voyage. The system will be upgraded to calculate the effects of damage stability, of a grounding, and of firefighting.

For more information on Kockumation
Circle 99 on Reader Service Card

New Kelvin Hughes Antenna Rotator Keeps Signal Clearer

Kelvin Hughes, the naval and marine division of Smiths Industries Aerospace, has introduced a 40-rpm turning mechanism for use with its radar systems, designed to increase the refreshment of the radar signal and avoid jumpy and inconsistent radar images — particularly with radars used on high-speed craft. The antenna, which originally rotated at 24 rpm, was increased to 40 rpm not only by upgrading the motor but also by introducing new stainless steel gears in the gearbox — which also reportedly improves the reliability of the turning mechanism. The new turning mechanism was retrofitted to long Kong ferries and to a new ferry being built in Australia for operation in the Pacific and South America.

For more information on Kelvin Hughes
Circle 100 on Reader Service Card

Hiller's Firehold System Adds USCG To List of Approvals

Hiller Systems of Chesapeake, Va., announced recent U.S. Coast Guard (USCG) approval of its Firehold cargo smoke detection sys-

tem. Kidde Fire Protection, a leading fire equipment manufacturer, teamed with Hiller to gain USCG type approval.

The Firehold system is being installed on many new construction projects, and is a "drop in" replacement for retrofit of troublesome existing smoke detection cabinets. Retrofit of an existing smoke detection cabinet can reportedly be accomplished in four to five days, even

while underway. Firehold utilizes a single detection element, drastically reducing maintenance and repair costs associated with older units employing one detection unit for each zone.

The Firehold also carries the approvals of the American Bureau of Shipping, Lloyd's and Det Norske Veritas.

For more information on Hiller Systems
Circle 101 on Reader Service Card

MAN Announces Creation Of Quarterly Newsletter

MAN Engines and Components has announced the development of its quarterly newsletter.

The *MAN Newsletter* addresses topics of importance to OEMs (original equipment manufacturers), owners of premiere pleasure craft with

(Continued on page 36)

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Circle 261 on Reader Service Card

MAN propulsion systems, customers and prospective customers, and the recreational marine industry in general.

"Of great importance to MAN and our team," said Ulrich Jansen, director of MAN's Fort Lauderdale, Fla. factory headquarters, "is being close to and accessible to our customers. In developing the issuance of a quarterly newsletter, we'll bring MAN close to home."

For more information on MAN
Circle 102 on Reader Service Card

Circle Seal Controls Offers Solenoid Valve Info

Circle Seal Controls now offers an eight-page brochure offering technical data on its selection of solenoid valves, which includes two-way and three-way, two-position models.

Circle Seal's SV Series of solenoid valves utilize a design that employs two pressurized sliding seals with a diameter identical to the two

seats which the poppet seals against. According to the company, the pressure forces are always balanced regardless of the poppet position. This, plus the series' electromagnet and high-energy return spring, reportedly provides the solenoid valves with extra reserve forces to operate the valve. The valves provide bubble tight shutoff and operate from vacuum to maximum pressure rating of 6,000 psi, available for either DC or AC use.

For more information on Circle Seal
Circle 142 on Reader Service Card

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Circle 318 on Reader Service Card

Cygnus Upgrades Gauge Range

Cygnus Instruments has upgraded the electronics in its range of ultrasonic thickness gauges to fall in line with EMC regulations. Improved features include a 100 percent larger display on the Cygnus 1 range, and the models are now intrinsically safe and operate underwater. The gauges also have a wide measurement range — now to 200 mm. All Cygnus instruments use the multiple echo technique enabling measurements to be taken without removing protective coatings.

For more information on Cygnus Instruments
Circle 121 on Reader Service Card

Westfalia's Unitrol Achieves Less Than 1% Water In Oil

What Westfalia calls a new generation of mineral oil separators equipped with the Unitrol system has been developed for the treatment of a wide range of fuel and lube oils. This separator technology has been supplemented by the separator model OSC 4, designed for the low capacity range (rated capacity up to 3,100 l/h).

The new bowl ejection system (Hydro-Stop) reportedly ensures precise and fast solids ejection. The solids are highly concentrated. Product losses are reportedly avoided and disposal costs minimized. According to Westfalia, the Unitrol system guarantees water-free clean oil by means of the water monitoring system (WMS).

The volume of separated foreign matter in the solids holding space is additionally monitored by means of the sludge monitoring system (SMS).

The bowl ejections are performed at the optimum moment. This patented system reportedly ensures optimal separation efficiency even in critical situations.

Westfalia also says this patented system offers new possibilities for the treatment of oil-water-solids mixtures on board ships. The heart of the system is the mineral oil separator type ESC 4. The separator is likewise equipped with the Unitrol system and operates on a liquid-oriented principle based on the WMS. Oil-water-solids mixtures are de-watered, whereby the residual oil is recovered and the solids concentrated. The de-watered and de-oiled solids are extremely compact. The phase discharging through the clean oil outlet has a water content of less than one percent. The content in the separated water is likewise below one percent. The solids volume is reduced approximately 10 percent.

For more information on Westfalia
Circle 19 on Reader Service Card



Maritime Reporter/Engineering News



PATHFINDER/ST ARPA: 34-cm or 25-cm PPIs (16" or 12" diagonal CRT IMO equivalents) provide automatic tracking of up to 40 targets with vectors and readouts for the most dangerous 20. Have auto and manual acquisition, and unique trial maneuvers.

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Raytheon PATHFINDER®/ST Radar. Superior Technology with Enhanced Navigation Package.

Enhanced Navigation Package (ENP). The Best Is Now Better.

The Enhanced Navigation Package (ENP) is the latest innovation to the PATHFINDER/ST ARPA and TM Radar. ENP adds significant navigational and operational features that keep the PATHFINDER/ST raster display at the forefront of industry design. All Raytheon PATHFINDER/ST systems now offer ENP as standard supply, and systems already in use can be easily upgraded.

The PATHFINDER/ST raster display with ENP includes a navigation sensor interface, stored Navline maps (ARPA only), new "pop-up" menu operation, and configurable serial data output ports.

Navigation sensor input can accept NMEA sentence structure from conventional sensors such as differential GPS, GPS, or LORAN-C. A second input port is available that will accept information from a Syledis precision positioning system. The navigation sensor is used to position and stabilize

Navline maps on the PATHFINDER/ST ARPA display.

Operation of the PATHFINDER/ST ENP is simplified by the "pop-up" menus. Three main menus are: MAPS, OPERATE, and ARPA. The MAPS page is used to save, retrieve, edit, and control Navline maps. The OPERATE page contains operational functions such as: Vector Selection; Trial Maneuver, and Course Up. The ARPA page allows selection of features such as Collision Assessment Mode, Auto Drift, and Auto Acquisition.

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

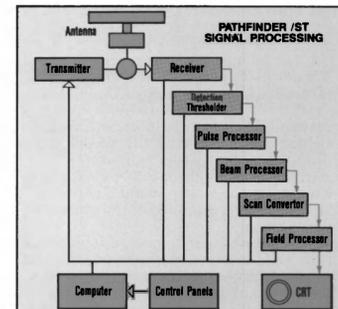
In side-by-side comparison tests, a PATHFINDER/ST display and a conventional radar display were connected to the same radar system. *PATHFINDER/ST consistently displayed targets not detected by the conventional display.*

Unmatched Target Detection.

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

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

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



Simple Installation and Flexible System Configuration.

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

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As we constantly strive to improve Raytheon products, all specifications are subject to change without notice.

Circle 296 on Reader Service Card

Raytheon

Showboat Branson Belle Launched With Environment In Mind



The Showboat Branson Belle, co-owned by entertainer **Kenny Rogers** and Silver Dollar City, Inc., was launched into Table Rock Lake using 80 crates (two tons) of bananas acting as a natural lubricant.

The Showboat Branson Belle took a 140-ft. journey from its shoreline shipyard, splashing into the waters of Table Rock Lake.

Bananas acted as a natural lubricant, packing the launching rails, allowing the vessel to be pushed into the water by two bulldozers.

"For decades, the people of Silver Dollar City have been kind to the environment. The Showboat is a highly visible commitment to protecting our land and waters.

"The bananas, which are biodegradable, were used on the rails in place of grease or oil," said **Coe Sherrard**, project manager.

The commitment to environmentally-sound practices continues into the ship's fuel tank. "We're even powering the ship with soy diesel," said **Kenny Rogers**, co-owner in the project, "a biodegradable form of fuel produced by using soybeans."

Continued construction will be done in the water on the ship's interior and exterior. The Grand Inaugural Launch is scheduled to take place in April 1995.

The vessel is being constructed on a land locked lake, managed by the Corps of Engineers. The Corps, a regulatory partner in the project, is the landowner of the site.

Oceaneering International Wins U.K. Ministry Of Defense Award

Oceaneering Technologies (OTECH), a division of Oceaneering International, Inc., has been awarded a contract by the Ministry of Defense (U.K.) Navy Directorate of Marine Services (Naval) for the search and recovery of a RAF Tornado F3 fighter which crashed in the Mediterranean Sea in July south of Cyprus. The aircraft is believed to be in about 7,000 ft. of sea water. OTECH commenced the search operations in August using the Deep Ocean Search & Survey (DOSS) system and the Magellan[®] 825 remotely operated vehicle (ROV) operating from Oceaneering's dynamically positioned vessel, *The Performer*.

The DOSS system, depth rated to 26,000 ft., is fitted with both a 100-kHz wide swath sonar and a 500-kHz high resolution sonar. The Magellan 825, designed and manufactured by OTECH, is a dual manipulator, electrohydraulic ROV also capable of operating in depths to 26,000 ft. Both systems are controlled with the same 36,000-ft. fiber-optic, electromechanical umbilical cable.

For more information on Oceaneering International Circle 120 on Reader Service Card

New Port Cost Guide From INTERTANKO

Tanker owners, operators and shipbrokers can obtain access to the latest port cost figures by reference to a new guide from INTERTANKO, the International Association of Independent Tanker Owners.

The *Disbursements for Tankers* publication provides information for use in voyage calculations before ships are fixed.

Disbursements for Tankers 1994 presents a considerable amount of port cost information: 2,700 actual disbursement figures and recent cost estimates received from tanker owners and port agents for calls of large and small tankers at almost 500 tanker ports and terminals around the world.

To obtain a copy of the report, contact INTERTANKO, P.O. Box 7518 Skillebekk, N-0205 Oslo, Norway, tel: +47 22 44 03 30; fax: +47 22 56 32 22.

APL, Mitsui, OOCL In Cooperation Agreement

American President Lines, Ltd. (APL), Mitsui O.S.K. Lines, Ltd. and Orient Overseas Container Line (OOCL) signed an agreement to exchange vessel space, coordinate ship sailings and cooperate in the use of port terminals and equipment for ocean transportation services in the Asia-U.S. West Coast trade.

The carriers will begin service under this agreement in late 1995 or early 1996.

Nedlloyd Lines B.V. also signed a separate agreement with the three carriers, following the same guidelines, for Asia-U.S. East Coast trade via Panama.

A weekly all-water service is expected to be provided by the four carriers under this agreement.

Also part of the agreement, the four carriers will provide a joint Asia-Europe service, along with Nedlloyd's partners in that trade — Compagnie Generale Maritime S.A. and Malaysia International Shipping Co., Ltd.

Marcon International Sells Vessels For Canadian Marine, Hornbeck

Canadian Marine (CANMAR) Drilling of Calgary, Alberta, Canada sold its 130-ft. by 44-ft. (40-m by 13-m) 2,250-bhp multi-purpose tug supply/coring vessel *Canmar Supplier V* to Anya Holdings of Cape Town. After being laid-up/mothballed in the Arctic since 1986, the vessel was towed to Vancouver, B.C. and is now being prepared by the buyers for the voyage to South Africa.

Wirana Pte. Ltd. of Singapore purchased the 376-ft. (115-m) drillship *Canmar Explorer* from CANMAR. The 17,400-bhp ice-breaking tug supply boat *Canmar Kigoriak* towed the *Canmar Explorer* out of McKinley Bay in the Canadian Arctic and handed it over to the Russian tug *Neftegaz 70* off Dutch Harbor in the Aleutian Islands, Alaska. The *Neftegaz 70* continued to tow the *Canmar Explorer* to the Far East, where it will be scrapped.

After dropping off the *Canmar Explorer*, the *Canmar Kigoriak* returned to McKinley Bay where the vessel picked up the 30,000-ton-capacity drydock *Canmar Careen* and towed it to British Columbia, where the unit will be stored until sold.

Marcon International, Inc. of Coupeville, Wash. was involved in the sale of both vessels.

Marcon has, in the past, handled the sales of the 8,000-hp tug *Canmar Tugger II*, the 7,200-hp tug *Canmar Sea Eagle*, the 21,000-dwt barge *Canmar Shuttle* and the 5,200-hp tug/supply boat *Canmar Supplier VI*.

Hornbeck Offshore Services Sells Three Platform Supply Vessels

Hornbeck Offshore Services of Galveston, Texas sold three 185-ft. (56-m) 2,200 hp platform supply vessels, *Dapper Dan*, *John Henry* and *Omaha*, en-bloc to Aries Marine Corp. of Lafayette, La. The vessels were originally part of the bloc of 20 vessels which Hornbeck purchased from Petrol Marine, of Houma, La., in 1992.

The vessels, renamed *Chris V*, *Shelby C* and *Lauren E*, respectively, are being placed into immediate service in the U.S. Gulf offshore oil patch. Aries Marine already has one vessel under contract and a second is expected to be working by early September. The third vessel is being refitted with liquid mud tanks and will be available for charter in November.

Marcon International acted as broker in the Hornbeck sale.

Vessels Still Available

CANMAR still has available for sale, through Marcon, the 5,200-hp ice-classed tug/supplier *Canmar Supplier VII*, the 9,800-bhp ice-breaking supply boat *Robert Lemeur*, the 352-ft. by 92-ft. (107-m by 28-m) work barge *Peter Kamingoak*, the 30,000-ton drydock *Canmar Careen*, and two arctic camps.

Still available for sale from Hornbeck are the 180-ft. (55-m) 2,640-hp *Hos Canonero* and the 190-ft. (58-m) 5,750 bhp *Hos Goliath*.

For more information on any of these vessels, contact Marcon International, P.O. Box 1170, 22 Front St., Coupeville, Wash. 98239, tel: (206) 678-8880; fax: (206) 678-8890.

Aluminum Passenger Vessel Built By Kvichak For Decatur Northwest

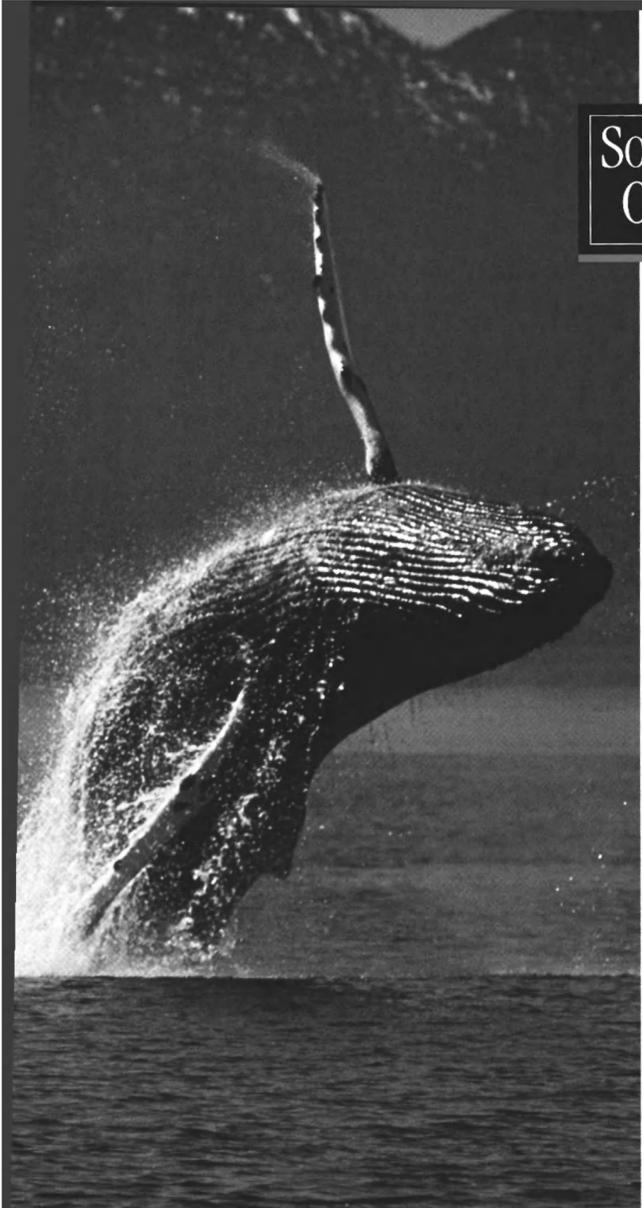


The passenger vessel *Sylvan Spirit*, designed and built by Kvichak Marine Industries, has been delivered to its owners Decatur Northwest and placed into service. The all-aluminum boat provides regularly scheduled service between Decatur Island (in the San Juan Islands of northern Puget Sound) and Anacortes, Wash.

The new vessel is owned and operated by a community association of island residents, providing a year-round link to the mainland. The vessel is U.S. Coast Guard certified for 49 passengers in partially protected waters.

Sylvan Spirit is 58 ft. (17.5 m) long, with a beam of 18 ft. (5 m) and draft of 4 ft. (1.1 m). Two 300-hp Luger marine diesels provide a service speed of approximately 13 knots, with ZF IRM 301A marine gears, MMC engine controls, and Hynautic steering.

For more information on Kvichak Circle 116 on Reader Service Card



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Circle 151 on Reader Service Card

Ship & Boatbuilding Technology



WaveMaster's Nansha No. 28

At The Forefront Of Fast Ferries, With 43-Knot Speeds

WaveMaster International, the Australian fast ferry builder, has delivered a ferry which is reportedly not only at the forefront of the speed category, but which also achieves high standards of refinement and passenger comfort.

Nansha No. 28 is a 137.8-ft. (42-m) symmetrical catamaran which carries 385 passengers at 43.7 knots. WaveMaster built the vessel to the order of the Panyu Nansha Port Passenger Transport Company Ltd. for the superfast Hong Kong - Nansha City route, one already served by earlier WaveMasters.

Panyu Nansha was the developer of the city itself, and was eager to establish a ferry link to Hong Kong as part of the city's attraction. With this vessel and the earlier delivery *Nansha No. 18*, WaveMaster claims, Panyu Nansha has the fastest ferry link in South China.

The needed speed and reliability, plus the vessel's night-time opera-

tion, dictated special engineering, equipment and crewing. The ferry's power is provided by four MTU 16V 396TE74L diesels, tandem-mounted in each hull. The power plant drives four KaMeWa 63S waterjets through special offset Reintjes gearboxes, used to allow straight drivelines.

This is WaveMaster's third use of the concept, which allows 36 knots to be maintained even if one engine is down. Failure of a waterjet unit similarly causes little trouble, as there is insufficient spacing for full independent traverse of its partner.

Transiting Hong Kong harbor at night with no reduction in speed is eased by a design which figures in a four-member bridge crew — one more than might be expected for this type of vessel. The fourth member will be a full-time Vistar night vision observer. A radio handset and controls have been integrated into the console of the engineer, who handles radio traffic at night.

Passenger accommodation uses main and upper decks, and reportedly offers exceptional quality of fitout.

Traveling at speeds in the mid-forty knot range creates substantial water slap and wind buffeting, creating sound and residual vibration which WaveMaster went to great lengths to reduce: a floating floor was fitted to the after half of the main deck; the inner floor is mounted on a rubber grid interposed between it and the structural deck; and the rest of the deck, plus

trunkways and other sound conductors, have been clad in acoustic material. In addition, more material, energy, rather than sound-absorbing, has been placed over surfaces passengers could contact under heavy deceleration.

The vessel is classed by the China Classification Society, ZC, in accordance with IMO Resolution A373X, 1978; and designed with observance of Det Norske Veritas HSLC Rules 1991 + 1A1 Passenger R3 EO.

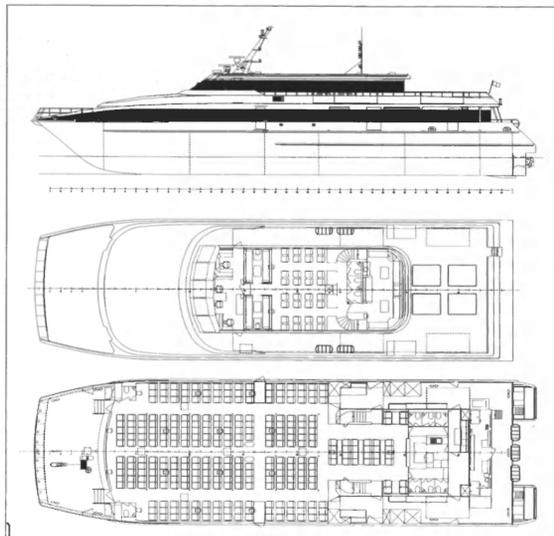
For more information on WaveMaster
Circle 31 on Reader Service Card

Nansha No. 28 Specifications

Length 137.8 ft. (42 m)
Beam (molded) 39.4 ft. (12 m)
Depth (molded) 12.1 ft. (3.7 m)
Max. draft 4.9 ft. (1.5 m)

Nansha No. 28 Equipment

Main engines MTU
Auxiliary engines MTU
Gearboxes Reintjes
Waterjets KaMeWa



MARAD NEWS

MarAd And McDermott To Develop Dry Cargo Ship Design

MARITECH Grant Comes To Fruition

Acting as agent for the Department of Defense's Advanced Research Projects Agency, the Department of Transportation's Maritime Administration (MarAd) has entered into a cooperative agreement with McDermott Shipbuilding, Inc., Amelia, La., to develop a multipurpose cargo vessel. The competitive agreement was awarded on a matching basis as part of the MARITECH program which is designed to enhance the competitiveness of American shipyards. Participation in industry-initiated research and development projects is one element of President Clinton's plan to strengthen America's shipyards. MARITECH is one part of a five-part program proposed by the President last October. MarAd and McDermott, with their project participants Ishikawajima-Harima Heavy Industries Marine Technologies, and MAN B&W Diesel, will jointly develop a detailed design and manufacturing process for a multipurpose cargo ship in the 17,500-dwt range. The vessel will be configured to accommodate general cargo, bulk, breakbulk, RoRo cargoes and containers, and will include options for reefer capabilities. The total value of the agreement is \$7.6 million and the government will provide up to \$3.8 million over the 18-month period. McDermott and the participants will contribute \$3.8 million in cash and in-kind services.

MarAd Seeks Information On Launch Barges

MarAd published a request for information in the *Federal Register* to update its inventory of U.S.-flag launch barges that have a launch capacity of less than 12,000 long tons and are qualified to engage in the coastwise trade. The inventory was prepared pursuant to Public Law 100-329, enacted June 7, 1988. Launch barges are designed to carry and to offload at sea offshore oil and gas drilling jackets. MarAd invites comments, additions or changes concerning the completeness, timeliness and accuracy of the inventory list dated August 4, 1988. Comments should be submitted in writing to the contact person by October 6, 1994. For more information, contact: **Paul Ackerman**, U.S. Department of Transportation, Maritime Administration, MAR-852, Room 7301, 400 Seventh St., S.W., Washington, D.C. 20590; tel: (202) 366-4374.

MarAd Sponsors Study On North American Shipping

The U.S. Department of Transportation, Maritime Administration (MarAd), has commissioned a three-

phased research program with Louisiana State University's National Ports & Waterways Institute (which is one of MarAd's four National Maritime Enhancement Institutes) to investigate the feasibility of river/ocean, short-sea and conventional vessel operations serving the East Coast of Mexico, the U.S. and Canada through the Maritime Systems of Americas (i.e. Gulf of Mexico, and inland river waterway system

of mid-America).

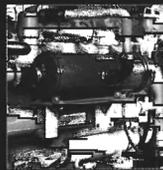
The research is designed to expand the understanding of future trade and maritime transportation in the Western Hemisphere. It is intended to develop a wide range of technical information on vessel systems that could be utilized to increase waterborne commerce between the east coast of Mexico, the mid-U.S. and Canada.

The study team wants to receive

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(Continued from previous page)

specific shipper "case histories" to document commodity, origin/destination, and trade history details within the study region. There is an opportunity for selected shippers to receive a free comparative transportation analysis provided to those companies whose case histories are chosen.

For more information, contact **R. McLaughlin** at the National

Ports and Waterways Institute at tel: (703) 276-7102.

Alaskan Oil Issue Lingers

Although the Clinton Administration reportedly favors lifting the ban on the export of North Slope Alaskan oil, no decision has been made. The ban is contained in the U.S. Export Administration Act, which was extended on August 19 by

Executive Order of the President under the International Emergency Economic Powers Act, pending Congressional action.

The amendment to lift the ban includes a provision which would limit the carriage of the oil on U.S.-owned ships operated by U.S. crews. There is no U.S.-build or U.S.-repair requirement. Earlier, the amendment would have required the oil to be transported on vessels which qualify for the U.S. domestic,

coastwise (Jones Act) trade. However, international objections to such an expansion of the Jones Act, coupled with the possibility that the Jones Act itself could be endangered, reportedly prompted the amendment to be revised.

SMI, Schottel Reach Cooperative Agreement

Ships Machinery Intl., Inc. (SMI) of Miami (formerly known as Schottel of America, Inc.), in an effort to expand its presence in the market and enhance product diversity and after-sale support capabilities, has concluded an agreement with Schottel Werft, Germany, which will form the basis of continuing business cooperation through 1997. The agreement enables SMI to obtain proprietary Schottel parts to repair and maintain Schottel equipment previously sold and delivered by Schottel of America. SMI will also manufacture and sell the complete line of Schottel tunnel thrusters up to 500 hp. SMI recognized that product lines and support capabilities must be selectively broadened to keep pace with the increasingly complex market. SMI is the U.S. representative for: Lips USA; Radio Zeeland; A. Van Der Velden; Omega Jet; Krupp Fordertechnik; and Fr. Fassmer.

For more information on SMI
Circle 51 on Reader Service Card

Product Designed To Make Barnacle Removal Easy

Total Rust and Corrosion Control of Atlanta introduced Bill's Barnacle Remover (BBR). The company claims that by simply spraying any barnacle encrusted surface, and waiting a few minutes, the barnacles will wipe or wash away. The product is also designed for use on zebra mussels. BBR uses a proprietary blend of surfactants and other chemicals to break down the mastic that barnacles manufacture.

For more information on the product
Circle 63 on Reader Service Card

Alpha Wire Corp. Announces Acquisition

Alpha Wire Corp. of Elizabeth, N.J. announced the acquisition of Insul-Tab, Inc. from Teleflex, Inc. Insul-Tab manufactures a variety of heat shrinkable tubing products, insulation sleeving and high-temperature wire wrap products. Alpha Wire Corp. owner **Philip R. Cowen** also announced the acquisition of Computer Wire & Cable Corp. of Leominster, Mass. Renamed Cowen Cable Corp., the company was founded in 1981 and manufactures hook-up wire and multi-conductor cable in volume quantities.

For more information on the products and services of Alpha Wire
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Kvaerner Masa-Yards, Neste Convert Second Tanker For Arctic Traffic

Neste Shipping and Kvaerner Masa-Yards signed a contract for the conversion of the 16,000-dwt tanker *MT Linni* for Arctic traffic. After the conversion, the ship will start operation for Arctic Shipping Services, a joint venture company established in Murmansk, specializing in oil transportation. The main shareholders in the company are Murmansk Shipping Co., Neste Shipping and Kvaerner Masa-Yards.

MT Linni will receive an 11.4-MW azimuthing electric Azipod-propulsion drive, which will replace the existing shaft line and rudder. Azipod is an azimuthing electric propulsion drive, developed by Kvaerner Masa-Yards and ABB In-

dustry. The Azipod unit to be installed is reportedly the world's most powerful azimuthing propulsion drive built.

The conversion, which will take place in Helsinki next spring, also includes the installation of new diesel-electric main machinery. The conversion is worth about \$17 million.

Last winter the *MT Uikku*, owned by Nemaarc Shipping Co. (established by Neste Oy and Kvaerner Masa-Yards), was equipped with a new Azipod propulsion drive, after which its icegoing capability and maneuverability were reportedly improved.

For more information on Kvaerner Masa-Yards Circle 90 on Reader Service Card



A contract has been signed between a European cruise operator and Kvaerner Masa-Yards for the construction of a luxury cruise vessel for worldwide service. The vessel will be built at Kvaerner Masa-Yards' Turku New Shipyard and will be delivered in June 1996. The vessel will carry 1,250 passengers and will be 656 ft. (200 m) long. The value of the contract, which includes an option for a second vessel, is about \$180 million.

Fried Krupp Delivers Floating Dredgers



Hopper suction dredger *Aru II* is one of two nearly identical vessels delivered to a state-owned Indonesian enterprise by Krupp Fordertechnik. A cutterhead suction dredger, *Batang Anai*, is scheduled for delivery to the same customer this fall.

The two identically-designed hopper suction dredgers *Bali II* and *Aru II* — which were delivered to state-owned enterprise PT (Persero) Pengerukan Indonesia, Jakarta in December 1993 and December 1994, respectively — were showcased at the SMM '94 trade fair in Hamburg, Germany.

The two vessels are to be used for maintaining existing harbors and waterways, extracting sand and dredging new port facilities. Within a consortium Krupp Fordertechnik, a unit of Fried Krupp, assumed system responsibility for the dredger vessels and supplied the entire set of engineering and dredging equipment. As consortium partner, the Volkswerft GmbH shipyard, Stralsund, built the hulls, procured machinery and electrical systems according to Krupp Fordertechnik's specifications, and assembled the equipment items.

Hopper Loading/Unloading System

The hoppers of both dredgers are loaded and unloaded with the same system. Loading is carried out centrally using a loading box located in the middle of the hopper. Overflows are arranged fore and aft. The advantages of this system are, according to Krupp Fordertechnik: good settling of the dredged material; low turbulence in the main stream of mixture; low overflow loss; quicker loading; even distribution of material in the hopper; and high cost-efficiency.

Unloading is carried out by fluidizing the soil with the assistance of pressurized water and diluting water with central discharge from above. This reportedly produces a high mixture concentration with precise metering, optimal unloading when handling different types of soil, and a short unloading time.

Dumping of the load is effected using a small number of bottom valves

and reportedly offers the following advantages: short unloading time almost flat design of hopper bottom; few built-in elements in the hopper low maintenance costs; and a low load center of gravity.

A 262.5-ft. (80-m) cutterhead suction dredger called *Batang Anai*, was scheduled for delivery to the same customer this fall.

Other Projects

Jointly with other major shipyards in Korea, Krupp Fordertechnik has received orders for five cutting wheel suction dredgers for the Korean market in the last three years. The Lübeck-based enterprise is assuming



Krupp Fordertechnik deck cranes are currently being assembled for containership newbuildings at Thyssen Nordseewerke, Emden, Germany.

technical-systems responsibility and supplying large parts of the engineering and dredging components. Two of these suction dredgers with underwater cutting wheels are under construction at Hyundai Heavy Industries (HHI), Ulsan. The cutting wheels developed by Krupp not only loosen hard, difficult materials, but also produce a highly concentrated mixture density at relatively low energy consumption. With drive ratings of 1,500 kW each, the two dredgers — to be delivered by Hyundai in October and December 1994 — feature, according to Krupp Fordertechnik, the most powerful cutting wheels in the world. In 1994 Krupp Fordertechnik also delivered deck cranes for newbuilds at Flenderwerft AG, Lübeck, Germany; Stocznia Szczecinska SA, Szczecin, Poland; and Thyssen Nordseewerke GmbH, Emden, Germany.

For more information on Fried Krupp Circle 26 on Reader Service Card

Aru II/Bali II Specifications			
Length	396.3 ft. (120.8 m)	Draft	25.9 ft. (7.9 m)
Molded breadth	59 ft. (18 m)	Speed	12.7 knots
Depth	33 ft. (10 m)	Power	8,224 kW

Scientific-Atlanta Offers Enhanced Features For Mobile SATCOM Terminals

Scientific-Atlanta, Inc. has added five new enhancements to its mobile satellite communications terminals. The maritime-based MariStar-M® and the land-based TerraStar-M are reportedly the industry's first mobile terminals to offer Secure Terminal Unit encryption compatibility; group call capabilities; credit card payment; pre-paid minutes software; and fixed Land Earth Station assignment. Scientific-Atlanta is reportedly the first manufacturer to offer this feature set for Inmarsat-M terminals. Scientific-Atlanta was also reportedly the first to ship Inmarsat-M terminals, the first to offer fax capabilities on those terminals, and the first to gain Inmarsat type approval for both land and maritime mobile terminals. The MariStar-M terminal provides international travelers with global two-way telephone communications and optional fax and data capabilities, in a briefcase-sized package, for vessels 35 ft. (11 m) or longer.

Other features of the MariStar and TerraStar units are: Secure Terminal Unit (STU) encryption compatibility which allows the units to be used by those who require secure communications; Conference Network Calling (CNC) providing users with group call capabilities; credit card payment; pre-paid minutes software; and fixed Land Earth Station (LES) assignment.

For more information on Scientific-Atlanta
Circle 4 on Reader Service Card

National Auction Bulletin Provides Complete Auction Information

The National Auction Bulletin (NAB) provides auction listings to its subscribers in a newsletter mailed twice a month. The government sells at auction its confiscated, seized and surplus goods, including boats, cars, trucks and aircraft, as well as all types of miscellaneous items. In a typical issue of NAB, there are approximately 200 auctions listed and the NAB is continuously expanding its research efforts to include more auctions for its subscribers. It is now in its 12th year of publishing. In addition, the NAB offers to its subscribers the Info Pack, a booklet containing more than 3,000 bid prices to be used as a price guide, as well as its book on the "how to" of auctions, *Auctions: A Practical Guide to Success*.

Subscription rates are \$49 for one year, including the Info Pack; \$29 for six months (\$7.50 additional or the Info Pack); and \$9.95 for its book *Auctions: A Practical Guide to Success*.

For more information, contact the National Auction Bulletin, 4419 W. Bradewinds Ave., Fort Lauderdale, Fla. 33308, tel: (800) 327-2049/(305) 91-1799; fax: (305) 772-7944.

October, 1994

Westinghouse Lays Groundwork For North American Satphone Service

Westinghouse Electric Corp.'s Communications Division is in the process of developing, building and integrating the communications ground networks for what is reportedly the first-ever North America wide mobile satellite telephone service, which extends 200 miles off-

shore. The satellite services launch across North America will be provided by American Mobile Satellite Corp. in the U.S. and TMI Communications, Inc. in Canada. The ground networks will serve as interfaces between the satellites and the public telephone switching system. Westinghouse is also offering its Series 1000 Mobile Satellite Communication Systems which can access high-quality, satellite-based digital voice, data and facsimile services for a wide range of mobile

applications. Westinghouse's Series 1000 Mobile Phones will be compatible with present cellular systems.

Westinghouse is currently working with the Ellipso™ global satellite communications system. Westinghouse is the prime contractor and system integrator for the entire Ellipso satellite communications ground network.

For more information on Westinghouse Electric
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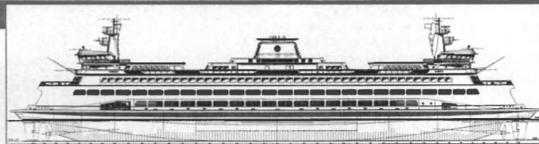
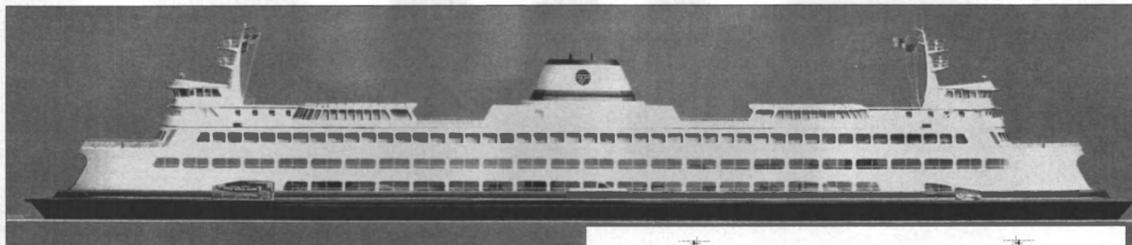
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U.S. FERRY PROJECTS UPDATE



Design of Washington State Ferry's Jumbo Mark II passenger and vehicle ferry.

Cycloconverters Chosen For Washington State Ferries

When the Washington State Ferry System selected a synchronous, variable-speed AC motor with a cycloconverter drive for the propulsion system on its three new Jumbo Mark II ferries, the ships became the first public transportation vessels to utilize the technology. A cycloconverter system is typically used in situations requiring medium to high power (2,000 kW to 20,000 kW), slow speed (0 to 1,000 rpm), and where excellent dynamic response and precise speed control is necessary. It can accommodate rapid changes in direction and speed, deliver full power in both forward and reverse, and can apply full

torque at any rpm supplying maximum available power to the shaft.

To date, heavy industry has been the main user, but cycloconverter technology is making headway in the marine industry, first on icebreakers where its high power characteristics won favor, and on cruise liners, where the electrical load requirements exceed the propulsion load. Utilizing a single electric generating plant to supply both loads reduces the number of diesel power sources in the engine room, saving both space and money.

The Washington State ferries accommodate nearly 30 million passengers annually. The complex topography of the Puget Sound region makes ferry transportation es-

sential for the citizens, and a challenge to system officials. Reliability, high- and low-speed maneuverability, instant dynamic response, as well as high power capabilities are required elements on the state's car ferries. The unique structure and operating practices of the vessels further complicate propulsion system designs. The ships are double-ended to eliminate time-consuming backing and turning around procedures. Cars drive straight through the vessels entering on one end, exiting on the other. All of the vessels maintain two pilot houses, two engine rooms and two self-con-

tained propulsion systems. At the end of each run, the captain walks across the deck, enters the opposing bridge, switches over the controls, and pulls forward out of the slip. There is a propeller at each end of the vessel, separate drives, and two motors in series on the shafting. Each ship carries four diesel generators, two per engine room. To maintain the system's tight sailing schedule, docking time must be kept to a minimum. Vessels approach the dock at full speed, stop quickly and maneuver into the narrow slips unassisted. A double propeller/double rudder system gives them full lateral movements when needed. While underway, most of the power is delivered by the stern propeller with just enough power to the bow propeller to keep it from impeding forward progress. The bow propeller is used to stop the boat, as it can do so faster than the stern propeller going in reverse.

(Continued on page 48)



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Blohm + Voss AG Awarded Washington State Ferry Contract

Blohm + Voss AG of Hamburg, Germany has been awarded an order for sterntube seals and sterntube bearings by Bird-Johnson Co. of Seattle, for delivery to Washington State Ferries Jumbo MKII ferries project.

Washington State Ferries has chosen Simplex-Compact Multisafe furring seal with ceramic-coated liner and the leak-proof system to give the required environmental protection.

With more than 40 years experience in the design and manufacture of sterntube seals, and with more than 34,000 seal units sold, Blohm + Voss reportedly said it was proud to be associated with this prestigious project.

For more information on Blohm + Voss
Circle 25 on Reader Service Card

Alaska Marine Highway Finds Dual Purpose Vessel Justifies Cost

by Kathleen Gleaves, contributing editor

The newest addition to the Alaska Marine Highways' ferry fleet will help provide a practical and needed mode of transportation, as well as all-important environmental protection.

The vessel is designed for dual purpose use: as a car ferry in good times, as an emergency command and control center in bad times. For most of her working life the 380-ft. (116-m) vessel will serve both the Southeast route and the difficult Southwest route, from Homer to Kodiak and out in the Aleutian chain where inclement weather requires an open-ocean rating for the ship.

In the event of an oil spill or other disaster at sea, the ferry will pull into the nearest port and offload its 500 passengers and 100 cars. Emergency personnel will then commandeer the vessel and proceed to the accident site.

Once there, the ferry's chief role will be to provide a vital communication hub, directing cleanup operations. Communication proved the missing link during the *Valdez* incident, and Alaska officials are determined not to be caught short again.

The ship's built-in communication system includes facilities for 40 phone lines as well as video conferencing. Although the vessel will not be directly involved in the cleanup, it will remain onsite for up to three weeks providing a docking area for cleanup vessels, and a decontamination station on the car deck. Propulsion system plans are for a geared diesel with controllable pitch propellers.

Besides the additional safety equipment required of oceangoing vessels, the ship will have motion stabilizer fins, a unique feature on passenger ferries. The vessel measures 83 ft. (25.3 m) in the beam with a maximum draft of 17 ft. (5.2 m).

State engineers have conducted extensive model tests in Holland to assure that the hull form is suitable for the rough, open-ocean conditions present on the Southwest run.

During its regular work schedule, the as-yet-unnamed vessel will service several unimproved docks on the isolated, outer islands.

To that end it is equipped with an aft vehicle elevator.

The only other ship in the fleet with this feature is the aging and smaller *Tustumena*.

Ferry officials felt they needed another vessel able to provide the vital transportation of goods, vehicles and passengers to the outer islands, but the expenses involved in building an oceangoing Subchapter-H vessel were difficult to justify considering the limited population of the area. The concept of a multi-use vessel provided the answer to several problems at once.

Funding for the vessel is a complex web of State of Alaska funds as well as Federal Highway Administration money.

As part of the Marine Highways structure, the ferry system receives capital refurbishment dollars from the Federal Highway fund based upon the number of miles traveled during the year.

Federal money carries with it a fairly complex procurement process. Unlike its neighbors, The British Columbia Ferry System and the Washington State Ferry System, Alaska does not have the luxury of legislating a "build them in-state" law.

The Federal Highway Administration requires

that bidding be open to all qualified American yards.

"We are operating under what the federal government calls a 'Special Experimental Process,'" says **Patrick Eberhardt**, marine engineering manager for Alaska Marine Highways, "in that we have some latitude to deviate from the existing federal procurement requirements." The resulting plan consists of a three-part procurement process.

Part one was a pre-qualification stage which yielded a list of seven qualified shipyards. Only those yards attaining pre-qualification status will receive solicitation packages.

Qualifying yards include Avondale, Newport News, Trinity, Bender, Evergreen State (a consortium of three small yards in Seattle), Todd, and Mitsubishi Heavy Industries in conjunction with Portland Shipyard.

When the initial bids are received, officials will make a second cut, then a final Request For Proposal will be made from the short list. The final solicitation package is nearing completion. It will be reviewed by the Federal Highway Administration, and should be available to qualified yards by early fall.

The vessel is expected to join the fleet in 1997. Glosten and Associates of Seattle, Washington, is the designer/owner representative in the design-and-build contract.

Washington State Ferries

Maneuverability is another vital characteristic of fleet vessels. With a dense urban population from Seattle to Everett on one side of the water, Bremerton and its suburbs lining the peninsula, and a string of islands in between, ferries run crosswise across the Sound while the busy shipping lanes run lengthwise, necessitating a continual crossover of commercial and transportation traffic. With one of the highest boats-per-capita figures in the world, Seattle's pleasure

With one of the highest boats-per-capita figures in the world, Seattle's pleasure boat fleet presents an even greater challenge to the ferries

boat fleet presents an even greater challenge to the ferries. Above all else, vessels must be reliable as even a short delay on a single vessel disrupts schedules for hours. Breakdowns can essentially strand island communities.

Most of the current fleet runs on diesel-electric

(Continued on page 50)

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Washington State Ferries — Siemens, Blohm + Voss Among Suppliers On Project

(Continued from page 49)

systems with DC drives. While the DC system provides all the necessary performance requirements, design engineers feared DC technology was becoming obsolete.

They began studying the market for a propulsion system that could meet their demanding parameters — to find a system which would remain viable well into the 21st Century — covering the projected 50-year lifespan of the vessels. In 1993, a design was approved utilizing variable frequency AC drives. "We chose electric drive because it allowed us to use a common electric generating system for both propulsion power and ship's hotel load," said **Stephen Gleaves**, electrical supervisor, vessel design. It also had similar response characteristics to the DC motor drives without the high maintenance requirements of DC motors. The state received 12

bids from six vendors. Only three proposed cycloconverters; all others bid LCI systems. Siemens won the contract with a \$47-million bid for three shipsets.

Features of the winning bid included complete system redundancy, and a higher safety factor by utilizing large propulsion transformers between the generators and the drives.

Theoretically, cycloconverters can operate directly off the supply line without transformers, but transformers isolate the drives, reducing the severity of electric faults.

In addition, they allow for 12-pulse operation which reduces harmonics on the electric grid thereby eliminating the need for additional electrical noise filters. They also accommodate WYE-connected synchronous motors, resulting in a less expensive installation. Synchronous

AC motors were selected over induction motors because of their high reliability, simplicity, and better operating characteristics with the cycloconverter drives.

The complete propulsion package includes diesel alternators, a propulsion switchboard, propulsion transformers, four cycloconverter drives, synchronous AC motors and the shafting system (including the propeller, control consoles, and extensive alarm and monitoring systems).

Complete system redundancy was a major consideration when the state design committee made its final vendor selection.

Siemens' package includes four complete cycloconverter systems, two per shaft, effectively giving a full standby system for each shaft — so even if one drive malfunctions, system performance is not adversely affected.

To further ensure uninterrupted

vessel operation, the control system is completely redundant. Officials ranked reliability factors over price in their final selection process.

With safe, uninterrupted service being the main objective of the ferry system, vendor warranties were another practical consideration. Siemens demonstrated a high level of confidence in its system, backing it with an 18-month warranty.

The contract carries a reliability clause whereby a monetary penalty is invoked if breakdowns cause more than three missed runs in a year. The reliability, efficiency, and specialized operating characteristics of cycloconverter technology is earning it a place in the marine industry.

Engineers and designers will be monitoring its performance on the Washington State ferries over the next few years and looking for additional applications.

For more information on Siemens
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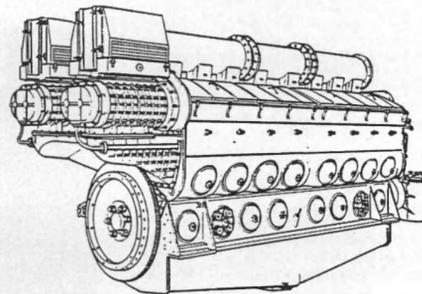
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Maritime Reporter/Engineering News

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Coffin Turbo Pump has available a four-page color brochure which details its specifically engineered turbo pumps, as well as providing section guide information.



Each Coffin Pump is designed with both pump and turbine on the same shaft, to eliminate the need for coupling and helping to ensure permanent alignment.

For a copy of the brochure
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Autronica Radar Level Gauging System Provides Accuracy

Autronica AS of Norway manufactures and markets the GL-90 System, a radar-based level gauging system, and is a market leader in the chemical tank vessel market.

The GL-90 reportedly provides accurate gauging of tanks onboard ships, on offshore installations and on land-based tanks. The measuring technique of the system is based on microwave radar technology and advanced signal processing, including a post-processing of data resulting in continuous supervising of the tank and each system module.

Mounted on top of the tank, the system has no physical contact with the tank's contents. To help the system withstand severe conditions, only AISI 316 acid resistant steel and teflon (PTFE) are used.

For more information on the GL-90
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McDermott Honors Suppliers

McDermott Marine Construction's Domestic Operations held its annual Suppliers Day, naming its top 30 suppliers for 1993. The company uses the event to recognize the company's suppliers which excel in quality, schedule, competitiveness, innovation, support, contribution to cost reduction and on-time delivery. Included among the top 30 were: Frank L. Beier Radio; Carboline; Consolidated Switchgear; Delta Bolt; G.E. Supply; Jamestown Metal; Offshore Grouting Specialties; Pump Systems; Sonsub Inc.; Tidewater; and U.S. Steel.

For more information on McDermott
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HydroComp Expands Offices; Strengthens NavCad

HydroComp, Inc., a developer of software for applied hydrodynamics, expanded to Williamsburg, Va. "We are closing our office in Durham, N.H. and expanding into new facili-

ties in Virginia to provide better service to our rapidly growing customer base in the mid-Atlantic region," said **Jill L. Aaron**, president. The new office is in the Busch Corporate Center, 202 C Packets Court, Williamsburg, Va. 23185; tel: (804) 229-1115; fax: (804) 229-1116.

HydroComp also enhanced its NavCad Version 3. Recent in-house projects allowed the company to develop and implement improved resistance prediction methods for

tankers and bulkers. These replacement algorithms reportedly produce higher quality results for the large, high-centered bulbs found on contemporary tankers and bulk carriers. An internal technical report (HCI Report #104) describes these enhancements and presents comparative validation studies.

A new user support system feature, known as AppGuide, is another contribution in revision 3.1. AppGuide is designed to eliminate

the calculation procedure learning curve. Grouping of data entry, file handling and calculations are pre-built and arranged for the six most used calculation processes: resistance prediction; shaft power; optimum propeller selection; quick-size propeller selection; preparation of model/parent file from a model test; and preparation of a model/parent file from a sea trial.

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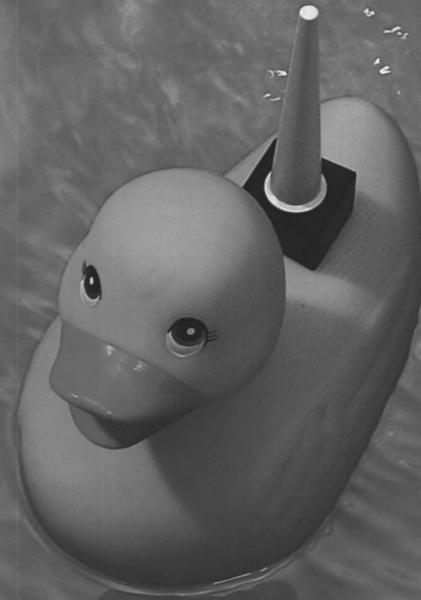
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NAVIGATION & COMMUNICATION TECHNOLOGY

With the maritime community placing more emphasis on safety, electronic navigation and communication system and component designers and manufacturers are increasingly challenged to provide technological solutions. Read on for a sample of how some manufacturers are achieving success in tapping these lucrative markets.

INTEGRATED BRIDGES

Success in the integrated bridge market has been enjoyed by both Sperry Marine and Racal-Decca Marine. The former recently installed systems on 11 vessels to bring the total number of Sperry systems in operation to 136 on vessels including the cruise ships *Sensation*, *Nordic Empress*, *Costa Romantica* and *Regal Princess*, owned by Carnival Cruise Lines, Royal Caribbean Cruise Lines, Costa Crociere and P&O Cruises, respectively; the U.S.

Navy patrol boat, *USS Tempest*; the tankers *Eagle* and *Polaris Star* owned by Mobil Shipping and Vela International Marine Ltd. respectively; and the Viomare ferry *Via Ionio*.

Sperry believes that the success of its systems are based on the realization that 90 percent of all maritime accidents can be avoided by improving navigational information and increasing the watch officer's conning time. To this end, the company has designed an integrated bridge system, which fuses all important data and control functions into centralized information displays for rapid analysis and action. The company claims that this results in a substantial improvement in risk management.

Meanwhile, Racal-Decca Marine was recently awarded a contract to supply MIRANS 4000A integrated bridge systems for installation on board five LNG carriers under construction for Petronas Tankers Sdn

Bhd of Malaysia. The contract involves the supply and installation of bridge systems, each of which consist of two of the new BridgeMaster 340 ARPA radars interswitched to X-band and S-band antennas.

The MIRANS 4000A system also includes a MapMaster electronic mapping facility with accompanying chart table, a Live Situation Report console, which provides a detailed display of the ship's operational status, and an additional Mk 90 GPS stand-alone receiver. All elements of the system are fully integrated via NMEA interfaces.

The first of the five 886-ft. (270-m) Petronas vessels was recently delivered from Chantiers de l'Atlantique at St. Nazaire, France and is employed carrying up to 130,000-cu.-m of natural gas on a regular route between Malaysia, Japan, Korea and Taiwan.

Racal says that operational safety was a major factor behind the choice

of bridge equipment, which it claims offers a number of advantages for the operator. The video processing techniques used in the BridgeMaster 340 ARPA radars provide clear pictures and are particularly effective when operating in conditions of severe rain and sea clutter. Each radar is capable of tracking up to 30 targets acquired either manually or automatically and features a powerful geographics package, which offers extensive mapping capacity and flexibility, simplifying the navigator's task and enhancing the safety of navigation.

The MapMaster enables the user to prepare and display electronic maps with a high degree of graphic sophistication. These can be drawn to meet specific operational requirements and can be made to show as much or as little detail as required. Linked to the radar, MapMaster can show ARPA targets in real time superimposed on the mapping graphics display and provides a signifi-



Aircraft monitoring and communication aboard the USS Abraham Lincoln (CVN-72). (Photo credit: U.S. Navy)

cant aid to navigation and operational safety.

Latest developments from Bremen-based Atlas Elektronik include the new Nacos 2 series of integrated navigation command systems, 15-2, 25-2, 35-2, 45-2 and 55-2. The series is based on the original Nacos navigation command systems developed as part of the German "Ship of the Future" project.

To date, some 220 configurations have been sold worldwide for the project, including research and conventional newbuilding applications.

Nacos 2 offers progressive degrees of sophistication, according to user requirements, and is claimed to incorporate the world's first combined radar and autopilot, the Atlas Radarpilot.

In addition to providing standard radar and ARPA functions, it enables a full range of navigation planning, steering and collision avoidance procedures to be carried out while also displaying own-ship position referenced to geographical grid patterns.

The series also features a num-

ber of monochrome and color radar options, each providing the basis for the Radarpilot and associated speed control functions with which engine performance and fuel consumption can be optimized and monitored.

With the exception of the 15-2 model, all configurations embody a central 20-in., high-definition, full color Navigation Control Console (NCC) for concise display of essential navigational, speed, engine and system performance data.

The 35-2 and 55-2 models feature an ECDIS function designed to conform to IMO-IHO Harmonisation Group standards and which allows for superimposition of radar and ARPA pictures on sea charts in addition to own-ship position in real time. For 45-2 and 55-2 models, an all-purpose multi-function display console, the Atlas Multipilot, is provided — via which Radarpilot, NCC and ECDIS operations are available for high-resolution presentation on the equivalent of a single workstation.

Radar and ECDIS functions can be carried out either individually or collectively.

Supporting options for all new Nacos models include a series of four navigational planning and consulting stations while all operational sub-systems are linked by a patented Controller Area Network (CAN) bus system to ensure safe and rapid real time processing of all sensor functions.

Following a recent batch of orders from yards in Finland, Germany, Italy, Japan and South Korea, worldwide sales of Nacos totals about 220 systems.

The latest commissions include a 45-2 unit for the world's largest cruise ship building at Fincantieri's Monfalcone yard for delivery to Carnival Cruise Lines in 1996. The \$400-million, 95,000-gt vessel is designed to accommodate up to 4,400 passengers.

Two 45-2 systems have also been ordered by P&O for two newbuildings in Germany and Italy, *Oriana* and *Sun Princess*.

The 67,000-gt *Oriana* is being built at Meyer Werft's Papenburg yard for delivery next April and, according to P&O, will be the fastest cruise ship built in the last 25 years.

Both 45-2 systems will include Atlas Elektronik's Multipilot system for integration of radar, track control and ECDIS functions via a single multi-functional console.

A 45-2 system has recently been retrofitted by HDW at Kiel to Silja Line's Baltic ferry, the gas turbine driven *Finnjet*, as part of a \$9.3 million modernization project. Later this summer, the vessel is to carry out official ECDIS trials on service routes between Travemünde and Helsinki as part of the multi-national Baltic & North Sea ECDIS testbed project (BANET).

The project involves the hydrographic services of Germany, Denmark, Estonia, the Netherlands, Norway, Sweden and the U.K.

It is sponsored by the German Ministry of Research and Technology and also involves participation by the German Office of Maritime Shipping and Hydrography (BSH), Atlas Elektronik, Hamburg Polytechnic's School of Maritime Studies and SevenCs, also of Hamburg.

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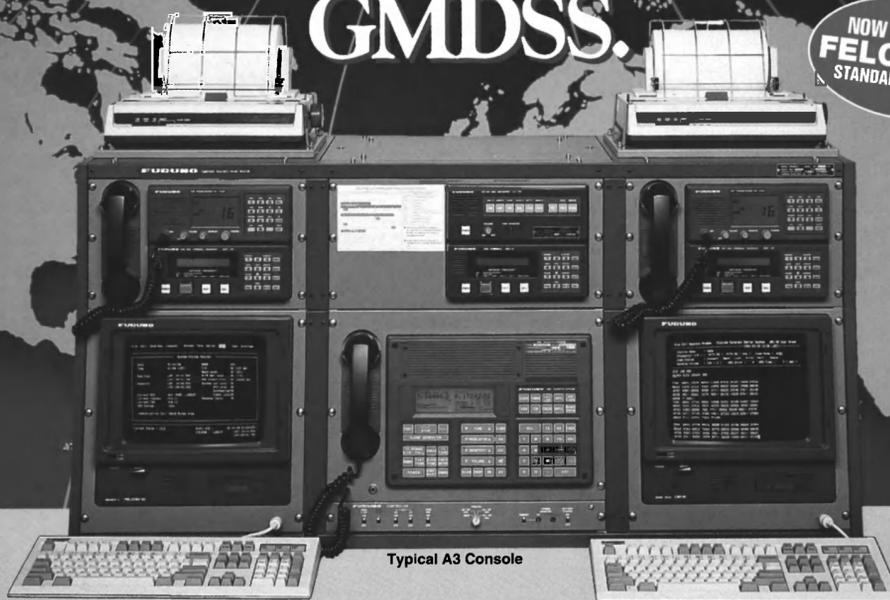


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digitized chart system from Transas Marine, U.K. has been installed on more than 160 vessels worldwide. Major clients include the Baltic Shipping Co., Northern Shipping Co., Black Sea Shipping Co., Azov Shipping Co., Volga-Don Shipping Co. and the Murmansk Shipping Co.

The database developed by Transas is reckoned to be one of the largest in the world and covers most areas with detailed navigational charts.

Each chart contains additional information taken from the List of Lights and other sources to provide more detail than appears on the original paper chart.

A worldwide electronic mail service has been established for automatic chart updating support.

Automatic electronic chart update is possible through the Inmarsat system. Every NAVI-Sailor program includes its own built-in editor to assist the user in keeping charts updated manually from Notices to Mariners; or, a monthly, quarterly, semi-annual or annual updating service is available. The system is capable of reading the format of ARCS and, to comply with the forthcoming ECDIS, is capable of reading charts stored in the DX-90 official format.

data and telex communications worldwide, as well as being the main means of broadcasting of the Maritime Safety Information (MSI) consisting of safety, navigational and weather information to the international maritime community.

Last year, Inmarsat introduced two new systems based on digital communications. Inmarsat-M uses low-cost, lightweight mobile earth stations to provide voice (telephone) services and medium speed 2.4 Kbit/sec facsimile and data capabilities.

The successor to Inmarsat-A is the Inmarsat-B system. In addition to the same capacity as the former, the latter's digital design extends to providing forward compatibility with the evolving Integrated Services Digital Networks (ISDNs). Both Inmarsat-M and Inmarsat-B use modern digital technology to achieve more efficient use of satellite power and bandwidth resources, making it possible to significantly reduce the cost of communications to the user, said Captain **Lars Brodje**, maritime adviser, Inmarsat.

The introduction of Inmarsat-M

and Inmarsat-B, with their digital functions, will not only offer shipowners and their customers reduced charges, said Capt. **Brodje**, but also an even better quality of service, especially with regards to facsimile and data communications (Inmarsat-B).

"Some service providers are already indicating charges in the region of three to six dollars per minute," he said.

A large number of shipowners have managed to reduce communication cost with their vessels substantially, and at the same time improve the quality and amount of information being transferred between the vessels and offices worldwide.

"This is mainly achieved through data communications, using communication modems and compression techniques.

But simple measures such as selecting off-peak hours for the main bulk of necessary communications can save considerable amounts of money," explained Capt. **Brodje**.

He believes that electronic mail (E-mail) is poised to have a pro-



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SATCOMS

At present more than 16,000 vessels are equipped with Inmarsat-A terminals capable of providing voice, fax, data and telex communications. Additionally, there are over 6,000 vessels equipped with the Inmarsat-C system, which provides slow speed



Enhancing safety has been a major impetus in the development of navigation and communication technology.

found effect on marine communications. E-mail is already commonplace in many shipping offices. It provides a means of transmitting messages quickly and easily between PCs, both within and between offices.

Messages can be sent to several recipients at once, regardless of geographical location, and simultaneously saved for filing purposes.

Shipowners are including their vessels into existing E-mail systems already used by their shoreside organizations, linking them with central and branch offices, and in some cases with the charterer's organizations.

Vessels are being equipped with Inmarsat-A for this purpose, but recent developments in E-mail systems compatible with Inmarsat-C mean that E-mail services can be provided to a much wider range of customers, said Capt. Brodje.

The increasing use of data communications has created a growing demand for higher data rates capable of supporting a number of new applications.

To respond to these needs, said Capt. Brodje, Inmarsat now offers 56 Kbits/sec and 64 Kbits/sec High Speed Data (HSD) services suitable for applications such as high speed file transfer, store-and-forward video, high quality audio transmissions, multiplexed voice channels and video conferencing.

For two-way high speed data communications several Inmarsat service providers now offer Duplex High Speed Data (DHSD).

In both cases it is necessary to install additional hardware in the existing ship earth station (SES). For HSD this is a simple operation but slightly more complicated for DHSD. Manufacturers currently offering SESs for HSD/DHSD include ABB Nera, MTI and Magnavox.

Video is an excellent way of transferring both still and moving pictures.

But, to send and receive pictures with standard TV quality requires a data speed of several megabytes per second and is not economically feasible for ordinary shipping operations.

The answer, according to Capt. Brodje, is to use compressed video via an Inmarsat HSD channel. "This way it is possible to transmit a slow scan video picture from a vessel to an Inmarsat coast earth station," he said. "From here the signal may be carried by either a private leased line or via an ISDN connection. Standard telephone lines do not have enough capacity to handle HSD. But, the ISDN network is rapidly being expanded in a large number of countries."

Compressed video can not be compared in quality with standard TV quality or VHS recordings because the initial picture takes a few seconds to build and after the full picture has been built the system is only transmitting the actual changes in the picture. It is therefore desirable to avoid a motive with a large number of simultaneously moving objects as this will increase the quan-

tity of information that has to be transmitted.

In reality, this limitation has proved to be of less significance to a viewer who needs to assess the object and to give advice on how to proceed with necessary actions. Should there be a need for a high quality picture to assess a certain detail, such a picture can be arranged using a still video camera or a utility called a frame-grabber found in many multi-media computer applications.

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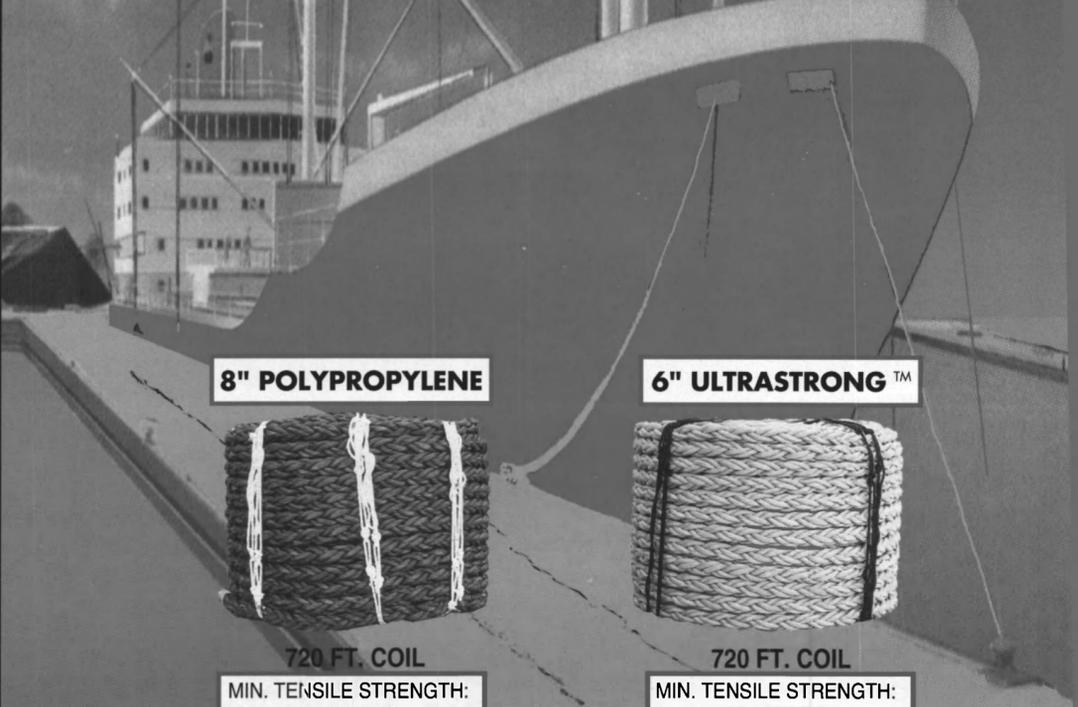
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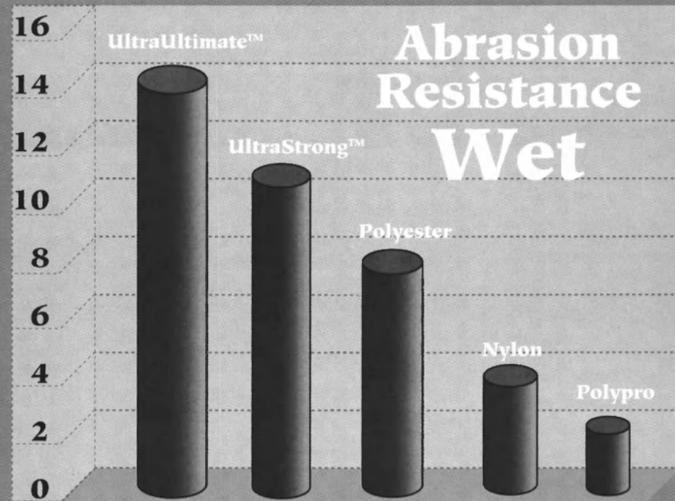
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6"	496 lbs.	46,800 lbs.	503 lbs.	86,108 lbs.	849 lbs.	104,000 lbs.	679 lbs.	108,460 lbs.
7"	662 lbs.	62,000 lbs.	687 lbs.	113,300 lbs.	1,130 lbs.	138,000 lbs.	904 lbs.	142,000 lbs.
8"	864 lbs.	81,000 lbs.	895 lbs.	145,024 lbs.	1,468 lbs.	178,000 lbs.	1,175 lbs.	186,340 lbs.
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- Elongation less than Premium Polyester
- White with gold tinge & red/green tracer yarns

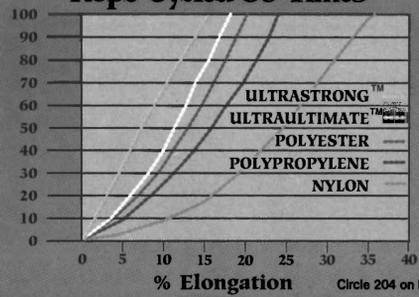
SeaGard®

ULTRA ULTIMATE™ is a blend of approximately 50% ULTRA STRONG™ and 50% 1W81 Premium Polyester* with SeaGard®.

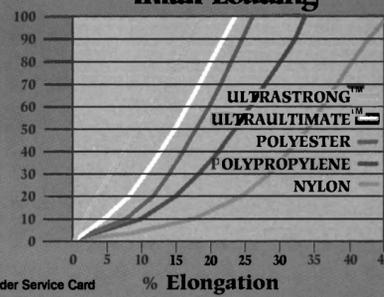
*SeaGard® is a registered trademark of AlliedSignal Inc.



Working (Elastic) Elongation Rope Cycled 50 Times



Total Elongation Initial Loading



Circle 204 on Reader Service Card

Marine Navigation/Communication Equipment & Services Directory

The following information is a partial directory of marine electronics manufacturers, compiled by the editors of *Maritime Reporter*. Each manufacturer's product offerings are listed with its directory information. The publisher is not responsible for errors or omissions.

Key:	FC	Electronic Chart	P/T	Phone/Fax
AI	EPIRB	IPRB	R	Radios
AU	GPS	Gy	Rr	Radar
Au	IB	MS	SI	Speed Logs
C			S	Sonars
			TG	Tank Gauging

Aanderaa Instruments
Fanaveien 13B
5050 Nestun-Bergun
Norway
Tel: +47 55 132500; Fax: +47 55 137950
Prods: MS

ACR Electronics, Inc.
5757 Ravenswood Road
Fort Lauderdale, FL 33312
Tel: (305) 981-3333; Fax: (305) 983-5087
Prods: R, An, EPIRB
(Also SART, Lighting Products, GMDSS, Searchlights, Battery Products, Strobes)

Adroit Systems Inc. (ASI)
209 Madison St., 5th Floor
Alexandria, VA 22314-1764
Tel: (703) 684-2900; Fax: (703) 836-7411
Prods: GPS
(Also GPS-based heading, pitch & roll)

Alden Electronics Inc.
40 Washington St.
Westboro, MA 01581
Tel: (508) 366-8851; Fax: (508) 898-2427
Prods: EPIRB, P/F
(Also, SART, NAVTEX Receivers, Weather Chart Recorders)

American Radio Corp.
914 - 164th St., S.E. B1698
Mill Creek, WA 98012
Tel/Fax: (206) 745-8424
Prods: R

Anritsu Corp.
5-10-27, Minamiazabu, Minato-ku
Tokyo, Japan
Tel: +81 3 3446 1111; Fax: +81 3 3442 0235
Prods: EC [C-Map Plotter only], Rr
(Also Inmarsat A/B S.E.S.)

Atlas Elektronik of America
90 Myrtle St.
Cranford, NJ 07016
Tel: (908) 276-9400; Fax: (908) 276-3822
Prods: IB, P/F, Rr, SL
(Also Echosounders)

Benmar Marine Electronics, Inc.
3207 W. Warner Ave.
Santa Ana, CA 92704
Tel: (714) 540-5120; Fax: (714) 641-2614
Prods: Au, MS [fuel]

BT Inmarsat
43 Bartholomew Close
London EC1A 7HP, U.K.
Tel/Fax: +44 171 492 4996
Prods: Satellite Comm. Service Provider

Cellnet Corp.
400 Main St., Suite 800
Stamford, CT 06901
Tel: (800) 225-5226, (203) 359-6333;
Fax: (203) 359-6826
Prods: Cellular Pay Phone Equipment & Service

ComNav Marine Ltd.
1420 Frances St.
Vancouver, B.C., Canada V5L 1Y9
Tel: (604) 254-0212; Fax: (604) 255-3523
Prods: Au [also accessories]

COMSAT Maritime Services
22300 COMSAT Drive
Clarksburg, MD 20871
Tel: (800) 424-4297, (301) 428-2379;
Fax: (301) 601-5953
Prods: P/F
(Also Communications Services, Satellite Communications Service, Vessel Tracking Service)

C.Plath
222 Severn Ave.
Annapolis, MD 21403-2569
Tel: (410) 263-6700; Fax: (410) 268-8713
Prods: Au, C, Gy, MS, SL
(Also Steering Systems, Direction Finders, Electronic Chart Tables)

EEV Inc.
4 Westchester Plaza
Elmsford, NY 10523
Tel: (914) 592-6050; Fax: (914) 682-8922
Prods: Microwave Components for Radar

Electronic Marine Systems Inc.
800 Ferndale Pl.
Rahway, NJ 07065
Tel: (908) 382-4344; Fax: (908) 388-5111
Prods: AI, EC, GPS, MS, TG
(Also Vessel Tracking Service)

Frontronic, Inc.
6142 S. Loop E., Houston, TX 77087
Tel: (713) 644-6445; Fax: (713) 644-2134
Prods: Au, C, GPS, Gy, IB, Rr, SL
(Also Inmarsat M&B Land Terminals [portable])

Furuno U.S.A., Inc.
271 Harbor Way
So. San Francisco, CA 94080
Tel: (415) 873-9393; Fax: (415) 872-3403
Prods: Au, EC, GPS, Gy, IB, P/F, R, Rr, S

Henschel Inc.
9 Hoyt Drive

Newburyport, MA 01950
Tel: (508) 462-2400; Fax: (508) 462-4497
Prods: Navigation Indicators [Rudder Angle, Ship's Course, Engine Order, Telegraph, RPM], Pitch, Speed], Communications [Sound-Powered Telephone, Announcing System]

Kelvin Hughes Ltd.
New North Road, Hainault, Ilford
Essex, 196 2UR England
Tel: +44 181 500 1020;
Fax: +44 181 500 0837
Prods: An, C, EC, EPIRB, GPS, Gy, IB, MS, R, Rr
(Also SART, Navtex, Plotting Tables)

Koden Electronics Co., Ltd.
P.O. Box 6700
Clearwater, FL 34618
Tel: (813) 536-0898; Fax: (813) 530-7272
Prods: GPS, R, Rr
(Also Depth Sounders, Lorans)

Leica Navigation and Positioning Division
23860 Hawthorne Blvd.
Torrance, CA 90505
Tel: (310) 791-6111; Fax: (310) 791-6108
Prods: GPS

Litton Special Devices
750 W. Sprout Road
Springfield, PA 19063
Tel: (610) 328-4000; Fax: (610) 328-4016
Prods: EPIRB

Lokata Ltd.
New North Road, Hainault, Ilford
Essex, 196 2UR England
Tel: +44 181 501 6144;
Fax: +44 181 559 8892
Prods: EPIRB
(Also SART, Navtex)

Mackay Communications, Inc.
300 Columbus Circle
Edison, NJ 08837
Tel: (908) 225-0909; Fax: (908) 225-2848
Prods: AI, An, Au, C, EC, EPIRB, GPS, Gy, I, MS, P/F, R, Rr, S, SL, TG
(Also Satellite Communications Products and Marine Electronics Systems)

Magellan Systems Corp.
960 Overland Court
San Dimas, CA 91773
Tel: (909) 394-5000; Fax: (909) 394-7050
Prods: EC, GPS

Marine Electric Systems, Inc.
2 Bridewell Place
Clifton, NJ
Tel: (201) 471-6800; Fax: (201) 471-2811
Prods: AI, MS
(Also Docking Announcing, Public Address or Emergency Announcing Systems, and Fog Sig Systems)

Magnavox Electronic Systems Co.
2829 Maricopa St.
Torrance, CA 90503
Tel: (310) 618-1200; Fax: (310) 618-7001
Prods: Satellite Communications Terminals including Inmarsat-A, -B and -M Systems

Marine Technology International Ltd.
50 Barwell Business Park, Leatherhead Road
Chessington, Surrey, U.K.

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tel: +44 81 391 60; Fax: +44 81 391 6010
Prod: An, P/F, R
 Also SATCOM, GMDSS)

Matrix Technologies
 O. Box 188
 John's, Newfoundland
 Canada A1C 5J2
 tel: (709) 754-0305; Fax: (709) 754-0705
Prod: Au, EC, GPS, IB
 Also Marine Navigation Software)

egapulse Inc.
 Preston Ct.
 Bedford, MA 01730
 tel: (617) 275-2010; Fax: (617) 275-4149
Prod: GPS (Also Loran-C, DGPS Receivers)

Mobile Telesystems, Inc.
 100 Professional Dr.
 Annapolis, MD 20879
 tel: (301) 590-8576; Fax: (301) 417-0759
Prod: An, P/F, R
 Also Inmarsat-A, -C, -B and -M, GMDSS Con-
 suls and SART)

Avial Electronics, Inc.
 117 Jetview Circle
 Tampa, FL 33634
 tel: (813) 885-6091; Fax: (813) 885-3789
Prod: An [Marine Television Antennas and
 Distribution Systems]

Control Seacraft AS
 P. Box 1056, 3194 Harten, Norway
 tel: +47 330 41436; Fax: +47 330 47474
Prod: Al, Au, EC, MS, R, TG

Shore Systems International (OSI)
 015 36th Ave. W.
 Inwood, WA 98036
 tel: (206) 670-8400; Fax: (206) 670-0660
Prod: EC

Slips Navigation A/S
 Sigs Boulevard 80
 -2300 Copenhagen, Denmark
 tel: +45 32 88 2222; Fax: +45 32 88 3930
Prod: GPS

Gal-Decca Marine
 7 Burlington Rd, New Malden
 Surrey, England KT3 4NF
 +44 81 942 7833; Fax: +44 81 949 1273
Prod: Al, An, EC, GPS, IB, MS, Rr

Geo-Holland Group
 13 Gulf Freeway
 Houston, TX 77017
 (713) 943-3325; Fax: (713) 943-3802
Prod: Al, An, Au, C, EC, EPIRB, GPS, Gy, IB,
 P/F, R, Rr, S, SL, TG

Theon Marine Co.
 River Road, Hudson, NH 03051
 (603) 881-5200; Fax: (603) 881-4756
Prod: An, Au, C, EC, EPIRB, GPS, Gy, IB, R, Rr,
 L
 o Lorans, Loudhailers, Fishfinders, SARTS,
 DSS, Inmarsat A, Inmarsat C, Inmarsat M)

Hornet Marine Industries Inc.
 Mountain Highway
 North Vancouver, B.C.
 Canada V7J 2K9
 (604) 984-9288; Fax: (604) 984-3606
Prod: Al, EC, IB, MS, TG
 o Integrated Voyage Recorder, Bridge/En-
 Room Console, Marine PC)

Systems Ltd.
 Box 8455 Stn. A
 John's, Newfoundland, Canada
 (709) 722-4488; Fax: (709) 722-6688
Prod: Al, MS, TG

Box 3526
 Vancouver, WA 98009

October, 1994

Tel/Fax: (206) 746-6384
Prod: R

Simrad, Inc.
 19210 33rd. Ave. West, Lynnwood, WA 98036
 Tel: (206) 778-8821; Fax: (206) 771-7211
Prod: Au, EC, GPS, Gy, MS, Rr, S
 (Also Sounders, Direction Finders)

SI-TEX Marine Electronics, Inc.
 P.O. Box 6700
 Clearwater, FL 34618
 Tel: (813) 536-0898; Fax: (813) 530-7272
Prod: Au, EC, GPS, R, Rr
 (Also Depth Sounders, Lorans, Stereos)

Sokkia Corp.
 9111 Barton, Box 2934
 Overland Park, KS 66201
 Tel: (800) 4-Sokkia; Fax: (913) 492-0188
Prod: GPS (Also Industrial Measurement Sys-
 tems)

Sperry Marine Inc.
 1070 Seminole Trail
 Charlottesville, VA 22901
 Tel: (804) 974-2000; Fax: (804) 974-2259
Prod: Au, EC, Gy, IB, Rr, R [GMDSS], SL

S.P. Radio A/S
 Parsvej 2

9200 Aalborg SV - Denmark
 Tel: +45 98 18 0999; Fax: +45 98 18 6717
Prod: An, EPIRB, R

Standard Communications Corp.
 P.O. Box 92151
 Los Angeles, CA 90009-2151
 Tel: (310) 532-5300; Fax: (310) 515-7197
Prod: An, R, SL (Also Depth Sounders, Stereos)

Techsonic Industries Inc.
 1 Humminbird Lane
 Eufaula, AL 36027
 Tel: (205) 687-6613; Fax: (205) 687-6674
Prod: GPS, R, S



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 JM Heat Exchangers, Omnipure, Parmatic Pollution Control,
 Pow-R-Quik, Sanitec, Sea Recovery ROs, Shimadzu, Sigma
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61

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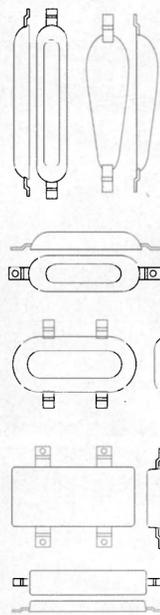
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Tribar Industries Inc.
1705 Flint Rd.
Downsview, Ontario, Canada
Tel: (416) 736-9600; Fax: (416) 736-7858
Prod: MS, Rr

Westinghouse Electric Corp.
P.O. Box 17319, Mail Stop A255
Baltimore, MD 21203
Tel: (410) 765-3721; Fax: (410) 993-8771
Prod: P/F

World Communication Systems
11834 Canon Boulevard, Suite J-1
Newport News, VA 23606
Tel: (804) 873-7753; Fax: (804) 873-7760
Prod: Communications Integration Equipment, Inmarsat Terminals, Cellular Services

Cast Inc.
5450 Kattella Ave.
Los Alamitos, CA 90720
Tel: (310) 594-8883; Fax: (310) 594-4694

Hose-McCann Telephone Co., Inc.
1241 W. Newport Center Drive
Deerfield Beach, FL 33442
Tel: (305) 429-1110; Fax: (305) 429-1130

Hull Electronics
1100-B North Magnolia Ave.
El Cajon, CA 92020-1953
Tel: (619) 447-0036; Fax: (619) 444-0628

Icom America
2380 116th Ave. N.E./P.O. Box C-90029
Bellevue, WA 98009-9029
Tel: (206) 454-8155; Fax: (206) 454-1509

IDB Mobile Communications
6903 Rockledge Road
Ste. 500
West Bethesda, MD 20817

Tel: (301) 214-8700; Fax: (301) 214-8701

Morad Electronics Corp.
1125 N.W. 46th St.
Seattle, WA 98107-4633
Tel: (206) 789-2525; Fax: (206) 789-4840

Motorola
P.O. Box 1417 WH3170
Scottsdale, AZ 85252
Tel: (602) 949-3033; Fax: (602) 897-4253

Norwegian Telecom
Postboks 6701, St. Olavs Plas
Oslo 1, Norway N-0130
Tel: +47 22 777 302; Fax: +47 22 41 53 65

PTT Telecom
P.O. Box 30150-2500 JD
The Hague, The Netherlands
Tel: +31 70 343 5451; Fax: +31 70 343 2885

Singapore Telecom
15 Hill St.
#02-00 Telephone House
Singapore 0617
Tel: +65 73 03 219; Fax: +65 73 2 7379

STN Atlas Elektronik
Behringstrabe 120, 22763 Hamburg, Germany
Tel: +49 40 8825 0; Fax: +49 40 8825 4000
Prod: AJ, An, Au, C, EC, EPIRB, GPS, Gy, IB, M
P/F, R, Rr, SL, S
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Waterway Communications
453 E. Park Place
Jeffersonville, IN 47130-4735
Tel: (812) 288-0300; Fax: (812) 288-1673

CIMAT SpA Wins Contract To Supply Autolink RT

The Greek service provider OTE (Hellenic Telecommunications Organization SA) has awarded a major contract to CIMAT SpA, the originator and producer of the Autolink RT direct-dial system.

During the course of 1994, CIMAT will supply to OTE Coast Radio Station equipment that incorporates a full range of system capabilities including the new CIMAT RTP (Shore-Ship Real Time Paging) service. CIMAT has also been asked to supply Digital Selective Calling (DSC) for distress and safety and public correspondence.

The Greek fleet will be able to use Autolink to communicate through a local station as well as through the other Autolink RT stations located throughout the world working in MF, HF and VHF frequencies.

OTE intends to automate more than 60 channels, all of which will offer CIMAT's dynamic scrambler and fax/data facilities.

**For more information on CIMAT SpA
Circle 1 on Reader Service Card**

USCG Buys Leica MX200 GPS Navigators

The Leica Navigation and Positioning Division, which earlier this

year purchased Magnavox's commercial GPS business group, so 130 Magnavox MX200 GPS Navigators, its six-channel GPS navigator receiver, to the U.S. Coast Guard (USCG).

This latest order brings the total number of USCG MX200 shipboard installations to more than 200 vessels. The MX200 is listed on the GSA Schedule and has been tested to comply with USCG environmental specifications for shock, vibration and moisture.

The MX200s are differentially ready, and are designed to work with the USCG radiobeacon broadcasts and other DGPS systems for high-accuracy operations.

**For more information on Leica
Circle 3 on Reader Service Card**

ACR Introduces Multi- Channel GMDSS VHF Radio

ACR Electronics, Inc. introduces the GMDSS Survival Radio to line of safety and survival products.

The multi-channel VHF radio allows users involved in a marine over-water distress situation the ability to communicate verbally with search and rescue personnel or with any other VHF Radio operating the common frequencies.

The ACR GMDSS Survival Radio can transmit and receive on Simplex Channels 6 and 16 plus all maritime Simplex channels, including

weather. ACR's GMDSS Survival Radio comes with two alternative user replaceable battery packs. One is the Lithium Survival Battery which supplies eight hours of operation to comply with GMDSS IMO requirements.

The second is the MaxCap Rechargeable battery which can be used for general on-board communication.

For more information on ACR
Circle 5 on Reader Service Card

C. Plath Offers NAVIDATA and NAVILOT I/S, I/SR

C. Plath created a navigation data display, NAVIDATA, which permanently displays the following information: gyrocompass heading; magnetic compass heading; set heading course to steer; rate of turn; and ship's speed through water.

All of the information may be displayed in large or small figures; furthermore, shown in the right-hand section of the display is the position of the ship in longitude and latitude, or alternatively the distance traveled in total miles and daily miles.

When NAVIDATA is used in combination with C. Plath autopilots and log systems, all that is additionally required is the longitude and latitude information in the NMEA 0183 format from a GPS receiver.

Automatic chart plotters AVILOT I/S (position display only) and NAVILOT I/SR (position display, route planning, steering interface to an autopilot) are used in the indication of ship's position.

NAVILOT I/S can be retrofitted to existing vessels. The main advantages are: accepts all charts in Mercator and plane projection; stores chart data for more than 1000 charts; continually indicates vessel's position by means of a light-point; dead reckoning function via inputs for speed and heading; and joystick operation.

NAVILOT I/SR provides all of the above features, as well as: route planning; route steering and route control; and storage capacity for 100 routes, each with 250 waypoints.

For more information from C. Plath
Circle 2 on Reader Service Card

Inmarsat Selects Ariane Rocket To Launch 5th Inmarsat-3 Satellite

Inmarsat awarded a contract worth \$66.5 million to Arianespace France for the launch of an Inmarsat-3 satellite on its Ariane 4 rocket.

The five Inmarsat-3 satellites, being manufactured by Martin Marietta Astro Space, will enable Inmarsat to use the increased power and capacity of spot-beam technology to provide service to the growing number of mobile communications users worldwide and to re-

duce the size, weight and cost of mobile terminals.

The Inmarsat-3 satellites are more than eight times more powerful than the second generation Inmarsat-2s currently in service. This additional power will make it possible not only for users to communicate via smaller and cheaper mobile terminals, but will also possibly result in an eventual decrease in user charges.

For more information on Inmarsat
Circle 6 on Reader Service Card

Trimble Offers GPS Attitude Determination System

Trimble Navigation introduced the Trimble Advanced Navigation Sensor (TANS) Vector, an attitude determination system which reportedly gives users reliable attitude determination plus 3-D position, velocity and time.

The TANS Vector consists of four GPS antennas and a receiver pro-

cessor unit. It features solid-state electronics — a technology reportedly not subject to heading drift — and provides waypoint navigation. TANS Vector can operate in accurate differential mode and can serve as a stand-alone attitude sensor.

It can also be integrated into gyroscope or inertial navigation systems.

For more information on
Trimble Navigation
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Patti Shipyard
Keel Cooled by
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For over 40 years, we've been making cooling systems for all types of marine engines... and that's all we make. Our product is so durable, efficient and easy to install that the U. S. Navy wrote their keel cooling specifications around our Gridcoolers. Why take chances when it comes to your engines' dependability? Do it right the first time... get Fernstrum Gridcoolers.

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Ships want the latest maritime communications

The Nordic Coast Earth station at Eik is the recognized maritime satellite station providing fast, efficient and reliable telecommunications over three oceans and two thirds of the globe. For superior on-board communication services, Norwegian Telecom International offers Digicom 101 03 from Teleste, the advanced marine telecom system featuring the most reliable credit card calling system for ships today.

Passengers will demand the same from your ship

In the Digicom 101 03 system, your passengers only need to push their credit card through the magnetic reader of their cabin phone. They dial a code for access to the worldwide public switching system and land-line connections to more than 190 countries.

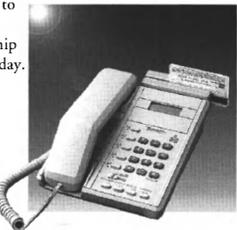
Digicom 101 03 gives your ship full, easy and reliable control of all phone traffic and other cabin services. And your passengers will remember you for the convenience of having the most sophisticated ship-to-shore communications in a user-friendly package, direct from their cabin phone.

Teleste Marine is proud that Norwegian Telecom International has selected our equipment as the recommended credit card calling system for maritime use. Phone or fax to find out what we can do for your ship and passengers today.



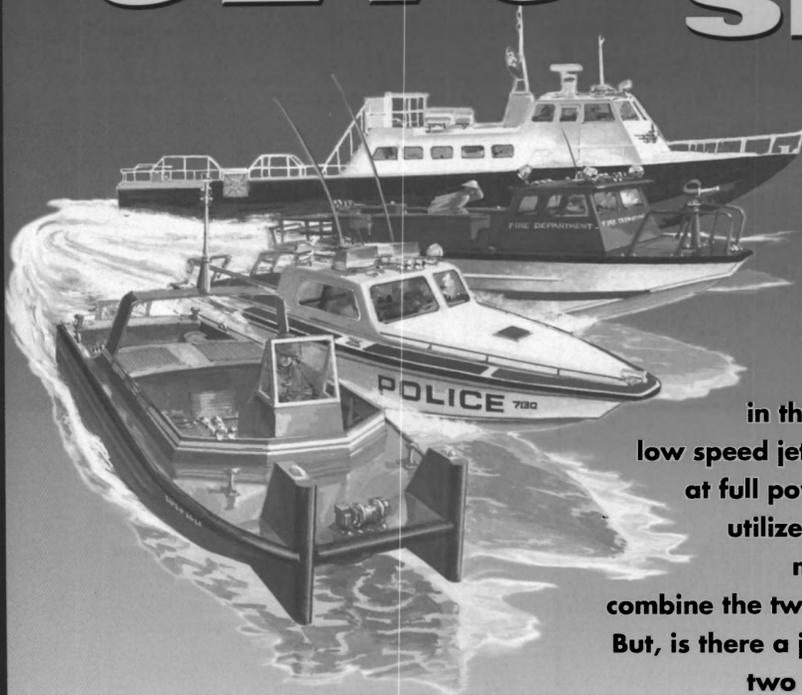
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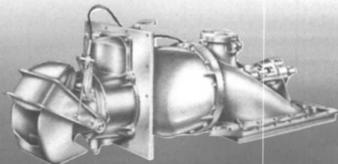
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- ◆ Correct Reverse Steering

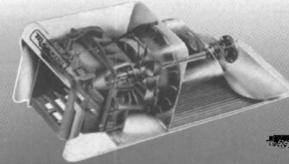


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Focus On...

WORKBOATS

- *Preview: International WorkBoat Show, New Orleans Plus ... Exhibitor Profiles*
- *MarAd Report Bodes Well For Inland Barge Transportation*
- *American Waterways Shipyard Conference Annual Report: Power Driven Vessels, Offshore Barge Newbuild Numbers Up*
- *Trinity Delivers Two Towboats To Army Corps of Engineers*



Focus on Workboats



Tugboat Michael Luhr, built by Jeffboat, Jeffersonville, Ind. for Luhr Bros., Inc.

The International WorkBoat Show

13,000 To Attend 16th Annual International WorkBoat Show; November 3-5, New Orleans

Thirteen thousand workboat professionals are expected at this year's International WorkBoat Show. According to **Steve McDonough**, WorkBoat '94's sales manager, "Without a doubt, New Orleans is the place to be in November for anyone involved in the commercial marine industry. Whether looking to build, buy, service or supply, visitors to WorkBoat '94 will find what they need. Everything pertaining to the workboat industry will be on display, from electronics and engines to winches and propellers." Mr. McDonough contends that the broad diversity of commercial marine market segments represented by the show's visitors and exhibitors is a key factor in the show's growth.

Workboat and marine trade pro-

professionals will gather for the WorkBoat Show at the Ernest N. Morial Convention Center in New Orleans, La. Since its inception in 1978, the show has attracted more than 150,000 commercial marine professionals looking to buy, sell, sample and compare the latest in equipment and services, keep up with industry trends, make new contacts and re-establish old ones. The 1994 edition of The International WorkBoat Show promises to live up to its reputation as "North America's Premier Workboat Trade Show."

More than 400 companies from across the U.S. and around the world will showcase their wares in more than 850 booths at the show. Professionals involved in the construction, maintenance, and operation of

tugboats, barges, ferries and workboats, and in related industries and services, will find the show an invaluable resource.

This year's seminar program includes sessions on the latest developments in electronic navigation (*Electronic Navigation: Inside ECDIS and ECS*), the ramifications of Title XI on loan guarantees for new vessel construction (*The New Title XI: Blessing or Curse?*), and the pros and cons of vessel conversion (*Conversions: Better Than Building?*).

For more information on The International WorkBoat Show, contact Diversified Expositions, P.O. Box 7437, Portland, Me. 04112-7437, tel: (207) 772-3005; fax: (207) 772-5059. To register to attend, call (800) 664-3007, ext. 86.

Exhibitor List (partial)

A

ACR Electronics, Inc.
Advanced Power Systems International, Inc.
Alabama Shipyard, Inc.
Alaska Diesel Electric, Inc.
Alden Electronics, Inc.
Alfa Laval Separation
Allied Shipyard, Inc.
American Bureau of Shipping
American Corrosion Services, Inc.
American Marine Corp.
American Mobile Satellite Co.
American VULKAN Corp.
American Protective Coatings Systems
American Hydro Jet Corp. (AMJET)
Anchor Wire Rope, Div. of UNA Corp.
Appleton Marine, Inc.
Applied Hydraulic Systems, Inc.
Aquamaster-Rauma, Inc.
Atlantic Dry Dock Corp.

(Continued on page 70)

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.

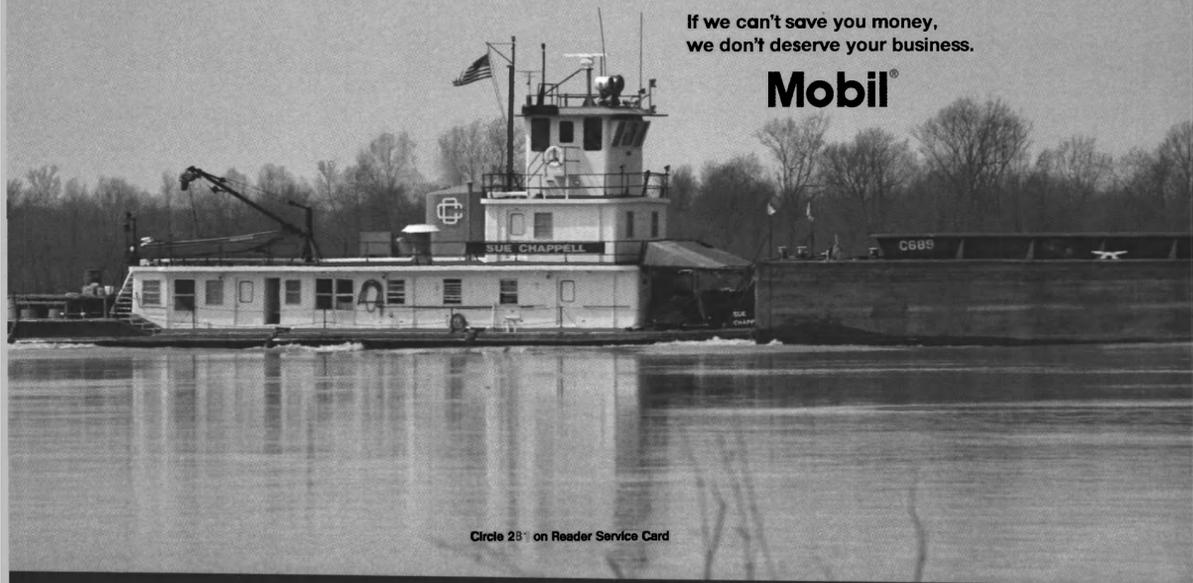
Mobilgard SHC 120 cut the engine's oil consumption by nearly 75%. The generator consistently used *only one quart* daily. Quite a difference from the one gallon of mineral oil it typically consumed.

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.

**If we can't save you money,
we don't deserve your business.**

Mobil®



Circle 28 on Reader Service Card

Report: Inland Barge Transportation Best Environmental Choice

MarAd Report Cites Studies & Research

A report issued by the Maritime Administration (MarAd) concludes that inland barge transportation is a safe, efficient, economical and environmentally sound method to transport products, and superior in performance when compared to both rail and truck.

Energy Efficiency

According to the report, numerous studies on fuel efficiency, in-

cluding studies sponsored by the U.S. Department of Energy, indicate similar results: shallow-draft water transportation is the most fuel efficient mode of transportation for moving bulk raw material, is the least energy intensive method of freight transportation when moving equivalent amounts of cargo, and consumes less energy than alternative modes. Specifically, the report quotes two comprehensive studies done by the U.S. Congress-

sional Budget Office (CBO) and S.E. Eastman. The major finding of the CBO study was that inland barges were most efficient in terms of operating energy, line-haul energy and modal energy (see Figure 1 for details). The Eastman study found "barge transportation to be the most fuel efficient method of moving the raw materials and semi-finished products..." The study showed a range of 270 BTUs and 350 BTUs per ton/mile, versus a range of 650 BTUs to 750 BTUs per ton/mile for rail. Another study performed by the RAND Corp. and detailed in the MarAd report determined that, on average, water carriers consume 500 BTUs of energy per ton/mile, the lowest of any mode studied. The next lowest, rail transportation, consumed 750 BTUs per ton/mile, and trucks consumed 2,400 BTUs per ton/mile. In real terms — fuel burned — these numbers indicated that water carriers burn about 3.6 gallons of fuel per 1,000 ton/miles of cargo moved. Other studies by independent carriers have shown consumption rates reportedly as low as 2.92 and 2.99 gallons on the same basis.

to any destination, in today's environmental climate means accepting the responsibility to transport it safely. Several studies have shown that water transport has the fewest number of incidents, fatalities and injuries of any surface mode, according to the MarAd report.

In fact, an independent modal

(Continued on page 70)

Figure 1
Measures of Freight Energy Efficiency
(BTUs per net ton/mile)

Mode	Operating Energy (1)	Line-Haul Energy (2)	Modal Energy (3)
Rail - Overall	660	1,130	1,720
Unit Coal Train	370	590	890
Truck - Average			
Inter-city	2,100	2,800	3,420
Barge - Overall	420	540	990
Upstream	580	700	1,280
Downstream	220	340	620

Note: net ton/miles includes weight of cargo only.

(1) Propulsion energy, including refinery losses

(2) Combines operating energy with maintenance energy, vehicle manufacturing energy and construction energy

(3) Adjusts line-haul energy for circuitry

Source: Congressional Budget Office, U.S. Congress, Energy Use In Freight Transportation

Figure 2

Emission Source	Tow Boats	Other Transport	Total
NOx	3,297	105,932	433,637
THC	939	198,063	295,124
CO	2,101	980,944	3,852,753
SOx	462	7,887	1,234,395
Part	198	8,940	354,672

NOx = Oxides of Nitrogen
THC = Hydrocarbons
CO = Carbon Monoxide
SO = Oxides of Sulfur
Part = Particulates

Source: Army Corps of Engineers, National Waterways Study

Safety

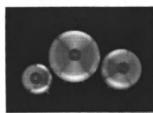
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Focus on Workboats

International WorkBoat Show Exhibitor List

(Continued from page 66)

Atlantic Marine, Inc.
Atlantic Marine Mobile
Avon Corp.
Avondale Industries, Inc.

B

Frank L. Beier Radio, Inc.
Bender Shipbuilding & Repair Co., Inc.
BF Goodrich Co.
Bird Johnson Co.
Blackburn Marine
Blohm + Voss AG
BOATRACS, Inc.
Bolinger Machine Shop & Shipyard, Inc.
Bresaux Petroleum Products, Inc.

C

Carboline Co.
Caterpillar, Inc.
Chand Corp.
Chevron USA Products Co.
CNT, Inc.
Coastal Electric Supply, Inc.
Coastal Wire & Cable, Inc.
CorNav Marine Ltd.
Conrad Industries, Inc.
Cospolich Refrigerator Co.
John Crane Marine USA
Crown Rope Co.
Cummins Marine

Yard: ... Tri-Star Marine
Name: *Tioga*
Type: Tractor tug
Engines: Caterpillar



Tri-Star Marine of Seattle delivered a 4,000-hp tractor tug, *Tioga*, to Coos Bay Towboat Co. of Oregon. The new 85-ft. (26-m), ice-strengthened boat was designed and built by Tri-Star, with engineering services by Jensen Maritime Consultants.

The vessel has a pair of Caterpillar 3516 diesels providing 4,000 hp, giving the tug an estimated bollard pull rating of 106,000 lbs. The engines power two Ulstein 165H Z-Drive units with 87-in. bronze propellers, giving the *Tioga* a speed in excess of 13 knots.

Tioga is equipped with two Caterpillar 3306 diesels for electrical power; McElroy bow winch; two radars and GPS system from Furuno; gyrocompass and autopilot from Sperry; and Ritchie magnetic compass.

(Continued from page 68)

safety study prepared for MarAd on transporting bulk hazardous substances found that barge spills occur much less often than spills from either tank trucks or tank cars. While there is no singular reason for this, many factors contribute, such as the fewer number of modal units required to transport tonnage, and design features such as double hulls, bolted flanges and automatic shutdowns.

Of course OPA '90 and its ramifications will have a big role in the design and operation of inland tank barges.

The legislation requires the phase-out of single-hull tank vessels carrying oil in bulk and prohibits operation of tank vessels less than 5,000-gt by January 1, 2015. The industry, aware of the need to protect the environment, has nevertheless been moving in this direction.

Over the last 10 years (1984 to 1993), of the 271 inland tank barges built, only one was of single hull construction according to a study cited in the report.

Pollution

A U.S. Army Corps of Engineers study cited in the report determined

that commercial marine navigation has a relatively minor effect on air pollution.

The study analyzed navigation emissions in the St. Louis region, a big hub for barge activity, showing that waterway transportation is more "environmentally friendly" in terms of emissions as compared to other transportation modes (see Figure 2 on page 68).

In a study by the Environmental Protection Agency, comparing modes of transportation and the emissions each produces moving a ton of cargo 1,000 miles, it was again concluded that waterway transportation was the most favorable (see Figure 3 below).

Figure 3
Emissions Produced
(Moving 1 ton of cargo 1,000 miles)

Mode	THC	CO	NOx
Towboat	.09	.2	.53
Train	.46	.64	1.83
Truck	.63	1.90	10.17

Source: EPA, Emission Control Lab

D

Deere Power Systems
Detroit Diesel Corp.
Devco Coatings Co.
Dreyfus Supply & Machinery
Duramax Marine, Div. of Johnson Rubber Co.

E

Eagle Control Systems, Inc.
Electronic Design, Inc. (EDI)

Elliott Bay Design Group
Engine Monitor, Inc.
ENVIROVAC, Inc.
ERL, Inc.
Eureka Chemical Co.
Exxon Co. USA

F

The Falk Corp.
H.W. Fernstrum & Co.
Fleetguard Marine
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Jeffboat
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Johnston Brothers Enterprises, Inc.

K

Krupp MaK Diesel, Inc.
Kvaerner Eureka A/S

L

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Lowrance Electronics, Inc.
Luber Finer Champion Laboratories

M

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MAN Marine Engines
Marine Gears, Inc.
Marine Propulsion, Inc.
Marine Survival Training Center
Marine Systems, Inc.
Marine Travelift, Inc.
Marinette Marine Corp.
Maritime Reporter & Engineering News
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McElroy Machine & Mfg. Co., Inc.
Meltric Corp.
Michigan Wheel Corp.
Microphor, Inc.
Midland Manufacturing Corp.
MMC International Corp.
Mobi Oil Corp.
Morad Electronics
Munson Manufacturing, Inc.
Frank W. Murphy, Mfg.

N

Nautronix
Nelson Division

(Continued on page 77)

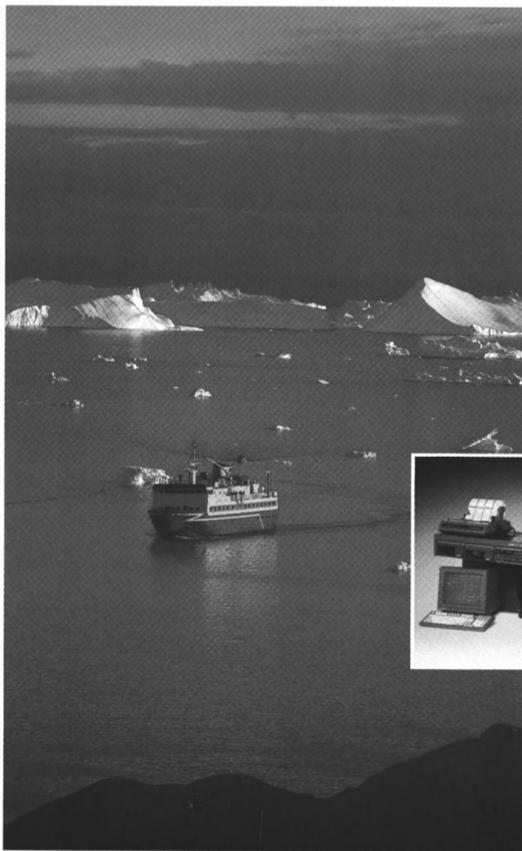
Yard: Marshall
Branson Marine
Type: OSRV



The first Marshall Branson Marine (MBM) boom deployment vessel, specifically designed and constructed to meet the requirements for rapid response to oil spillage incidents requiring immediate containment and removal, was delivered for operation in South Korea.

The 42.6-ft. (13-m) boom deployment vessel is based on the proven Traktakat hull design. The vessel is equipped with a dispersant spraying system, and powered by twin Cummins 6BTA5.9M1 marine diesel engines developing 250 bhp at 2,600 rpm. The transmission units are Twin Disc MG5050A gearboxes driving Teignbridge four-bladed AquaQuad 87 propellers.

The craft has been constructed to American Bureau of Shipping classification and produced along with equipment as a "total package" jointly developed by MBM and Ro-Clean International AS.



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Circle 314 on Reader Service Card

AWSC 1993 Annual Report

Second-Tier Shipyards Activity Revealed

The second-tier shipyard industry builds and repairs tugboats, crewboats and other specialized vessels for the transportation industry; a wide variety of fishing vessels; smaller Navy craft; U.S. Coast Guard (USCG) vessels; and vessels operated by the U.S. Army Corps of Engineers and the National Oceanic and Atmospheric Association (NOAA).



The American Waterways Shipyards Conference (AWSC), a conference within the American Waterways Operators, represents this industry

segment and has released its 1993 survey.

The purpose of the survey is to provide an accurate statistical industry profile for, among other things, the consideration of legislation affecting the industry.

AWSC is the only association which collects and reports this kind of information for second-tier shipyards.

TABLE 2
BREAKDOWN OF NEW CONSTRUCTION ACTIVITY 1984 - 1993

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
POWER DRIVEN VESSELS										
Towboats	12	9	1	2	3	4	4	7	10	11
Tugboats	10	8	7	18	11	8	6	6	3	10
Offshore supply boats, crewboats	21	8	1	23	0	18	2	11	2	2
Fishing vessels	24	20	21	30	23	15	9	4	15	6
Ferries, passenger vessels	24	22	20	17	24	27	17	14	12	6
Military vessels	120	120	90	122	119	39	27	52	46	45
Other	139	113	99	136	57	85	25	28	29	67
RIVER BARGES										
Hoppers	155	203	120	45	217	484	380	441	612	594
LASH and SEABEE barges	8	8	4	4	9	18	64	81	92	47
Tank barges	0	0	4	0	0	0	0	0	0	0
Deck barges	40	58	31	45	40	49	55	30	53	21
Machinery & other work barges	6	3	0	0	2	12	12	36	7	6
Other	12	5	7	51	10	8	10	16	1	7
OFFSHORE BARGES										
Dry cargo hopper and deck barges	2	1	0	3	3	7	8	1	5	12
Tank barges	1	2	5	6	2	10	3	1	7	14
Machinery & other work barges	2	0	0	0	1	1	0	1	1	2
Other	5	5	0	0	0	11	1	1	3	102

TOTAL NUMBER OF VESSELS BUILT BY YEAR

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
POWER DRIVEN VESSELS	350	300	239	348	237	196	90	122	117	147
RIVER BARGES	221	277	166	145	278	571	521	604	765	675
OFFSHORE BARGES	10	8	5	9	6	29	12	4	16	130

Employment

One indicator of a shipbuilding segment's health is its employment levels. The AWSC report indicates the continuance of a downward trend in employment for 1993 (See chart, pg. 73).

However, the highest employment level for the years examined (1984 - 1993) was 1991, which boasted a level of 26,972, significantly higher than the years both preceding and succeeding it — so the drop may possibly be interpreted as more of a return to a certain level of employment than a rapid plunge.

The report's section on Employment Information and Trends contains information not only on activities related to shipyard employment, but also turnover rate for 1993, and cost of state workers' compensation per employee for 1993.

New Construction Activity

In 1993, according to the report, 97 percent of all respondents gave information on new construction and repair activities, and of those, 33 percent said they had worked on new construction in 1992.

New construction activity examined by the

TABLE 1
New Construction Activity

Year	Power Driven Vessels	River Barges	Offshore Barges
1984	350	221	10
1985	300	277	8
1986	239	166	5
1987	348	145	9
1988	237	278	6
1989	196	571	29
1990	90	521	12
1991	122	604	4
1992	117	765	16
1993	147	675	130

Employment Levels

B4	17,964
B5	15,909
B6	15,459
B7	15,099
B8	13,845
B9	13,489
B0	20,889
B1	26,972
B2	20,335
B3	17,138

Source: AWSC

port is broken into three categories: power-driven vessels, river barges and offshore barges.

The power-driven and offshore categories saw increases. Power-driven vessels increased to the tune of 26 percent between 1992 and 1993.

The number of power-driven vessels fluctuated some but declined overall between 1984 and 1990. However, despite a small dip from 1991-1992, the trend since 1990 has been a slow increase in newbuilds.

The river barge sector experienced a decline of 12 percent in the same time span.

More specifically, river hopper production decreased three percent and river deck barge production fell 60 percent.

Offshore barge building in second-tier yards increased overwhelmingly between 1992 and 1993, from 16 to 130 — a 712 percent jump.

This represents not only a leap from one year to the next, but also a great increase over the annual norm for all years examined. Offshore tank barge production alone increased 100 percent during the '92-'93 period, from seven to 14. Table 1 gives a general enumeration of new construction activity, whereas Table 2 gives a more specific breakdown, previous page.

Repair Activity

Of the 97 percent of respondents who gave information on repair and construction, 96 percent said that they had engaged in repair work during 1992-1993. The categories examined were the same as those examined for new construction (power-driven, river barges, and offshore barges). The results were

that only power-driven vessels showed an increase in repair activity: 13 percent between 1992 and 1993, from 5,827 to 6,571.

River barge repair decreased 12 percent between 1992 and 1993, with repairs for river hoppers showing an increase of seven percent, and river tank barge repair decreasing 37 percent. Offshore barges, construction of which skyrocketed in 1992-1993, were repaired less in 1993 than in

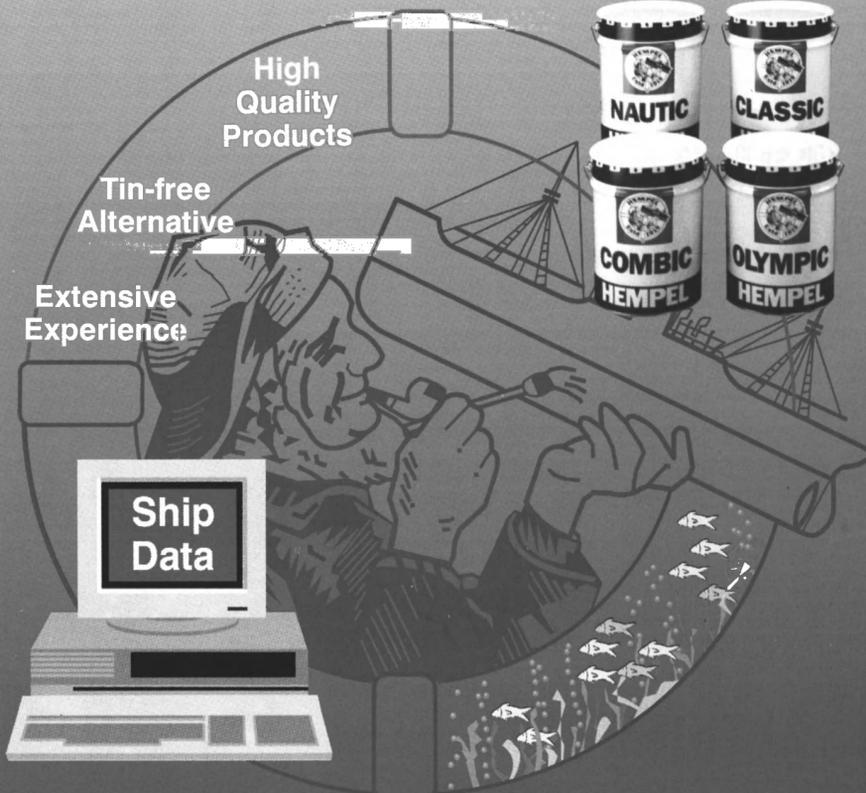
1992: 404 were repaired in 1993, as opposed to 508 in 1992 — a decrease of 20 percent.

Table 3 gives a general report as to the repair activity of yards surveyed. Table 4's breakdown of repair activity is more specific.

For information on obtaining the report, contact the American Waterways Shipyard Conference, 1600 Wilson Boulevard, Suite 1000, Arlington, Va., 22209; tel: (703) 841-9300.

METHODOLOGY: The American Waterways Shipyard Conference (AWSC) 1993 Annual Shipyard Survey. Seventy-two shipyards were surveyed, a group which, according to the report, "contains a majority of the major employers found within the second-tier commercial shipbuilding industry."

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Circle 249 on Reader Service Card

TABLE 3
Repair Activity

Year	Power Driven Vessels	River Barges	Offshore Barges
1984	6,085	9,631	484
1985	6,606	7,079	531
1986	7,341	9,399	317
1987	7,886	11,345	333
1988	8,613	11,071	397
1989	5,974	13,810	356
1990	5,891	15,825	752
1991	7,712	23,386	407
1992	5,827	17,398	508
1993	6,571	15,396	404

Source: AWSC

October, 1994

HEMPEL



**TABLE 4
BREAKDOWN OF REPAIR ACTIVITY 1984 - 1993**

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
POWER DRIVEN VESSELS										
Towboats	2,038	2,123	3,256	3,179	3,593	2,637	1,605	2,818	2,442	2,429
Tugboats	1,478	1,664	1,190	922	1,068	767	947	1,001	888	803
Offshore supply boats, crewboats	636	728	502	779	897	612	615	713	811	826
Fishing vessels	790	593	1,135	1,687	1,462	856	966	1,492	577	862
Ferries, passenger vessels	110	112	160	204	263	129	479	275	137	236
Military vessels	387	547	375	432	450	456	495	416	409	346
Other	646	839	723	683	880	517	784	997	563	1,069
RIVER BARGES										
Hoppers	5,785	1,865	3,527	4,472	5,237	6,830	10,172	12,836	9,955	10,679
LASH and SEABEE barges	124	175	272	189	312	260	1,171	551	885	673
Tank barges	3,328	4,666	5,192	6,248	5,098	6,151	4,087	8,215	5,726	3,623
Deck barges	316	285	325	324	316	469	278	1,542	579	319
Machinery & other work barges	53	57	48	68	73	80	78	150	135	80
Other	25	31	35	44	35	20	39	92	118	22
OFFSHORE BARGES										
Dry cargo hopper and deck barges	269	196	152	163	200	164	364	173	166	138
Tank barges	178	310	135	148	166	123	225	193	175	187
Machinery & other work barges	14	5	11	10	17	44	28	24	19	40
Other	23	20	19	12	14	25	135	17	148	39
TOTAL NUMBER OF VESSELS REPAIRED BY YEAR										
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
POWER DRIVEN VESSELS	6,085	6,606	7,341	7,886	8,613	5,974	5,891	7,712	5,827	6,571
RIVER BARGES	9,631	7,079	9,399	11,345	11,071	13,810	15,825	23,386	17,398	15,396
OFFSHORE BARGES	484	531	317	333	397	356	752	407	508	404

Boston Whaler Introduces LE & Alert Series Of Boats



Boston Whaler recently unveiled details of two new boat lines — the LE Series of law enforcement boats and the Alert Series of workboats. The LE Series features a deep hull design, shallow draft, higher freeboard, inherent stability, sharp turning radiuses, one officer workability and more, according to the manufacturer. Available in dimensions from 15 to 21 ft. (4.5 to 6 m) long, the series also features the 15-ft. (4.5 m) LE JET, a jet powered boat driven by a 115-hp OMC turboJet V4 with oil injection and a stainless steel impeller. The vessel can reach speeds up to 40 mph in less than 100 yds. of water. The Alert Series workboats are available in various sizes, from 13 to 25 ft. (4 to 8 m) long.

These are basic, general purpose workboats with an unsinkable, stable platform, a wide beam and wide open deck areas.

For more information on the LE Series Circle 55 on Reader Service Card

For more information on the Alert Series Circle 56 on Reader Service Card

Sound Ocean Systems Offers New Winch Product Line

Sound Ocean Systems of Redmond, Wash. recently announced the Standard Tow Winch (STW), Medium Tow Winch (MTW) and Oceanographic Tow Winch (OTW) line of winches. These product lines are reportedly suitable for all towed body operations as well as numerous other marine applications. The company has designed and manufactured specialty winches since 1978. The winches come in a variety of line pull and drum capacities.

For more information on Sound Ocean Circle 57 on Reader Service Card

Sifco Offers Motor/Generator Repair Guide

A new application guide which describes methods for repairing motors and generators is offered by Cleveland-based Sifco Selective Plating. The guide describes a variety of cost and time saving repairs that can be made with the company's selective plating system. Salvaging worn or mis-machined end bell bearing housings and journals, restoring worn commutators and repairing slip rings are some of the applications for the Sifco process. The brochure is complete with captioned photos and descriptive text.

For a copy of the guide Circle 61 on Reader Service Card

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Intl. Workboat Show Buyers Guide

The following is a partial list of individual companies' plans for the upcoming International Workboat Show. For those unable to attend the exhibition who want to receive information, simply circle the appropriate number on the Reader Service Card bound in this issue.

**American Corrosion Services
Booth #1637**

Display at show will focus on manufacturer's wide array of hull, tanker/ballast, engine and teardrop anodes. Literature includes the company brochure and an easy-to-order marine anode catalog.

Circle 32 on Reader Service Card

**Archway Marine Lighting
Booth #1529**

Archway will be exhibiting the Norselight line of marine searchlights, Tideland Signal aids to navigation and Coleman Engineering portable lighting towers. Archway is a marine light specialist serving the commercial and maritime markets in the U.S. and in Canada.

Circle 139 on Reader Service Card

**Avondale Industries
Booth #400**

Avondale's display will focus on its experience in major ship repair and construction of riverboats for the gaming industry. In 1994 Avondale delivered the gaming vessels *Boomtown Belle* and *Argosy III*.

Circle 111 on Reader Service Card

**Bender Shipbuilding & Repair
Booth #1112**

Bender Shipbuilding has designs for a variety of workboats, including oil spill recovery vessels, anchor handling tug supply vessels, tugs/towboats, fireboats and offshore supply vessels.

Circle 106 on Reader Service Card

**Blohm + Voss AG
Booth #501**

Focus will be on the Simplex-Compact Seals, with two split models being shown, and the turbo bilge water separator with an illuminated flow diagram which illustrates the insides of a typical model.

Circle 70 on Reader Service Card

**Cospolich Refrigerator Co.
Booth #919**

In its booth Cospolich Refrigerator, the originator of the innovative modular concept, will be exhibiting the units presently being furnished to the marine industry. Also available for viewing will be the new Cospolich company video.

Circle 109 on Reader Service Card

**C2C Systems Corp.
Booth #1165**

The Fleet Commander System, the Smartship System, fleet and vessel maintenance, operations and management software, new fleet scheduling, reservations and ticketing systems for ferry operations will be on display at the booth.

Circle 68 on Reader Service Card

**Deere Power Systems
Booth #637**

Deere Power Systems Group will

display a variety of marine power products at the International Workboat Show. Items exhibited in booth 637 will include the John Deere 4039D genset, the 4045T 4.5L propulsion engine, the 6068T 6.8L propulsion engine, the 6076A power unit and the 6076A 7.6L propulsion engine.

Circle 140 on Reader Service Card

**Eureka Chemical Co.
Booth #250**

Fluid film product line of corrosion preventive coatings, lubricants and

Yard: Gladding-Hearn
Name: ... *Gulf Challenger*
Type: Research vessel

Gladding-Hearn Shipbuilding, The Duclos Corp., delivered a new research vessel, the *Gulf Challenger*, powered by DDEC-controlled engines, to the University of New Hampshire. The 50-ft. (15.2-m), all-aluminum vessel was designed to operate year-round anywhere on the Gulf of Maine and coastal rivers. The aluminum hull was strengthened for operation in icy waters.

The vessel's engine performance is controlled by Detroit Diesel's DDEC fuel injection system because, like other research boats, it frequently runs at low speeds or idles for long periods.

Powered by twin Detroit Diesel 8V-92 turbocharged engines, each rated at 600 bhp, the vessel's 24-knot-plus top speed ensures faster trips within 100 miles of the New England coast.



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Circle 347 on Reader Service Card

Intl. WorkBoat Show Buyers Guide

wire rope. Dressings, non-solvent base products that will not evaporate and dry out, lasting for extended periods due to the products' high solid content.
Circle 103 on Reader Service Card

Furuno U.S.A. Booth #807

Furuno U.S.A. will demonstrate its line of river radar products, Satcom-B and other specialized marine electronic products.
Circle 86 on Reader Service Card

Gems Sensors Div. Booth #511

Gems Sensors Div. offers 40 years' experience manufacturing standard and custom marine grade liquid level and flow products. Featured products will include intrinsically safe, overflow, and high level alarm systems and the original Gems Dip-

stick visual level indicators for tankers and barges.
Circle 35 on Reader Service Card

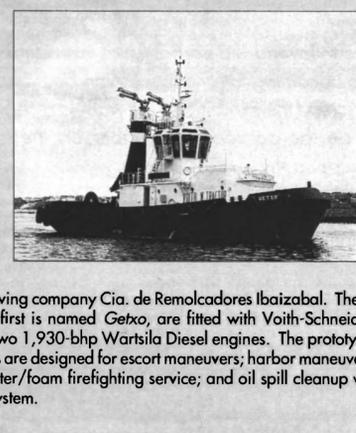
HamiltonJet Booth #956

HamiltonJet will display a model HM571 waterjet, complete with working steering and ahead/astern control systems. HamiltonJet HM series of models are suitable for fast ferries, workboats and patrol craft typically in the 66 to 197-ft. (20 to 60-m) range with power inputs up to 3,000 kW.
Circle 114 on Reader Service Card

Headhunter, Inc. Booth #1055

Manufacturers of Royal Flush, marine toilets that work utilizing one-gallon flush; Royal Fax, U.S. Coast Guard-approved type II MSD capable of treating 50 to 9,000 gallons

Yard: Astilleros Zamacona
Name: Getxo
Type: Voith tractor tug



Astilleros Zamacona, member of the Construnaves group of shipyards, made the first two deliveries on an order for four multi-purpose Voith tractor tugs to Spanish towing company Cia. de Remolcadores Ibaizabal. These super-tugs, of which the first is named Getxo, are fitted with Voith-Schneider water tractors driven by two 1,930-bhp Wartsila Diesel engines. The prototype seagoing and harbor tugs are designed for escort maneuvers; harbor maneuvers and towage; external water/foam firefighting service; and oil spill cleanup via liquid dispersant spray system.

per day of effluent; and Tank Sentry, monitoring equipment with programmable alarms and event controllers for diesel, fresh and black water tanks.
Circle 104 on Reader Service Card

Holset Engineering Booth #1524

Flexible couplings for power transmission, for propulsion systems and generators. Turbochargers for engines 2,000 hp to 20,000 hp. Will be exhibiting a new coupling for soft-mounted engines and fourth-generation axial turbine turbochargers.
Circle 33 on Reader Service Card

Hyde Products Inc. Booth #815

Hyde is an established manufacturer of ship's deck machinery, steering systems and oil/water separators, as well as the U.S. agent for Porsgrunn Steering Gear and the VETH line of bowthrusters, Z-drives and loading computer packages. Other product lines include Kvaerner Eureka firefighting and emergency offloading systems, and the Scupperwell spill prevention device.
Circle 34 on Reader Service Card

Inventory Locator Service Booth #716

Inventory Locator Service, Inc. (ILS) will demonstrate a new communications system for marine database users. Dubbed ILS Direct, it enables ILS users around the world to communicate with each other using private electronic mailboxes residing on the ILS mainframe computer. Also, users can access a fax server from their personal computers to send messages to almost any fax machine in the world.
Circle 87 on Reader Service Card

Meltric Corp. Booth #1414

Meltric will display its complete line of heavy duty, circuit breaking, horsepower and switch rated, industrial type plugs and receptacles. Meltric products use a silver-nickel pressure contact technology, offering many ship and shipyard applications.
Circle 36 on Reader Service Card

Morgan Marine

The company will focus on the depth of its product line and emphasize that its knucklebooms are all ABS and USCG approved and certified. Will introduce "A" frames, "J" frames and box boom cranes.
Circle 69 on Reader Service Card

NETEC Inc./New England Trawler Co. Booth #1101

Featured at the company's display will be tug and barge equipment. In the booth will be a hydraulic bow/headline winch with a brake rating of 450,000 lbs. built for Bay Transportation to be installed on the new Kinsman Hawk class tug. Also, there will be a tug capstan rated for a 300,000-lb. bollard pull and a barge anchor winch rated to handle a 10,000-lb. anchor, both built for Morania Oil Transportation Corp.
Circle 105 on Reader Service Card

North American Marine Jet Booth #s 670 & 672

North American Marine jet, manufacturer of Nomera and Traktor jets, presents the Nomera 400, which offers many high-tech features. The new Traktor jet 1-600, with its 34-in. impeller, provides more than 11,000 lbs. of thrust.
Circle 85 on Reader Service Card

Orkot Engineering Booth #1044

Orkot Engineering Plastics manu-

(Continued on page 78)



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Circle 307 on Reader Service Card



The towboat *Bettendorf* (left) and the nearly identical *Fred Lee* (above), were recently delivered by Trinity's Equitable Shipyards to the U.S. Army Corps of Engineers. The only difference between the two vessels is that the *Fred Lee* has a hydraulically-operated elevated pilot house which can rise 10 ft. (3 m) above the waterline.

Trinity Delivers Three Corps Of Engineers Vessels

The U.S. Army Corps of Engineers has taken delivery of two 85-ft. (25.9-m) towboats and one 3-ft. (16.1-m) drift collector, built by the Trinity Marine Group's Equitable Shipyards, Inc. (New Orleans) and Aluminum Boats, Inc. (Crown Point, Ind.), respectively. Trinity has now delivered eight vessels to the Corps in just over two years.

The two boats, *Fred Lee* and *Bettendorf*, are nearly identical except the *Fred Lee* has a hydraulically-operated elevated pilot house which can rise 10 ft. (3 m) above the waterline. It provides for better visibility over high or long tows, and reduced height for clearance under low bridges. The *Bettendorf* also has 270 sq. ft. of storage space which is used as a work/tool room.

The new towboats have a 30-ft. (9.2-m) beam and a 10-ft. (3-m) draft. Normal operating draft is 7 ft. (2.1 m). Each is powered by two Caterpillar 3512 diesels driving through Reintjes reverse/reduction gears. Electrical power is provided by two Caterpillar 3304 diesels driving 65 kW generators.

Fred Lee's namesake worked for the Corps for 43 years. The boat is now assigned to the Corps' Vicksburg, Miss. district for work on the Red River. *Bettendorf* is named in honor of that city in Iowa, and is assigned to the Corps' Rock Island district for work in the Quad cities area of

Davenport, Rock Island and Moline and as far south as St. Louis.

The drift collector *Harrell*, named in honor of Mark Harrell, a career employee of the Corps, and operated by the Norfolk, Va. district, is designed to pick up and remove floating driftwood and debris in the Chesapeake Bay area. The all-aluminum vessel has a 15-ft. (4.6-m) beam and a normal operating draft of four ft. (1.2 m).

It is powered by two Detroit Diesel 8V71 diesel engines developing a total of 610 hp through Twin Disc reverse/reduction gears. Electrical power is provided by a Northern Lights 20 kW generator.

Recent Trinity deliveries to the Corps include the *Mississippi*, a 241-ft. (73.5-m), 7,000-hp towboat, reportedly the largest towboat ever built in the U.S. and the Corps' flagship; the 300-ft. (91.4-m), 5,700-hp dredge *Hurley*; the 65-ft. (19.8-m), all-aluminum, twin-waterjet support/crew boat *Bogue*; and two 50-ft. (15.2-m), 800-hp towboats, *William R. Porter* and *P.H. Worley*.

For more information on Trinity
Circle 24 on Reader Service Card



The drift collector *Harrell* was recently delivered by Aluminum Boats, Inc. of the Trinity Marine Group to the Corps of Engineers.

International WorkBoat Show Exhibitor List

Continued from page 71)

New England Trawler Equipment Co.
North American Marine Jet, Inc.
Norwegian Trade Council

O

Oil Mop Inc./Ambar Marine, Inc.
Omnistruster, Inc.
Orbital Communications Corp.
Orkot Engineering Plastics, Inc.
OSI Technologies

P

Pacific Coastal Marine Industries, Inc.
Peterson Builders, Inc.
Henry A. Pettey Supply Co.
Pilot Marine Products, Inc.
Poly Hi Solidur

Q

Quality Shipyards, Inc.

R

Rexroth Pneumatic Corp.
The Royal Institution of Naval Architects

S

Scale Reproductions
Schottel North America
Schuyler Rubber Co.
Science & Technology, Inc.
SeaFab, Inc.
SEA, Inc.
Sea Recovery Corp.
Selby, Div. of Quaker Construction
Karl Senner, Inc.

Service Marine Industries, Inc.
Shearer & Assoc., Inc.
Ship & Boat International
Ships Machinery International, Inc.
Simrad Robertson, Inc.
SITEX Marine Electronics, Inc.
Snyder General Corp.
Soio Controls/R.G. Rollin Co.
Sound Propeller Services
Spears Manufacturing Co.
Sperry Marine, Inc.
Spurs Marine Manufacturing, Inc.
Standard Communications Corp.
Star Power Services, Inc.
Swiftships, Inc.

T

Tankontrol AG
Textron Marine Systems
Trimble Navigation
Trinity Marine Group
Turbine Specialties, Inc.
Twin Disc Inc.

U

Ulstein USA, Inc.
Ultra Safety Systems
U.S. Army Corps of Engineers
U.S. Coast Guard Marine Safety Office

V

Viking Fender Co.
Viking Life Saving Equipment (America)
Volvo Penta

W

Wagner Hydraulic Steering
Warren Pumps, Inc.
Waterway Communications System, Inc.
Western Machine Works
Wijsmuller Brothers BV
Willard Marine, Inc.

Z

ZF Industries
Zodiac of North America

Intl. WorkBoat Show Buyers Guide

(Continued from page 76)

factures non-metallic marine bearings by impregnating special fabrics with thermosetting polymers. It is used in Naval, Coast Guard and commercial marine applications for rudder, stabilizer, water-lubricated stern shaft and deck machinery bearings. Its grade TLM Marine reportedly possesses exceptional wear resistance and dimensional stability in the water with virtually no swell. Orkot stocks an assortment of the more common sizes in the U.S., U.K. and Singapore.

Circle 110 on Reader Service Card

Seacoast Electric Booth #228

Seacoast Electric, a distributor of marine electrical equipment based in Gulfport, Miss., will feature the following products at the booth: Glamox marine lighting, fluorescent, incandescent, etc.; Shipboard and Marine Cable, UL listed marine; as well as marine transformers, cable hangers and hardware.

Circle 141 on Reader Service Card

Service Marine Industries Booth #744

Service Marine Industries will focus on its experience in the design and construction of dinner/cruise vessels, dive support and offshore support vessels and its drydock, repair and conversion capabilities.

Circle 108 on Reader Service Card

Simrad Inc. Booth #330

Simrad will feature its radars, autopilots, sounders, gyrocompass, direction finders and sonars.

Circle 37 on Reader Service Card

Sperry Marine Inc. Booth #410

Sperry Marine manufactures marine navigation, communication and control systems for commer-

cial and naval customers. On display at the booth will be components of the new VISION 2100 integrated bridge system, including the new Mk37VT digital gyrocompass, ADG3000VT adaptive digital gyropilot, and Rascar VT radar/ARPA system.

Circle 115 on Reader Service Card

Spurs Marine Mfg. Inc. Booth #422

Spurs line cutter will demonstrate the cutting ability of the new prop mounted cutters with no wear/no maintenance operation even in the most silt-filled water conditions. Also will feature display on PSS shaft seals and Tef-Gel.

Circle 41 on Reader Service Card

Standard Communication Corp. Booth #913

The Horizon HX220AS and HX340 portables will be featured at the Standard Communications booth. Both intrinsically safe rated radios meet or exceed Mil Spec 8100 and J.I.S. standards for water integrity and are built using a high-impact, non-corrosive polycarbonate case.

Circle 112 on Reader Service Card

Tate Andale, Inc. Booth #120

The Tate Andale booth will display a wide array of shipboard pipeline equipment. Products to be featured include strainers (simplex and duplex); modular manifold valves; oil coolers; P-V valves; and hull drainage fittings.

Circle 113 on Reader Service Card

Trinity Marine Group Booth #725

The Trinity Marine Group will introduce its new high-speed, low-wake catamaran ferry. The 138-ft. (42-m), all-aluminum boat uses slender hulls and incorporates moderate power requirements to carry up to 240 passengers at high speeds, with very little wake.

Circle 107 on Reader Service Card

Viking Life Saving Equipment Booth #1357

The company will feature marine safety equipment, including four- to 100-person inflatable raft and inflatable buoyant apparatus, marine evacuation systems, life jackets, survival suits, water activated lights, and thermo-protective aid bags — SOLAS and U.S. Coast Guard approved.

Circle 38 on Reader Service Card

Great-Lakes Fleet Improves Oily Water Separation With Skimmer, Planning

Periodic cleaning of engine room equipment is part of the USS Great Lakes Fleet preventative maintenance program. To do a thorough job, it involves the use of cleaning compounds which dissolve lube oil and grease.

Carl Walker, engineer-in-maintenance planning at USS Great Lakes Fleet, specifies these compounds, and one of his major concerns is what happens when they enter the bilge water — as he also has to ensure that the fleet's oily water separators reduce the oil content of bilge water to a negligible amount, even in the presence of these chemicals. As Mr. Walker said, "Separators need help in the form of auxiliary equipment, and they benefit greatly from planning that considers the type of cleaning compounds used."

The company has found an oil skimmer to be a piece of auxiliary equipment which greatly enhances the performance of an oily water separator. In many separators, filter element efficiency is affected by oil concentration in the water being processed. By reducing floating oil before it gets into the separator, the equipment performs more efficiently and filter elements last longer. The cost of the skimmer is quickly repaid through reduced element replacement cost, and less time spent giving special attention to monitoring and reprocessing water whose oil content remains high.

On many USS Great Lakes Fleet bulk carrier vessels, Mr. Walker has installed an oil skimmer made by Abanaki Corp. of Chagrin Falls, Ohio, which helps reduce oil content of bilge water before it gets to the separator. The Abanaki Model 4 Oil Grabber specified by Mr. Walker uses a stainless steel belt operating on a motor and pulley system. This design makes use of differences in specific gravity and surface tension between oil and water to pick up grease, oil and other hydrocarbon liquids as the belt passes through the water. The unit can remove up to 20 gallons of oil per hour.

Still, peak skimming efficiency can more quickly be achieved through good installation practices, and by being selective in the types of cleaning compounds used. For example, some cleaning compounds have emulsifiers which help loosen oil and grease, but subsequently may cause the oil to form a tight emulsion in the bilge water.

For more information on the Abanaki Skimmer Circle 39 on Reader Service Card

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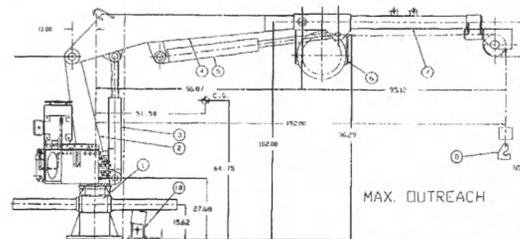


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Circle 282 on Reader Service Card

Maritime Reporter/Engineering News

BOATRACS: A Two-Way Communications And Positioning System

BOATRACS, Inc. was founded in 1990 to bring BOATRACS, a mobile and transportable satellite communications network, to the marine market. BOATRACS features two-way (two-way) messaging, position reporting, net broadcasting, call accounting and message confirmation. BOATRACS' 24-hour service center monitors all vessels in the network and provides a menu of services. Network users can either communicate directly with mobile terminals or communicate via the BOATRACS service center, where operators provide personal message relaying services.

For more information on BOATRACS
Circle 8 on Reader Service Card

COMSAT Announces Global Service, Lower Prices For Inmarsat M/B

COMSAT Mobile Communications opened its Eurasia land earth station, marking the introduction of global service and lower prices for its Inmarsat-M and Inmarsat-B services. With the operation in service in the Indian Ocean Region, COMSAT is reportedly the only company in the world to offer digital mobile satellite services worldwide.

COMSAT's new Eurasia land earth station, located in Kuantan, Malaysia, joins COMSAT's stations in Santa Paula, Calif. and Southbury, Conn.

The Eurasia station is linked by dedicated leased circuits for COMSAT's Santa Paula station for operator assistance. It is equipped to provide all of COMSAT's services, including 24-hour operator assistance, foreign language assistance in more than 140 languages, specialized telephone services, FaxMail service and other news and information services.

Around-The-World Sailors Rely On C-Link & Sail Track

When the BOC Challenge sailing event set sail from Charleston, S.C. in September, about 40 boats were depending on COMSAT's C-Link Inmarsat C service and the company's Sail Track vessel tracking software to keep race organizers and participants in constant contact during this around-the-world sailing event.

COMSAT's Sail Track service uses Inmarsat Mobile Earth Stations (MESs) to transmit each boat's precise navigational information via onboard Inmarsat-C MESs that feature integrated Global Positioning System (GPS) receivers. Users at sea can send and receive messages, send position reports, receive weather updates and communicate via several electronic mail services, or send messages to fax machines.

For more information on COMSAT
Circle 9 on Reader Service Card

WCS Integrators: Intelligent Communication Automation

World Communications Systems (WCS) has made cost-effective devices available which enlist state-of-the-art software programming.

WCS Integrators have been used on tankers, cargo ships, passenger ships, military vessels, luxury yachts, ferries and fishing vessels. According to WCS, a study of three

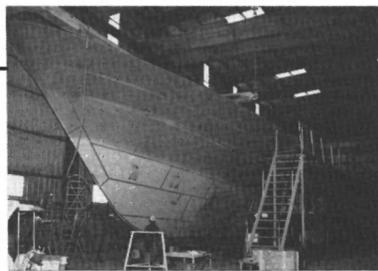
fishing vessels showed average monthly savings of more than \$5,000 on each vessel, each month.

WCS Integrators provide: access and control; automatic call accounting; shore-side polling and control; departmental billing; crew calling; cost-effective and least-cost routing; fleet standardization; data communication; and GMDSS. With WCS Integrators, any number of on-board subscribers are automatically connected to any number of communications channels, such as

satellite, cellular or land-line circuits. However, the Integrators can be customized to fit the exact needs of the individual shipowner.

WCS Integrators can function as stand-alone communication systems with all common PABX features in addition to automatic call-routing and communication circuit selection. Each WCS Integrator configuration provides integration, automation, record-keeping, and enhancement.

For more information on WCS
Circle 10 on Reader Service Card



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ogy for its new Chartmate LCD chartplotter. Chartmate can be used as a full-featured stand-alone chartplotter. It is also available with an integrated GPS receiver for navigational

Falmouth Road, Building II, Mashpee, Mass. 02649, tel: (800) 424-2827, (508) 477-8010; fax: (508) 447-6168.

For more information on C-Map
Circle 12 on Reader Service Card

schools are shown in true size, shape and direction, from ahead, below, above and around the net. A split screen capability shows net profile or scanning sonar and depth sounder information simultaneously.

The AldenSART operates in the 9GHz frequency band and will transmit its painted response signal when it recognizes any X-Band radar signal.

By February 1995, all vessels more than 300-grt must be equipped with

Raytheon, Sperry, Trimble Supply Colombian Coast Guard Patrol Craft

Bender Shipbuilding and Repair in Mobile, Ala. completed two 116-ft. (35.4-m) Colombian Coast Guard coastal patrol vessels. These vessels will be used by the Colombian navy for drug intervention, coastal patrol, and sea rescue. The vessels are powered by two MTU engines.

The boats have a full electronics suite that was engineered and installed by Bayou Marine Electronics. The electronics supplied are:

Gyrocompass	Sperry
Doppler Speed Log	Sperry
HF/SSB Radios	Raytheon
Loudhailer	Raytheon
GPS	Trimble
VHF Radios	Motorola, Raytheon, Shipmate
Radar	Furuno
UHF Radio	Maxxon
VHF-AM Radio	King
Computer Systems	Compaq
Digital Depth Indicator	Datamarine

Kelvin Hughes, Sperry Announce OEM Agreement

Under a new OEM agreement jointly announced by Kelvin Hughes and Sperry Marine, Kelvin Hughes will supply 12-in. rasterscan color radar systems based on its Nucleus 5000 series, to Sperry Marine, Inc. Sperry Marine chose a radar that would complement its line of RASCAR radar/ARPA's. Sperry will buy an undisclosed number of 12-in.

systems and market and support them through its worldwide distribution and service network.

Nautronix To Supply ATS For Gulf Of Mexico Project

Nautronix Inc. of Houston, Tex. signed a contract with Enserch Exploration Partners, Ltd. to supply an ATS acoustic positioning system for the Garden Banks Block 3 Deep-Water Project in the Gulf of Mexico.

The system comprises a main processor with full-function remote control and commandable position riser angle beacons, incorporating state-of-the-art digital processing technology — to ease monitoring production facility surface position in relation to the subsea template and production riser.

For more information on Nautronix Circle 11 on Reader Service Card

Inmarsat Opens The Door To Civil Use Of GPS

Inmarsat has initiated the process of allocating the navigation transponders on its Inmarsat-3 satellites for use by service providers and either national or regional civil aviation or other transportation authorities.

Inmarsat's signatories will make the transponders available to service providers in their countries for applications to use one or more of the navigation transponders for periods of three, five or 10 years.

With one navigation channel on each of the five satellites, Inmarsat's third generation of satellites will offer an enhanced global navigation capability for international civil users of the nationally-owned and operated U.S. global positioning system (GPS) and Russian Global Navigation Satellite System (GLONASS) satellite navigation systems.

Inmarsat-3 will be capable of both providing navigation signals and relaying independently-monitored integrity information on navigation signals generated by GPS and GLONASS.

Integrity information is required by civil users of these systems to permit their use in safety-critical applications.

Oceangoing vessels could use the enhanced navigation capabilities, combined with Inmarsat's global data communications service (Inmarsat-C) for search and rescue operations, tracking of hazardous cargo and fleet management.

For more information on Inmarsat Circle 23 on Reader Service Card

C-Map In Agreement With Magellan; Relocates U.S. Office

C-Map has licensed Magellan Systems Corp. to use C-Map tech-

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Palmer Johnson Delivers 150-ft. Yacht, La Baroness

La Baroness, launched at Palmer Johnson's Sturgeon Bay, Wis. yard and delivered to its owner in Singapore, was designed by Palmer Johnson.

The yacht's Series 620 Deutz engines deliver in excess of 1,900 hp to custom Brunton (U.K.) propellers. Combined with designer Tom Fexas' semi-displacement hull, this running gear reportedly gives *La Baroness* long range, a smooth ride and speed.

contracts from foreign navies. Mr. Phill was named president and CEO of NNS in 1991. He has worked at NNS for 45 years, beginning as an apprentice machinist and working way up through leadership positions in operations, marketing and engineering. Mr. Phill

nology for its new Chartmate LCD chartplotter.

Chartmate can be used as a full-featured stand-alone chartplotter and is also available with an integrated GPS receiver for navigational positioning functions.

Chartmate has a front-loading cartridge reader with a weather-proof cover that will accept any standard C-Map mini-cartridge. The Chartmate also features an ultra-high transfective liquid crystal display.

C-Map recently moved its U.S. operations from Sagamore, Mass. to new, larger offices in Mashpee, Mass.

According to Vice President and General Manager **Ken Cirillo**, "In 1990, when we first moved into our Sagamore offices ... electronic charting was still in its infancy. Over the past two years, however, we've had to increase our personnel by 15 employees to meet the growing demands for electronic charts. Our new office in Mashpee ... provides an increase of over 5,000-sq.-ft. over our previous office space."

C-Map's new address is 133

Falmouth Road, Building II, Mashpee, Mass. 02649, tel: (800) 424-2627, (508) 477-8010; fax: (508) 447-6168.

For more information on C-Map
Circle 12 on Reader Service Card

WESMAR Introduces Multi Mode TCS600E Trawl Catch Sonar

Western Marine Electronics (WESMAR) introduced its new Multi Mode TCS600E Trawl Catch Sonar, a new scanner, horizontal scanning sonar and depth sounder all in one system.

According to WESMAR President **Bruce Blakey**, the TCS600E Trawl Sonar provides complete information for any underwater fishing operation.

It shows an underwater picture of the trawl net and the doors, including all essential depth and distance measurements necessary to shoot and fish the net. From the horizontal scanning sonar mode fish

schools are shown in true size, shape and direction, from ahead, below, above and around the net. A split screen capability shows net profile or scanning sonar and depth sounder information simultaneously.

For more information on WESMAR
Circle 22 on Reader Service Card

Alden Offers AldenSART™ Search & Rescue Transponder

Alden Electronics, Inc. offers the AldenSART™, a search and rescue transponder designed to help rescue forces find a vessel, life raft or personnel in distress, especially in poor visibility.

The AldenSART responds to radar signals on rescue planes or ships by "painting" its location on their radar screens. This painted signal is seen on the rescuer's radar as a series of 12 dashed lines pointing directly to the location of the AldenSART.

The AldenSART operates in the 9GHz frequency band and will transmit its painted response signal when it recognizes any X-Band radar signal.

By February 1995, all vessels more than 300-grt must be equipped with at least one SART.

The AldenSART is Global Maritime Distress Safety System (GMDSS) approved for worldwide use.

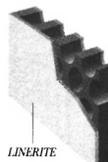
For more information on Alden
Circle 45 on Reader Service Card

Sperry Marine Sells Periscope Segment To Kollmorgen Corp.

Sperry Marine Inc. sold its Conventional Optical Periscope business to Kollmorgen Corp. of Waltham, Mass. for approximately \$5 million. The agreement allows for the acquisition of all Sperry Marine's equipment, tooling and inventories.

For more information on Sperry Marine
Circle 13 on Reader Service Card

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Palmer Johnson Delivers 150-ft. Yacht, La Baroness

La Baroness, launched at Palmer Johnson's Sturgeon Bay, Wis. yard and delivered to its owner in Singapore, was designed by Palmer Johnson to the owner's exact requirements, offering world-cruising range and comfort. At sea trials, *La Baroness* achieved almost 21 knots with a continuous cruising speed in the high teens.

The yacht's Series 620 Deutz engines deliver in excess of 1,900 hp to custom Brunton (U.K.) propellers. Combined with designer Tom Fexas' semi-displacement hull, this running gear reportedly gives *La Baroness* long range, a smooth ride and speed.

For more information on Palmer Johnson
Circle 44 on Reader Service Card

Promotions For Newport News' Top Executives

W.R. (Pat) Phillips, Jr., president and CEO of Newport News Shipbuilding (NNS), has been named chairman of the shipyard, retaining his CEO position; and William (Bill) Fricks, the shipyard's executive vice president, will assume the posts of president and chief operating officer. Both assignments are effective immediately.

"Both Pat and Bill have the wealth of experience needed to lead (NNS) in constructing and repairing Navy submarine and surface ships while pursuing with unrelenting efforts the new opportunities before us," said Dana Mead, chairman and CEO of Tenneco, NNS's parent company.

In his new assignment Mr. Phillips will focus his primary attention on strategic initiatives, such as identifying and developing new markets. Mr. Fricks will concentrate on operational aspects of the shipyard with an emphasis on reducing costs and improving the yard's competitiveness as it adjusts to the post-Cold War era and positions itself to re-enter the commercial shiprepair and construction market and win

contracts from foreign navies. Mr. Phillips was named president and CEO of NNS in 1992. He has worked at NNS for 45 years, beginning as an apprentice machinist and working his way up through leadership positions in operations, marketing and engineering. Mr. Fricks became executive vice president in 1992, overseeing aircraft carrier construction and overhaul, submarine construction and commercial shipbuilding and repair. Prior to that, he held vice president posts in the areas of finance, marketing and human resources. He joined the company in 1966 as an industrial engineer.

For more information on NNS
Circle 95 on Reader Service Card

Smith Joins Tidewater As Public Affairs/Corp. Communications Mgr.

Tidewater Inc. has named R. Whitford Smith manager of public affairs and corporate communications. Mr. Smith will oversee all public and corporate relations for the company.

Mr. Smith comes to the company with a 14-year background in industrial public relations and advertising, with a sub-specialty in oil and gas concerns.

A graduate of Tulane University, he was previously co-partner and founder in the New Orleans-based marketing and communications firm of Robert Smith & Associates. He has served as volunteer public relations counsel to several non-profit and charitable organizations, in particular the United Way for the Greater New Orleans Area.

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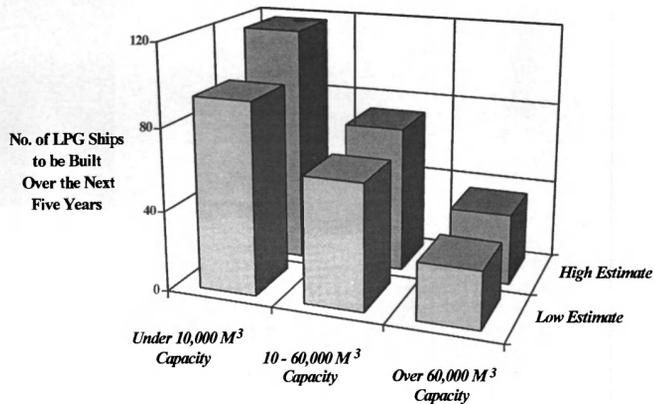
Circle 29 on Reader Service Card

INDUSTRY TRENDS

by

James R. McCaul, President
IMA Associates, Inc.

Between 185 and 225 LPG ships will need to be built over the next five years to satisfy replacement requirements and additional LPG shipping demand — and construction of these sophisticated ships represents a major business opportunity for shipbuilders and equipment suppliers.



Source: IMA Associates, Five Year Outlook for U.S. Shipbuilding, 1994

Carolina Cockpit Finds Government Work Plentiful



Carolina Cockpit of Portland, Ore. supplies government and commercial marine operators with ready-to-install, corrosion-proof, engineered deck structures and control cabs. The first of five five-ft. by seven-ft. (1.5- to 2-m) upper pilothouses was delivered recently to the Panama Canal Commission. These houses have tempered glass aluminum framed windows, roof access ladders, removable

tops and many other features. Other recent deliveries include a pilothouse for a powered barge operated by the National Underwater Weapons Command, an aft control station for the R/V *Seward Johnson*, a quarter-deck shelter for the U.S. Coast Guard Cutter *Bramble*, and a six-ft. by six-ft. insulated, fire retardant upper pilothouse for Eklof Transportation's tug *Viking*.

For more information on Carolina Cockpit
Circle 58 on Reader Service Card

Brochure On Single Lever Propulsion Control Available

R.G. Rollin Co. offers a four-page black and white brochure on its SOLO system, a system designed and built as a heavy duty, high performance single lever mechanical control system for throttle/reverse gear, to be used on vessels up to 140 ft. (42.7-m) in length, in single or multi-station applications.



SOLO is comprised of three major components: the control head KRF 2050 & 5000; the ball bearing control cable KRF 3000; and the transfer unit KRF 1000.

For a free brochure from R.G. Rollin Co.
Circle 59 on Reader Service Card

SWR Delivers New Ship Cleaning And Maintenance Technology

The SWR Corp. announced a new technology for the maritime shipping industry which it claims will reduce costs associated with the cleaning and maintenance of ships and related equipment.

Its product, SWRone, causes contaminating hydrocarbons to release from a surface to which they are clinging, and causes them to separate from water. The results, according to the company, include: cleaning and degreasing, as well as a powerful de-emulsifying effect. When resented in the bilge, the formula will migrate own into the sludge at the bottom, lift out hydrocarbon contamination and push it to the

October, 1994

top. The company contends that because of these properties, the performance of oil/water separators is enhanced and, depending on existing equipment, bilges can reportedly be cleaned at five to 10 percent of current expense.

SWRone will reportedly clean virtually all forms of hydrocarbon contamination, as well as dirt and soot, from any surface. It can be swabbed or sprayed on, or used in dip tanks for cleaning parts and lube oil filters. The product is recyclable, EPA-approved and allows for the complete recovery of hydrocarbons.

For more information on this cleaning product
Circle 71 on Reader Service Card

Tranter Acquires Koolrad Design

Tranter, inc., a wholly-owned subsidiary of Dover Corporation, recently purchased the assets of Koolrad Design & Manufacturing Com-

pany, Inc. of Oshawa, Ontario.

Koolrad conducts sales, engineering, administration and manufacturing in its facilities in Oshawa. "Operations will continue as usual following the company's acquisition," said Tranter President Ken Kaltz. "This is precisely the type of product and company which Tranter is seeking, in its quest for expanding leadership in transformer plate-type radiators for the international market."

Tranter recently purchased HTT Heat Transfer Technologies SA of Fribourg, Switzerland — which operates under the trade name SWEF throughout the world — and ReHeat AB of Taby, Sweden, which manufactures plate and frame heat exchangers under the trade name ReHeat Ultra Flex®.

For more information on Tranter, inc.
Circle 28 on Reader Service Card

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Drew Ameroid Announces Arrival Of Kay; New Venture With Mobil



John P. Kay

John P. Kay has joined Ashland Chemical Company's Drew Ameroid Marine Division as vice president, planning and development.

He is responsible for identifying, planning and implementing programs designed to provide an expanded range of products and services to the marine industry.

These programs will include acquisitions and new business ventures that complement existing lines and utilize Drew's worldwide account base, technical service and distribution.

Drew & Mobil Forge Ozone-Friendly Lubricants Pact

One such business venture has been formed between Drew Ameroid Marine and Mobil International Aviation and Marine Sales Inc. (MIAMI), one the companies claim will usher in the new age of synthetic lubricants for ozone-friendly refrigerants. Under the agreement, Mobil EAL (Environmental Awareness Lubricants) Arctic Series oils will be

available to shipowners and operators through Drew's worldwide distribution network. Headquartered in Fairfax, Va., MIAMI coordinates Mobil's worldwide aviation and marine sales. The Mobil EAL lubricants were developed specifically to lubricate refrigeration compressors and system components using HFC-134a, the ozone-friendly, chlorine-free refrigerant which is replacing CFC-12 in most marine refrigeration applications. Drew recently established a Refrigeration Products business to address imminent CFC production cutoffs and other regulatory mandates. Drew will distribute Mobil EAL Arctic Series oils in conjunction with another alliance it has formed with York Marine Systems, a division of York International Corp., to provide shipboard CFC conversion, as well as repair and maintenance services to commercial marine customers worldwide.

For more information
Circle 27 on Reader Service Card

Mulvihill Named VP of National Marine

National Marine, Inc. the New Orleans-based river transportation company, has named Jack Mulvihill to the position of vice president/treasurer. Mr. Mulvihill will assume responsibility for National Marine's cash management functions and banking relations in addition to his other financial duties. He joined the company in 1990 as controller and was promoted to vice president/controller in 1992. Prior to joining National Marine, he served for 18 years in various financial management positions

The Great Lakes Towing Co. Handles Two Significant Cargoes

The Great Lakes Towing Company completed two significant project cargo movements. The first movement, a series of two shipments, consisted of 12 kiln sections valued at more than \$12 million. Due to the size of the 90-ft. by 15.5-ft. (27-m by 5-m) kiln sections, two separate successive barge movements of six kilns each were made. The kiln sections originated in Sudbury, Ontario, Canada and were transported overland by rail to Sault Ste. Marie, Ontario, where they were rolled onto a 200-ft. (61-m) long deck barge and towed by The Great Lakes Towing Co.'s tug *Superior* to Chicago.

The second major movement in-

volved the shipment of a 32-ft. wide by 4.5-ft. thick (10-m by 1.4-m) 33-ton piece of mirror glass, reportedly the world's largest telescope mirror, valued at about \$25 million. The mirror, made for Subaru, the name of the Japanese Large National Telescope, is to be part of an international astronomical observatory in Hawaii. The mirror originated at Corning Glass Co., Canton, N.Y. and was trucked overland to the Port of Ogdensburg, N.Y. The 135-ft. (41-m) truck, with the mirror loaded on its trailer, was driven on board the 200-ft. barge which was towed to the Port of Erie, Pa. by The Great Lakes Towing Co.'s tug *Ohio*.

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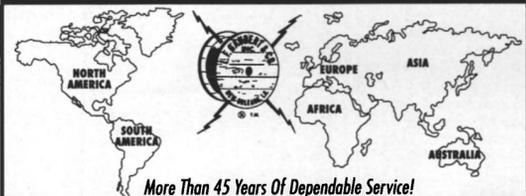
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Forum Addresses Simulator Performance Standards And Validation

The International Marine Simulator Forum (IMSF) held its annual meeting in August in Horten, Norway. More than 30 member organizations, representing 14 countries, attended the meeting and addressed marine simulator issues and topics including performance standards and validation. Workshops on the topics of Simulation Performance Standards and Simulator Validation were conducted during two days of working meetings.

Topics discussed during the IMSF program were: updating members on the latest developments in simulation and future plans for simulator systems and applications; working group progress in the development of a system of classification of marine simulators; consideration of problems encountered in the validation of simulation; and development of performance standards for simulators used in the training and assessment of seafarers. The meeting was hosted by Norcontrol Systems AS of Horten, Norway, a supporter of maritime simulator systems for training and research.

New Simulator Training Concept Offered By Poseidon Of Norway

A complete training concept for the new GMDSS/GOC courses required for maritime communications is now offered to nautical academies by Poseidon of Norway.

Poseidon Simulation AS has been on the world market with small PC-based navigation simulators, and now GMDSS simulators, for the past six years. In cooperation with its sister company Poseidon Education AS, a complete educational package, as well as instructors' training in Norway or abroad, can be offered to supplement what is reportedly the only operational GMDSS/GOC simulator available.

The Poseidon GMDSS Simulator is PC-based, networked and modular by offering configurations from one instructor and two students, up to a total of 15 student workstations working real-time and completely independent of each other. The software for the PC includes simulated versions of the commercial products of ABB Nera and Skanti complying with future IMO requirements for GMDSS, GOC and ROC training.

The Poseidon GMDSS Simulator has been successful over the past year and more than 125 workstations are now in use with 21 installations worldwide.

Royal Chemical Corp. Introduces New Paint

Royal Chemical Corp. of Belle Meade, La. introduced its latest product, Easy Kote. Easy Kote is a

non-flammable water-based modified asphaltic paint that can be used as a salt water ballast coating or as a paint primer for non-VOC paints.

Easy Kote has been certified as a potable water-approved barrier coating by Underwriter's Laboratory. No sandblasting is required; only a clean, tight surface is needed for surface prep.

For more information, contact Royal Chemical Corp. at fax: (504) 392-2173.

APL Chooses Miller To Head Europe Site

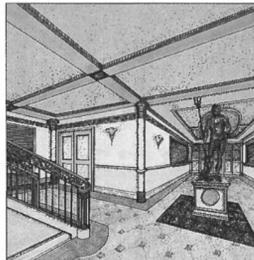
American President Lines (APL), the U.S.-flag container line providing ocean and intermodal transportation services among North America, Asia and the Middle East, has appointed **Rodney Miller** to the newly-created position of vice president and general manager for

APL's European headquarters, located in the London area at Henley-on-Thames. The company had previously announced its intent to begin service between Asia and Europe in 1995. Mr. Miller, who joined APL in 1986, has held key marketing and operating posts for the company. These include vice president of intra-Asia services, based in Hong-Kong, and president of an APL-affiliated unit, American Consolidation Services.

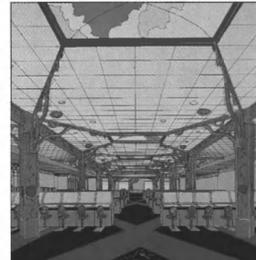
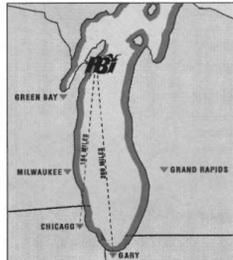


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USCG Senior Chief Receives Award From Assoc. For Rescue At Sea

F. Scott Clendenin, senior chief boatswain's mate of the U.S. Coast Guard (USCG), received the Association for Rescue at Sea's Gold Medal Award and a cash prize for outstanding achievement in the performance of duty on April 15, 1993.

Senior Chief **Clendenin** was involved in a rescue when a 42-ft. (13-m) charter boat, *Rainsong*, capsized just outside the Yaquina Bay bar in Newport, Ore., throwing 15 people into the water.

While serving as surfman of the 30-ft. (9-m) USCG Surf Rescue Boat 30618, Senior Chief **Clendenin** guided the craft through the breaking bar, low visibility and rain squalls to the accident scene. He rescued five victims and success-

fully delivered the injured parties to waiting ambulances.

After rescuing the survivors, Senior Chief **Clendenin** was called upon a second time to cross the bar and assist Motor Lifeboat (MLB) 44356 in towing MLB *Victory*, which had lost steering inside the North Reef.

He assisted MLB 44356 during the tow and assisted the vessel and its tow across the hazardous bar at night.

Keppel Cairncross Completes A Number Of Ship Repair Operations

Keppel Cairncross Shipyard Ltd., the Keppel Group's new joint venture in Brisbane, Australia, successfully carried out a number of afloat repairs.

Since April, five vessels have undergone significant repairs at the yard's fitting out berth. The largest among them is the 104,996-dwt *Australia Ocean*, a crude carrier owned by Caltex Tanker Company, Australia. Keppel Cairncross, which took over operations of the Cairncross Drydock complex in March 1994, carried out fatigue repairs to the vessel's tank web and frame as well as deck corrosion control.

The first vessel to be repaired at Keppel Cairncross was the 101,609-dwt oil tanker *Ampol Sarel*, which underwent minor repairs and survey. The Brisbane-registered *Ampol Sarel* is owned by Ampol Ltd., an Australian-owned oil company. The vessel will be returning to the yard for a major refit on its accommodation and other repairs.

Keppel Cairncross is refurbishing the Cairncross Drydock, which has been closed since 1987. **Leong Kang Chuen**, managing director of Keppel Cairncross, said, "We are working on reopening the drydock before the end of the year in order to provide more comprehensive ship repair services for shipowners." Expected to be operating by the end of 1994, the 864-ft. (263-m) by 105-ft. (32-m) drydock can accommodate vessels of up to 85,000 dwt.

SPE's Annual Meeting: New Officers, Tech Program And Exhibition

"The Energy of Change" was the theme for the 1994 Society of Petroleum Engineers' (SPE) Annual Technical Conference and Exhibition held in New Orleans September 25-28.

Society officials expected about 9,000 registrants for the 69th edition of the ATCE, as well as more than 300 companies participating in the international exhibition, which covered 70,000-sq.-ft. at the Ernest N. Morial Convention Center.

In addition to the 355-paper technical program and exhibition, Society committee meetings were conducted during the conference.

Roy Koerner, Texaco U.S.A. was installed as 1995 SPE president, and five new members of the SPE board were welcomed. The incoming directors are: **W. Bur Nelson** of Sonat Exploration Co.; **J. Michael Gatens III** of S.A. Holditch and Assoc.; **Jeff R. Gibbs** of North American Royalties Inc.; **James D. McFarland** of Imperial Oil Ltd. and SPE Treasurer **Robert D. Steele** of Canadian Hunter Exploration.

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James Marine Appoints Goodfellow Marketing Director

James Marine Services Ltd. has appointed **Barrie Goodfellow** its director of marketing. Mr. Goodfellow's responsibilities will primarily be in the areas of marketing and operational functions.

Mr. Goodfellow was formerly the managing director of Jamarmer Agencies Ltd., a company based in Exeter, U.K. which is closely associated with James Marine.

As a fellow of the Institute of Freight Forwarders, Mr. Goodfellow has over 25 years of experience in the shipping industry, spanning manufacturing, freight forwarding and liner operations in Europe, the Middle East and the Far East.

His appointment to the board of James Marine comes at a time when the company is continuing to expand its worldwide operations and strengthen its position as one of Europe's largest marine spares trading houses.

MTI Installs GMDSS On 10 Safmarine Ships For \$1 Million

South Africa's international shipping line, Safmarine, will install GMDSS systems from Marine Technology International (MTI) on 10 ships in its fleet for \$1 million.

The contract comprises a complete, single package of systems including installation, maintenance, spares provision and crew training. Safmarine will be assisted by its partnership with Cape Town-based agents in South Africa, Ohm Port. Working with Safmarine, MTI technicians will be fitting GMDSS console stations planned and built at MTI's U.K. plant in Chessington. The console stations are of a new design suitable for area A3 operation, which includes 800W HR radio telex and Inmarsat-C. In addition to GMDSS communications these vessels will be fitted with MTI's MCS9120 Inmarsat-A system.

Blue Star, Shell Tankers, Ropner Ship Management, Furness Withy, British Steel and now Safmarine are among the companies who have worked with MTI on GMDSS. MTI's parent companies are Mobile Telesystems Inc. in the U.S. and Microelectronics Technology Inc. in the Pacific Rim.

SEM Offers Ultrasonic Antifouling System

SEM utilizes ultrasound for a number of different applications: Ultrasonic Antifouling systems send seawater-cooling ultrasonic waves over pipe surfaces to prevent the formation of mussels, barnacles and surpulids, a technology utiliz-

ing clean energy. No parts have contact with salt water, and there is no generation of toxic or noxious substances.

SEM's ultrasonic system for improving the combustion in diesel engines and boilers reportedly solves problems related to heavy fuel use by reducing unburned gases, reducing fuel consumption without reduction in power production, reducing blowings on boilers and gas exhaust donkey boilers and reducing con-

sumption of distilled water.

SEM's ultrasonic tanks for washing engines parts can be used with air coolants, pistons, valves, turbo-blowers, oil filter Boll Kirch (25-40-50 micron) and components of any sort made of any steel or alloy, according to the company. SEM says advantages include: reduced washing time, no pitting, reduced operating costs and reduced manpower.

For more information on SEM Circle 149 on Reader Service Card

IMO Secretary-General Calls For More Action On Bulk Carrier Safety

A call for urgent action to ensure the safety of the world's fleet of aging bulk carriers was made by **William A. O'Neil**, secretary-general of the International Maritime Organization (IMO). IMO is the U.N. agency concerned with ship-



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Circle 219 on Reader Service Card

ping safety and the prevention of pollution from ships.

He was speaking at the fifth Ministerial Conference on Port State Control, which was held in Copenhagen on September 14.

Mr. O'Neil warned, "I think we have to recognize ... that what has been done so far is only the beginning. Unless we do more now maritime safety could deteriorate very rapidly."

He referred to a worsening rate of casualties at sea since the beginning of this year and pointed out that the rate of accidents involving bulk carriers seems to be increasing again.

Mr. O'Neil said that during the next few years, many bulk carriers built in the 1980s of high-tensile steel will be reaching an age when corrosion becomes a major threat. However, because plates made of

high-tensile steel are thinner than those made of conventional steel, corrosion is an even greater danger.

The Secretary-General said that increased port state control offers one way of preventing such accidents.

He maintains there is also a need for an improvement in personnel standards. Over the last decade shipping has been transformed, with

one of the biggest changes being the use of seafarers from developing countries, seafarers who are willing to work for less money than those from traditional maritime countries.

Mr. O'Neil said, "In addition to ensuring that the ships they sail on are safe, we also have a duty to ensure that the seafarers are properly trained and that the certificates they possess can be relied on."

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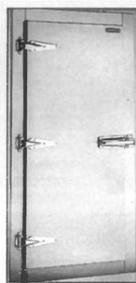
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Oil Pollution Conference Set For December 7-8

Executive Enterprises, Inc., management education company, is presenting an oil pollution conference December 7-8 in Houston, Texas.

The conference will feature speakers from the U.S. Coast Guard, (USCG) National Pollution Fund Center, The USCG Marine Safety Office in Tampa, Fla., and the National Oceanic and Atmospheric Administration (NOAA).

Oil Pollution Conference is an opportunity for those involved in the industry to bring themselves up-to-date, not only on the regulatory and legal landscape, but also on the latest tactical strategies designed to reduce the negative impact of a spill on the environment, the company's corporate image, and the company's bottom line.

For more information on the conference, contact Executive Enterprises, Inc., 22 W. 21st Street, NY, NY 10010-6990, tel: (800) 831-8333; fax: (212) 645-8689.

ABS' ISM Code Certification System Approved By Panama

The system of the American Bureau of Shipping (ABS) for certifying compliance of companies according to the ISM Code has been approved by Panama's flag administration.

The ISM Code (International Safety Management Code), developed under the auspices of the International Maritime Organization, addresses requirements for safety and pollution-prevention management of marine companies. One of the requirements calls for companies to develop and implement a Safety Management System. As part of its certification procedure, ABS will review the Safety Management System manual and carry out company and vessel audits to determine compliance by owners of Panamanian-flag vessels, as well as their individual vessels. Vessels that comply with the code shall be distinguished in the ABS record.

Panama is reportedly the world's largest ship registry in terms of both numbers and tonnage. In ABS class are about 800 Panamanian-registered vessels.

For more information on ABS
Circle 147 on Reader Service Card

MarAd Issues Final Rule Amending Title XI Regulations

MarAd is publishing, in the *Federal Register*, a final rule amending its regulations for obtaining guarantees, implementing Title XI of the Merchant Marine Act, 1936, as amended. The rule, which is effective today, will carry out the provisions of Subtitle D, Public Law 103-50, enacted November 30, 1993. Subtitle D authorizes the Secretary of Transportation to guarantee obligations issued to finance the construction, reconstruction, or reconditioning of eligible export vessels and advanced shipbuilding technology and modern shipbuilding technology of a general shipyard facility located in the U.S. Comments were invited on the interim final rule, assigned Docket No. 93-150, which was published in the *Federal Register* on March 31, 1994.

MarAd received and reviewed 28 comments that are discussed in the final rule document.

For further information contact: **Mitchell D. Lax**, Director, Office of Ship Financing, tel: (202) 366-5744.

MarAd Accepts Bids On Vessels For Scrapping

MarAd has accepted bids on three vessels which were offered for sale for scrapping under Invitation for Bids No. EXC-8632, (see B94-131, dated August 3, 1994).

The successful bidders, amounts accepted and vessels purchaser are listed below:

— **Trusha Investments Pte. Ltd.**, c/o Jacq. Pierot Jr. & Sons, Inc., 29 Broadway, Suite 1825, New York, N.Y. 10006, offered \$625,824 for the *Koalsch* (FF-1048) and \$635,602.50 for the *Brumby* (FF-1044).

— **Ruby Enterprises Inc.**, c/o A.L. Burbank (Shipbrokers) Ltd., One Executive Drive, Fort Lee, N.J. 07024, offered \$1,601,000 for the *Hector* (AR-7).

The vessels are to be scrapped in the United States or approved foreign countries.

MarAd Updates U.S. Merchant Marine Data Sheet

MarAd has updated its U.S. Merchant Marine Data Sheet, as of January 1, 1994, and Publications of the MarAd. Copies are available upon request from MarAd's Office of External Affairs, 400 - 7th St., SW, Room 7219, Washington, D.C. 20590; tel: (202) 366-5807.

Fish Expo Boston To Be Held In New Location

Fish Expo Boston will be held at the waterfront World Trade Center, between the Boston Fish Pier and Anthony's Pier 4, October 13-15.

In the past, Fish Expo has been held at Bayside.

The show was moved to the waterfront to better reflect the theme

of the show, and is ideal for in-water displays.

More than 300 exhibition companies will fill over 400 booths at the 1994 event, which is expected to draw more than 12,500 industry professionals.

For more information on Fish Expo Boston, or on Fish Expo Seattle (to be held Dec. 1-3 in Seattle, Wash.), contact Diversified Expositions, tel: (207) 772-3005.



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Circle 357 on Reader Service Card

ELECTRONICS UPDATE

Sperry Marine Unveils Vision 2100 Aboard Sperry Star II

Calling the new Vision 2100 integrated bridge a real life example of defense conversion, Sperry Marine's President and CEO **George A. Sawyer** recently provided a sneak preview of the new system aboard the *Sperry Star II* in Washington, D.C.

Mr. Sawyer explained that the system was developed for a class of U.S. Navy patrol boats, but the commercial applications were quickly seen.

Vision 2100 integrates the Navigation Planning Station, Conning Station, Radar/ARPA, ECDIS, Docking display, engine room monitors and other equipment into a single, automated assembly which is shipped and installed as a prefabricated and tested unit.

The Vision 2100 VMS-VT design employs PC electronics, incorporating the user-friendly Windows based application software.

The VMS-VT includes complete ECDIS electronic chart capability compliant with IMO requirements and a "V" window to display multiple user selectable display windows simultaneously superimposed on an ECDIS chart.

For more information on Sperry Marine's Vision 2100 integrated bridge
Circle 143 on Reader Service Card



Sperry Marine President and Chief Executive Officer **George A. Sawyer** recently welcomed *Maritime Reporter & Engineering News* aboard the *Sperry Star II* for a preview of the Vision 2100 integrated bridge. The full system was unveiled at SMM '94 in Hamburg.

American Commercial Lines Announces Position Changes

American Commercial Lines, Inc. announced a number of position changes recently:

Ann Y. Adams has been promoted to director of strategic planning. Ms. Adams was formerly the director of river fleet operations. **Lisa L. Fleming** has been named to special assignment for the Liquid Sales Group. Ms. Fleming was formerly the director of strategic planning. **Daniel D. Jaworski** has been promoted to assistant vice president of Liquid Sales. Mr. Jaworski was formerly the director of Liquid Sales. **Roy Fleshman** has been promoted to director of marketing. Mr. Fleshman was formerly marine estimator. **Barker Price** has been promoted to manager of sales. He was formerly project coordinator.



Ann Y. Adams



Lisa L. Fleming



Daniel D. Jaworski



Barker Price



Roy Fleshman

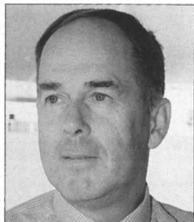
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Stok And Schuurman In New Positions At Wilton-Fijenoord



C.J. Stok

As of October 1, 1994, **D. Schuurman**, managing director of Wilton-Fijenoord, has been appointed to the executive board of Wilton-Fijenoord Holding BV.

C.J. Stok will succeed Mr. Schuurman, and was appointed managing director of Dok-en Werf-Maatschappij Wilton-Fijenoord BV as of August 1, 1994.

Mr. Stok formerly held the position of managing director of Scheldepoort Repair Yard, a Royal Schelde yard.

MarAd Approves Section 9 Applications

MarAd has approved the following section 9 applications:

- Reading & Bates Exploration Co., Houston, Texas, has received permission to sell and transfer to Australian registry the mobile offshore drilling unit *Ron Tappmeyer*.
- Christiana Marine Service Corp., Wilmington, Del., has received permission to sell the tank barge *MSC EARGE 18*. The purchaser is Copim Lt. Lawrence Ltd., a Canadian corporation.

The barge will be transferred to Canadian registry.

MarAd approval is required under section 9 of the Shipping Act, 1916, as amended.

Tuthill Corp. Acquires Darling Turbine Blower Co.

Effective August 4, 1994, Tuthill Corporation of Chicago acquired the Darling Turbine Blower Company Worcester, Mass.

Tuthill's Coppus Murray Group immediately serving all of Darling's customers with both Darling and Coppus products, supported through two Tuthill divisions: Coppus Portable Ventilation Division and Coppus Turbine Division, which is located in Millbury, Mass., in the Millbury Industrial Park. These two Coppus divisions operate independently and will address issues relating to product, distribution and administration over the coming months.

For more information on Tuthill Corp. Circle 29 on Reader Service Card

Parkway Fabricators Becomes Parkway Group

The assets of Parkway Fabricators were purchased by a privately-held firm based in Concord, Mass. The company is now known as the Parkway Group, Inc.

Michael Callaghan is president, and **Frank Sanger** is executive vice

president; **Richard DeSalvo** has been appointed vice president, operations.

Mr. Sanger said, "We are already a diversified company with a strong commitment to both the diving and marine safety industries. With additional resources that are now available, we look forward to moving in promising new directions and into new markets, as well as maintaining and expanding our tra-

ditional lines."

In other company news, Poseidon Industri AB of Sweden has designated Parkway an exclusive distributor in Canada and South America of its Unisuit Dry Suit and Poseidon regulators.

Parkway was already Poseidon's U.S. distributor.

For more information on the Parkway Group Circle 30 on Reader Service Card

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The HX340 is available in both UHF or VHF at five watts. With eight channel capability, channels 6 and 16 are included on the VHF. The UHF provides four of the most commonly used UHF frequencies in the 450 MHz range. For that extra measure of security, the HX340 features a low battery warning light.

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See the entire Standard line at the International Work Boat Show, November 3-5, booth #913.

Circle 317 on Reader Service Card

Tanker Statistics

The following statistics are excerpted from the recently-released World Tanker Fleet Review, January to June 1994, published by London-based John I. Jacobs PLC. For information on ordering a copy of the 70-page publication, contact: John I. Jacobs PLC, Sale and Purchase Dept., 9 Mandeville Place, London W1M 5LB; tel: +44 171 486 5557; fax: +44 171 486 2827.



Newbuilding Orders First Half of '94

(By Country of Build & Dwt)

Country	No.	Dwt
Japan	24	4,337,100
S. Korea	7	936,400
Ukraine	8	425,800
Croatia	8	320,000
China	4	260,800
Denmark	7	259,000
Belgium	2	216,800
Spain	1	122,200
Poland	1	94,700
Singapore	3	40,200
Germany	2	33,300
Indonesia	1	17,500
India	1	17,000
Norway	1	16,000
Italy	1	11,000
Totals	71	7,107,800



The Ugland-owned Evita was repaired at Blohm + Voss.

Tanker Demolition

(By Flag)

Flag	No.	Dwt
Panama	6	854,470
Norway	3	825,568
Iran	2	560,896
Bahamas	3	479,894
Cyprus	5	428,453
U.S.	5	381,602
Liberia	2	337,849
Malta	5	301,653
Greece	3	276,220
Portugal	1	235,186
Japan	1	233,708
St. Vincent	2	187,161
Italy	1	134,547
U.K.	1	133,221
Holland	1	119,378
Argentina	2	85,032
Brazil	1	52,152
Russia	1	22,211
Turkey	1	20,987
Tunisia	1	11,340
Totals	47	5,681,528



The Chevron-owned David Packard was sold to new Greek owners.



LNG carrier under construction at Chantiers de l'Atlantique.

Newbuilding Orders Received First Half of '94

(By Ship Type)

	No.	Dwt
Crude Carrier	31	5,707,300
Products Carrier	36	1,264,200
Crude/Products Carrier	1	97,300
Chemical Carriers	3	39,000

Tanker Demolition

(January to June 1994)

Size Group Dwt	No.	Dwt
10,000-49,999	16	412,370
50,000-59,999	2	110,912
60,000-69,999	—	—
70,000-99,999	6	486,276
100,000-159,999	8	966,721
160,000+	15	3,705,249
Totals	47	5,681,528

Combined Carrier Demolition

(January to June 1994)

Size Group Dwt	No.	Dwt
10,000-49,999	—	—
50,000-59,999	1	58,867
60,000-69,999	1	69,136
70,000-99,999	2	178,941
100,000-159,999	6	750,531
160,000+	3	715,341
Totals	13	1,772,836

COMPANY PROFILE

Del Gavio: Complete Hydraulics Service On Both Coasts

Del Gavio Marine Hydraulics, Inc. of Carlstadt, N.J. and its sister company, Del Gavio Ship Repair, Inc. of Alameda, Calif. have an identical array of services to offer the marine industry.

The companies are involved in all aspects of shipboard hydraulic system design, installation and repair, including all deck machinery such as winches, accommodation ladders, anchor windlasses, hatch covers, and cranes. Del Gavio works with steering systems, pneumatic systems, watertight door systems, and many other fluid systems, and are authorized as Denison Hydraulics marine service centers. The companies offer repair and machine ser-

vices on fuel oil systems, lube oil systems, and valves, and have access to a large inventory of parts from many manufacturers.

Del Gavio has also expanded its electrical services in its New Jersey facility.

From both coasts, Del Gavio performs electrical system troubleshooting, installation and design. In addition, the company performs motor overhaul and testing to UL specifications, and offers related

mechanical overhauls of electrical equipment and systems. Del Gavio says they are constantly looking toward expanding into the growing riverboat and workboat market, and meeting the changing demands of their customers.

For more information on Del Gavio
Circle 96 on Reader Service Card

Crowley Names Walton Sales Director For Bahamas Service

Crowley American Transport, Inc. has appointed **Timothy Walton** director of sales for its new dedicated RoRo service between Florida and Freeport and Nassau in the Bahamas. Mr. **Walton** has extensive experience in transportation in the Caribbean Basin area. He started his career with Crowley in 1991 as manager, sales, for the company's Virgin Islands service and was domiciled in St. Thomas. In 1993, he was promoted and transferred to Crowley's Miami office as director of sales for the Colombia, Cuba and Curacao service. In his new position he will continue to be based in Crowley's Miami office and will spend most of his time in the Bahamas with Crowley customers.

Crowley American Transport recently announced the inauguration of a new RoRo service to the Bahamas, with sailings three times a week from Port Everglades, Fla. and direct calls at Freeport and Nassau. The *M/V Hybur Trader* made its first sailing from Port Everglades on September 17, 1994.

EMEX Director Opens First Mexican Petroleum Conference

Francisco Rojas, director general of Petroleos Mexicanos (EMEX), the national oil company of Mexico, made the opening address for the first Society of Petroleum Engineers' (SPE) International Petroleum Conference and Exhibition of Mexico (IPCCEM). Mr. **Rojas** officially opened the event, which is being held in Veracruz, Mexico, with ribbon-cutting ceremonies on Monday, October 10. The conference/exhibition was held through Oct.

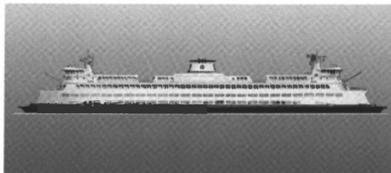
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Circle 308 on Reader Service Card

Japanese Industry News

Top Five Japanese Shippers Expected To Report Dismal Earnings

Reportedly, Japan's five major shipping companies are expected to report dismal earnings for the current business year ending March 31, 1995, under the weight of the strong yen and higher fuel prices.

The five companies are Nippon Yusen K.K., Mitsui OSK Lines Ltd., Kawasaki Kisen Kaisha Ltd., Navix Line Ltd. and Showa Line Ltd.

Following are earnings projections for the shipping companies for the current business year. Figures are in billions of yen, with results of the previous year in parentheses.

Company	Sales	Operating Profit	Pretax Profit
Nippon Yusen	530.0 (531.1)	9.0 (6.54)	7.0 (6.0)
Mitsui	445.0 (440.8)	5.0 (3.7)	2.0 (1.6)
Kawasaki	340.0 (335.7)	7.0 (2.3)	1.0 (-0.5)
Navix	140.0 (140.2)	1.4 (0.3)	0 (0.8)
Showa	76.0 (76.9)	-1.7 (-1.6)	-2.5 (-2.4)

NOTE: Minus mark indicates loss

Japanese Shipbuilders Cut Design Costs To Save

Several Japanese shipbuilders are restructuring design operations to cut costs in an effort to battle the effects of the yen's steady growth and competition with shipbuilders in South Korea.

Hitachi Zosen Corp. is hoping to cut its design

costs in half by March 1996 by making full use of its intra-company computer network to link designing operations nationwide.

Mitsubishi Heavy Industries Ltd. is cutting its ship design staff by half and reassigning the other half to develop probes for submarine resources and other equipment.

Mitsui Engineering and Shipbuilding Co. is relocating half the design staff at its head office to outlying shipyards, where business expenses are lower.

Many shipbuilders are also introducing a computer system linking designing and shipbuilding operations to control parts and component supplies.

Japanese Steelmakers May Abandon Price Hike

A planned increase in the price of steel by Japanese steelmakers may do a complete turnaround, as they attempt to combat imports from other industrial nations with cheaper prices. The intended increase would affect automobile and shipbuilding industries the most, as they account for approximately 70 percent of all steel demand.

The decision to increase prices for steel sold through trading companies and wholesalers to ordinary users came in late August. It was hoped the measure would improve lagging business. Total steel production will reach 100 million tons in 1994 for the first time in three years, a sign of a recovering economy and, to the steelmakers, a sign of hope for higher prices. But the automobile and ship builders are trying to lower steel prices -- and since prices for steel

from other sources such as South Korea can be as much as 20 percent lower than those for Japanese steel, they may succeed in forcing Japanese steelmakers into a price drop.

Steelmakers will reportedly try to make gradual cuts, staving off major measures until FY '96, when restructuring will make cuts less severe.

Japan's Techno-Superliner Progressing

The development project for the Techno-Superliner (TSL), a high-speed cargo ship expected to play a leading part in high-speed marine transport in the future, has technical targets to have a speed of 50 knots; payload of about 1,000 tons; cruising range of 500 sea miles or more; and seaworthiness enabling it to safely navigate rough seas up to Sea State 6.

This R & D project was launched in FY 89, and the basic aspects of technical R & D work were substantially completed by FY 92. Steady progress has been made, and the Technological Research Association of the Techno-Super liner is confident that the targets will be reached. Two hull types have been developed specifically for the project: a hydrofoil-type hybrid hull (TSL-F), and an air cushion-type hybrid hull (TSL-A).

Sea tests are scheduled to be carried out for data unavailable from tank tests. Two model ships were built, one for each hull type. The TSL-F hull type is represented by the model *Hayate*, and the TSL-A type by the model *Hisho*. The *Hayate* was built jointly by five Japanese shipbuilders at the Kobe Shipyard of Kawasaki Heavy Industries, and the work to build the *Hisho* was split between Mitsui Engineering & Shipbuilding and Mitsubishi Heavy Industries.

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Europa Cruises Assumes Operation Of Its Casino Concessions; Acquires New Vessel For Day Cruises

Europa Purchases *Star Dancer*

Europa Cruises Corp. paid \$3.5 million to Lagoon Cruise Line, Inc. of Panama City, Fla. for the *Star Dancer*.

Europa will minimize operating losses by using the *Star Dancer* as a day cruise vessel when its two other vessels have to be placed in drydock for annual maintenance. Europa will ultimately place the *Star Dancer* in service in either a new domestic or a new international market.

Europa Takes Over Its Casinos

Europa has assumed responsibility for operations of the casino concessions on its day cruise vessels. The concessions were previously run by Casinos Austria Maritime Corp. of Madeira Beach, Fla. Under Casino Austria Maritime's management, Europa received 65 percent of net gaming winnings from the casinos. Casino Austria Maritime received 35 percent for managing, staffing and equipment. When Europa took over management of the casinos in October, Casino Austria Maritime retained a 3.5 percent interest in the net gaming winnings from the casinos for its services as a gaming consultant to Europa.

Employee Stock Ownership Plan Introduced

In an effort to retain and motivate senior management and other employees, Europa introduced an Employee Stock Ownership Plan (ESOP). The ESOP borrowed \$7.5 million from Europa Cruises Corp., which was used to purchase five million restricted shares in the company.

RECENT SHIP SALES

This report, compiled by Shipping Intelligence, Inc., a New York Maritime consulting firm, tracks sale prices of secondhand bulk carriers and tankers.

Date	Vessel Name	Type	DWT	Year Built	Price (Millions)
8/22/94	Lapponia	Bulker	16,560	78	6.0
9/13/94	Orion	Bulker	18,434	77	3.0
9/13/94	Korean Sapphire	Bulker	19,409	78	4.2
9/06/94	Oreo	Bulker	19,505	72	1.65
8/22/94	Dragon Wealth	Bulker	21,341	83	9.8
8/22/94	Garnet Star	Bulker	22,026	84	9.8
9/12/94	Alkanis	Bulker	22,274	73	2.25
9/06/94	Ranger	Bulker	23,151	77	4.2
9/12/94	Young Sato	Bulker	23,675	85	10.0
9/12/94	Blue Grace	Bulker	23,936	79	6.2
9/12/94	Mulpha Subang	Bulker	27,701	74	3.0
9/12/94	Eleftherotria	Bulker	30,957	72	3.0
8/22/94	Fidias	Bulker	35,307	73	3.9
9/06/94	Richmond Hill	Bulker	37,939	87	12.0
9/12/94	New Opal	Bulker	38,246	84	14.25
9/12/94	Kelvin Challenge	Bulker	43,474	85	16.4
9/06/94	Skastrand	Bulker	43,545	94	26.0
9/13/94	Trade Vision	Bulker	43,841	75	3.9
8/22/94	Gemini	Bulker	55,822	79	9.7
8/22/94	Caryanda	Bulker	61,257	73	3.4
8/22/94	North Viscountes	Bulker	66,908	84	15.3
8/22/94	Raiko Maru	Tanker	56,085	77	5.9
9/12/94	Olympic Spirit	Tanker	94,668	90	35.0
8/22/94	Nicholas	Tanker	123,449	74	3.75

For more information, contact: Shipping Intelligence, Inc., 25 W. 43rd. St., New York, NY 10036, tel: (212) 997-0966.

Gladding-Hearn Delivers Patrol Launch To NYC Harbor Police



Patrol launch Kenny Hanson.

Gladding-Hearn Shipbuilding, The Duclos Corp., delivered a new patrol launch for New York City's Harbor Unit.

The 55-ft. (17-m) all-aluminum vessel will join the city's fleet of patrol/rescue boats, of which five have been built by the Somerset, Mass.-based shipyard. The new boat will be used as a station vessel, providing a large, stable platform and accommodations for 12-hour harbor patrols. The twin-screw vessel measures 15-ft. (4.6 m) abeam, draws four ft. (1.2 m) and is designed for rough-water operations. It is powered by Detroit Diesel 12V-71TA DDEC engines, each rated for

800 bhp at 2,100 rpm, with a top speed of 27 knots. The engines drive two 34-in. nickel-bronze propellers via Twin Disc 2:1 reverse/reduction gears and stainless steel shafts.

For more information on Gladding-Hearn Circle 150 on Reader Service Card

Kenny Hanson Equipment List

Main engines	Detroit Diesel
Gears	Twin Disc
Radar, Loran	Furuno
VHF	ICOM
Depth sounder	Datamarine
Compass	Ritchie

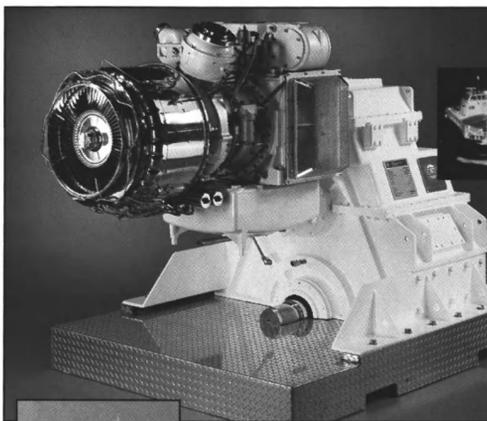
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Since the early 1980's, Cincinatti Gear has provided the propulsion system gearboxes for the Navy LCAC Hovercraft. To date, CINTI has produced over 80 shipsets of gearboxes for this program.

In the 1990's the experience gained designing and producing these high performance marine gearboxes has been used to develop the MA 107, one of Cinti's MA Series of standard gas turbine powered marine reduction gears. The MA107 was designed for high reliability and long life, with the future in mind. Unlike the competition, the MA 107 was designed with higher power capability to accommodate anticipated increases in turbine power ratings in the years ahead. This makes the MA 107 slightly heavier, but capable of handling higher power in the future, without expensive gearbox replacements and ship modifications.

Circle 22X on Reader Service Card

Shipyard Activity Report

The following is a report on the activity in major U.S. private shipyards. Included are all known Maritime Administration (MarAd), other government and private contracts for new merchant, T-ships, tugs, rigs, barges, as well as commercial ships for export; and all conversion work having a contract value of \$10 million and over, a shipyard availability of at least one year, and 1,000 gt and over.

GOVERNMENT PROJECTS (EXCLUDING NAVY)

Yard	Vessel Name	Vessel Type	Bldr. Hull No.	Vessel Owner	% Complete	Delivery
Halter, Moss Point	—	NOAA Agor Research	1417	NOAA	0.0	8/97
Marinette Marine Corp.	Juniper	WLB 101 Service	101	USCG	36	6/95
Marinette Marine Corp.	Ida Lewis	WLM 201 Service	201	USCG	10	12/95
Moss Point Marine	BG Zebulon Pike	Tugboat	804	Army	96	10/94
Moss Point Marine	MG Winfield Scott	Tugboat	805	Army	96	10/94
Moss Point Marine	Col. Seth Warner	Tugboat	806	Army	90	11/94

NAVY T-SHIP PROGRAM

Yard	Vessel Name	Vessel Type	Bldr. Hull No.	Vessel Owner	% Complete	Delivery
Avondale Industries	Patuxent	T-AO 201 Oiler	2366	Navy	83	6/95
Avondale Industries	Laramie	T-AO 203 Oiler	2367	Navy	60	4/96
Avondale Industries	Bob Hope	T-AKR 300 Sealift	2373	Navy	2	9/97
Halter, Moss Point	Pathfinder	T-AGS 60 Hydrographic	1261	Navy	78	10/94
Halter, Moss Point	Sumner	T-AGS 61 Hydrographic	1262	Navy	66	5/95

Halter, Moss Point	Bowditch	T-AGS 62 Hydrographic	1315	Navy	48	11/95
National Steel and Shipbuilding Co. (NASSCO)	—	T-AKR 295(C) Sealift (Conv.)	448	Navy	47	8/95
NASSCO	—	T-AKR 297(C) Sealift (Conv.)	449	Navy	38.5	2/96
NASSCO	—	T-AKR 299(C) Sealift (Conv.)	450	Navy	1.4	7/96
NASSCO	—	T-AKR 301 Sealift	451	Navy	0	10/97
Newport News Shipbuilding	Jutlandia	T-AKR 296(C) Sealift (Conv.)	296	Navy	41	8/95
Newport News Shipbuilding	Selandia	T-AKR 298(C) Sealift (Conv.)	298	Navy	30	12/95
Tampa Shipyards	Impeccable	T-AGOS 23 Surveillance	2301	Navy	61	1/95
Tampa Shipyards	Benjamin Isherwood	T-AO 191 Oiler	1191	Navy	85	—
Tampa Shipyards	Henry Eckford	T-AO 192 Oiler	1192	Navy	70	—

PRIVATE CONSTRUCTION

Yard	Vessel Name	Vessel Type	Bldr. Hull No.	Vessel Owner	% Complete	Delivery
Alabama Shipyd.	—	Asphalt Barge	42	—	25	1/95
Alabama Shipyd.	—	Asphalt Barge	43	—	5	6/95
McDermott	Sulphur Enterprise	Sulphur Carrier	294	Sulphur Carriers	99	8/94
McDermott	American Queen	Paddlewheel Boat	296	Delta Qn.	70	3/95
McDermott	—	Tugboat	298	Crowley	5	12/94
McDermott	—	Tugboat	299	Crowley	4	2/95
Trinity	—	Deck Barge	1407	—	50	8/94
Beaumont Trinity	—	Deck Barge	1418	—	15	10/94
Beaumont Trinity	—	Deck Barge	1419	—	90	8/94

Source: Maritime Administration, Office of Ship Construction.

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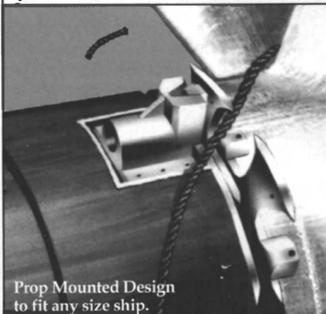
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Civilian Seafarers In RRF Ships Activated For Potential Use In Haiti

Civilian seafarers have volunteered to crew the final two Ready Reserve Force (RRF) ship to be activated for potential use in Haiti.

The *Cape Mohican*, a barge-carrying ship with a crew of 33, was tended to the Navy Military Sealift Command (MSC) on September 16. The crane ship *Cornhusker State*, carrying a crew of 36, was tendered September 18.

The civilian seafarers' normal jobs are aboard American-flag merchant ships serving the nation's commerce. A total of 14 RRF ships with more than 400 crew members have been activated.

The most recent large-scale activation of RRF ships came in support of operations in the Persian Gulf in 1990/91. On short notice, 3,000 civilian seafarers volunteered in support of humanitarian efforts in Somalia.

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LEGISLATIVE UPDATE

avy Funding Approvals

Both Houses of Congress approved the plan to provide nearly \$3.7 billion to construct a nuclear-powered aircraft carrier, agreeing to fund the ship the way the Administration requested: \$2.46 billion in new budget authority and \$1.2 billion previously appropriated as part of the FY 94 budget.

Both Houses also approved the \$2.7 billion requested for three additional Arleigh Burke class destroyers equipped with the Aegis system, computer-controlled radars and anti-aircraft missiles.

Both Houses approved amounts requested for shipborne anti-aircraft missiles: \$258 million for 240 short-range RAM missiles.

The conferees approved \$398 million — \$24 million more than requested — for a set of development programs to create better anti-aircraft defenses for non-Aegis ships.

\$507 million was approved to continue developing a new class of nuclear-powered submarines.

\$54 million was approved to modernize two supply ships with new machinery and more spacious quarters to accommodate a largely civilian, smaller, and therefore less expensive crew.

\$352 million was approved for components of nuclear reactors and to modify the power plants on existing nuclear-powered vessels.

The conference report endorsed a Senate proposal earmarking \$5 million to speed the process of modifying Navy vessels to provide separate quarters for women.

\$601 million was approved by both Houses to buy two RoRo cargo ships. The conferees also approved a Senate initiative adding to the bill \$220 million to buy two additional ships for conversion to floating depots to carry tanks and other equipment for the Marines.

Studds Calls For Markup Of Towing Safety Bill

Merchant Marine & Fisheries Committee Chairman **Gerry E. Studds** (D-Mass.) called a meeting of his committee for markup of the bill he authorized earlier this year, HR 4058. Mr. Studds offered an amended version of the bill, which would require inspection of towboats that propel barges carrying passengers or hazardous substances and impose much stricter crewing and licensing standards on the towing industry.

The Studds amendment was offered to HR 3282, a towing safety bill introduced by Rep. **Billy Tauzin** (D-La.), Mr. Studds and the bipartisan leadership of the Committee.

The Studds amendment is a study on safety in the barge industry, and incorporates the findings of both the National Transportation Safety Board (NTSB) and two recent U.S. Coast Guard reports on crewing, licensing and inspections standards for towboats.

"A year ago, Americans were shocked to learn that the towboats pushing enormous barges along their coastlines and through their rivers, barges laden with oil or toxic chemicals ... are not required to have a compass onboard, much less a chart. Ensuring the carriage of these very basic navigational tools is common sense and a good first step towards improved waterway safety," said Mr. Studds, "but it is only a first step ... To get to the root cause of 62 percent of the reported accidents in the towing industry — human error — we must require that those operating these vessels demonstrate that they know what they are doing and that the vessels themselves carry a crew of suitable size and training to operate safely.

"We should bring the towing industry in line with the rest of the maritime industry and re-

quire vessels to be operated by licensed masters and crewed by sufficient seamen so that fatigue from unrelenting 100-plus-hour weeks does not contribute to accidents. And we should make sure that when it really counts, when people or hazardous cargoes are involved, that the towing vessels are in as good a shape as the barges they move."

House Approves Wetlands Conservation Act

The renewal of a successful program to encourage public-private efforts for the long-term protection and conservation of wetlands in the U.S., Canada and Mexico was approved by the U.S. House of Representatives by a vote of 368-5. The legislation, HR 4308, would extend and increase the effectiveness of the North American Wetlands Conservation Act that became law in 1989. To date \$110 million in federal dollars have been matched by \$212 million to conserve 1.3 million acres of wetlands in the U.S. and Canada alone.

"Wetlands are among the most biologically productive habitats on earth, serving as breeding and wintering grounds for a diverse array of fish and wildlife. In the last two centuries, however, more than 50 percent of the wetlands in the lower 48 states have been destroyed. The North American Wetlands Conservation Act was enacted to help halt this disastrous decline by fostering innovative public-private partnerships to protect, enhance, restore and manage wetlands ecosystems," said Mr. Studds, one of the bill's sponsors.

The bill, authored by Rep. **John Dingell** (D-Mich.) and also sponsored by Reps. **Jack Fields** (R-Texas) and **Curt Weldon** (R-Pa.), increases the authorization level for the program from the current level of \$15 million annually to \$20 million in FY 95 and FY 96 and \$30 million in FY 97 and FY 98.

The bill also requires a more detailed reporting on funded projects which have ranged from only a few acres to over 60,000 acres. In addition, the Secretary of the Interior is directed to cooperate with the Council which makes funding decisions under the law to develop and implement a strategy to ensure that projects address the need to preserve the range and diversity of wetland habitats and their dependent life forms.

The House also approved the renewal of the Sikes Act, the 1960 federal law which governs the management of fisheries, wildlife and other natural resources on military lands. The law is intended to encourage cooperation between the Departments of Defense and the Interior as well as state natural resource agencies to conserve resources on the nearly 25 million acres of land on 900 military installations worldwide.

Introduced by Rep. **Studds** and Rep. **Don Young** (R-Ark.), HR 3300, the Natural Resource Management on Military Lands Act, requires DOD to, where warranted, prepare management plans for natural resources (wetlands, fish, wildlife, land, forests, etc.) that are not at odds with the military missions of the installations.

Finally the House approved \$18.9 million for the operation of the Federal Maritime Commission (FMC) in FY 95. The FMC is an independent body that regulates international and domestic shipping to ensure ocean transportation is available on a fair and nondiscriminatory basis.

Coast Guard Regulatory Reform Bill Marked Up

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LEGISLATIVE UPDATE (Continued)

mittee of the House Merchant Marine and Fisheries Committee held a markup for HR 4959, the Coast Guard Regulatory Reform Act of 1994. The bill is designed to reduce the economic burden on U.S.-flagged merchant vessels by streamlining certain regulatory requirements, expanding the delegation of the performance of marine safety functions to third parties, and broadening the marine safety authority of the U.S. Coast Guard (USCG). Bill sponsor and subcommittee chairman **Billy Tauzin** offered a substitute amendment that would allow the Coast Guard to audit a shipowning company's overall safety and quality management programs instead of relying on traditional vessel inspection programs.

The amendment, passed by voice vote, would also allow the USCG to rely on the reports of qualified third parties to determine if a vessel has complied with USCG regulations, and would allow U.S.-flag vessels to use equipment and materials made in other countries if the design and testing procedures meet certain international requirements.

Amended U.S. Cruise Bill Draws AWO Opposition

Following the recommendation

of the Coastal Sector Committee, AWO's board of directors unanimously voted to oppose the Cruise Vessel Development Act (HR 3821) introduced by Rep. **Jolene Unsoeld** (D-Wash.).

The legislation would authorize the Secretary of Transportation to permit foreign-flag cruise vessels to re-flag as U.S. vessels and operate in coastwise trade that is not currently being served by a U.S. passenger vessel of a similar size. In the bill's original form, the foreign-flag vessel would have been allowed to operate only until a replacement vessel was constructed in a U.S. yard. As amended in the House Merchant Marine and Fisheries Committee on Aug. 11, however, the foreign-flag vessel would be allowed to remain permanently in the coastwise trade, provided a contract is in place for the domestic construction of an additional vessel of like size.

While the legislation does not technically amend the Jones Act, AWO said it would clearly change the face of U.S. cabotage laws relative to the U.S.-build requirements. In its opposition, the AWO board emphasized that it must serve as a bulwark against encroachment on the nation's cabotage laws.

BP Update On Oil Operations

BP Exploration confirmed it has discovered two large gas fields in the Nam Con Son basin, offshore south Vietnam. Current indications are that the finds, in block 6, have combined recoverable reserves with a mid-range estimate of two trillion cu.-ft.

BP—which has 30 percent stake in block 6—and its partners Statoil (15 percent) and ONGC (55 percent), are working closely with the Vietnamese government to secure early development. Petrovietnam has an option to acquire five percent equity from the BP and Statoil interests. Current plans are to pipe the gas ashore and then onto the area of Ho Chi Minh City. BP is also proceeding with exploration in blocks 5/2 and 5/3 where it is again targeting gas.

BP Managing Director **John Browne** also confirmed that a well on block 34/11, offshore Norway, had encountered a significant accumulation of gas and is currently drilling to reach a deeper target. BP has a 15 percent stake in the license.

The rise will come partly from the established provinces of Alaska and the North Sea where improved recovery rates and a string of new fields—including small satellites made economic by the proximity of

existing infrastructure—will combine to keep output at its current level of more than one million barrels a day for at least the next 1 years. This includes output from other existing areas such as Ab Dhabi and Australia.

In Alaska, despite the continuing decline of the giant Prudhoe Bay field, BP's overall output of 580,000 barrels a day will edge down by an average of only around three percent a year over the next three years—a result of steady production from Endicott and Kuparuk and growing output from Point McIntyre, Niakuk, and Milne Point where production will climb from 20,000 barrels a day at present to more than 50,000 barrels a day by 1996.

In the North Sea, where BP currently produces 500,000 barrels of oil a day and 900 million cu.-ft. of gas, output is projected to grow by two percent a year over the next three years as the Harding and Andrew fields come on stream.

BP expects to have first production by end-1998 from ETAP, eight small fields linked to a single platform, with reserves of 400 million barrels of oil and 1.2 trillion cu.-ft. of gas, in which it has a 50 percent stake. Capacity will be 185,000 barrels a day and 450 million cu.-ft. of gas.

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The Magnus field was proving more prolific than expected, the company said. Some 350 million barrels had already been added to the original reserves of 450 million. BP estimated it could add a further 100 million barrels from additional drilling and satellite developments over the next few years and keep plateau production of 143,000 a day well into 1996.

Reporting to analysts on progress in the new and emerging areas, the company said:

- In the Caspian, BP and its Western Consortium partners have reached agreement, subject to approval by the Azerbaijani Parliament, on terms for developing fields along the Apsheron trend, offshore Baku. The fields contain at least three billion barrels of oil and BP holds a 17 percent stake. Investment will be phased, with first production possible by mid-1997.

- In Colombia, Cusiana reserves have been confirmed at 1.5 billion barrels of oil. Appraisal to date has established 500 million barrels in the Cupiagua field and further drilling is underway to confirm the full extent of reserves. First phase development of Cusiana will raise output to 90,000 barrels a day by end-year and 185,000 barrels a day by the end of 1995. Initial agreement has been reached with partners on the second stage of development to increase production of oil and gas liquids from both fields in the course of 1997 to 500,000 barrels a day by 1998. This would entail a new pipeline to the Covenas terminal, or which engineering is already well advanced. The total cost of phases one and two, including pipeline construction, is estimated at around \$6 billion, of which BP's share would be around \$1 billion. BP is actively investigating how to bring its Volcanera gas to market and estimates that gross production from the field, including gas for reinjection into the Cusiana reservoir, could reach 800 million cu.-ft. a day by 2005. The company said it planned to drill one to two wells a year on its Piedmonte acreage and would shortly begin seismic work on new acreage it had recently acquired immediately to the west of Piedmonte.

- In the Gulf of Mexico, where it has interests in 323 mainly deepwater blocks, BP plans four wells this year and expects to maintain the same pace of exploration in the foreseeable future. Reserves booked from the area total 30 million barrels of oil and gas equivalent. A further 250 million barrels, already identified, remain to be booked. First oil from the Mars field is scheduled for the end of 1996, with phase one production rising to 100,000 barrels a day and 10 million cu.-ft. of gas, at a development cost well under \$3 a barrel. It is hoped to proceed to a second phase which could extend plateau production through the first decade of the next century.

- West of Shetland, the company is planning five development wells

on the Foinaven field, prior to first oil at a rate of 75,000 barrels a day in late 1995 or early 1996. It is also preparing an active appraisal and exploration program for the Schiehallion field, the Northern Foinaven area and adjacent blocks. Finding and development costs for Foinaven will be \$4 to \$5 a barrel and may reduce for the second phase.

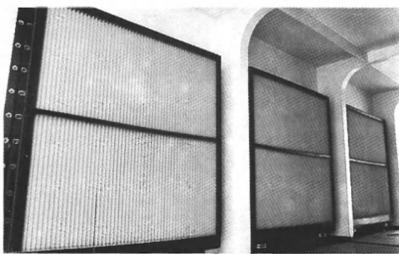
- In Venezuela, BP's net share of

production from the two field reactivation projects at Pedernales and Quiriquire is expected to rise to some 20,000 barrels a day by 1997.

In the U.K., BP expected to take a 20 percent stake in the Interconnector pipeline to Zeebrugge, due for commissioning by 1998 with a capacity of 1 to 1.5 billion cu.-ft. a day.

Mr. Browne said the company was currently negotiating with Sonatrach to appraise and develop gas in District 3, in southwestern Algeria and to pipe the gas into the growing markets of Southern Europe. He also disclosed that BP had significant undeveloped gas reserves in Papua New Guinea which offered the potential for a new LNG project "if we can get the costs right."

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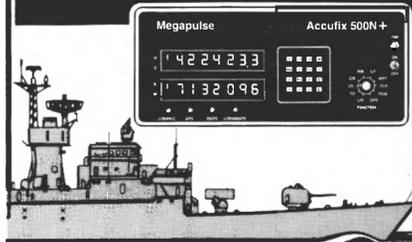
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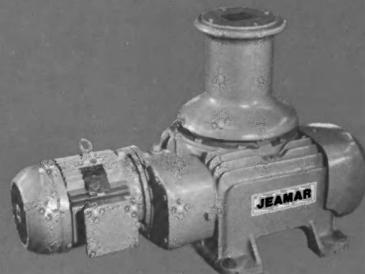


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CALENDAR

OCTOBER

Northeast Waterborne Gaming Conference & Exhibition: October 3-4, Whitehall Club, 17 Battery Place, 30th Floor, New York, N.Y. Contact: The Maritime Association of the Port of NY/NJ, tel: (212) 425-5704.

American Association of Port Authorities (AAPA) 83rd Annual Convention: October 3-7, Wyndham Franklin Plaza Hotel, Philadelphia, Penn. Contact: AAPA, 1010 Duke St., Alexandria, Va. 22314, tel: (703) 684-5700; fax: (703) 684-6321.

3rd International Conference on Safety in the Port Environment: "The Impact of Port Services on Safety and the Environment": October 10-12, Bremen, Germany. Contact: Nargis Rashid, Ports of Bremen/Bremerhaven, U.S./Canada Representation, Carl F. Ewig, Inc., 910 Oak Tree Road, S. Plainfield, NJ 07080, tel: (908) 756-3944; fax: (908) 756-2575.

Society of Petroleum Engineers (SPE) Petroleum Conference and Exhibition of Mexico: October 10-13, Expover Convention Center, Boca del Rio, Veracruz. Contact: SPE Registrar c/o IEI, 1635 W. Alabama St., Houston, Texas 77006-4196, tel: (713) 529-1616; fax: (713) 529-0936.

Propeller Club of the U.S. 68th Annual Convention And 1994 Conference: October 10-14, Royal Sonesta Hotel, New Orleans, La. Contact: The Propeller Club of the U.S., 3927 Old Lee Highway, #101A, Fairfax, Va. 22030

NACE Conference and Exhibition - Partnering for Corrosion Control: October 12-14, Orlando, Fla. Contact: Louis MacDowell, Conference Chairman, NASA, Mail Code DM-MSL-22, Kennedy Space Center, Fla. 32899, tel: (407) 867-3400. For exhibitor information, contact: Kyle Greenfield, P.O. Box 126, Cocoa, Fla. 32923, tel: (407) 631-2659.

Port State Inspection/Control Luncheon and Seminar: October 13, Whitehall Club, New York. Contact: Society of Marine Consultants, Ltd., 629 Stephanie Dr., N. Caldwell, N.J. 07006, tel: (201) 890-0103 or (201) 812-0699.

Fish Expo '94 Boston: October 13-15, World Trade Center, Boston, Mass. Contact: Diversified Expositions, 5 Milk Street, Portland, Me. 04112, tel: (207) 772-3005; fax: (207) 772-5059.

American Petroleum Institute (API) Fall Committee on Petroleum Measurement: October 14-23, Loews L'Enfant Plaza, Washington, D.C. Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

WEFTEC '94 - Water Environmental Federation's 67th Annual Conference & Exhibition: October 15-19, McCormick Place North, Chicago, Ill. Contact: Nancy Blatt, Director-Public Information, WEF, 601 Wythe St., Alexandria, Va. 22314-1994, tel: (703) 684-2400; fax: (703) 684-2492.

American Petroleum Institute (API) Refining Autumn Meeting: October 17-19, Westin Century Plaza, Los Angeles, Calif. Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

CINAVAL (Congress of Naval and Marine Engineering and Oceanic Sciences)/SYMMREPAIR (Symposium on Maintenance and Repair)/EXPOVAL (Shipping and Offshore Exhibition): October 17-20, Veracruz, Mexico. Conference and exhibition. Contact: Ing. Fernando Olavarrieta, tel: +52 29 34 9962 34 6561; fax: +52 29 34 5910 34 5089.

International Tug, Towage & Salvage Convention & Exhibition (ITS '94): October 17-21, Grand Harbour Hotel, Southampton, U.K. Contact: Allan Brunton-Reed, managing director, The ABR Company Limited, Dunelm, Church Road, Claygate, Esher, Surrey KT10 0JP, U.K., tel: +44 372 468 387; fax: +44 372 468 388.

Odessa 200 - International Shipping Exhibition: October 18-20, Odessa, Ukraine. Contact: Roderick Keay, Dolphin Exhibition, 112 High Street, Bildeston, Suffolk IP7 7EB, England, tel: +44 449 741801; fax: +44 449 741628.

Pacific Fishing Expo: October 20-22, Pier 48, Port of Seattle, Wash. Contact: Bruce Buls, Pacific Fishing Expo, 1515 Northwest 51st St., Seattle, Wash. 98107, tel: (206) 789-5333; fax: (206) 784-5545.

American Society of Mechanical Engineers (ASME) Cogen Turbo Power '94 - The 8th Congress and Exposition of Gas Turbines in Cogeneration & Utility, Industrial & Independent Power Generation: October 25-27, Red Lion Hotel - Jantzen Beach, Portland, Ore. Contact: ASME, 5801 Peachtree Dunwoody Rd., Suite 100, Atlanta, Ga. 30342, tel: (404) 847-0072; fax: (404) 847-0151, 843-2517.

European Petroleum Conference: October 25-27, London, England. Contact: SPE, Office 4 Mandeville Pl., W1M 5LA, London, England tel: +44 71 487 4250; fax: +44 71 487 4229.

American Petroleum Institute (API) Telecommunications Committee Meeting: October 25-27, Marriott West End, Washington D.C. Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

Gastech '94: October 25-28, Putra World Trade Center, Kuala Lumpur, Malaysia. Contact: Lies Blom, Gastech Secretariat, Lons RAI, Glen House, 200/208 Tottenham Cour Rd., London W1P 9LA, U.K., tel: +44 71 431 9774; fax: +44 71 436 5694.

American Petroleum Institute (API) Gulf Coast District Fall Training: October 26-28, Sheraton Hotel, New Orleans, La. Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

Techno-Ocean '94 Exhibition & Conference on the Exploration, Development & Management of Oceans and Coastal Zones: October 26-29, Kobe International Exhibition Hall, Port Island, Kobe, Japan. Contact: Secretariat, Techno-Ocean '94, c/o International Communications Specialists, Inc., fax: +81 3 327 2445, attn: Ms. Kokubo.

(Continued on page 10.)

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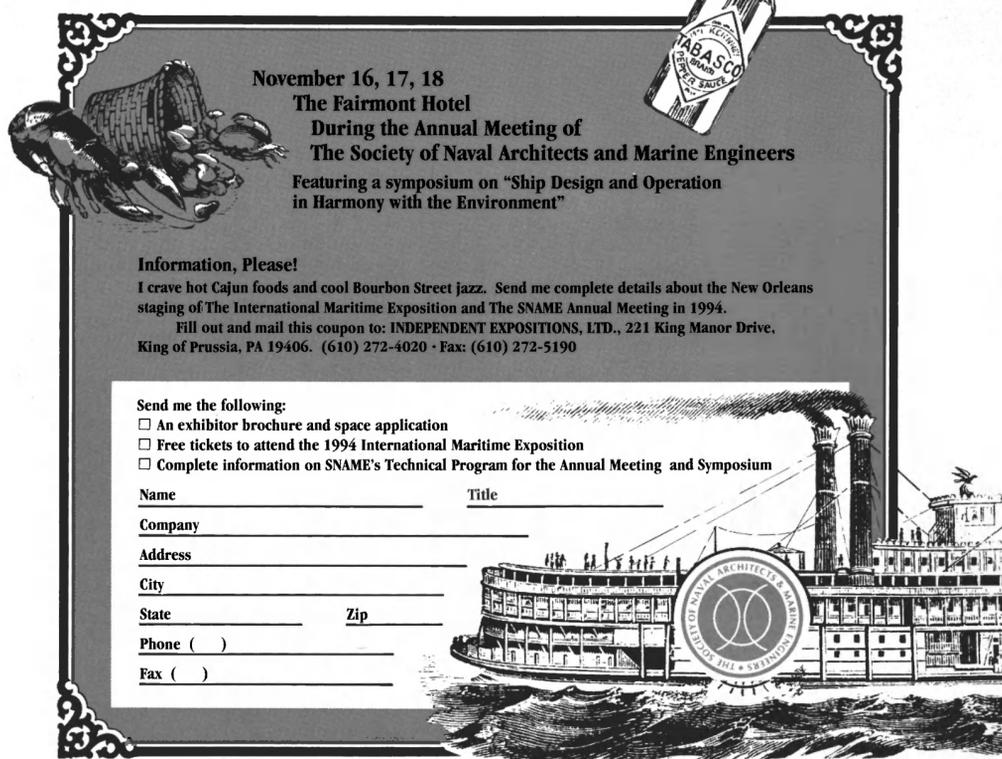
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CALENDAR

(Continued from page 100)

American Petroleum Institute (API) 1994 Fall Committee on Safety & Fire Protection: Marriott Riverwalk, San Antonio, Texas
 Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting: October 30-November 3, Colorado Convention Center, Denver, Col.
 Contact: Rod Parrish, SETAC, tel: (904) 469-1500.

NOVEMBER

"Fundamentals of Corrosion and

its Control" Course: November 1-3
 Contact: Sherree Darden, LaQue Center for Corrosion Technology, P.O. Box 656, Wrightsville, Beach, N.C. 28480, tel: (910) 256-2271; fax: (910) 256-9816.

Intermodal '94: November 2-4, Rai Center, Amsterdam
 Contact: IIR Exhibitions, 2nd Floor, Market Towers, 1 Nine Elms Lane, London SW8 5NQ, U.K., tel: +011 44 71 344 3888; fax: +011 44 71 344 3829.

The International WorkBoat Show: November 3-5, Ernest N. Morial Convention Center, New Orleans, La.
 Contact: Diversified Expositions, 5 Milk Street, Portland, Me. 04112, tel: (207) 772-3005; fax: (207) 772-5059.

Society of Accredited Marine Surveyors' (SAMS) Annual Conference and Continuing Education Symposia: November 3-5, Monteleone Hotel, New Orleans, La.
 Contact: Mary Stahler, executive secretary, tel: (800) 344-9077; fax: (904) 388-3958

SPE Forum Series in South America and the Caribbean: November 6-11, Angra dos Reis, Brazil
 Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

Eastern Regional Meeting: November 7-9, Charleston, W.V.
 Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

SPE Asia Pacific Oil & Gas Conference (APOG): November 7-10, Grand Hyatt, Melbourne, Australia
 Contact: Fred Herbst, Public Relations Manager, Society of Petroleum Engineers, P.O. Box 833836, Richardson, Texas 75083-3836, tel: (214) 952-9393.

Ship Repair & Conversion '94: November 8-9, Olympia 2, London
 Contact: John Gwynn-Jones or Jon Chaplin, tel: +44 923 776363; fax: +44 923 777206.

1994 American Petroleum Institute (API) Mid-Continent District Conference: November 8-11, Embassy Suites, Tulsa, Okla.
 Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

API Annual Meeting: November 13-14, Westin Century Plaza, Los Angeles, Calif.
 Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

Dredging '94 - The Second International Conference On Dredging And Dredged Material Placement: November 13-16, Buena Vista Palace at the Walt Disney World Village, Lake Buena Vista, Fla.

Contact: Russell K. Tillman, Dredging '94 Management Chair, Attn.: CEWES-EP-L, 3909 Halls Ferry Road, Vicksburg, Miss. 39180-6199, tel: (601) 634-4201; fax: (601) 634-3528.

SNAME 1994 Annual Meeting and International Maritime Exposition: November 16-19, New Orleans, La.
 Contact: Tel: (201) 798-4800.

The Society of Boat and Yacht Designers Symposium: November 20, The Seattle International Trade Center, Seattle, Wash.
 Contact: The Society of Boat and Yacht Designers, 117 East Louisa Street No. 268, Seattle, Wash. 98102-3203, tel: (206) 882-7317; fax: (206) 882-7327.

Ausmarine '94 - International Maritime Industry Exhibition: November 22-24, Fremantle, Western Australia
 Contact: John Nichols, 4A Carmelite Street, London, EC4Y 0BN, England, tel: +44 71 353 1085; fax: +44 71 353 1084 or 10 Oxford St., South Yarra, 3141, Australia, tel: +613 826 8741; fax: +613 827 0704.

Test and Calibration Symposium: November 30-December 1, Sheraton National Hotel, Arlington, Va.
 Contact: American Society of Naval Engineers (ASNE), fax: (703) 836-7491.

DECEMBER

Fish Expo '94 Seattle: December 1-3, Washington State Convention & Trade Center, Seattle, Wash.
 Contact: Diversified Expositions, 5 Milk St., P.O. Box 7437, Portland, Me. 04112-7437, tel: (207) 772-3005; fax: (207) 772-5059.

SPE Forum Series in the Middle East: December 3-8, Dubai, UAE
 Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

AWO Winter Convention: December 6-7, Madison Hotel, Washington, D.C.
 Contact: The American Waterways Operators, 1600 Wilson Boulevard Arlington, Va. 22209, tel: (703) 841 9300; fax: (703) 841-0389.

China Portex '94: 4th International Trade Exhibition for Port and Waterway Construction Shipbuilding Industry, Marine and Offshore Technology: December 6-10, Shanghai, People's Republic of China
 Contact: Martin Greve or Wolfram Diener, Hamburg Messe und Congress GmbH, tel: +49 40 356 2140 or +49 40 3569 2190.

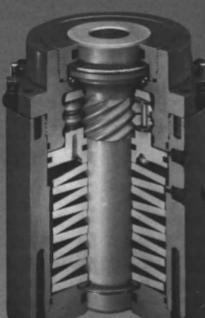
American Waterways Operator (AWO) Winter Convention / Board of Directors Meeting: December 7-8, San Francisco, Cali
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Johnson Brothers, 180 Enterprises Avenue, Patterson, LA 70392

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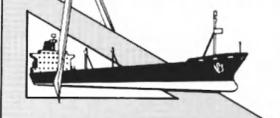


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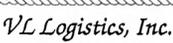
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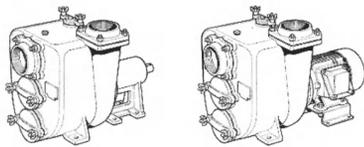
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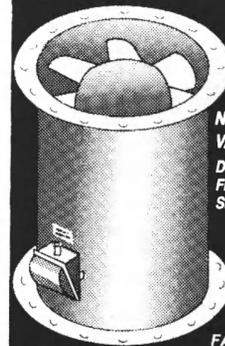
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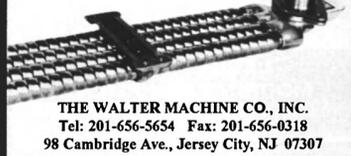
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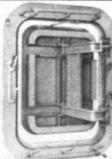
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2315 N. Woodlawn Avenue, Suite 103
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SENIOR ENGINEER SURVEYOR/SURVEYOR-IN-CHARGE

The Senior Engineer Surveyor/Surveyor-In-Charge for an international not-for-profit ship classification society, with an office in northeast OH, conducts surveys and issues certifications for motor (diesel) and steam ships of unlimited horsepower, including the most technologically advanced classed with the society, for shipowners and insurance carriers' representatives.

- Provides quotations, inspects and issues certificates for industrial and offshore work by direct inspection of equipment and facilities intended for vessels and related non marine offshore operations primarily used in the oil industry.
- Provides these quotations, inspections and certifications for industrial and offshore projects in compliance with international and national codes, standards and/or customer specifications and also witnesses tests for compliance to same requirements.
- Conducts safety assessments of offshore and industrial plants and equipment and applies industrial knowledge of petroleum engineering and experience to evaluate antipollution measures during the construction of plant and/or equipment. Certifies safe operation of newly built industrial equipment.
- Provides services for industrial projects including design appraisal, technical on-site investigations, nondestructive examinations, quality assessments and safety/reliability audits.
- Reviews major structural components and mechanical systems of vessels for compliance with design, manufacture, construction and maintenance classification requirements and applicable international codes, conventions and standards.
- Prepares quotations, inspects and issues certificates for material and marine equipment, intended for vessels and offshore installation at the manufacturer's works, including but not limited to: steam boilers, pressure vessels, piping systems, steering gear, electrical plant, and refrigeration plant by conducting visual and operational examinations.
- Inspects vessels' hull and equipment for structural defects due to materials fatigue, corrosion and other forms of material failure using non-destructive examination techniques, including dye penetration, magnetic particle testing and dimensional checks.
- Conducts all classification (hull and machinery) and statutory surveys, as mandated by international conventions, to include safety construction, safety equipment, radio telegraphy, loadlines, and marine pollution prevention, and issues appropriate certifications upon completion of surveys which ensure compliance with codes, standards, rule requirements and international conventions.

Applicants must hold a bachelor's degree in mechanical or marine engineering. In lieu of a bachelor's degree, applicant may substitute a mechanical or marine engineering certificate and 3 months of at sea experience as an apprentice on engine room watch of a steam or motor vessel while working towards a U.S. Second or Third Assistant Engineer license or its equivalent foreign license. Qualifications determined equivalent by credentials service also satisfy educational requirements. All qualified applicants must possess a Chief Engineer's license in marine engineering, pursuant to 46 C.F.R. subpart 10.10, or its equivalent foreign license, for both motor (diesel) and steam powered vessels of unlimited horsepower.

1 Yr. experience is required in the job described or 3 Yrs. experience as a marine surveyor, marine engineer, petroleum test and/or industrial engineer is required. If 3 Yrs. experience as a marine and/or marine surveyor is presented, applicant must have conducted surveys of industrial, oil and offshore equipment. If 3 Yrs. experience as a petroleum test equipment and/or industrial engineer is presented, applicant must have conducted statutory ship classification surveys of motor (diesel) and steamships of unlimited horsepower according to international and national codes and standards, of safety construction, safety equipment, radio telegraphy, load lines and antipollution devices used for vessels.

Incumbent is required to travel approximately 40% of the time, to visit ships and industrial equipment manufacturers, shipowner and insurance carriers' representatives, primarily located in the states of OH, PA, MI, WV, IN and NY. 40 hrs/wk, 9am-5pm Mon-Fri, OT as needed. \$71,984 per yr. with \$30 per hr. OT. Must have proof of legal authority to work indefinitely in the U.S. Send resume **in duplicate** (no calls) to J. Davies, JOB#00172, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216.

HEAD DEPARTMENT OF ENGINEERING U.S. MERCHANT MARINE ACADEMY

Applications and nominations are invited for the position of Head, Department of Engineering. The Academy offers a 4-year Baccalaureate degree program to prepare selected young men and women for service in the United States Merchant Marine and Naval Reserve. One-half of the 1000 Midshipmen are engineering majors. One program, Marine Engineering Systems, is ABET accredited and another in Engineering Management is under development. There are 22 faculty.

Candidates must possess a Ph.D. or have a Masters degree plus a Senior Marine Engineering License from the U.S. Coast Guard. Desirable characteristics include: administrative experience, a prominent record of scholarship, college level teaching, and association with the marine and transportation industries.

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